

**digital**

**Systems and Options Catalog**

**May 1997 Supplement**



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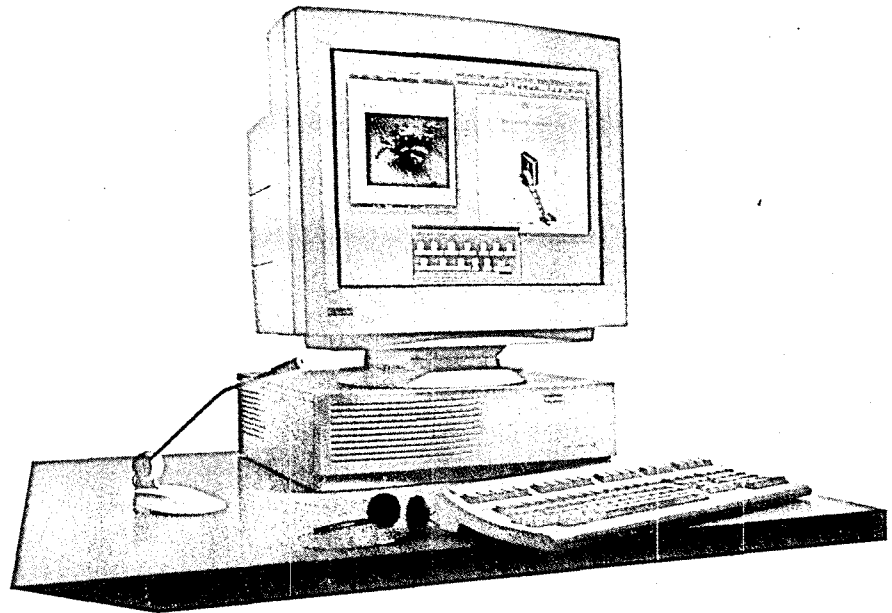
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## AlphaStation 255/233 and 255/300

### Product Description

The AlphaStation 255/233 and 255/300 Desktop Workstations comprise a family of entry to mid-range PCI-based Alpha Universal Client systems. The AlphaStation 255 family delivers premium performance while providing access to thousands of applications running on the DIGITAL UNIX, OpenVMS or Windows NT Workstation operating systems.

The **AlphaStation 255/233** system uses the Alpha 21064A microprocessor running at 233 MHz with performance measuring 4.27 SPECint95 and 5.09 SPECfp95. This entry level to low end system is ideal for running 2D CAD, CASE, Multimedia and Software Development applications.

The **AlphaStation 255/300** system also uses the Alpha 21064A microprocessor, but at a higher speed of 300 MHz and with performance measuring 4.23 SPECint95 and 5.81 SPECfp95. This mid-range system is optimal for working with 2D CAD and 3D CAD applications.

All AlphaStation 255 systems come packaged in a compact enclosure, with capacity for up to 512 Mbytes of parity memory, 128-bit wide memory bus, four storage slots, four option slots (2 PCI, 1 PCI/ISA combination, 1 ISA) and a 1 Mbyte secondary cache. The high performance PCI I/O bus, running at 132 Mbytes/second, provides expansion for options such as high-performance graphics, networking, and SCSI adapters without the need for additional tabletop options or expansion boxes. All systems support a wide variety of industry-standard peripherals and PCI/ISA options. Other standard features include integrated Twisted Pair Ethernet (ThinWire is optional), stereo-quality audio, external ports for serial/parallel communications, and external SCSI.

The AlphaStation 255 Family workstations come in a new design and color enclosure. Only peripherals in the new color scheme and design can be ordered with the new systems. Customer-installable chip upgrades provide investment protection to all AlphaStation 255 users and Digital's TradeIn '96 program offers a cost-effective upgrade path for users of older workstations. All AlphaStation 255 systems come with the best hardware warranty in the industry—a three year warranty.

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## Systems

- Select country specific power cord and keyboard for all systems. All systems come configured at 240V and can be switched by the user. A U.S country kit including a U.S. keyboard and power cord is available.
  - DIGITAL UNIX and OpenVMS systems include factory-installed software (FIS).
  - Windows NT systems include Windows NT Workstation 4.0 media (CD-ROM), license, and documentation in shrink-wrapped package.
  - All software updates are delivered on CD-ROM.
  - Options ordered will be factory installed unless specified as **spares**.
- 

### AlphaStation 255 Desktop systems include

- Alpha dual issue microprocessor 21064A CPU with 1 Mbyte onboard secondary cache
- Deskside enclosure which includes:
  - Four expansion slots:
    - Two PCI slots
    - One PCI/ISA combination slot
    - One ISA slot
  - Two memory banks (Eight SIMM memory slots)
  - Integrated PCI-based Fast Narrow Single Ended SCSI-2 controller with Direct Memory Access and external SCSI-2 connector
  - Four storage slots:
    - One Floppy diskette drive slot
    - One 5.25" removable media slot
    - Two 3.5" hard disk drive slots
  - Integrated high-performance Twisted Pair Ethernet
  - 200-Watt power supply
  - Two serial ports, support full modem control
  - One bi-directional enhanced parallel port
  - Keyboard port and mouse port
- Memory\*
- Hard Disk\*
- Graphics\*
- 600 Mbyte CD-ROM drive
- Monitor selection required for Advantage Packages
- Keyboard and power cord selection (OpenVMS keyboard available on OpenVMS systems)
- Integrated Audio
- Headphone and microphone
- 3-button mouse
- English Hardware Documentation
- Hardware Warranty: 1-year on-site, 2-year return to factory
- Software Warranty: 90-day SPD conformance with advisory telephone support
- DIGITAL UNIX V 3.2D 2-user base license  
DIGITAL Open3D license  
Multimedia Services license  
DIGITAL NAS Client 150 license  
Communique! starter license, **or**
- OpenVMS V6.2-1H1 (minimum version required) base license plus 1-user license  
DIGITAL Open3D license  
Multimedia Services license  
DIGITAL NAS Client 150 license, **or**
- Windows NT Workstation 4.0 media kit,  
Communique! starter license,  
DIGITAL Light & Sound license

\* Included in Advantage Packages, selection required in Base Configurations

### Ordering menus that follow include

- AlphaStation 255/233 Advantage and Base Configurations
- AlphaStation 255/300 Advantage and Base Configurations

Menus are streamlined for ease of ordering. Select Advantage Configurations to meet application and performance needs.

- Multimedia
- CASE
- 2D CAD
- 3D CAD

To configure a customized system, use Base Configuration menus. Additional system options are in the AlphaStation Option section.

### Warranty Statement

AlphaStations are sold with specific warranty response times, hours of coverage, warranty duration, and a specific manner by which the warranty service will be delivered. DIGITAL also makes available extended coverage offerings to uplift or extend the service coverage and/or response time: See Supplemental Services in AlphaStation Options section.

## AlphaStation 255/233 ADVANTAGE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 255/233	Resources Used		OpenVMS	DIGITAL UNIX
Application Profile			2D CAD	2D CAD
Operates at 120V / 240V			PB471-AA	PB470-EA
CPU Alpha dual issue microprocessor	21064A 233-MHz	Y	Y	Y
CD-ROM 600 MB	5.25" SCSI-2 bay	Y	Y	Y
Ethernet (10BaseT), audio, headphone, microphone, mouse		Y	Y	Y
Operating System		Y	Y	Y
Memory	1 bank	Y	32 MB	64 MB
Internal hard disk drive	3.5" x 1" SCSI-2 bay	Y	1 GB	1 GB
Graphics (a)	1 PCI slot	Y	3D30	3D30
User Documentation—English		Y	Y	Y

Remaining available resources				
I/O slots PCI			1	1
PCI/ISA combo (b)			1 / 0	1
ISA (half size)			1	1
Memory banks			1	1
Floppy diskette drive 1.44 MB	Accessible bay		1	1
Internal hard drives (2 maximum)	1" or 1.6" SCSI-2 bay		1	1
SCSI-2 External storage (c,d)			5	5
<b>1. Country Options</b>	Select		1	1
Keyboards (e)		M	LK46W-xx or LK46W-xx	LK47W-xx or LK46W-xx
Power Cord (f)		M	BNxxx-xx	
<b>Note:</b> LK47W-AA and LK46W-AA, English keyboards, include U.S. power cord, power cord does not need to be ordered separately.				
<b>2. Monitors</b>	Select		1	1
15" Color Monitor NH/NH/SH (g)		M	N/A	N/A
17" Color Monitor NH/NH/SH (g)		M	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4
21" Color Monitor NH/NH/SH (g)		M	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4
<b>3. Additional Memory</b>	Select		0 or 1	0 or 1
32 MB	1 bank	O	MSP01-BA	MSP01-BA
64 MB	1 bank	O	MSP01-BB	MSP01-BB
128 MB	1 bank	O	MSP01-BC	MSP01-BC
256 MB	1 bank	O	MSP01-BD	MSP01-BD
<b>4. Second hard disk drive (h)</b>	Select		0 or 1	0 or 1
1.05 GB drive 1.0" (i)	1" or 1.6" SCSI-2 bay	O	PBXRZ-ED	PBXRZ-ED
1.05 GB drive 1.0"	1" or 1.6" SCSI-2 bay	O	PBXRZ-EB	PBXRZ-EB
2.1 GB drive 1.0" 7200 RPM	1" or 1.6" SCSI-2 bay	O	PBXRZ-JC	PBXRZ-JC
2.1 GB drive 1.0" 5400 RPM	1" or 1.6" SCSI-2 bay	O	PBXRZ-HB	PBXRZ-HB
4.3 GB drive 1.0" 7200 RPM	1" or 1.6" SCSI-2 bay	O	PBXRZ-NB	PBXRZ-NB
9.1 GB drive 1.6" 7200 RPM	1.6" SCSI-2 bay	O	PBXRZ-SA	PBXRZ-SA
<b>5. Accessible bay 3.5 x 1"</b>	Select		0 or 1	0 or 1
1.44 MB Floppy diskette drive	Accessible bay	O	PBXRZ-AB	PBXRZ-AB
<b>6. Software Media and Documentation kits</b>				
DIGITAL UNIX		O		QA-MT4AA-H8
OpenVMS V6.2 (k)		O	QA-MT1AA-H8	
OpenVMS V6.2-1H1			QA-MT1AG-H8	
<b>7. Additional Options:</b> See AlphaStation Options for a comprehensive list of qualified options (m)				
ThinWire Ethernet MAU (10Base2)	Internal connection	O	PBXDC-DA	PBXDC-DA

## AlphaStation 255/233 BASE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 255/233	Resources Used		DIGITAL UNIX	Open VMS	Windows NT
Operates at 120V/240V			PB47A-AA	PB47A-BA	PB47A-CA
CPU Alpha dual issue microprocessor	21064A 233 MHz	Y	Y	Y	Y
Floppy diskette drive 1.44 MB	Accessible bay				Y
CD-ROM 600 MB	5.25" SCSI-2 bay	Y	Y	Y	Y
Ethernet (10BaseT), audio, headphone, microphone, mouse		Y	Y	Y	Y
Integration Service		Y	Y	Y	Y
Operating system		Y	Y	Y	Y
User Documentation—English		Y	Y	Y	Y

Remaining available resources					
I/O slots PCI			2	2	2
PCI/ISA combo (b)			1	0	1
ISA (half size)			1	1	1
Memory banks			2	2	2
Internal disk drives (2 maximum)	1" or 1.6" SCSI-2 bays		2	2	2
SCSI-2 External (c,d)			6	6	6
<b>1. Country Options</b>	Select		1	1	1
Keyboards (e)		M	LK47W-xx or LK46W-xx	LK47W-xx or LK46W-xx	LK47W-xx or LK46W-xx
Power Cord (f)		M	BNxxx-xx	BNxxx-xx	BNxxx-xx
Note: LK47W-AA and LK46W-AA, English keyboards, include U.S. power cord, power cord does not need to be ordered separately.					
<b>2. Memory</b>			Minimum Required	Minimum Required	Minimum Required
Memory Required1			32 MB	32 MB	32 MB
Optional Available1	Select		1 or 2	1 or 2	1 or 2
32 MB	1 bank	M	MSP01-BA	MSP01-BA	MSP01-BA
64 MB	1 bank	M	MSP01-BB	MSP01-BB	MSP01-BB
128 MB	1 bank	M	MSP01-BC	MSP01-BC	MSP01-BC
256 MB	1 bank	M	MSP01-BD	MSP01-BD	MSP01-BD
<b>3. Disk drives 1 Required (h)</b>	Select		1 or 2	1 or 2	1 or 2
1.05 GB drive 1.0" (i)	1" or 1.6" SCSI-2 bay	M	PBXZRZ-ED	PBXZRZ-ED	PBXZRZ-ED
1.05 GB drive 1.0"	1" or 1.6" SCSI-2 bay	M	PBXZRZ-EB	PBXZRZ-EB	PBXZRZ-EB
2.1 GB drive 1.0" 7200 RPM	1" or 1.6" SCSI-2 bay	M	PBXZRZ-JC	PBXZRZ-JC	PBXZRZ-JC
2.1 GB drive 1.0" 5400 RPM	1" or 1.6" SCSI-2 bay	M	PBXZRZ-HB	PBXZRZ-HB	PBXZRZ-HB
4.3 GB drive 1.0" 7200 RPM (j)	1" or 1.6" SCSI-2 bay	M	PBXZRZ-NB	PBXZRZ-NB	PBXZRZ-NB
9.1 GB drive 1.6" 7200 RPM	1.6" SCSI-2 bay	M	PBXZRZ-SA	PBXZRZ-SA	PBXZRZ-SA
<b>4. Accessible bay 3.5 x 1"</b>	Select		0 or 1	0 or 1	0
1.44 MB Floppy diskette drive	Accessible bay	O	PBXRX-AB	PBXRX-AB	Included
<b>5. Graphics1 Required</b>	Select		1	1	1
PowerStorm 3D30 8-plane (a)	1 PCI slot	M	PBXGB-AA	PBXGB-AA	PBXGB-AA
PowerStorm 4D20 24-plane Z-buffer (a)	1 PCI slot	M	PBXGB-CA	PBXGB-CA	PBXGB-CA
PowerStorm 4D40T (a)	2 PCI slots	M	PBXGI-AA		PBXGI-AA
ZLXp-L1 24-plane (a)	1 PCI slot		PBXGC-AA	PBXGC-AA	PBXGC-AN
ZLXp-L2 24-plane (a)	2 PCI slots	M	PBXGC-BA	PBXGC-BA	PBXGC-BN
<b>6. Monitors</b>	Select		1	1	1
15" Color Monitor NH/NH/SH(g)		M	SN-VRCX5-WA/W3/W4	SN-VRCX5-WA/W3/W4	SN-VRCX5-WA/W3/W4
17" Color Monitor NH/NH/SH(g)		M	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4
21" Color Monitor NH/NH/SH(g)		M	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4
<b>7. Software Media and Documentation kits</b>					
DIGITAL UNIX		O	QA-MT4AA-H8		
OpenVMS V6.2 (k)		O		QA-MT1AA-H8	
OpenVMS V6.2-1H1		O		QA-MTIAG-H8	
<b>8. Additional Options: See AlphaStation Options for a comprehensive list of qualified options (m)</b>					
ThinWire Ethernet MAU (10Base2)	Internal connection	O	PBXDC-DA	PBXDC-DA	PBXDC-DA

## AlphaStation 255/233 (continued)

### AlphaStation 255/233 Notes

- (a) Graphics options require DIGITAL Open3D media, included in factory installed software (FIS). Windows NT graphics options include Graphics Support Services Software license, media and documentation. 3D multi screen not hardware accelerated for Windows NT

**Graphics options are supported in the following combinations on DIGITAL UNIX, OpenVMS, and Windows NT systems:**

- Two PowerStorm 3D30 options, or
  - Two PowerStorm 4D20 options
  - Any combination of PowerStorm 3D30 and PowerStorm 4D20 options are supported on DIGITAL UNIX and OpenVMS systems. Support for Windows NT must be homogeneous, , or
  - One PowerStorm 4D40T (uses two PCI slots) DIGITAL UNIX and Windows NT systems **only**
  - One ZLXp-L1, or
  - One ZLXp-L2 (uses two PCI slots) DIGITAL UNIX and OpenVMS systems **only**.
- (b) PCI/ISA combination slot is not supported for PCI options on systems running OpenVMS.
- (c) For more than 7 internal or external devices, a fast SCSI-2 controller, which supports 7 devices, is required.
- (d) Each external device requires a 3-foot SCSI cable
- (e) Select country-specific keyboard from AlphaStation Options section. LK47W-xx = 101/102 key PC style Frost White keyboard, LK46W-xx = 108 key LK201/LK401 style Frost White keyboard (preferred for OpenVMS users).
- (f) Select country-specific power cord from AlphaStation Options section.
- (g) -WA = NH (Northern Hemisphere) monitor with 120V power cord, -W3 = Northern Hemisphere monitor without power cord, -W4 = SH (Southern Hemisphere) monitor without power cord; select country specific power cord for -W3 and -W4 variants from AlphaStation Options section.
- (h) The system can support the following hard drive configurations:  
The system disk will be installed below the floppy if the drive size is 2.1 GB or smaller. (The 1.0 GB & 2.1 GB drives are 1.0" high.)

(Maximum of two drives total including system disk)

HD bay beneath floppy	HD bay beneath CD-ROM
one 1.0" hard drive	one 1.0" hard drive or one 1.6" hard drive
nothing	one 1.6" hard drive

- (i) Does not support Tag Command Queuing, Seek Reordering Spindle Sync, or Variable Sector Size.
- (j) Maximum of one 1.6" SCSI-2 bay available.
- (k) OpenVMS V6.2-1H1 (or later version 6.2-1Hx) kit is required for AlphaStation 255. It must be installed over OpenVMS V6.2 media when reloading operating system
- (m) Check availability of slots (initially 2 PCI, 1 PCI/ISA combination, 1 ISA). PCI/ISA combination slot not supported for PCI options on OpenVMS systems. ISA slot is a 1/2 sized slot.

## AlphaStation 255/300 ADVANTAGE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 255/300	Resources Used		OpenVMS	DIGITAL UNIX	DIGITAL UNIX
Application Profile			2D CAD	2D CAD	3D CAD
Operates at 120V / 240V			PB481-AA	PB480-DA	PB480-EA
CPU Alpha dual issue microprocessor	21064A 300 MHz	Y	Y	Y	Y
CD-ROM 600 MB	5.25" SCSI-2 bay	Y	Y	Y	Y
Ethernet (10BaseT), audio, headphone, microphone, mouse		Y	Y	Y	Y
Operating System		Y	Y	Y	Y
Memory	1 bank	Y	64 MB	128 MB	128 MB
Internal hard disk drive	1" SCSI-2 bay	Y	1 GB	2 GB	2 GB
Graphics	(a) 1 PCI slot 2 PCI slot	Y	3D30	3D30	4D40T
User Documentation—English		Y	Y	Y	Y
<b>Remaining available resources</b>					
I/O slots PCI			1	1	0
PCI/ISA combo (b)			1 / 0	1	1
ISA (half size)			1	1	1
Memory banks			1	1	1
Internal disk drives (2 maximum)	1" or 1.6" SCSI-2 bays		1	1	1
SCSI-2 External storage (c,d)			5	5	5
<b>1. Country Options</b>	Select		1	1	1
Keyboards (e)		M	LK47W-xx or LK46W-xx	LK47W-xx	LK47W-xx
Power Cord (f)		M	BNxxx-xx	BNxxx-xx	BNxxx-xx
<b>Note:</b> LK47W-AA and LK46W-AA, English keyboards, include U.S. power cord, power cord does not need to be ordered separately.					
<b>2. Monitors</b>	Select		1	1	1
17" Color Monitor NH/NH/SH(g)		M	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4
21" Color Monitor NH/NH/SH(g)		M	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4
<b>3. Additional Memory</b>	Select		0 or 1	0 or 1	0 or 1
32 MB	1 bank	O	MSP01-BA	MSP01-BA	MSP01-BA
64 MB	1 bank	O	MSP01-BB	MSP01-BB	MSP01-BB
128 MB	1 bank	O	MSP01-BC	MSP01-BC	MSP01-BC
256 MB	1 bank	O	MSP01-BD	MSP01-BD	MSP01-BD
<b>4. Second hard disk drive(h)</b>	Select		0 or 1	0 or 1	0 or 1
1.05 GB drive 1.0" (i)	1" or 1.6" SCSI-2 bay	O	PBXRZ-ED	PBXRZ-ED	PBXRZ-ED
1.05 GB drive 1.0"	1" or 1.6" SCSI-2 bay	O	PBXRZ-EB	PBXRZ-EB	PBXRZ-EB
2.1 GB drive 1.0" 7200 RPM	1" or 1.6" SCSI-2 bay	O	PBXRZ-JC	PBXRZ-JC	PBXRZ-JC
2.1 GB drive 1.0" 5400 RPM	1" or 1.6" SCSI-2 bay	O	PBXRZ-HB	PBXRZ-HB	PBXRZ-HB
4.3 GB drive 1.0" 7200 RPM (j)	1" or 1.6" SCSI-2 bay	O	PBXRZ-NB	PBXRZ-NB	PBXRZ-NB
9.1 GB drive 1.6" 7200 RPM	1.6" SCSI-2 bay	O	PBXRZ-SA	PBXRZ-SA	PBXRZ-SA
<b>5. Accessible bay 3.5 x 1"</b>	Select		1	1	1
1.44 MB Floppy diskette drive	Accessible bay	O	PBXRZ-AB	PBXRZ-AB	PBXRZ-AB
<b>6. Software Media and Documentation kits</b>					
DIGITAL UNIX		O		QA-MT4AA-H8	QA-MT4AA-H8
OpenVMS V6.2 (k)		O	QA-MT1AA-H8		
OpenVMS V6.2-1H1		O	QA-MT1AG-H8		
<b>7. Additional Options:</b> See AlphaStation Options for a comprehensive list of qualified options (m)					
ThinWire Ethernet MAU (10Base2)	Internal connection	O	PBXDC-DA	PBXDC-DA	PBXDC-DA

**Note:** See AlphaStation 255/300 notes on Page 9.

## AlphaStation 255/300 BASE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 255/300	Resources Used		DIGITAL UNIX	Open VMS	Windows NT
Operates at 120V/240V			PB48A-AA	PB48A-BA	PB48A-CA
CPU Alpha dual issue microprocessor	21064A 300 MHz	Y	Y	Y	Y
Floppy diskette drive 1.44 MB	Accessible bay				Y
CD-ROM 600 MB	5.25" SCSI-2 bay	Y	Y	Y	Y
Ethernet (10BaseT), audio, headphone, microphone, mouse		Y	Y	Y	Y
Integration Service		Y	Y	Y	Y
Operating system		Y	Y	Y	Y
User Documentation—English		Y	Y	Y	Y
<b>Remaining available resources</b>					
I/O slots PCI			2	2	2
PCI/ISA combo (b)			1	0	1
ISA (half size)			1	1	1
Memory banks			2	2	2
Internal disk drives (2 maximum)	1" or 1.6" SCSI-2 bays		2	2	2
SCSI-2 External (c,d)			6	6	6
<b>1. Country Options</b>	<b>Select</b>		<b>1</b>	<b>1</b>	<b>1</b>
Keyboards (e)		M	LK47W-xx / LK46W-xx	LK47W-xx / LK46W-xx	LK47W-xx / LK46W-xx
Power Cord (f)		M	BNxxx-xx	BNxxx-xx	BNxxx-xx
<b>Note:</b> LK47W-AA and LK46W-AA, English keyboards, include U.S. power cord, power cord does not need to be ordered separately.					
<b>2. Memory</b>			<b>Minimum Required</b>	<b>Minimum Required</b>	<b>Minimum Required</b>
<b>Memory Required<sup>1</sup></b>			<b>32 MB</b>	<b>32 MB</b>	<b>32 MB</b>
<b>Optional Available<sup>1</sup></b>	<b>Select</b>		<b>1 or 2</b>	<b>1 or 2</b>	<b>1 or 2</b>
32 MB	1 bank	M	MSP01-BA	MSP01-BA	MSP01-BA
64 MB	1 bank	M	MSP01-BB	MSP01-BB	MSP01-BB
128 MB	1 bank	M	MSP01-BC	MSP01-BC	MSP01-BC
256 MB	1 bank	M	MSP01-BD	MSP01-BD	MSP01-BD
<b>3. Disk drives 1 Required(h)</b>	<b>Select</b>		<b>1 or 2</b>	<b>1 or 2</b>	<b>1 or 2</b>
1.05 GB drive 1.0" (i)	1" or 1.6" SCSI-2 bay	M	PBXRZ-ED	PBXRZ-ED	PBXRZ-ED
1.05 GB drive 1.0"	1" or 1.6" SCSI-2 bay	M	PBXRZ-EB	PBXRZ-EB	PBXRZ-EB
2.1 GB drive 1.0" 7200 RPM	1" or 1.6" SCSI-2 bay	M	PBXRZ-JC	PBXRZ-JC	PBXRZ-JC
2.1 GB drive 1.0" 5400 RPM	1" or 1.6" SCSI-2 bay	M	PBXRZ-HB	PBXRZ-HB	PBXRZ-HB
4.3 GB drive 1.0" 7200 RPM (j)	1" or 1.6" SCSI-2 bay	M	PBXRZ-NB	PBXRZ-NB	PBXRZ-NB
9.1 GB drive 1.6" 7200 RPM	1.6" SCSI-2 bay	M	PBXRZ-SA	PBXRZ-SA	PBXRZ-SA
<b>4. Accessible bay 3.5 x 1"</b>	<b>Select</b>		<b>0 or 1</b>	<b>0 or 1</b>	<b>0</b>
1.44 MB Floppy diskette drive	Accessible bay	O	PBXRZ-AB	PBXRZ-AB	Included
<b>5. Graphics<sup>1</sup> Required</b>	<b>Select</b>		<b>1</b>	<b>1</b>	<b>1</b>
PowerStorm 3D30 8-plane (a)	1 PCI slot	M	PBXGB-AA	PBXGB-AA	PBXGB-AA
PowerStorm 4D20 24-plane Z-buffer (a)	1 PCI slot	M	PBXGB-CA	PBXGB-CA	PBXGB-CA
PowerStorm 4D40T (a)	2 PCI slots	M	PBXGI-AA		PBXGI-AA
ZLXp-L1 24-plane (a)	1 PCI slot	M	PBXGC-AA	PBXGC-AA	PBXGC-AN
ZLXp-L2 24-plane (a)	2 PCI slots	M	PBXGC-BA	PBXGC-BA	PBXGC-BN
<b>6 Monitors</b>	<b>Select</b>		<b>1</b>	<b>1</b>	<b>1</b>
17" Color Monitor NH/NH/SH(g)		M	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4
21" Color Monitor NH/NH/SH(g)		M	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4
<b>7 Software Media and Documentation kits</b>					
DIGITAL UNIX		O	QA-MT4AA-H8		
OpenVMS V6.2 (k)		O		QA-MT1AA-H8	
OpenVMS V6.2-1H1		O		QA-MT1AG-H8	
<b>8 Additional Options:</b> See AlphaStation Options for a comprehensive list of qualified options (m)					
ThinWire Ethernet MAU (10Base2)	Internal connection	O	PBXDC-DA	PBXDC-DA	PBXDC-DA

## AlphaStation 255/300 (continued)

### AlphaStation 255/300 Notes

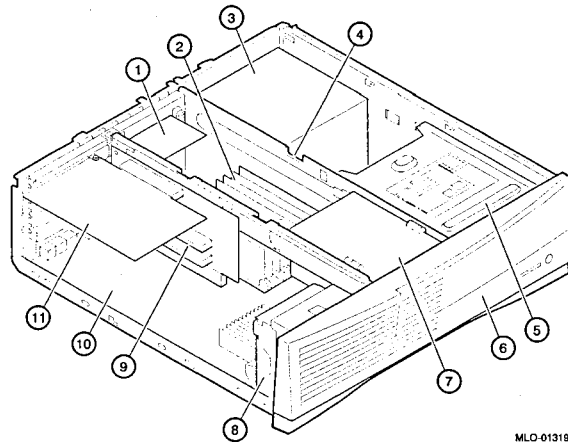
- (a) Graphics options require DIGITAL Open3D media, included in factory installed software (FIS). Windows NT graphics options include Graphics Support Services Software license, media and documentation. 3D multi screen not hardware accelerated for Windows NT
- Graphics options are supported in the following combinations on DIGITAL UNIX, OpenVMS, and Windows NT systems:**
- Two PowerStorm 3D30 options, or
  - Two PowerStorm 4D20 options
  - Any combination of PowerStorm 3D30 and PowerStorm 4D20 options are supported on DIGITAL UNIX and OpenVMS systems. Support for Windows NT must be homogeneous, , or
  - One PowerStorm 4D40T (uses two PCI slots) DIGITAL UNIX and Windows NT systems **only**
  - One ZLXp-L1, or
  - One ZLXp-L2 (uses two PCI slots) DIGITAL UNIX and OpenVMS systems **only**.
- (b) PCI/ISA combination slot is not supported for PCI options on systems running OpenVMS.
- (c) For more than 7 internal or external devices, a fast SCSI-2 controller, which supports 7 devices, is required.
- (d) Each external device requires a 3-foot SCSI cable
- (e) Select country-specific keyboard from AlphaStation Options section. LK47W-xx = 101/102 key PC style Frost White keyboard, LK46W-xx = 108 key LK201/LK401 style Frost White keyboard (preferred for OpenVMS users).
- (f) Select country-specific power cord from AlphaStation Options section.
- (g) -WA = NH (Northern Hemisphere) monitor with 120V power cord, -W3 = Northern Hemisphere monitor without power cord, -W4 = SH (Southern Hemisphere) monitor without power cord; select country specific power cord for -W3 and -W4 variants from AlphaStation Options section.
- (h) The system can support the following hard drive configurations:  
The system disk will be installed below the floppy if the drive size is 2.1 GB or smaller. (The 1.0 GB & 2.1 GB drives are 1.0" high.)

**(Maximum of two drives total including system disk)**

HD bay beneath floppy	HD bay beneath CD-ROM
one 1.0" hard drive	one 1.0" hard drive or one 1.6" hard drive
nothing	one 1.6" hard drive

- (i) Does not support Tag Command Queuing, Seek Reordering Spindle Sync, or Variable Sector Size.
- (j) Maximum of one 1.6" SCSI-2 bay available.
- (k) OpenVMS V6.2-1H1 (or later version 6.2-1Hx) kit is required for AlphaStation 255. It must be installed over OpenVMS V6.2 media when reloading operating system
- (m) Check availability of slots (initially 2 PCI, 1 PCI/ISA combination, 1 ISA). PCI/ISA combination slot not supported for PCI options on OpenVMS systems. ISA slot is a 1/2 sized slot.

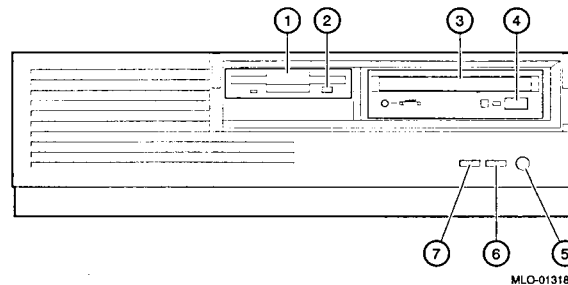
## Internal



MLO-013197

1. Media adapter unit (MAU) (optional). Provides ThinWire Ethernet connections.
2. Memory SIMMs (two banks of 4 SIMMs each).
3. Power supply with internal fan.
4. Cable routing areas.
5. CD-ROM drive. Located below the CD-ROM drive is storage for one 1.6-inch-high 3.5-inch hard drive or one 1-inch-high 3.5-inch hard drive or two 1-inch-high 3.5-inch hard drives.
6. Speaker.
7. 3.5-inch, 1.44-MB floppy disk drive. Located below the floppy is storage for one 1.0-inch 3.5-inch hard drive. If this bay is used, only ONE hard drive can be located below the CD-ROM. See disk drive installation rules footnote (h) under Base Configurations on previous page.
8. Cooling fan.
9. Riser card for ISA and PCI option cards which provides 2 PCI slots, 1 PCI/ISA combo slot, and 1 ISA slot. OpenVMS users cannot use the combo slot for PCI options.
10. Motherboard.
11. Typical PCI option card (size varies with option).

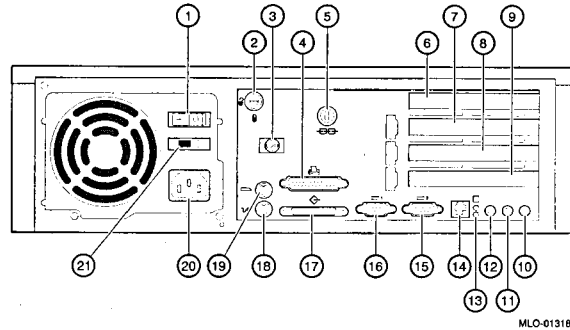
## System Front



MLO-013185

1. Floppy drive
2. Floppy eject button
3. CD-ROM drive
4. CD-ROM eject button
5. Reset button (button resets system and causes self-test to run)
6. Power indicator (lights when system is on)
7. Disk activity indicator (lights when hard disk drive on embedded SCSI controller bus is in use)

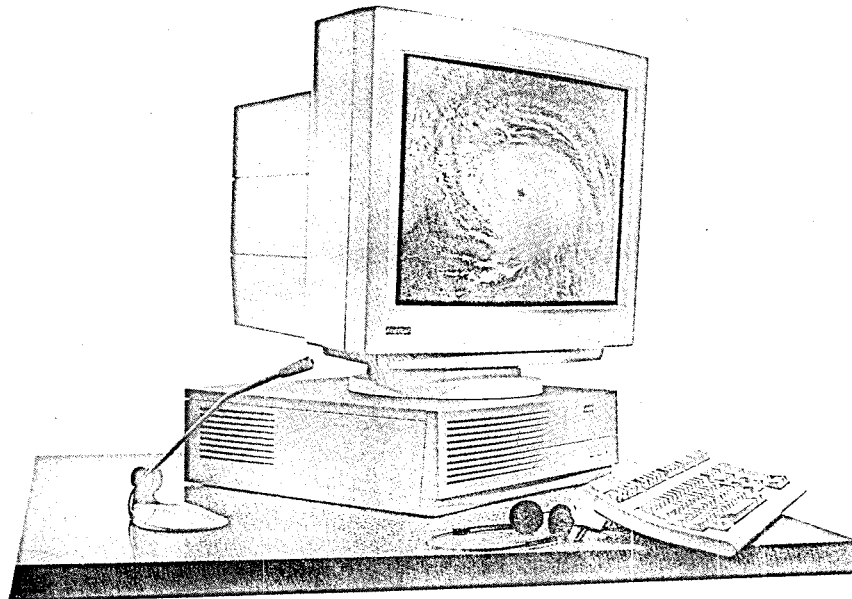
## System Rear



- 1 Power on/off button
- 2 Key lock (locking mechanism for system)
- 3 MAU (Media adapter unit (optional ThinWire Ethernet connection))
- 4 Enhanced bi-directional parallel port (Connects an industry-standard parallel printer or other parallel device)
- 5 Kensington lock (optional), (Point for attaching system to another point for security)
- 6 Expansion slot (PCI slot)
- 7 Expansion slot (PCI slot)
- 8 Expansion slot (Combination slot: PCI or ISA. OpenVMS users cannot use this slot for PCI options)
- 9 Expansion slot (Used for ISA expansion options)
- 10 Headphone jack (Connector for headphones or customer-supplied external speakers)
- 11 Microphone jack (Connector for microphone)
- 12 Line-in connector (Brings audio signals into system)
- 13 Network LEDs (Green indicates system is linked to network. Yellow indicates network activity)
- 14 Twisted pair connector (Connector to embedded Ethernet controller)
- 15 COM port 2 (Connector for communications port 2)
- 16 COM port 1 (Connector for communications port 1)
- 17 SCSI port (Provides interface between system unit and external SCSI devices. Terminator required if no SCSI devices are present)
- 18 Mouse connector (Connects PS/2-compatible mouse)
- 19 Keyboard connector (Use to connect a 101-, 102-, or 108-key keyboard)
- 20 AC power connector (Connects system to AC power)
- 21 Voltage selector switch (Allows you to set your system to work with 115 or 230 Volts AC power)

## Specifications

PCI	132 Mbyte/second
Fast SCSI-2 bus	10 Mbyte/s transfer rate
Ethernet	10 Mbit/s Twisted Pair standard
<b>Power Requirements</b>	
Line voltage	120/240 V
Voltage tolerance	90-128/190-256 V
Frequency single phase	50/60 Hz
Frequency tolerance	47-63 Hz
Maximum running current	7.0A/3.3A with monitor 5.0A/2.3A without monitor
Maximum power consumption	200 W
<b>Operating Environment</b>	
Operating temperature	10° to 40° C (50° to 104° F)
Operating humidity	10% to 90% relative humidity
Maximum wet bulb	28° C (82° F)
Storage temperature	-40° C to 66° C (-40° F to 149° F)
Storage humidity	10% to 90% relative humidity
Maximum wet bulb	46° C (114° F)
Maximum altitude	
Operating	3,048 m (10,000 ft) maximum
Nonoperating	12,190 m (40,000 ft) maximum
<b>Nonoperating shock</b>	30G, 25 ms halfsine
<b>Physical Characteristics</b>	
Height	13.0 cm ( 5.12 inches)
Width	44.6 cm (17.56 inches)
Depth	48.4 cm (19.06 inches)
Weight	16 kg (35 lb)



## AlphaStation 500/333, 500/400, and 500/500

### Product Description

The AlphaStation 500 is a series of high performance desktop Workstations. These systems deliver premium performance and provide access to thousands of applications running on DIGITAL UNIX, OpenVMS and Windows NT Workstations.

**The AlphaStation 500/333** uses the Alpha microprocessor 21164 running at 333 MHz. The CPU performance measures 389 SPECint92, 9.02 SPECint95, 480 SPECfp92, and 12.5 SPECfp95 with 2-Mbytes third level cache.

**The AlphaStation 500/400** uses the Alpha microprocessor 21164 running at 400 MHz. The CPU performance measures 12.3 SPECint95 and 14.1 SPECfp95 with 2-Mbytes third level cache.

**The AlphaStation 500/500** uses the Alpha microprocessor 21164 running at 500 MHz. The CPU performance measures 15 SPECint95 and 20.4 SPECfp95 with 8-Mbytes third level cache.

The system is housed in a new base colored desktop enclosure—Top Gun Blue, with capacity for up to 512 Mbyte of ECC memory on AlphaStation 500/333 systems, and 1 Gbyte on AlphaStation 500/400 and 500/500 systems, 256-bit wide memory bus, five storage slots, and four PCI expansion slots. Three of the PCI expansion slots are 32-bit, while the fourth is a 64-bit slot. The high performance 64-bit PCI I/O bus, running at 264-Mbytes/second peak, provides expansion for options such as high performance graphics, networking, and SCSI adapters. The system supports a wide variety of industry-standard peripherals and PC options. Other standard features include Twisted Pair and ThinWire Ethernet, stereo-quality audio, an array of external ports for serial/parallel communications, and external SCSI connectors. This combination of standard features allows multiple in-box configurations without the need for additional tabletop options or expansion boxes.

All AlphaStation 500 systems come with the best hardware warranty in the industry—a three-year warranty.

## Systems

- DIGITAL UNIX and OpenVMS systems include factory-installed software (FIS).
- Options ordered will be factory installed unless specified as **spares**.

### AlphaStation 500 systems include

- Alpha microprocessor 21164 333-MHz CPU with 2 MB of third level cache, **or**
  - Alpha microprocessor 21164 400-MHz CPU with 2 MB of third level cache, **or**
  - Alpha microprocessor 21164 500 MHz CPU with 8 MB of third level cache
  - Desktop enclosure which includes:
    - Four expansion slots  
One 64-bit PCI<sup>1</sup>  
Three 32-bit PCI
    - Two memory banks for maximum:  
512 MB on AlphaStation 500/333 and,  
1.0 GB on AlphaStation 500/400 and 500/500
    - Five storage slots  
One dedicated diskette drive slot  
One dedicated CD ROM drive slot  
Three hard disk drives slots support  
Three 1" drives **or**  
One 1" drive and one 1.6" drive
    - Integral Fast Wide single ended SCSI-2 controller with one external SCSI-2 connector, and high performance 10 MB/second Twisted Pair<sup>2</sup> and ThinWire Ethernet
    - 320-Watt power supply
  - Two serial ports, support full modem control
  - One parallel port
  - Keyboard port and mouse port
  - Memory (Advantage systems only)
  - Hard Disk (Advantage systems only)
  - Graphics (Advantage systems only)
  - Audio, headset, and microphone
  - 3-button mouse
  - Hardware documentation
  - Hardware Warranty: Industry leading one-year on-site and two-years return to DIGITAL
  - Software Warranty: 90-day SPD conformance with advisory telephone support
  - DIGITAL UNIX 2-user base license  
DIGITAL Open3D license, Multimedia Services license,  
DIGITAL NAS Client 150 license  
Communique! starter license, **or**
  - OpenVMS base plus 1-user license  
Multimedia Services license  
DIGITAL NAS Client 150 license  
Communique! starter license, **or**
  - Windows NT media kit  
Communique! starter license and CD-ROM
- 32-bit PCI options can be installed in 64-bit PCI slot. Option will run at 32-bit speed of 132 Mbyte/seconds instead of 64-bit speed of 264 Mbytes/seconds.
  - Twisted Pair connection required Shielded Twisted Pair cable BN26M-xx. See AlphaStation Options for additional cabling information.

### Minimum Supported Operating System (Original Release)

AlphaStation	500/333	500/400	500/500
DIGITAL UNIX	V3.2D	V3.2F	V3.2G
OpenVMS	V6.2-1H1	V6.2-1H3	V6.2-1H3
Windows NT	3.5.1	3.5.1	3.5.1

### Current Tested Operating System Supported (January 1997)

- DIGITAL UNIX V4.0A      DIGITAL Open 3D 4.1
- OpenVMS V6.2-1H3      DIGITAL Open 3D 3.4
- Windows NT 4.0
- SRM Firmware 6.3-11

### Ordering menu that follows includes

- AlphaStation 500/333, 500/400, and 500/500 Advantage and Base Configurations
- Menus are streamlined for ease of ordering. Select Advantage Configurations to meet application and performance needs in the following areas: 2D CAD, 3D Solids CAD
- To configure a customized system, use Base Configuration menus. Additional system options are in the AlphaStation Options section.

### Warranty Statement

AlphaStations are sold with specific warranty response times, hours of coverage, warranty duration, and a specific manner by which the warranty service will be delivered. DIGITAL also makes available extended coverage offerings to uplift or extend the service coverage and/or response time: See Supplemental Services in AlphaStation Options section.

## AlphaStation 500/333 ADVANTAGE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 500/333	Resources Used		DIGITAL UNIX / OpenVMS	Windows NT	DIGITAL UNIX	DIGITAL UNIX
Application Profile			2D CAD	3D CAD	3D CAD	3D CAD
Operates at 120V/240V			PB551-AA / PB551-BA	PB551-CA	PB551-AC	PB551-AD/-AE
CPU Alpha microprocessor	21164 333-MHz	Y	Y	Y	Y	Y
Floppy Disk Drive 1.44 MB	Dedicated bay	Y	Y	Y	Y	Y
CD-ROM 600 Mbyte	5.25" SCSI bay	Y	Y	Y	Y	Y
Ethernet, Sound, Headset, Microphone, Mouse (a)		Y	Y	Y	Y	Y
Operating system		Y	Y	Y	Y	Y
Memory (b)	1 bank	Y	64 MB	128 MB	128 MB	128 MB
Cache		Y	2 MB	2 MB	2 MB	2 MB
Internal storage	1" bay 1 SCSI	Y	2 GB	2 GB	2 GB	2 GB
Graphics (c,d)	1 PCI slot 2 PCI slots	Y	3D30	4D50T	4D50T	3D30 4D40T
User Documentation—English		Y	Y	Y	Y	Y

## Available resources after configuration

I/O slots	PCI-64 bit (e)		1	0	0	0
	PCI-32 bit		2	2	2	2
Memory banks			1	1	1	1
SCSI bays	Two 3.5 x 1" or One 3.5 x 1.6" bay		2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"
<b>1. Country Options</b>	Select		1	1	1	1
Keyboard (f)		M	LK47W-xx/LK46W-xx	LK47W-xx	LK47W-xx	LK47W-xx
Power Cord (g)		M	BN19P-xx	BN19P-xx	BN19P-xx	BN19P-xx
<b>Note:</b> LK47W-AA and LK46W-AA, English keyboards, include U.S. power cord; power cord does not need to be ordered separately.						
<b>2. Color Monitors</b>	Select		1	1	1	1
17" Color Monitor (h)		M	SN-VRTX7- WA/W3 SN-VRT17-W4	SN-VRTX7- WA/W3 SN-VRT17-W4	SN-VRTX7- WA/W3 SN-VRT17-W4	SN-VRTX7- WA/W3 SN-VRT17-W4
21" Color Monitor (h)		M	SN-VRCX1- WA/W3/W4	SN-VRCX1- WA/W3/W4	SN-VRCX1- WA/W3/W4	SN-VRCX1- WA/W3/W4
<b>3. Additional Memory</b>	Select		0 or 1	0 or 1	0 or 1	0 or 1
32-Mbyte	1 bank	O	MSP01-FA	MSP01-FA	MSP01-FA	MSP01-FA
64-Mbyte	1 bank	O	MSP01-FB	MSP01-FB	MSP01-FB	MSP01-FB
128-Mbyte	1 bank	O	MSP01-FC	MSP01-FC	MSP01-FC	MSP01-FC
256-Mbyte	1 bank	O	MSP01-FD	MSP01-FD	MSP01-FD	MSP01-FD
<b>4. Additional hard drives</b>	Select		2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"
1.05 Gbyte	1" or 1.6" SCSI bay	O	PBXRW-EB	PBXRW-EB	PBXRW-EB	PBXRW-EB
2.1 Gbyte	1" or 1.6" SCSI bay	O	PBXRW-JB	PBXRW-JB	PBXRW-JB	PBXRW-JC
4.3 Gbyte (i)	1.6" SCSI bay	O	PBXRW-NA	PBXRW-NA	PBXRW-NA	PBXRW-NA
<b>5. Software Media and Documentation</b>						
DIGITAL UNIX		O	QA-MT4AA-H8		QA-MT4AA-H8	QA-MT4AA-H8
DIGITAL UNIX Layered Products CD-ROM (c)		O	QA-054AA-H8		QA-054AA-H8	QA-054AA-H8
OpenVMS		O	QA-MT1AA-H8			
OpenVMS		O	QA-MT1AG-H8			
OpenVMS Layered Products CD-ROM (c)		O	QA-03XAA-H8			
<b>6. Hardware System Lock</b>						
Kensington Lock		O	PCP3H-AG	PCP3H-AG	PCP3H-AG	PCP3H-AG
<b>7. Additional Options:</b> Refer to AlphaStation Options for a comprehensive list of qualified options (k)						

## AlphaStation 500/333 BASE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 500/333	Resources Used		DIGITAL UNIX	OpenVMS	Windows NT
Operates at 120V/240V			PB55A-AA	PB55A-BA	PB55A-CA
CPU Alpha microprocessor	21164 333-MHz	Y	Y	Y	Y
Floppy Disk Drive 1.44 MB	Dedicated bay	Y	Y	Y	Y
CD-ROM 600 MB	5.25" SCSI bay	Y	Y	Y	Y
Ethernet, Sound, Headset, Microphone, Mouse (a)		Y	Y	Y	Y
Cache		Y	2 Mbyte	2 Mbyte	2 Mbyte
Integration Service		Y	Y	Y	Y
Operating System		Y	Y	Y	Y
User Documentation—English		Y	Y	Y	Y

Remaining available resources					
I/O slots PCI-64 bit (e)			1	1	1
PCI-32 bit			3	3	3
Memory banks			2	2	2
SCSI bays Three 3.5 x 1" or One 3.5 x 1" and One 3.5 x 1.6"			3 x 1" or 1 x 1" and 1 x 1.6"	3 x 1" or 1 x 1" and 1 x 1.6"	3 x 1" or 1 x 1" and 1 x 1.6"
<b>1. Country Options</b>	Select		1	1	1
Keyboard (f)	Select 1	M	LK47W-xx	LK46W-xx	LK47W-xx
Power Cord (g)	Select 1	M	BN19P-xx	BN19P-xx	BN19P-xx
<b>Note:</b> LK47W-AA and LK46W-AA, English keyboards, include U.S. power cord; power cord does not need to be ordered separately.					
<b>2. Memory Required</b>	1		Minimum Required 32-Mbyte	Minimum Required 32-Mbyte	Minimum Required 32-Mbyte
<b>Optional Available</b>	1 Select		1	1	1
32-Mbyte	1 bank	M	MSP01-FA	MSP01-FA	MSP01-FA
64-Mbyte	1 bank	M	MSP01-FB	MSP01-FB	MSP01-FB
128-Mbyte	1 bank	M	MSP01-FC	MSP01-FC	MSP01-FC
256-Mbyte	1 bank	M	MSP01-FD	MSP01-FD	MSP01-FD
<b>3. Color Monitors</b>	Select		1	1	1
17" Color Monitor (h)		M	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4
21" Color Monitor (h)		M	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4
<b>4. Hard drive required</b>	1 Select		1 or 2	1 or 2	1 or 2
1.05 Gbyte	1.0" or 1.6" SCSI bay	M	PBXRW-EB	PBXRW-EB	PBXRW-EB
2.1 Gbyte	1.0" or 1.6" SCSI bay	M	PBXRW-JB	PBXRW-JB	PBXRW-JB
4.3 Gbyte (i)	1.6" SCSI bay	M	PBXRW-NA	PBXRW-NA	PBXRW-NA
<b>5. Graphics required (c)</b>	1 Select		1	1	1
PowerStorm 3D30 (d)	1 PCI slot	M	PBXGB-AA	PBXGB-AA	PBXGB-AA
PowerStorm 4D20 (d)	1 PCI slot	M	PBXGB-CA	PBXGB-CA	PBXGB-CA
PowerStorm 4D40T (d)	2 PCI slots	M	PBXGI-AA		PBXGI-AA
PowerStorm 4D50T (d)	2 PCI slots	M	PBXGI-AB		PBXGI-AB
PowerStorm 4D60T (d)	2 PCI slots	M	PBXGI-AC		PBXGI-AC
ZLXp-L1 24-plane Pixelvision (d)	1 PCI slot	M	PBXGC-AA	PBXGC-AA	PBXGC-AN
ZLXp-L2 24-plane Pixelvision (d)	2 PCI slots	M	PBXGC-BA	PBXGC-BA	PBXGC-BN
<b>5a. PowerStorm Texture Memory Upgrades—supported on PowerStorm 4D40T, 4D50T, and 4D60T graphics options only</b>					
4-Mbyte Texture memory		O	PBXGI-GA		PBXGI-GA
16-Mbyte Texture memory		O	PBXGI-GB		PBXGI-GB
32-Mbyte Texture memory		O	PBXGI-GC		PBXGI-GC

## AlphaStation 500/333 BASE CONFIGURATIONS (continued)

Y=in base configuration; M=mandatory option; O=option

AlphaStation 500/333	Resources Used		DIGITAL UNIX	OpenVMS	Windows NT
Operates at 120V/240V			PB55A-AA	PB55A-BA	PB55A-CA
<b>6. Software Media and Documentation</b>					
DIGITAL UNIX		O	QA-MT4AA-H8		
DIGITAL UNIX Layered Products CD-ROM	(c)	M	QA-054AA-H8		
OpenVMS		O		QA-MT1AA-H8	
OpenVMS Layered Products CD-ROM	(c)	M		QA-03XAA-H8	
<b>7. Hardware System Lock</b>					
Kensington Lock		O	PCP3H-AG	PCP3H-AG	PCP3H-AG
<b>8. CPU Board Upgrades (j)</b>					
AlphaStation 333 to 400 MHz CPU Board Upgrade		O	PB56U-AB	PB56U-AB	PB56U-AB
AlphaStation 333 to 500 MHz CPU Board Upgrade		O	PB56U-BB	PB56U-BB	PB56U-BB
Installation Service for on-site CPU board upgrade		O	FM-WSDTP-IN	FM-WSDTP-IN	FM-WSDTP-IN
Travel for on-site CPU board upgrade		O	FM-TRAVL-IN	FM-TRAVL-IN	FM-TRAVL-IN
<b>Note:</b> Installation and Travel are not included with CPU Board Upgrade. Order FM-WSDTP-IN and FM-TRAVL-IN separately.					
<b>9. Additional Options Refer to AlphaStation Options for a comprehensive list of qualified options. (k)</b>					

- (a) Thick wire Ethernet support is available via Thick wire MAU card (PBXDC-DC). See AlphaStation Options.
- (b) Eight DIMM slots support two memory options (4 DIMMs per option). Memory options can be mixed.
- (c) All graphics options installed in DIGITAL UNIX and OpenVMS systems require Layered Products CD-ROM, see Step 6.
- (d) Up to 3 PowerStorm 3D30 and/or 4D20 graphics options and 3 monitors are supported on DIGITAL UNIX, OpenVMS and Windows NT 3.5.1 systems. **Note:** Multi-head graphics are not supported until Windows NT 5.0 is released from Microsoft. Graphics options require DIGITAL Open3D media, included in factory installed software (FIS). Windows NT graphics options include Graphics Support Services Software license, media and documentation. Windows NT graphics options must be homogeneous, (three PowerStorm 3D30 options or three PowerStorm 4D20 options). 3D multi screen not hardware accelerated for Windows NT.
- Graphics options are supported in the following combinations on DIGITAL UNIX, OpenVMS and Windows NT systems:**
- Three PowerStorm 3D30 options, or
  - Three PowerStorm 4D20 options, **or**
    - Any combination of PowerStorm 3D30 and PowerStorm 4D20 options are supported on DIGITAL UNIX and OpenVMS systems.
    - Support for Windows NT must be homogeneous.
  - One PowerStorm 4D40T, 4D50T, or 4D60T, **or**
    - PowerStorm 4D40T, 4D50T, and 4D60T require minimum of DIGITAL UNIX V4.0 or Windows NT 3.51, and DIGITAL Open3D V4.0A)
    - PowerStorm 4D40T, 4D50T, and 4D60T options **cannot** be mixed with any other graphics option and are supported on DIGITAL UNIX and Windows NT systems only.
    - **Note: PowerStorm 4Dx0T graphics options change system to FCC Class A**
  - One ZLXp-L1, **or**
  - One ZLXp-L2 (uses two PCI slots)
- (e) Bottom 2 slots support 1/2 length PCI options only.
- (f) Select country-specific keyboard from AlphaStation Options section. LK46W-xx = OpenVMS style; LK47W-xx = DIGITAL UNIX, Windows NT style.
- (g) Select country-specific power cord from AlphaStation Options section.
- (h) -WA = NH (Northern Hemisphere) monitor with 120V power cord, -W3 = NH monitor without power cord, -W4 = SH (Southern Hemisphere) monitor without power cord; select country specific power cord for -W3 and -W4 variants.
- (i) Maximum of one 1.6" disk drive supported.
- (j) Upgrading CPU from 333 MHz to 400 or 500 MHz in the field causes FCC classification of the AlphaStation 500 to be downgraded from FCC Class B to FCC Class A. This does not affect complete AlphaStation 500/400 and 500/500 systems shipped from DIGITAL. Installed Operating System software must be upgraded (i.e. from DIGITAL UNIX V3.2D to DIGITAL UNIX V3.2F).
- (k) Check availability of PCI slots before adding additional options (initially 4 PCI).

## AlphaStation 500/400 ADVANTAGE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 500/400	Resources Used		DIGITAL UNIX / OpenVMS	DIGITAL UNIX / Windows NT	DIGITAL UNIX	DIGITAL UNIX
Application Profile			2D CAD	3D CAD	3D CAD	3D CAD
Operates at 120V/240V			PB561-AA / PB561-BA	PB561-AB / PB561-CA	PB561-AC	PB561-AE
CPU Alpha microprocessor	21164 400-MHz	Y	Y	Y	Y	Y
Floppy Disk Drive 1.44 MB	Dedicated bay	Y	Y	Y	Y	Y
CD-ROM 600 Mbyte	5.25" SCSI bay	Y	Y	Y	Y	Y
Ethernet, Sound, Headset, Microphone, Mouse (a)		Y	Y	Y	Y	Y
Operating system		Y	Y	Y	Y	Y
Memory (b)	1 bank	Y	64 MB	128 MB	128 MB	256 MB
Cache		Y	2 MB	2 MB	2 MB	2 MB
Internal storage	1" bay 1 SCSI	Y	2 GB	2 GB	2 GB	4 GB
Graphics (c,d)	1 PCI slot 2 PCI slots	Y	3D30	4D50T	4D60T	4D50T
User Documentation—English		Y	Y	Y	Y	Y

Available resources after configuration						
I/O slots	PCI-64 bit (e)		1	0	0	0
	PCI-32 bit		2	2	2	2
Memory banks			1	1	1	1
SCSI bays	Two 3.5 x 1" or One 3.5 x 1.6" bay		2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	1 x 1"
<b>1. Country Options</b>	Select		1	1	1	1
Keyboard (g)		M	LK47W- xx/LK46W-xx	LK47W-xx	LK47W-xx	LK47W-xx
Power Cord (g)		M	BN19P-xx	BN19P-xx	BN19P-xx	BN19P-xx
<b>Note:</b> LK47W-AA and LK46W-AA, English keyboards, include U.S. power cord; power cord does not need to be ordered separately.						
<b>2. Color Monitors</b>	Select		1	1	1	1
17" Color Monitor (h)		M	SN-VRTX7- WA/W3 SN-VRT17-W4	SN-VRTX7- WA/W3 SN-VRT17-W4	SN-VRTX7- WA/W3 SN-VRT17-W4	SN-VRTX7- WA/W3 SN-VRT17-W4
21" Color Monitor (h)		M	SN-VRCX1- WA/W3/W4	SN-VRCX1- WA/W3/W4	SN-VRCX1- WA/W3/W4	SN-VRCX1- WA/W3/W4
<b>3. Additional Memory</b>	Select		0 or 1	0 or 1	0 or 1	0 or 1
32-Mbyte	1 bank	O	MSP01-FA	MSP01-FA	MSP01-FA	MSP01-FA
64-Mbyte	1 bank	O	MSP01-FB	MSP01-FB	MSP01-FB	MSP01-FB
128-Mbyte	1 bank	O	MSP01-FC	MSP01-FC	MSP01-FC	MSP01-FC
256-Mbyte	1 bank	O	MSP01-FD	MSP01-FD	MSP01-FD	MSP01-FD
512 Mbyte	1 bank	O	MSP01-FE	MSP01-FE	MSP01-FE	MSP01-FE
<b>4. Additional hard drives</b>	Select		2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	1 x 1"
1.05 Gbyte	1" or 1.6" SCSI bay	O	PBXRW-EB	PBXRW-EB	PBXRW-EB	PBXRW-EB
2.1 Gbyte	1" or 1.6" SCSI bay	O	PBXRW-JB	PBXRW-JB	PBXRW-JB	PBXRW-JC
4.3 Gbyte (h)	1.6" SCSI bay	O	PBXRW-NA	PBXRW-NA	PBXRW-NA	
<b>5. Software Media and Documentation</b>						
DIGITAL UNIX		O	QA-MT4AA-H8	QA-MT4AA-H8	QA-MT4AA-H8	QA-MT4AA-H8
DIGITAL UNIX Layered Products CD-ROM (c)		O	QA-054AA-H8	QA-054AA-H8	QA-054AA-H8	QA-054AA-H8
OpenVMS		O	QA-MT1AA-H8			
OpenVMS Layered Products CD-ROM (c)		O	QA-03XAA-H8			
<b>6. Hardware System Lock</b>						
Kensington Lock		O	PCP3H-AG	PCP3H-AG	PCP3H-AG	PCP3H-AG
<b>7. Additional Options:</b> Refer to AlphaStation Options for a comprehensive list of qualified options (k)						

## AlphaStation 500/400 BASE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 500/400	Resources Used		DIGITAL UNIX	OpenVMS	Windows NT
Operates at 120V/240V			PB56A-AA	PB56A-BA	PB56A-CA
CPU Alpha microprocessor	21164 400-MHz	Y	Y	Y	Y
Floppy Disk Drive 1.44 MB	Dedicated bay	Y	Y	Y	Y
CD-ROM 600 MB	5.25" SCSI bay	Y	Y	Y	Y
Ethernet, Sound, Headset, Microphone, Mouse (a)		Y	Y	Y	Y
Cache		Y	2 Mbyte	2 Mbyte	2 Mbyte
Integration Service		Y	Y	Y	Y
Operating System		Y	Y	Y	Y
User Documentation—English		Y	Y	Y	Y

Remaining available resources					
I/O slots PCI-64 bit (e)			1	1	1
PCI-32 bit			3	3	3
Memory banks			2	2	2
SCSI bays Three 3.5 x 1" or One 3.5 x 1" & One 3.5 x 1.6"			3 x 1" or 1 x 1" and 1 x 1.6"	3 x 1" or 1 x 1" and 1 x 1.6"	3 x 1" or 1 x 1" and 1 x 1.6"
<b>1. Country Options</b>	Select		1	1	1
Keyboard (f)	Select 1	M	LK47W-xx	LK46W-xx	LK47W-xx
Power Cord (g)	Select 1	M	BN19P-xx	BN19P-xx	BN19P-xx
Note: LK47W-AA and LK46W-AA, English keyboards, include U.S. power cord; power cord does not need to be ordered separately.					
<b>2. Memory</b>			Minimum Required	Minimum Required	Minimum Required
Required	1		32-Mbyte	32-Mbyte	32-Mbyte
Optional Available	1 Select		1	1	1
32-Mbyte	1 bank	M	MSP01-FA	MSP01-FA	MSP01-FA
64-Mbyte	1 bank	M	MSP01-FB	MSP01-FB	MSP01-FB
128-Mbyte	1 bank	M	MSP01-FC	MSP01-FC	MSP01-FC
256-Mbyte	1 bank	M	MSP01-FD	MSP01-FD	MSP01-FD
512 Mbyte	1 bank	M	MSP01-FE	MSP01-FE	MSP01-FE
<b>3. Color Monitors</b>	Select		1	1	1
17" Color Monitor (h)		M	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4
21" Color Monitor (h)		M	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4
<b>4. Hard drive required</b>	1 Select		1 or 2	1 or 2	1 or 2
1.05 Gbyte	1.0" or 1.6" SCSI bay	M	PBXRW-EB	PBXRW-EB	PBXRW-EB
2.1 Gbyte	1.0" or 1.6" SCSI bay	M	PBXRW-JB	PBXRW-JB	PBXRW-JB
4.3 Gbyte (i)	1.6" SCSI bay	M	PBXRW-NA	PBXRW-NA	PBXRW-NA
<b>5. Graphics required (b)</b>	1 Select		1	1	1
PowerStorm 3D30 (d)	1 PCI slot	M	PBXGB-AA	PBXGB-AA	PBXGB-AA
PowerStorm 4D20 (d)	1 PCI slot	M	PBXGB-CA	PBXGB-CA	PBXGB-CA
PowerStorm 4D40T (d)	2 PCI slots	M	PBXGI-AA		PBXGI-AA
PowerStorm 4D50T (d)	2 PCI slots	M	PBXGI-AB		PBXGI-AB
PowerStorm 4D60T (d)	2 PCI slots	M	PBXGI-AC		PBXGI-AC
ZLXp-L1 24-plane (d)	1 PCI slot	M	PBXGC-AA	PBXGC-AA	PBXGC-AN
ZLXp-L2 24-plane (d)	2 PCI slots	M	PBXGC-BA	PBXGC-BA	PBXGC-BN
<b>5a. PowerStorm Texture Memory Upgrades—supported on PowerStorm 4D40T, 4D50T, and 4D60T graphics options only</b>					
4-Mbyte Texture memory		O	PBXGI-GA		PBXGI-GA
16-Mbyte Texture memory		O	PBXGI-GB		PBXGI-GB
32-Mbyte Texture memory		O	PBXGI-GC		PBXGI-GC

## AlphaStation 500/400 BASE CONFIGURATIONS (continued)

Y=in base configuration; M=mandatory option; O=option

AlphaStation 500/400	Resources Used		DIGITAL UNIX	OpenVMS	Windows NT
Operates at 120V/240V			PB56A-AA	PB56A-BA	PB56A-CA
<b>6. Software Media and Documentation</b>					
DIGITAL UNIX		O	QA-MT4AA-H8		
DIGITAL UNIX Layered Products CD-ROM	(c)	O	QA-054AA-H8		
OpenVMS V6.2		O		QA-MT1AA-H8	
OpenVMS Layered Products CD-ROM	(c)	O		QA-03XAA-H8	
<b>7. Hardware System Lock</b>					
Kensington Lock		O	PCP3H-AG	PCP3H-AG	PCP3H-AG
<b>8. CPU Board Upgrades (j)</b>					
AlphaStation 400 MHz to 500 MHz CPU Board Upgrade		O	PB56U-BC	PB56U-BC	PB56U-BC
Installation Service for on-site CPU board upgrade		O	FM-WSDTP-IN	FM-WSDTP-IN	FM-WSDTP-IN
Travel for on-site CPU board upgrade		O	FM-TRAVL-IN	FM-TRAVL-IN	FM-TRAVL-IN
<b>Note:</b> Installation and Travel are not included with CPU Board Upgrade. Order FM-WSDTP-IN and FM-TRAVL-IN separately.					
<b>9. Additional Options Refer to AlphaStation Options for a comprehensive list of qualified options. (k)</b>					

- (a) Thick wire Ethernet support is available via Thick wire MAU card (PBXDC-DC). See AlphaStation Options.
- (b) Eight DIMM slots support two memory options (4 DIMMs per option). Memory options can be mixed.
- (c) All graphics options installed in DIGITAL UNIX and OpenVMS systems require Layered Products CD-ROM, see Step 6.
- (d) Up to 3 PowerStorm 3D30 and/or 4D20 graphics options and 3 monitors are supported on DIGITAL UNIX, OpenVMS and Windows NT 3.5.1 systems. **Note:** Multi-head graphics are not supported until Windows NT 5.0 is released from Microsoft. Graphics options require DIGITAL Open3D media, included in factory installed software (FIS). Windows NT graphics options include Graphics Support Services Software license, media and documentation. Windows NT graphics options must be homogeneous, (three PowerStorm 3D30 options or three PowerStorm 4D20 options). 3D multi screen not hardware accelerated for Windows NT.
- Graphics options are supported in the following combinations on DIGITAL UNIX, OpenVMS and Windows NT systems:**
- Three PowerStorm 3D30 options, or
  - Three PowerStorm 4D20 options, or
    - Any combination of PowerStorm 3D30 and PowerStorm 4D20 options are supported on DIGITAL UNIX and OpenVMS systems.
    - Support for Windows NT must be homogeneous.
  - One PowerStorm 4D40T, 4D50T, or 4D60T, or
    - PowerStorm 4D40T, 4D50T, and 4D60T require minimum of DIGITAL UNIX V4.0 or Windows NT 3.51, and DIGITAL Open3D V4.0A)
    - PowerStorm 4D40T, 4D50T, and 4D60T options **cannot** be mixed with any other graphics option and are supported on DIGITAL UNIX and Windows NT systems only.
    - **Note: PowerStorm 4Dx0T graphics options change system to FCC Class A**
  - One ZLXp-L1, or
  - One ZLXp-L2 (uses two PCI slots)
- (e) Bottom PCI slot supports 1/2 length PCI options only.
- (f) Select country-specific keyboard from AlphaStation Options section. LK46W-xx = OpenVMS style; LK47W-xx = DIGITAL UNIX, Windows NT style.
- (g) Select country-specific power cord from AlphaStation Options section.
- (h) -WA = NH (Northern Hemisphere) monitor with 120V power cord, -W3 = NH monitor without power cord, -W4 = SH (Southern Hemisphere) monitor without power cord; select country specific power cord for -W3 and -W4 variants.
- (i) Maximum of one 1.6" disk drive supported.
- (j) Upgrading CPU from 400 MHz to 500 MHz in the field causes FCC classification of the AlphaStation 500 to be down-graded from FCC Class B to FCC Class A. This does not affect complete AlphaStation 500/400 and 500/500 systems shipped from DIGITAL. Installed Operating System software must be upgraded (i.e. from DIGITAL UNIX V3.2D to DIGITAL UNIX V3.2F).
- (k) Check availability of PCI slots before adding additional options (initially 4 PCI).

## AlphaStation 500/500 ADVANTAGE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 500/500	Resources Used		DIGITAL UNIX/ OpenVMS	DIGITAL UNIX / Windows NT	DIGITAL UNIX	Windows NT	DIGITAL UNIX
Application Profile			2D CAD	3D CAD	3D CAD	3D	3D CAD
Operates at 120V/240V			PB571-AA/ PB571-BA	PB571-AB/ PB571-CA	PB571-AD	PB571-CC	PB571-AE
CPU Alpha microprocessor	21164 500-MHz	Y	Y	Y	Y	Y	Y
Floppy Disk Drive 1.44 MB	Dedicated bay	Y	Y	Y	Y	Y	Y
CD-ROM 600 Mbyte	5.25" SCSI bay	Y	Y	Y	Y	Y	Y
Ethernet, Sound, Headset, Microphone, Mouse (a)		Y	Y	Y	Y	Y	Y
Operating system		Y	Y	Y	Y	Y	Y
Memory (b)	1 bank	Y	64 MB	128 MB	128 MB	128 MB	256 MB
Cache		Y	8 MB	8 MB	8 MB	8 MB	8 MB
Internal storage	1" SCSI bay	Y	2 GB	2 GB	2 GB	2 GB	4 GB
Graphics (c,d)	1 PCI slot 2 PCI slots	Y	3D30	4D50T	4D60T	4D60T	4D60T
4 MB Texture Memory					PBXGI-GA	PBXGI-GA	
User Documentation—English		Y	Y	Y	Y	Y	Y

## Available resources after configuration

I/O slots	PCI-64 bit (e)		1	0	0	0	0
	PCI-32 bit		2	2	2	2	2
Memory banks			1	1	1	1	1
SCSI bays	Two 3.5 x 1" or One 3.5 x 1.6" bay		2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	2 x 1" or 1 x 1.6"	1 x 1"
1. Country Options	Select		1	1	1	1	1
Keyboard (f)		M	LK47W-xx / LK46W-xx	LK47W-xx	LK47W-xx	LK47W-xx	LK47W-xx
Power Cord (g)		M	BN19P-xx	BN19P-xx	BN19P-xx	BN19P-xx	BN19P-xx

Note: LK47W-AA English keyboard, includes U.S. power cord; power cord does not need to be ordered separately.

2. Color Monitor	Select		1	1	1	1	1
17" Color Monitor (h)		M	SN-VRTX7- WA/W3 SN-VRT17-W4	SN-VRTX7- WA/W3 SN-VRT17-W4	SN-VRTX7- WA/W3 SN-VRT17-W4	SN-VRTX7- WA/W3 SN-VRT17-W4	SN-VRTX7- WA/W3 SN-VRT17-W4
21" Color Monitor (h)		M	SN-VRCX1- WA/W3/W4	SN-VRCX1- WA/W3/W4	SN-VRCX1- WA/W3/W4	SN-VRCX1- WA/W3/W4	SN-VRCX1- WA/W3/W4
3. Additional Memory	Select		0 or 1	0 or 1	0 or 1	0 or 1	0 or 1
32-Mbyte	1 bank	O	MSP01-FA	MSP01-FA	MSP01-FA	MSP01-FA	MSP01-FA
64-Mbyte	1 bank	O	MSP01-FB	MSP01-FB	MSP01-FB	MSP01-FB	MSP01-FB
128-Mbyte	1 bank	O	MSP01-FC	MSP01-FC	MSP01-FC	MSP01-FC	MSP01-FC
256-Mbyte	1 bank	O	MSP01-FD	MSP01-FD	MSP01-FD	MSP01-FD	MSP01-FD
512 Mbyte	1 bank	O	MSP01-FE	MSP01-FE	MSP01-FE	MSP01-FE	MSP01-FE
4. Additional hard drive	Select		2x1" or 1x1.6"	2x1" or 1x1.6"	2x1" or 1x1.6"	2x1" or 1x1.6"	1x1"
1.05 Gbyte	1" or 1.6" SCSI bay	O	PBXRW-EB	PBXRW-EB	PBXRW-EB	PBXRW-EB	PBXRW-EB
2.1 Gbyte	1" or 1.6" SCSI bay	O	PBXRW-JB	PBXRW-JB	PBXRW-JB	PBXRW-JB	PBXRW-JC
4.3 Gbyte (i)	1.6" SCSI bay	O	PBXRW-NA	PBXRW-NA	PBXRW-NA	PBXRW-NA	

## 5. Software Media and Documentation

DIGITAL UNIX		O	QA-MT4AA-H8	QA-MT4AA-H8	QA-MT4AA-H8		QA-MT4AA-H8
DIGITAL UNIX Layered Products CD-ROM (c)		O	QA-054AA-H8	QA-054AA-H8	QA-054AA-H8		QA-054AA-H8
OpenVMS V6.2		O	QA-MT1AA-H8				
OpenVMS Layered Products (c)		O	QA-03XAA-H8				

## 6. Hardware System Lock

Kensington Lock		O	PCP3H-AG	PCP3H-AG	PCP3H-AG	PCP3H-AG	PCP3H-AG
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7. Additional Options: Refer to AlphaStation Options for a comprehensive list of qualified options (k)

## AlphaStation 500/500 BASE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 500/500	Resources Used		DIGITAL UNIX	OpenVMS	Windows NT
Operates at 120V/240V			PB57A-AA	PB57A-BA	PB57A-CA
CPU Alpha microprocessor	21164 500-MHz	Y	Y	Y	Y
Floppy Disk Drive 1.44 MB	Dedicated bay	Y	Y	Y	Y
CD-ROM 600 MB	5.25" SCSI bay	Y	Y	Y	Y
Ethernet, Sound, Headset, Microphone, Mouse (a)		Y	Y	Y	Y
Cache		Y	8 Mbyte	8 Mbyte	8 Mbyte
Integration Service		Y	Y	Y	Y
Operating System		Y	Y	Y	Y
User Documentation—English		Y	Y	Y	Y

Remaining available resources					
I/O slots PCI-64 bit (e)			1	1	1
PCI-32 bit			3	3	3
Memory banks			2	2	2
SCSI bays Three 3.5 x 1" or One 3.5 x 1" and One 3.5 x 1.6"			3 x 1" or 1 x 1" and 1 x 1.6"	3 x 1" or 1 x 1" and 1 x 1.6"	3 x 1" or 1 x 1" and 1 x 1.6"
<b>1. Country Options</b>	Select		1	1	1
Keyboard (f)	Select 1	M	LK47W-xx	LK46W-xx	LK47W-xx
Power Cord (g)	Select 1	M	BN19P-xx	BN19P-xx	BN19P-xx
Note: LK47W-AA and LK46W-AA, English keyboards, include U.S. power cord; power cord does not need to be ordered separately.					
<b>2. Memory</b>			Minimum Required	Minimum Required	Minimum Required
Required	1		32-Mbyte	32-Mbyte	32-Mbyte
Optional Available	1 Select		1	1	1
32-Mbyte	1 bank	M	MSP01-FA	MSP01-FA	MSP01-FA
64-Mbyte	1 bank	M	MSP01-FB	MSP01-FB	MSP01-FB
128-Mbyte	1 bank	M	MSP01-FC	MSP01-FC	MSP01-FC
256-Mbyte	1 bank	M	MSP01-FD	MSP01-FD	MSP01-FD
512 Mbyte	1 bank	M	MSP01-FE	MSP01-FE	MSP01-FE
<b>3. Color Monitors</b>	Select		1	1	1
17" Color Monitor (h)		M	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4	SN-VRTX7-WA/W3 SN-VRT17-W4
21" Color Monitor (h)		M	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4
<b>4. Hard drive required</b>	1 Select		1 or 2	1 or 2	1 or 2
1.05 Gbyte	1.0" or 1.6" SCSI bay	M	PBXRW-EB	PBXRW-EB	PBXRW-EB
2.1 Gbyte	1.0" or 1.6" SCSI bay	M	PBXRW-JB	PBXRW-JB	PBXRW-JB
4.3 Gbyte (i)	1.6" SCSI bay	M	PBXRW-NA	PBXRW-NA	PBXRW-NA
<b>5. Graphics required (b)</b>	1 Select		1	1	1
PowerStorm 3D30 (d)	1 PCI slot	M	PBXGB-AA	PBXGB-AA	PBXGB-AA
PowerStorm 4D20 (d)	1 PCI slot	M	PBXGB-CA	PBXGB-CA	PBXGB-CA
PowerStorm 4D40T (d)	2 PCI slots	M	PBXGI-AA		PBXGI-AA
PowerStorm 4D50T (d)	2 PCI slots	M	PBXGI-AB		PBXGI-AB
PowerStorm 4D60T (d)	2 PCI slots	M	PBXGI-AC		PBXGI-AC
ZLXp-L1 24-plane (d)	1 PCI slot	M	PBXGC-AA	PBXGC-AA	PBXGC-AN
ZLXp-L2 24-plane (d)	2 PCI slots	M	PBXGC-BA	PBXGC-BA	PBXGC-BN
<b>5a. PowerStorm Texture Memory Upgrades—supported on PowerStorm 4D40T, 4D50T, and 4D60T graphics options only</b>					
4-Mbyte Texture memory		O	PBXGI-GA		PBXGI-GA
16-Mbyte Texture memory		O	PBXGI-GB		PBXGI-GB
32-Mbyte Texture memory		O	PBXGI-GC		PBXGI-GC

## AlphaStation 500/500 BASE CONFIGURATIONS (continued)

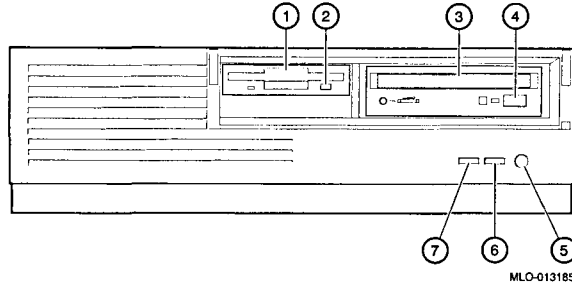
Y=in base configuration; M=mandatory option; O=option

AlphaStation 500/500	Resources Used		DIGITAL UNIX	OpenVMS	Windows NT
Operates at 120V/240V			PB57A-AA	PB57A-BA	PB57A-CA
<b>6. Software Media and Documentation</b>					
DIGITAL UNIX		O	QA-MT4AA-H8		
DIGITAL UNIX Layered Products CD-ROM	(c)	O	QA-054AA-H8		
OpenVMS V6.2		O		QA-MT1AA-H8	
OpenVMS Layered Products CD-ROM	(c)	O		QA-03XAA-H8	
<b>7. Hardware System Lock</b>					
Kensington Lock		O	PCP3H-AG	PCP3H-AG	PCP3H-AG
<b>8. Additional Options</b> Refer to AlphaStation Options for a comprehensive list of qualified options. (k)					

- (a) Thick wire Ethernet support is available via Thick wire MAU card (PBXDC-DC). See AlphaStation Options.
- (b) Eight DIMM slots support two memory options (4 DIMMs per option). Memory options can be mixed.
- (c) All graphics options installed in DIGITAL UNIX and OpenVMS systems require Layered Products CD-ROM, see Step 6.
- (d) Up to 3 PowerStorm 3D30 and/or 4D20 graphics options and 3 monitors are supported on DIGITAL UNIX, OpenVMS and Windows NT 3.5.1 systems. **Note:** Multi-head graphics are not supported until Windows NT 5.0 is released from Microsoft. Graphics options require DIGITAL Open3D media, included in factory installed software (FIS). Windows NT graphics options include Graphics Support Services Software license, media and documentation. Windows NT graphics options must be homogeneous, (three PowerStorm 3D30 options or three PowerStorm 4D20 options). 3D multi screen not hardware accelerated for Windows NT.
- Graphics options are supported in the following combinations on DIGITAL UNIX, OpenVMS and Windows NT systems:**
- Three PowerStorm 3D30 options, or
  - Three PowerStorm 4D20 options, or
    - Any combination of PowerStorm 3D30 and PowerStorm 4D20 options are supported on DIGITAL UNIX and OpenVMS systems.
    - Support for Windows NT must be homogeneous.
  - One PowerStorm 4D40T, 4D50T, or 4D60T, or
    - PowerStorm 4D40T, 4D50T, and 4D60T require minimum of DIGITAL UNIX V4.0 or Windows NT 3.51, and DIGITAL Open3D V4.0A)
    - PowerStorm 4D40T, 4D50T, and 4D60T options **cannot** be mixed with any other graphics option and are supported on DIGITAL UNIX and Windows NT systems only.
    - **Note: PowerStorm 4Dx0T graphics options change system to FCC Class A**
  - One ZLXp-L1, or
  - One ZLXp-L2 (uses two PCI slots)
- (e) Bottom PCI slot supports 1/2 length PCI options only.
- (f) Select country-specific keyboard from AlphaStation Options section. LK46W-xx = OpenVMS style; LK47W-xx = DIGITAL UNIX, Windows NT style.
- (g) Select country-specific power cord from AlphaStation Options section.
- (h) -WA = NH (Northern Hemisphere) monitor with 120V power cord, -W3 = NH monitor without power cord, -W4 = SH (Southern Hemisphere) monitor without power cord; select country specific power cord for -W3 and -W4 variants.
- (i) Maximum of one 1.6" disk drive supported.
- (k) Check availability of PCI slots before adding additional options (initially 4 PCI).

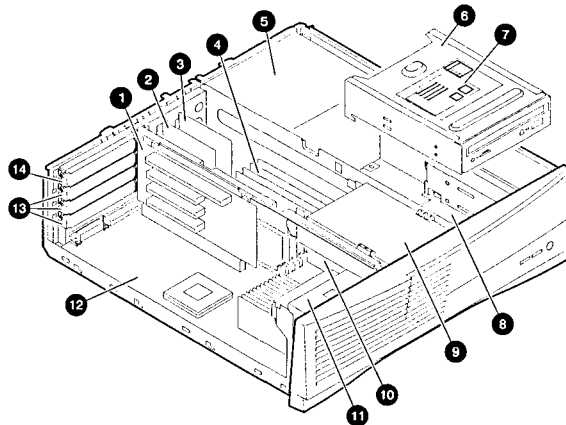
# AlphaStation 500

## Front Controls, Indicators, and Drive Bay Locations



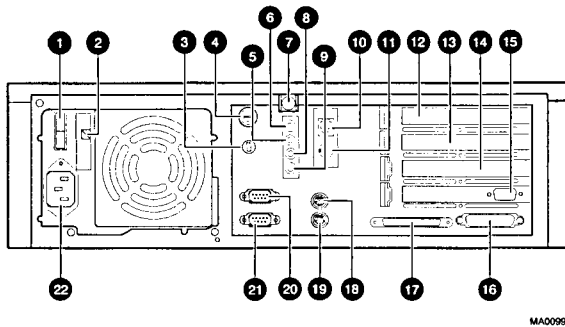
- |                         |  |
|-------------------------|--|
| 1 Floppy drive bay      | Location of external bay for 3.5-inch Floppy diskette device.  |
| 2 Diskette eject button | Releases a 3.5-inch diskette from the diskette drive.  |
| 3 CD drive bay          | Location of 5.25-inch CD-ROM device.   |
| 4 CD-ROM eject button   | Opens the CD loading drawer  |
| 5 Halt/Reset button     | Jumper Selectable. When halt is pressed, system halts immediately. When reset is pressed, resets system and causes self-test to run. |
| 6 LED Indicator         | DC On, lights when system is on.   |
| 7 LED Indicator         | Lights to indicate SCSI activity.  |
| 8 Louvered air intake   | Passageway for cooling air to enter system. Do not block air intake.   |

## AlphaStation 500 system unit components



1. Riser Card for PCI (peripheral component interconnect option cards)
2. Media adapter unit (MAU). Provides twisted pair and ThinWire Ethernet connections.
3. Audio Card
4. Memory modules (two banks with four DIMMs in each bank)
5. Power supply and fan
6. Right upper external drive bay for 5.25-inch x 1.6 inch device (CD-ROM)
7. Customer Configuration Label
8. Right lower internal drive bay for:
  - one 3.5-inch x 1.6 inch device (optional) or
  - one 3.5-inch x 1 inch device (optional) or
  - two 3.5-inch x 1 inch devices (optional)
9. Left upper external drive bay for 3.5-inch x 1 inch device (Floppy)
10. Left lower internal drive bay for 3.5-inch x 1 inch device (optional)
11. System cooling fan
12. System board
13. PCI expansion slots, three 32-bit slots; one full length and two half length
14. PCI expansion slot, one 64-bit slot, one full length slot

Rear Connectors



- 1. On/Off Switch
- 2. Voltage selection switch
- 3. Lock Slot
- 4. System (chassis) lock
- 5. Sound card stereo LINE OUT connector
- 6. Sound card stereo headphone jack
- 7. Top Cover Screw
- 8. Sound card microphone jack
- 9. Sound card stereo LINE IN connector
- 10. Twisted Pair connector
- 11. ThinWire connector
- 12. 64-bit PCI expansion slot
- 13, 14, 15  
32-bit PCI expansion slots interface
- 16. Enhanced bi-directional parallel port
- 17. Wide SCSI connector - 68-pin
- 18. Keyboard connector
- 19. Mouse connector
- 20. COM1 - Serial port connector
- 21. COM2 - Serial port connector
- 22. AC power connector

Power

Allows user to set voltage from factory set 230V to 115 VAC power

Use with optional Kensington type security lock

Provides security for internal components

Routes audio signals to an external amplifier

Connects headphones, or amplified speakers

Secures top cover

Connects microphone. (2.2Ohm to 2.5V)

Brings audio signals into card (for example, from a stereo amplifier)

Connection to the embedded Ethernet controller

Connection to the embedded Ethernet controller

Used for PCI expansion options

Example shows PCI graphics adapter in bottom slot. Provides connection between video/graphics expansion module (option) and supported monitor.

Connects industry-standard parallel printer or other parallel device. 25 pin sub-miniature D parallel port female connector

Provides interface between system unit and external SCSI devices.

68 pin high-density port (single-ended P cable)

Connects a VMS or PS/2 style keyboard

Connects a PS/2-compatible mouse. Miniature six position, circular DIN receptacle.

Connects serial devices. Nine position sub-miniature D series male connectors.

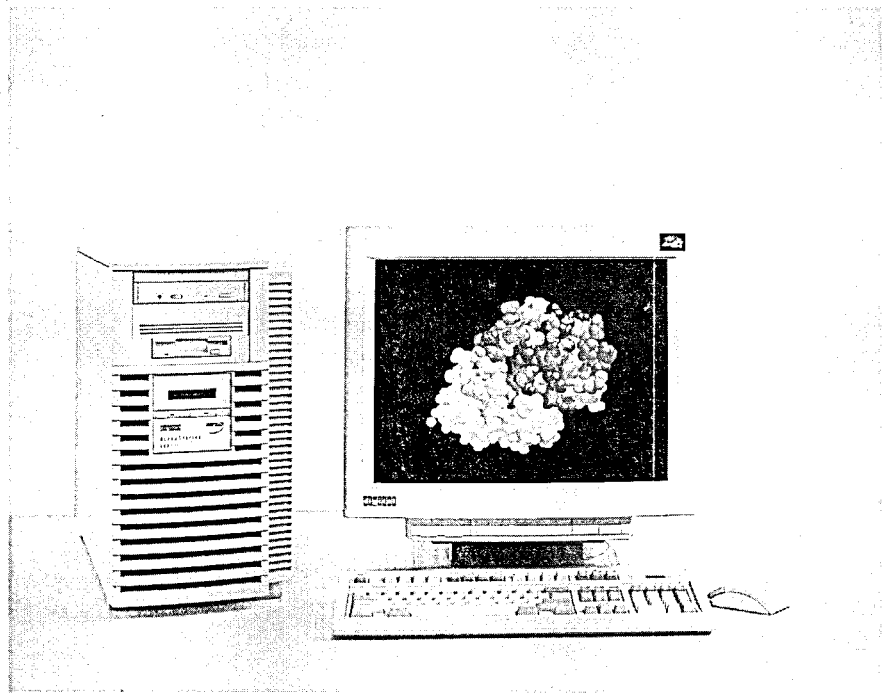
Connects serial devices. Nine position sub-miniature D series male connectors.

Connects the system to AC power.

# AlphaStation 500

## Specifications

PCI	264-Mbyte/second (64-bit PCI)
Fast SCSI-2 bus	20-Mbyte/s transfer rate
<b>Power Requirements</b>	
Line voltage	120/240 V
Voltage tolerance	90-128/190-25f6 V
Frequency single phase	50/60 Hz
Frequency tolerance	47-63 Hz
Maximum running current	7.0A/3.3A with monitor 5.0A/2.3A without monitor
Maximum power consumption	320 W
<b>Operating Environment</b>	
Operating temperature	10° to 40° C (50° to 104° F)
Temperature change rate	11° C/hour (20° F/hour)
Operating humidity	10% to 90% relative humidity
Maximum wet bulb	28° C (82° F)
Minimum dew point	2° C (36° F)
Storage temperature	-40° C to 66° C (-40° F to 149° F)
Storage humidity	10% to 90% relative humidity
Maximum wet bulb	46° C (114° F)
Maximum altitude	2438 m (8,000 ft)
Physical shock	10 G, 10 ms (+/- 3 ms) duration
Vibration	5-10 Hz @ 0.02"DA, 10-500 Hz @ 0.01G peak
<b>Physical Characteristics</b>	
Height	13.0 cm ( 5.12 inches)
Width	44.6 cm (17.56 inches)
Depth	48.4 cm (19.06 inches)
Weight	32 lb
<b>Regulatory Approvals</b>	
Safety	TUV-GS, EN60950, IEC-950, CSA 22.2 #950, UL 1950, EMC: FCC part 15 class "A", CISPR-22, VCCI, CE



## AlphaStation 600 5/333

### Product Description

The AlphaStation 600 high performance desktside Workstation series delivers premium performance and excellent expandability, providing access to tens of thousands of applications running on DIGITAL UNIX, OpenVMS, and Windows NT Workstation systems.

The AlphaStation 600 uses the Alpha microprocessor 21164:

- **AlphaStation 600 5/333 MHz** CPU performance measures 9.8 SPECint95, and 13.3 SPECfp95 with 4 Mbyte third level cache.

The system is housed in a desktside enclosure with capacity for up to 1 Gbyte of ECC memory, 256-bit wide memory bus, six storage slots, and eight option slots. The high performance 64-bit PCI I/O bus, running at 267 Mbytes/second peak, provides expansion for options such as high performance graphics, networking, and SCSI adapters. Lower performance options are supported on the EISA bus. The system supports a wide variety of industry-standard peripherals and PCI and EISA options. Other standard features include Thick wire, Twisted Pair, ThinWire Ethernet, stereo-quality audio, an array of external ports for serial/parallel communications, and external SCSI connectors. This combination of standard features allows multiple in-box configurations without the need for additional tabletop options or expansion boxes.

AlphaStation systems come with the best hardware warranty in the industry—a three-year warranty; 1 year on-site, 2 years return to factory. DIGITAL's Trade-In '97 program provides a cost-effective upgrade path for users of older workstations.

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## Systems

- DIGITAL UNIX and OpenVMS systems include factory-installed software (FIS).
- Options ordered will be factory installed unless specified as **spares**.

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### AlphaStation 600 5/333 systems include

- Alpha microprocessor 21164 with 333-MHz CPU
- Deskside enclosure which includes:
  - Eight expansion slots
    - Three 64-bit PCI\*
    - One 32-bit PCI
    - One 32-bit PCI/EISA combination
    - Three EISA
  - Four memory options (thirty-two SIMM memory slots)
  - Six storage slots:
    - One dedicated diskette drive slot
    - Two removable media slots (CD-ROM included in one slot)
    - Three 3.5-inch hard disk drive slots for 1- and 1.6-inch (16-bit) wide ready drives
  - 400-Watt power supply
  - Two serial ports, support full modem control
  - One parallel port
  - Keyboard port and mouse port
- PCI-based option card with Fast Wide single ended SCSI-2 controller with two external SCSI-2 connectors, and high performance Thick wire, Twisted Pair†, ThinWire Ethernet—uses one 32-bit PCI slot
- Memory (Advantage Configurations only)
  - 4 MB Cache
  - Hard Disk (Advantage Configurations only)
  - Graphics (Advantage Configurations only)
  - 1.44 Mbyte diskette drive
  - 600 Mbyte CD-ROM drive
  - Audio, headset, and microphone
  - 3-button mouse
  - Hardware documentation
  - Hardware Warranty: 1 year on-site, 2 year return to factory
  - Software Warranty: 90-day SPD conformance with advisory telephone support\*
  - DIGITAL UNIX V 3.2C 2-user base license  
DIGITAL Open3D license  
Multimedia Services license  
DIGITAL NAS Client 150 license  
Communique! starter license, and CD-ROM **or**
  - OpenVMS V6.2 base license plus concurrent use license  
DIGITAL Open3D license  
Multimedia Services license  
DIGITAL NAS Client 150 license **or**
  - Windows NT Workstation 4.0 media kit,  
Communique! starter license and CD-ROM,  
DIGITAL Light & Sound license and CD-ROM

\* 32-bit PCI option can be installed in 64-bit PCI slot. Option will run at 32-bit speed of 133 Mbyte/seconds instead of 64-bit speed of 267 Mbytes/seconds.

† 10BaseT connection requires shielded twisted pair cable BN26M-xx, see AlphaStation Options for additional cabling information.

### Ordering menus that follows include

- AlphaStation 600 5/333 Advantage Configurations and Base Configurations.

Menus are streamlined for ease of ordering. Select Advantage Configurations to meet application and performance needs. To configure a customized system, use Base Configuration menus.

- 2D CAD
- 3D Solids CAD

System options are in a separate section.

### Warranty Statement

AlphaStations are sold with specific warranty response times, hours of coverage, warranty duration, and a specific manner by which the warranty service will be delivered. DIGITAL also makes available extended coverage offerings to uplift or extend the service coverage and/or response time: See Supplemental Services in AlphaStation Options section.

## AlphaStation 600 5/333 ADVANTAGE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 600 5/333	Resources Used		DIGITAL UNIX 2D	OpenVMS 2D	DIGITAL UNIX 3D Solids	Windows NT 3D Solids
Application Profile			EDA	EDA	CAD	MCAD
120 V / 240 V			PB641-AG	PB641-BC	PB641-AH	PB641-CF
CPU Alpha microprocessor	21164 333-MHz	Y	Y	Y	Y	Y
Floppy Disk Drive 1.44 MB	Dedicated bay	Y	Y	Y	Y	Y
CD-ROM 600 MB	5.25" SCSI bay	Y	Y	Y	Y	Y
Headset, microphone, mouse	1 EISA slot	Y	Y	Y	Y	Y
Ethernet	1 32-bit PCI slot	Y	Y	Y	Y	Y
Operating System		Y	Y	Y	Y	Y
Memory (a)	1 option	Y	128 MB	128 MB	128 MB	128 MB
Fast Cache		Y	4 MB	4 MB	4 MB	4 MB
Internal storage	1" SCSI bay	Y	2 GB Ultra Wide	2 GB Wide	2 GB Ultra Wide	2 GB Wide
Graphics (b)	1 PCI slot 2 PCI slots	Y	3D30	3D30	4D40T	4D50T
User documentation-English		Y	Y	Y	Y	Y

### Remaining available resources

I/O slots PCI 64-bit wide			2	2	1	1
PCI 32-bit wide			0	0	0	0
EISA			2	2	2	2
PCI/EISA Combo			1	1	1	1
Memory options			3	3	3	3
Fast Cache	Occupied		0	0	0	0
SCSI bays Internal 5.25"			1	1	1	1
Internal 3.5"			2	2	2	2
SCSI External (c)						

**Note:** 3.5-inch hard disk drive supported in 5.25-inch CD-ROM bay, brackets are included. Brackets support 3.5 x 1-inch disk drive only

1. Country Options	Select		1	1	1	1
PS/2 style keyboard (d)		M	LK471-xx	LK471-xx	LK471-xx	LK471-xx
VMS / VT style keyboard			LK461-xx	LK461-xx	LK461-xx	LK461-xx
Power Cord (e)		M	BNxxx-xx	BNxxx-xx	BNxxx-xx	BNxxx-xx

**Note:** LK471-AA and LK461-AA, English keyboards, include U.S. power cord, power cord does not need to be ordered separately.

2. Monitors	Select		1	1	1	
17" Color monitor NH/SH (f)		M	VRT17-PA	VRT17-PA	VRT17-PA	VRT17-PA
21" Color monitor NH/SH (f)		M	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4

(a) Thirty-two SIMM slots support four memory options (8 SIMMs per option). Memory options can be mixed.

(b) Up to 3 PowerStorm 3D30 and/or 4D20 graphics options and 3 monitors are supported on DIGITAL UNIX, OpenVMS and Windows NT systems. Graphics options require DIGITAL Open3D media, included in factory installed software (FIS). Windows NT graphics options include Graphics Support Services Software license, media and documentation. Windows NT graphics options must be homogeneous, (three PowerStorm 3D30 options or three PowerStorm 4D20 options). 3D multi screen not hardware accelerated for Windows NT.

**Graphics options are supported in the following combinations on DIGITAL UNIX, OpenVMS and Windows NT systems:**

- Three PowerStorm 3D30 options, or
- Three PowerStorm 4D20 options, or
- Any combination of PowerStorm 3D30 and PowerStorm 4D20 options are supported on DIGITAL UNIX and OpenVMS systems. Support for Windows NT must be homogeneous.

- One PowerStorm 4D40T, 4D50T, or 4D60T, or
- PowerStorm 4D40T, 4D50T, and 4D60T require minimum of DIGITAL UNIX V4.0 or Windows NT 3.51, and DIGITAL Open3D V4.0A)
- PowerStorm 4D40T, 4D50T, and 4D60T options **cannot** be mixed with any other graphics option and are supported on DIGITAL UNIX and Windows NT systems only.
- **Note: PowerStorm 4Dx0T graphics options change system to FCC Class A**
- One ZLXp-L1, or
- One ZLXp-L2 (uses two PCI slots)
- (c) See External Expansion for additional external storage options.
- (d) Select country-specific keyboard from AlphaStation Options section.
- (e) Select country-specific power cord from AlphaStation Options section.
- (f) Monitors include video cable and 120V power cord, order country specific power cord for 240 V use from AlphaStation Options section.

**AlphaStation 600 5/333 ADVANTAGE CONFIGURATIONS (continued)**

Y=in base configuration; M=mandatory option; O=option

AlphaStation 600 5/333	Resources Used		DIGITAL UNIX 2D	OpenVMS 2D	DIGITAL UNIX 3D Solids	Windows NT 3D Solids
120 V / 240 V			PB641-AC / PB641-AG	PB641-BC	PB641-AE / PB641-AH	PB641-CF
<b>3. Additional Memory</b>	Select		<b>0, 1, 2, or 3</b>	<b>0, 1, 2, or 3</b>	<b>0, 1, 2, or 3</b>	<b>0, 1, 2, or 3</b>
32 MB	1 option	O	MSP01-CA	MSP01-CA	MSP01-CA	MSP01-CA
64 MB	1 option	O	MSP01-CB	MSP01-CB	MSP01-CB	MSP01-CB
128 MB	1 option	O	MSP01-CC	MSP01-CC	MSP01-CC	MSP01-CC
256 MB	1 option	O	MSP01-CD	MSP01-CD	MSP01-CD	MSP01-CD
<b>4. Wide hard drives</b>	Select		<b>0, 1 or 2</b>	<b>0, 1 or 2</b>	<b>0, 1 or 2</b>	<b>0, 1 or 2</b>
1.05 GB drive 5400 Wide(g)	1" bay 1 SCSI	O	PBXRW-EB	PBXRW-EB	PBXRW-EB	PBXRW-EB
2.1 GB drive 7200 Wide (g)	1" bay 1 SCSI	O	PBXRW-JB	PBXRW-JB	PBXRW-JB	PBXRW-JB
2.1 GB drive 7200 UWide(g)	1" bay 1 SCSI	O	PBXRW-JC		PBXRW-JC	
4.3 GB drive 7200 Wide (g)	1.6" bay 1 SCSI	O	PBXRW-NA	PBXRW-NA	PBXRW-NA	PBXRW-NA
<b>5. Removable media</b>	Select		<b>0 or 1</b>	<b>0 or 1</b>	<b>0 or 1</b>	<b>0 or 1</b>
8 GB 4 mm DAT TLZ09	5.25" bay 1 SCSI	O	PBXTL-DA	PBXTL-DA	PBXTL-DA	PBXTL-DA
2.0 GB QIC TZK11	5.25" bay 1 SCSI	O	PBXTZ-AA	PBXTZ-AA	PBXTZ-AA	PBXTZ-AA
<b>6. Software Media and Documentation kits</b>						
DIGITAL UNIX		O	QA-MT4AA-H8		QA-MT4AA-H8	
OpenVMS		O		QA-MT1AA-H8		
<b>7. Additional Options:</b> See AlphaStation Options for a comprehensive list of qualified options (h)						

(g) Internal SCSI uses a wide 68-pin connector. To add a narrow drive, order PBXKP-BA (wide to narrow adapter). Order one adapter for each additional drive.

(h) Check availability of slots (initially 4 PCI, 1 PCI/EISA combination, 3 EISA).

## AlphaStation 600 5/333 BASE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

AlphaStation 600 5/333	Resources Used		DIGITAL UNIX	Open VMS	Windows NT
120V/240V			PB64A-AA	PB64A-BA	PB64A-CA
CPU Alpha microprocessor	21164 333-MHz	Y	Y	Y	Y
Floppy Disk Drive 1.44 MB	Dedicated bay	Y	Y	Y	Y
CD-ROM 600 MB	5.25" SCSI bay	Y	Y	Y	Y
Fast Cache		Y	4 MB	4 MB	4 MB
Headset, microphone, mouse	1 EISA slot	Y	Y	Y	Y
Ethernet	1 32-bit PCI slot	Y	Y	Y	Y
Integration Service		Y	Y	Y	Y
Operating system		Y	Y	Y	Y
User documentation—English		Y	Y	Y	Y

Remaining available resources					
I/O slots	PCI-64-bit wide		3	3	3
	PCI 32-bit wide		0	0	0
	EISA		2	2	2
	PCI / EISA Combo.		1	1	1
Memory options	(a)		4	4	4
Fast Cache	Occupied		0	0	0
SCSI bays	Internal 5.25"		1	1	1
	Internal 3.50"		3	3	3

Note: 3.5-inch hard disk drive supported in 5.25-inch CD-ROM bay, brackets are included. Brackets support 3.5 x 1-inch disk drive only

1. Country Options	Select		1	1	1
PS/2 style keyboard	(b)	M	LK471-xx	LK471-xx	LK471-xx
VMS / VT style keyboard			LK461-xx	LK461-xx	LK461-xx
Power Cord	(c)	M	BNxxx-xx	BNxxx-xx	BNxxx-xx

Note: LK471-AA and LK461-AA, include English keyboards and U.S. power cord. Power cord does not need to be ordered separately

2. Monitors	Select		1	1	1
17" Color monitor NH/SH	(d)	M	VRT17-PA	VRT17-PA	VRT17-PA
21" Color monitor NH/NH//SH	(d)	M	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4	SN-VRCX1-WA/W3/W4
3. Memory			Minimum Required	Minimum Required	Minimum Required
Memory Required	1		64 MB	64 MB	32 MB
Optional Available	2, 3, or 4	Select	1, 2, 3 or 4	1, 2, 3, or 4	1, 2,3 or 4
32 MB	1 option	M	MSP01-CA	MSP01-CA	MSP01-CA
64 MB	1 option	M	MSP01-CB	MSP01-CB	MSP01-CB
128 MB	1 option	M	MSP01-CC	MSP01-CC	MSP01-CC
256 MB	1 option	M	MSP01-CD	MSP01-CD	MSP01-CD

Note: To reach 1 GB maximum memory order MSP01-CD options

4. Wide hard drive	Select		1 or 2	1 or 2	1 or 2
1.05 GB drive 5400 RPM	(e)	M	PBXRW-EB	PBXRW-EB	PBXRW-EB
2.1 GB drive 7200 RPM	(e)	M	PBXRW-JB	PBXRW-JB	PBXRW-JB
4.3 GB drive 7200 RPM	(e)	M	PBXRW-NA	PBXRW-NA	PBXRW-NA

- (a) Thirty-two SIMM slots support four memory options (8 SIMMs per option). Memory options can be mixed.  
 (b) Select country-specific keyboard from AlphaStation Options section.  
 (c) Select country-specific power cord from AlphaStation Options section.

- (d) Monitors include video cable and 120V power cord, order country specific power cord for 240V use from AlphaStation Options section.  
 (e) Selection of one hard disk drive is mandatory for Base systems. Internal SCSI uses a wide 68-pin connector. To add a narrow drive, order PBXKP-BA (wide to narrow adapter). Order one adapter for each additional drive.

## AlphaStation 600 5/333 BASE CONFIGURATIONS (continued)

Y=in base configuration; M=mandatory option; O=option

AlphaStation 600 5/333	Resources Used		DIGITAL UNIX	Open VMS	Windows NT
120V/240V	21164 333-MHz		PB64A-AA	PB64A-BA	PB64A-CA
<b>6. Graphics</b>	<b>Select</b>		<b>1</b>	<b>1</b>	<b>1</b>
PowerStorm 3D30 8-plane	(f) 1 PCI slot	M	PBXGB-AA	PBXGB-AA	PBXGB-AA
PowerStorm 4D20 24-plane	(f) 1 PCI slot	M	PBXGB-CA	PBXGB-CA	PBXGB-CA
PowerStorm 4D40T	(f) 2 PCI slots	M	PBXGI-AA		PBXGI-AA
PowerStorm 4D50T	(f) 2 PCI slots	M	PBXGI-AB		PBXGI-AB
PowerStorm 4D60T	(f) 2 PCI slots	M	PBXGI-AC		PBXGI-AC
ZLXp-L1 24-plane Pixelvision	(f) 1 PCI slot	M	PBXGC-AA	PBXGC-AA	PBXGC-AN
ZLXp-L2 24-plane Pixelvision	(f) 2 PCI slots	M	PBXGC-BA	PBXGC-BA	PBXGC-BN
<b>6a. PowerStorm Texture Memory Upgrades—supported on PowerStorm 4D40T, 4D50T, and 4D60T graphics options only</b>					
4 MB Texture memory module		O	PBXGI-GA		PBXGI-GA
16 MB Texture memory module		O	PBXGI-GB		PBXGI-GB
32 MB Texture memory module		O	PBXGI-GC		PBXGI-GC
<b>7. Removable media</b>	<b>Select</b>		<b>0 or 1</b>	<b>0 or 1</b>	<b>0 or 1</b>
8 GB 4 mm DAT TLZ09	5.25" SCSI bay	O	PBXTL-DA	PBXTL-DA	PBXTL-DA
2.0 GB QIC TZK11	5.25" SCSI bay	O	PBXTZ-AA	PBXTZ-AA	PBXTZ-AA
<b>8. Communication Options</b>					
EISA Ethernet	1 EISA slot	O	DE425-AA	DE425-AA	DE425-AA
PCI High-performance Ethernet	1 PCI slot	O	DE435-AA	DE435-AA	DE435-AA
PCI FDDI controller (fiber)	1 PCI slot	O	DEFFA-AA	DEFFA-AA	DEFFA-AA
PCI Fast SCSI-2 controller*	1 PCI slot	O	KZPAA-AA	KZPAA-AA	KZPAA-AA
* Maximum two Fast SCSI-2 controllers per system					
<b>9. Software Media and Documentation kits</b>					
DIGITAL UNIX		O	QA-MT4AA-H8		
OpenVMS		O		QA-MT1AA-H8	
AlphaStation 600 User Documentation		O	EK-AS800-UI*	EK-AS800-UI*	EK-AS800-UI*
AlphaStation 600 Installation Guide		O	EK-AS800-IN*	EK-AS800-IN*	EK-AS800-IN*
* English User Documentation and Installation Guide are included with Advantage and Base Configurations.					
<b>10. 333 MHz CPU Upgrade with 4 MB Cache</b>					
AlphaStation 5/266 to 5/333 MHz CPU upgrade		O	PB62U-BA	PB62U-BA	PB62U-BA
<b>Note:</b> Installation is not included with CPU upgrade, order FM-WSDSD-IN separately -					
<b>11. Additional Options:</b> See AlphaStation Options for a comprehensive list of qualified options (h)					

(f) Up to 3 PowerStorm 3D30 and/or 4D20 graphics options and 3 monitors are supported on DIGITAL UNIX, OpenVMS and Windows NT systems. Graphics options require DIGITAL Open3D media, included in factory installed software (FIS). Windows NT graphics options include Graphics Support Services Software license, media and documentation. Windows NT graphics options must be homogeneous, (three PowerStorm 3D30 options or three PowerStorm 4D20 options). 3D multi screen not hardware accelerated for Windows NT.

**Graphics options are supported in the following combinations on DIGITAL UNIX, OpenVMS and Windows NT systems:**

- Three PowerStorm 3D30 options, or
- Three PowerStorm 4D20 options, or

- Any combination of PowerStorm 3D30 and PowerStorm 4D20 options are supported on DIGITAL UNIX and OpenVMS systems. Support for Windows NT must be homogeneous.
  - One PowerStorm 4D40T, 4D50T, or 4D60T, or
  - PowerStorm 4D40T, 4D50T, and 4D60T require minimum of DIGITAL UNIX V4.0 or Windows NT 3.51, and DIGITAL Open3D V4.0A)
  - PowerStorm 4D40T, 4D50T, and 4D60T options **cannot** be mixed with any other graphics option and are supported on DIGITAL UNIX and Windows NT systems only.
  - **Note: PowerStorm 4Dx0T graphics options change system to FCC Class A**
  - One ZLXp-L1, or
  - One ZLXp-L2 (uses two PCI slots)
- (h) For PCI or EISA cards, check the availability of slots (initially 4 PCI, 1 PCI/EISA combination, 3 EISA).

## AlphaStation 600 External Storage Options

External Expansion	Resources Used			
BA353 Narrow expansion box (3)	Ext.SCSI Bus 1 (1)	BA353-AA	BA353-AA	BA353-AA
BA356 Wide expansion box	Ext.SCSI Bus 2 (2)	BA356-KC	BA356-KC	BA356-KC
Fast Narrow Single Ended SCSI-2 Controller (4)	32- or 64-bit PCI slot	KZPAA-AA	KZPAA-AA	KZPAA-AA

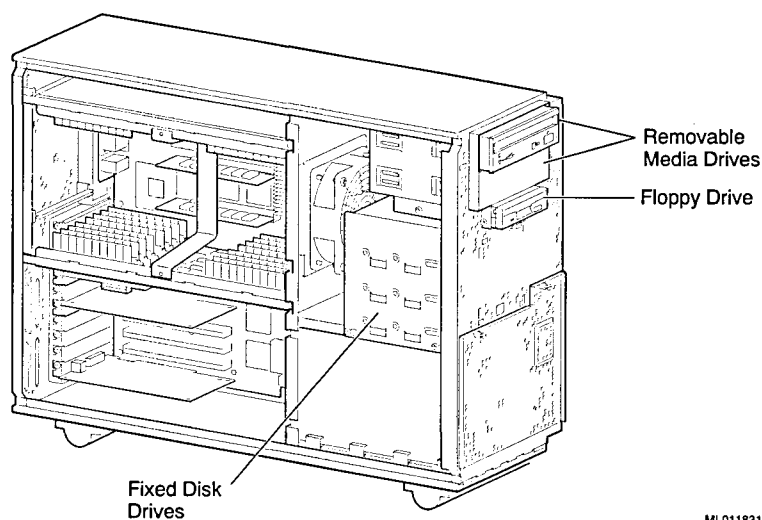
\* Maximum two Fast SCSI-2 controllers per system

### AlphaStation 600 systems include 2 external SCSI buses

- (1) First FWSE SCSI-2 controller supports five internal **wide** or **narrow** devices and two external **narrow** SCSI devices. Total external bus length for first FWSE SCSI-2 controller is 1.2 meters, bus connector on rear bulkhead is a high density 50 pin narrow connector.
- (2) Second FWSE SCSI-2 controller supports seven external **wide** or **narrow** SCSI devices. Total external bus length for second external FWSE SCSI-2 controller is 2.2 meters, requires BN21K-01 for right angle connection to BA356-KC.
- (3) To run narrow devices/enclosures off the Wide external SCSI bus, order a BN36A-0B, a 68-pin HD to 50-pin HD hi-byte terminator adapter, and 50-pin HD to 50-pin HD BN21H-01 SCSI cable.
- (4) If additional external narrow storage is required, select KZPAA-AA Fast SCSI-2 controller (maximum two supported per system).

See AlphaStation Options for a comprehensive list of additional qualified options.

### System Diagram

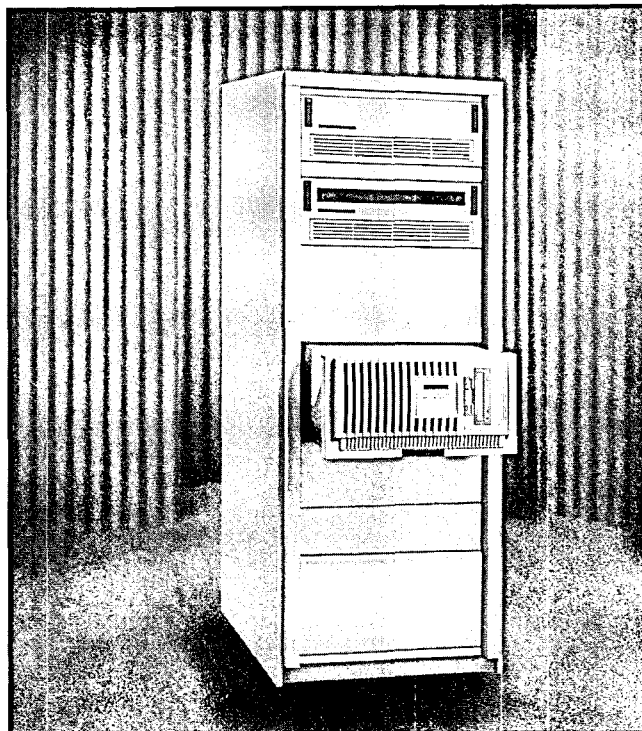


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## AlphaStation 600

### Specifications

PCI -64 bit	264 MB/second
PCI -32 bit	132 MB/second
Fast Wide SCSI-2 bus	20 MB/s transfer rate
Ethernet	10 MBit/s Twisted Pair/Thin Wire standard
<b>Power Requirements</b>	
Line voltage	120 V/240 V
Voltage tolerance	90-128 V/190-256 V
Frequency single phase	50 Hz/ 60 Hz
Frequency tolerance	47-63 Hz
Maximum running current	8.0A/4.0A A.C. without monitor
Maximum power consumption	400 W D.C.
<b>Operating Environment</b>	
Operating temperature	10° to 40° C (50° to 104° F)
Operating humidity	20% to 80% relative humidity
Maximum wet bulb	40° C (104° F)
Storage temperature	-20° C to 65° C (-4° F to 149° F)
Storage humidity	10% to 90% relative humidity
Maximum wet bulb	65° C (149° F)
Maximum altitude	
Operating	2,438 m (8,000 ft) maximum
Nonoperating	4,876 m (16,000 ft) maximum
Nonoperating shock	30G, 25 ms halfsine
<b>Physical Characteristics</b>	
Height	469.9 mm (18.5 inches)
Width	241.3 mm (9.5 inches)
Depth	660.4 mm (26.0 inches)
Weight	31.8 kg (70 lb)
<b>Regulatory</b>	
Agency Approval	AlphaStation 600 5/333 is FCC Class A (system and upgrade)



## AlphaStation 600 Rackmount

### Product Description

The AlphaStation 600 Rackmount Workstation is housed in a rackmountable tower enclosure ready for integration into a 19" ANSI/EIA standard cabinet enclosure. It offers the same functionality and footprint as the desktside system. Configuration flexibility and storage expansion is easily obtainable through many rackmounted options.

The AlphaStation 600 uses the DECchip 21164 processor.

- **AlphaStation 600 5/266 MHz** CPU performance measures 288 SPECint92 and 428 SPECfp92 with 2 MB third level cache.
- **AlphaStation 600 5/333 MHz** CPU performance measures 412 SPECint92 and 535 SPECfp92 with 4 MB third level cache.

The AlphaStation 600 workstation has capacity for up to 1 GB of ECC memory, six internal storage cavities and eight total option slots. High performance options are supported on the 64-bit PCI I/O bus. Lower performance options are supported on the EISA bus.

The AlphaStation 600 workstation is sold with specific warranty response times, hours of coverage, warranty duration, and a specific manner by which the warranty service will be delivered. digital also makes available extended coverage offerings to uplift or extend the service coverage and/or response time. See Supplemental Services in AlphaStation Option Section.

## Step 1—System Building Blocks

- AlphaStation 600 rackmount systems are available as System Building Blocks.
- Options ordered will be factory installed unless specified as spares.
- Digital UNIX and OpenVMS system include factory-installed software (FIS).
- **For full functionality systems require:**
  - Minimum of one 64 MB memory option for Digital UNIX and OpenVMS systems
  - Minimum of one 32 MB memory option for Windows NT systems
  - 2 or 4 MB cache
  - One hard disk drive
  - Graphics option
  - Keyboard and 120V or 240V power cord, see AlphaStation Options Section for country specific options

**Note:** For a comprehensive list of qualified options, see AlphaStation Options Section  
Minimum required options must be on purchase order at initial order acceptance.

### Rackmount AlphaStation 600 5/266 and 5/333 systems include

- Rackmountable AlphaStation 600 enclosure with rackmount shelf and slide assembly which includes
  - Alpha microprocessor 21164 with 266-MHz CPU **or**
  - Alpha microprocessor 21164 with 333-MHz CPU
  - Eight option slots
    - Three 64-bit PCI\*
    - One 32-bit PCI
    - One 32-bit PCI/EISA combination
    - Three EISA slots
  - Four memory options (32 SIMM memory slots)
  - Six internal storage slots
    - One dedicated diskette drive slot
    - Two removable media slots
    - Three 3.5-inch hard disk drive slots for 1" and 1.6" 16-bit wide drives
  - 400 Watt power supply
  - Two serial ports, supports full modem control
  - One parallel port
  - Keyboard port and mouse port
- PCI based Fast Wide Single Ended SCSI-2 controller with two external SCSI-2 connectors, and high performance Thickwire, Twisted Pair†, ThinWire Ethernet (uses one 32-bit PCI slot)
- 1.44 MB diskette drive (in dedicated slot)
- 600 MB CD-ROM (uses one 5.25" removable media slot)
- Audio, headset, and microphone (uses one EISA slot)
- 3-button mouse
- Video/Keyboard/Mouse extension cables
- Rackmount Installation Guide
- Hardware documentation
- Hardware Warranty: Three year
- Software Warranty: 90 day SPD conformance with advisory telephone support
- Digital UNIX V3.2C two-user base license, Digital Open3D license, Multimedia Services license, Digital NAS Client 150 license, Communique! starter license and CD-ROM **or**
- OpenVMS V6.2 base license plus 1-user license, Digital Open3D license, Multimedia Services license, Digital NAS Client 150 license, **or**
- Windows NT Workstation 4.0 media kit, Communique! starter license and CD-ROM, Digital Light and Sound license and CD-ROM

\* 32-bit PCI option can be installed in 64-bit PCI slot. Option will run at 32-bit speed of 133 MB/seconds instead of 64-bit speed of 267 MBs/seconds.

† 10BaseT connection requires shielded twisted pair cable BN26M-xx, see Step 7 for additional cabling information.

**Note:** Available remaining resources: Three 64-bit PCI slots, One PCI/EISA slot, 2 EISA slots

#### AlphaStation 600 5/266 Rackmount Workstations

Order Number	Operating System	Memory	Cache	Hard Drive	Monitor	Graphics
CT-PB62A-AA	Digital UNIX	Recommended	Recommended	Recommended	Optional	Optional
CT-PB62A-BA	OpenVMS	Recommended	Recommended	Recommended	Optional	Optional
CT-PB62A-CA	Windows NT	Recommended	Recommended	Recommended	Optional	Optional

#### AlphaStation 600 5/333 Rackmount Workstations

PB64S-AA	Digital UNIX	Recommended	Recommended	Recommended	Optional	Optional
PB64S-BA	OpenVMS	Recommended	Recommended	Recommended	Optional	Optional
PB64S-CA	Windows NT	Recommended	Recommended	Recommended	Optional	Optional

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## Step 2—Memory

- Minimum of one 64 MB (MSP01-CB) memory for Digital UNIX and OpenVMS systems
- Minimum of one 32 MB (MSP01-CA) memory for Windows NT systems
- System supports four memory options (8 SIMMS per option). Memory options can be mixed.
- System maximum of 1 GB can only be obtained by selecting four (MSP01-CD) 264 MB memory options.

MSP01-CA	32-MB (8 x 4 MB 70 ns SIMMs) ECC
MSP01-CB	64-MB (8 x 8 MB 70 ns SIMMs) ECC
MSP01-CC	128-MB (8 x 16 MB 60 ns SIMMs) ECC
MSP01-CD	264-MB (8 x 32 MB 60 ns SIMMs) ECC

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## Step 3—Cache Memory

- One cache option **must** be on initial order.
- One cache memory option supported per system.

MSP01-EA	2-MB cache for AlphaStation 5/266 systems <b>only</b>
MSP01-EB	4-MB cache for AlphaStation 5/266 systems <b>only</b>
MSP01-EC	4-MB fast cache for AlphaStation 5/333 systems <b>only</b>

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## Step 4—Storage

- One hard disk drive **must** be on initial order.
- First Fast Wide Single Ended (FWSE) SCSI-2 controller supports five internal **wide** or **narrow** devices. If external storage is required, select KZPAA-AA Fast SCSI-2 controller.
- Internal SCSI cable is 68-pin Wide SCSI connector. To add 8-bit **narrow** SCSI drives, order PBXKP-BA (Wide to Narrow SCSI adapter). One adapter required for each narrow drive installed in system chassis.
- Three 3.5" x 1" or 1.6" 16-bit Wide SCSI hard disk drives are supported in system chassis. One 5.25" removable media slot supports one 3.5" x 1" hard disk drive, brackets are included. **Note:** Brackets support 3.5 x 1" disk drive **only**

### 16-bit Wide SCSI Drives

PBXRW-EB	1.05 GB 3.5" x 1" 5400 RPM Wide SCSI disk drive
PRXRW-JB	2.1 GB 3.5" x 1" 7200 RPM Wide SCSI disk drive
PBXRW-NA	4.3 GB 3.5" x 1.6" 7200 RPM Wide SCSI disk drive

### External Storage

- 1st FWSE SCSI-2 controller supports five internal **wide** or **narrow** devices. Total external bus length is limited to 1.2 meters and is not recommended for external storage.
- 2nd FWSE SCSI-2 controller supports seven external **wide** or **narrow** devices. Total external bus length is limited to 2.2 meters. 2nd FWSE SCSI-2 controller should be limited to external **narrow** SCSI-2 devices.
- If additional external storage is required, select KZPAA-AA 8-bit Fast Narrow Single Ended (FNSE) SCSI-2 controller. Maximum two per system.

### Rackmountable StorageWorks Shelves

- Each rackmounted StorageWorks shelf requires seven inches of vertical rackmount space. Two shelves can occupy the same space by using front and rear mounted shelves.

BA35R-SF	Rackmountable BA350 front mounted StorageWorks shelf for <b>narrow</b> 8-bit disks
BA35R-SR	Rackmountable BA350 rear mounted StorageWorks shelf for <b>narrow</b> 8-bit disks
BA35R-AF	Rackmountable BA356 front mounted StorageWorks shelf for <b>wide</b> 16-bit disks
BA35R-AR	Rackmountable BA356 rear mounted StorageWorks shelf for <b>wide</b> 16-bit disks

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## Step 4—Storage

### SCSI cables

BN21M-02/03	68-pin high density to 50-pin low density (wide to narrow) for tape applications.
BN21N-02	68-pin high density to 50-pin high density for BA35R connection with tape and CD-ROM. Shelf must be located directly above or below rackmount system chassis.
BN21K-02	68-pin high density to BA36R wide StorageWorks shelf. Shelf must be located directly above or below rackmount system chassis.

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## Step 5—Monitors

- Monitors include 3.0 meter HD15 male to BNC video cable. If purchased in North America, -PA and -LA variants include 120V power cord, otherwise power cords are not included, order separately from AlphaStation Options Section.
- Rackmount system include video, keyboard, and mouse extension cables.

**Note:** If additional monitor cable length is required, order 2T-45KM-AA (video, keyboard, mouse extension cable kit).

VRT17-PA	17" (16.0" viewable image size) high-resolution color monitor with Light Gray enclosure. Trinitron aperture grille CRT with 0.26 mm stripe pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1280 x 1024 at 75Hz NI refresh rates. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 3.0 meter HD15 male to BNC video cable. Select -PA for Northern Hemisphere or -P4 for Southern Hemisphere operation. If purchased in North American, -PA includes 120V power cord, otherwise power cords for -PA and -P4 not included, order separately from AlphaStation Options Section.
VRC21-LA	21" (19.6" viewable image size) ultra high-resolution color monitor with Light Gray enclosure. Diamondtron aperture grille CRT with 0.30 mm stripe pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1600 x 1200 at 75Hz NI refresh rates. On Screen display (OSD). Stereo viewing compatible. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 3.0 meter HD15 male to BNC video cable. Select -LA for Northern Hemisphere, or -L4 for Southern Hemisphere operation. If purchased in North America, -LA includes 120V power cord, otherwise power cords for -LA and -L4 not included, order separately from AlphaStation Options Section.

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## Step 6—Graphics Adapters

- Up to three PowerStorm graphics options are supported on Digital UNIX, OpenVMS and Windows NT systems.
  - **Digital UNIX and OpenVMS** support any combination of PowerStorm 3D30 and 4D20 graphics. Options require Digital Open3D media included in factory installed software (FIS) on Digital UNIX and OpenVMS systems.
  - **Windows NT** graphics must be homogeneous (three PowerStorm 3D30 or three PowerStorm 4D20 graphics). Options include Graphics Support Services Software license, media and documentation. 3D multi screen not hardware accelerated for Windows NT.
- One ZLXp-Lx graphics option supported per system; -Lx graphics **cannot** be mixed with any other graphics option.

PBXGB-AA	PowerStorm 3D30 2D 8-plane PCI graphics accelerator, 2 MB memory, 1280x1024, 72 Hz, 256 colors for Digital UNIX, OpenVMS, and Windows NT, uses 1 PCI slot
PBXGB-CA	PowerStorm 4D20 3D 24-plane double buffered PCI graphics accelerator, 24-bit Z-buffer, 16 MB memory, 1280x1024, 75 Hz (1600x1200 75 Hz 12 planes double buffered plus 24-bit Z-buffer) for Digital UNIX, OpenVMS, and Windows NT, uses 1 PCI slot
PBXGC-AA	ZLXp-L1 24-plane supported on Digital UNIX and OpenVMS, uses 1 PCI slot
PBXGC-AN	ZLXp-L1 24-plane supported on Windows NT, uses 1 PCI slot
PBXGC-BA	ZLXp-L2 24-plane supported on Digital UNIX and OpenVMS, uses 2 PCI slot

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## Step 7—Networks and Communications

Rackmount systems include PCI-based Ethernet controller(DE435-AA), uses one PCI slot.

- Select networking cable for DE435-AA:
  - BNE4G-02 for AUI
  - BN26M-xx for 10BaseT (twisted pair)
  - BC16M-xx for ThinWire

<b>DE425-AA</b>	EISA Ethernet, uses 1 EISA slot
<b>DE435-AA</b>	High-performance Ethernet. Supported by Digital UNIX, OpenVMS and Windows NT, uses one PCI slot
<b>DEFPA-AA</b>	PCI-based Digital FDDI-SAS/PCI (MMF) controller, Single attachment, uses one PCI slot

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## Step 9—Cabinet Enclosure

<b>H9A10-CE/CF</b>	Digital Rackmount Cabinet Enclosure Dimensions: 66.93-inches high, 23.62-inches wide, 33.84-inches deep Usable rackmount dimensions: 56-inches high, 19-inches wide 30.8-inches deep 120 V contains (2) H7600-AA power controllers @ 24 amps each 240 V contains (2) H7600-AB power controllers @ 16 amps each. Maximum load 1,000 lbs
<b>H9A11-BA/BB</b>	Digital Rackmount Cabinet Enclosure Dimension: 43.31-inches high x 23.62-inches wide x 33.86-inches deep Usable rackmount dimensions: 35-inches high, x 19-inches wide x 30.8-inches deep 120 V contains (1) H7600-AA power controller @ 24 amps each 240 V contains (1) H7600-AB power controller @ 16 amps each. Maximum load 750 lbs
<b>H9A15-BA/BB</b>	Digital Rackmount Cabinet Enclosure Dimensions: 78.74-inches high, 23.62-inches wide, 33.42-inches deep Usable rackmount dimensions: 68.25-inches high, 19-inches wide 29.75-inches deep 120 V contains (2) H7600-AA power controllers @ 24 amps each 240 V contains (2) H7600-AB power controllers @ 16 amps each. Maximum load 1,000 lbs

**Note:** For cabinet enclosures without power controllers use H9A10-AB, H9A11-BE or H9A15-BE

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## Step 8—Power Cords and Keyboards

### Power Cords

Select either 120V or 240V power cord for connection within the rackmount cabinet enclosure from system to power distribution panel or outlet.

<b>BN20Z-4E</b>	120 V 60 HZ power cord, 15 foot terminal 3-18 SJT 125 V, 1781N NEMA connects system to 5-15R outlet 60 HZ rackmounted power distribution unit
<b>BN20Q-4E</b>	240 V 50 HZ power cord, 15 foot terminal 3-14 SJT 250 V, 1781N NEMA connects system to 6-15R outlet 50 HZ rackmounted power distribution unit

### Keyboards

LK471-A2 and LK461-A2 are English keyboards. Select country specific keyboard from AlphaStation Options section.

**Note:**If additional monitor cable length is required, order 2T-45KM-AA (video, keyboard, mouse extension cable kit).

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PS/2 style keyboard	OpenVMS / VT style keyboard
LK471-xx	LK461-xx

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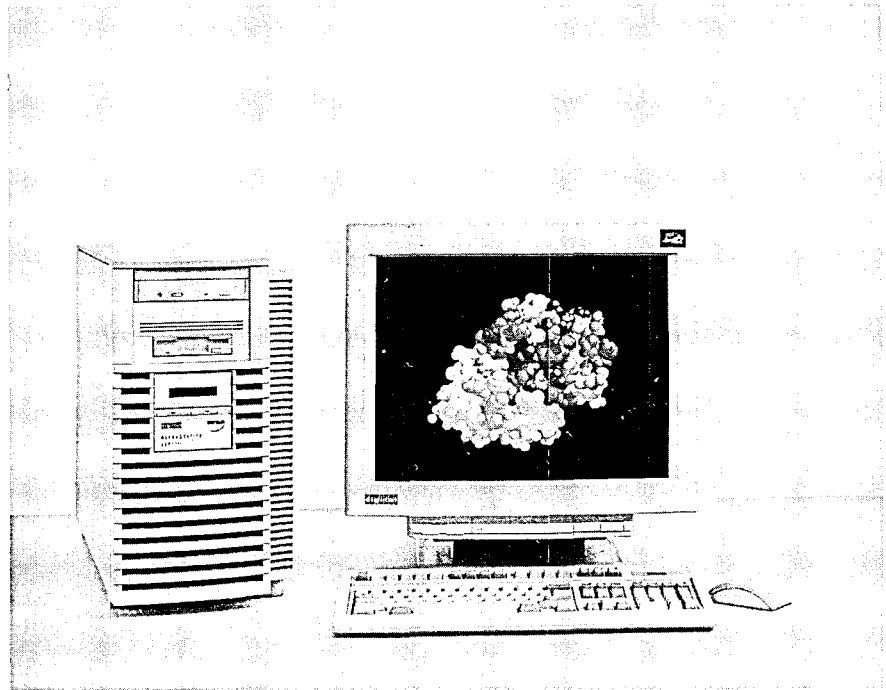
# AlphaStation 600 Rackmount

## Specifications

<b>Physical Characteristics</b>	
Height	26.7 cm (10.5 in.)
Width	48.2 cm (19.0 in.)
Depth	73.7 cm (29.0 in.) system chassis and shelf assembly 63.5 cm (25.0 in.) system chassis only
Weight	31.5 kg (70 lb) approximately
<b>Clearances</b>	
Front	124.04 cm (50 in.)
Rear	61 cm (24 in.)
<b>Power Requirements</b>	
Line voltage	120 V/240 V
Voltage tolerance	90-128 V/190-256 V
Frequency single phase	50 Hz/ 60 Hz
Frequency tolerance	47-63 Hz
Maximum running current	8.0A/4.0A AC without monitor
Maximum power consumption	400 Watt DC
<b>Operating Environment</b>	
Operating temperature	10° to 40° C (50° to 104° F)
Operating humidity	20% to 80% relative humidity
Maximum wet bulb	40° C (104° F)
Storage temperature	-20° C to 65° C (-4° F to 149° F)
Storage humidity	10% to 90% relative humidity
Maximum wet bulb	65° C (149° F)
Maximum altitude	
Operating	2,438 m (8,000 ft) maximum
Nonoperating	4,876 m (16,000 ft) maximum
Nonoperating shock	30G, 25 ms halfsine

## Recommended UPS for AlphaStation 600

4N-AEABF-CA	1.5kVA Rackmount UPS for 120V
4N-AEABF-BG	1.5kVA Rackmount UPS for 240V
4N-AEAE0-RA	Rackmount kit for 240 V systems 22 through 27-inches deep
4N-AEAE0-RB	Rackmount kit for 240 V systems 28 through 34-inches deep



## AlphaStation 600A 5/500

### Product Description

The new AlphaStation 600A 5/500 high performance deskside Workstation series delivers premium performance and excellent expandability, providing access to tens of thousands of applications running on DIGITAL UNIX, OpenVMS, and Windows NT Workstation systems.

The AlphaStation 600A uses the Alpha microprocessor 21164A

AlphaStation 600A 5/500 MHz CPU performance measures 14.8 SPECint95, and 15.0 SPECfp95 with 8 Mbytes cache.

The system is housed in a deskside enclosure with capacity for up to 1 Gbyte of ECC memory, 128-bit wide memory bus, nine option slots, and six storage bays (one dedicated Floppy diskette drive bay, two removable media bays, and three hard disk drive bays). The system supports a wide variety of industry-standard peripherals and PCI and EISA options. Other standard features include Twisted Pair Ethernet, stereo-quality audio, and an array of external ports for serial/parallel communications. This combination of standard features allows multiple in-box configurations without the need for additional tabletop options or expansion boxes.

AlphaStation systems come with the best hardware warranty in the industry—a three-year warranty; 1 year on site, 2 years return to factory. DIGITAL's Trade-In '97 program provides a cost-effective upgrade path for users of older workstations.

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## Systems

- DIGITAL UNIX and OpenVMS systems include factory-installed software (FIS).
  - Options ordered will be factory installed unless specified as **spares**.
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### AlphaStation 600A 5/500 systems include

- Alpha microprocessor 21164A 500-MHz CPU with 8 MB cache
- Deskside enclosure which includes:
  - Nine expansion slots
    - Seven 32-bit PCI
    - Two EISA
  - Four memory options (sixteen SIMM memory slots) supports up to 1 GB memory
  - Integral fast wide SCSI-2 controller
  - Six storage slots:
    - One dedicated diskette drive slot
    - Two removable media slots (CD-ROM included in one slot)
    - Three 3.5-inch hard disk drive slots for 1- and 1.6-inch (16-bit) wide ready drives
  - 400-Watt power supply
  - One serial port, support full modem control
  - One parallel port
  - Keyboard port and mouse port
- PCI-based Ethernet (DE500) 10 or 100 MB/Sec
- Memory (Packages only)
- Hard Disk (Packages only)
- Graphics (Packages only)
- 1.44 Mbyte diskette drive
- 600 Mbyte CD-ROM drive
- Audio, headset, and microphone
- 3-button mouse
- Hardware documentation
- Hardware Warranty
- Software Warranty: 90-day SPD conformance with advisory telephone support\*
- DIGITAL UNIX V4.0A 2-user base license  
DIGITAL Open3D license  
Multimedia Services license  
DIGITAL NAS Client 150 license  
Communique! starter license, and CD-ROM **or**
- OpenVMS V7.1 base license plus concurrent use license  
DIGITAL Open3D license  
Multimedia Services license  
DIGITAL NAS Client 150 license **or**
- Windows NT Workstation 4.0 media kit,  
Communique! starter license and CD-ROM,  
DIGITAL Light & Sound license and CD-ROM

† 10BaseT connection requires shielded twisted pair cable BN26M-xx, see AlphaStation Options for additional cabling information.

### Ordering menus that follows include

AlphaStation 600A 5/500 Packages and Base Configurations.

Menus are streamlined for ease of ordering. Select Advantage Configurations to meet application and performance needs. To configure a customized system, use Base Configuration menus.

System options are in a separate section.

### Warranty Statement

AlphaStations are sold with specific warranty response times, hours of coverage, warranty duration, and a specific manner by which the warranty service will be delivered. DIGITAL also makes available extended coverage offerings to uplift or extend the service coverage and/or response time: See Supplemental Services in AlphaStation Options section.

## AlphaStation 600A 5/500 Packaged Configurations

Y=in base configuration; M=mandatory option; O=option

AlphaStation 600A 5/500		Resources Used	DIGITAL UNIX		
120V / 240V			PB651-AC	PB651-AG	PB651-AH
CPU Alpha microprocessor	21164A 500-MHz	Y	Y	Y	Y
Floppy Disk Drive 1.44 MB	Dedicated bay	Y	Y	Y	Y
CD-ROM 600 MB	5.25" SCSI bay	Y	Y	Y	Y
Headset, microphone	1 EISA slot	Y	Y	Y	Y
Mouse		Y	Y	Y	Y
Ethernet (DE500)	1 32-bit PCI slot	Y	Y	Y	Y
Memory (a)	1 option	Y	128 MB	128 MB	256 MB
Cache (onboard)		Y	8 MB	8 MB	8 MB
Internal storage	1" SCSI bay	Y	Two 2 GB	Two 2 GB	One 4 GB
Graphics (b)	1 PCI slot 2 PCI slots	Y	3D30	4D40T	4D40T
Operating System		Y	Y	Y	Y
User documentation—English		Y	Y	Y	Y
<b>Remaining available resources</b>					
I/O slots	PCI 32-bit wide		5	4	4
	EISA		1	1	1
Memory options			3	3	3
SCSI bays	Internal 5.25"		1	1	1
	Internal 3.5"		1	1	1
SCSI External (c)					
Note: 3.5-inch hard disk drive supported in 5.25-inch CD-ROM bay, brackets are included. Brackets support 3.5 x 1-inch disk drive only					
<b>1. Country Options</b>	Select		1	1	1
PS/2 style keyboard (d)		M	LK47W-xx	LK47W-xx	LK47W-xx
VMS / VT style keyboard			LK46W-xx	LK46W-xx	LK46W-xx
Power Cord (e)		M	BNxxx-xx	BNxxx-xx	BNxxx-xx
Note: LK47W-AA and LK46W-AA, English keyboards, include U.S. power cord, power cord does not need to be ordered separately.					
<b>2. Monitors</b>	Select		1	1	1
17" Color Monitor NH/SH (f)		M	SN-VRTX7-WA/W3 SN-VRT17-WA	SN-VRTX7-WA/W3 SN-VRT17-WA	SN-VRTX7-WA/W3 SN-VRT17-WA
21" Color Monitor NH/SH (f)		M	SN-VRCX1-WA/W4	SN-VRCX1-WA/W4	SN-VRCX1-WA/W4
<b>3. Additional Memory</b>	Select		0, 1, 2, or 3	0, 1, 2, or 3	0, 1, 2, or 3
32 MB	1 option	O	MSP01-CE	MSP01-CE	MSP01-CE
64 MB	1 option	O	MSP01-CF	MSP01-CF	MSP01-CF
128 MB	1 option	O	MSP01-CG	MSP01-CG	MSP01-CG
256 MB	1 option	O	MSP01-CH	MSP01-CH	MSP01-CH
<b>4. Wide hard drive</b>	Select		0, 1 or 2	0, 1 or 2	0, 1 or 2
2.1 GB drive 7200 RPM (g)	1" bay 1 SCSI	O	PBXRW-JB	PBXRW-JB	PBXRW-JB
4.3 GB drive 7200 RPM (g)	1.6" bay 1 SCSI	O	PBXRW-NA	PBXRW-NA	PBXRW-NA
<b>5. Removable media</b>	Select		0 or 1	0 or 1	0 or 1
8 GB 4 mm DAT TLZ09	5.25" bay 1 SCSI	O	PBXTL-DA	PBXTL-DA	PBXTL-DA
2.3 GB QIC TZK20	5.25" bay 1 SCSI	O	PBXTZ-CA	PBXTZ-CA	PBXTZ-CA
<b>6. Software Media and Documentation kits</b>					
DIGITAL UNIX		O	QA-MT4AA-H8	QA-MT4AA-H8	QA-MT4AA-H8
<b>7. Additional Options:</b> See AlphaStation Options for a comprehensive list of qualified options (h)					

- (a) Sixteen SIMM slots support four memory options (4 SIMMs per option). Memory options can be mixed.
- (b) Graphics options require DIGITAL Open3D media, included in factory installed software on DIGITAL UNIX systems. **Graphics configuration rules for DIGITAL UNIX:**
- Up to 3 PowerStorm 3D30 or 4D40 graphics options and 3 monitors are supported (each graphics option requires 1 PCI slot)
  - Up to 3 PowerStorm 4D40T, 4D50T or 4D60T graphics options and 3 monitors are supported (each graphics option requires 2 PCI slots)
  - PowerStorm graphics options must be homogeneous (Three 3D30, 4D20, 4D40T, 4D50T or 4D60T)

- (c) See AlphaStation Options for additional external storage options.
- (d) Select country-specific keyboard from AlphaStation Options section.
- (e) Select country-specific power cord from AlphaStation Options section.
- (f) Monitors include video cable and 120V power cord, order country specific power cord for 240 V use from AlphaStation Options section.
- (g) Internal SCSI uses a wide 68-pin connector. To add a narrow drive, order PBXKP-BA (wide to narrow adapter). Order one adapter for each additional drive.
- (h) Check availability of slots (4 PCI, and 1 EISA available).

## AlphaStation 600A 5/500 Base Configurations

Y=in base configuration; M=mandatory option; O=option

AlphaStation 600A 5/500	Resources Used		DIGITAL UNIX	Open VMS	Windows NT
120V/240V			PB65A-AA	PB65A-BA	PB65A-CA
CPU Alpha microprocessor	21164A 500-MHz	Y	Y	Y	Y
Floppy Disk Drive 1.44 MB	Dedicated bay	Y	Y	Y	Y
CD-ROM 600 MB	5.25" SCSI bay	Y	Y	Y	Y
Headset, microphone	1 EISA slot	Y	Y	Y	Y
Mouse		Y	Y	Y	Y
Ethernet (DE500)	1 32-bit PCI slot	Y	Y	Y	Y
Cache (onboard)		Y	8 MB	8 MB	8 MB
Operating system		Y	Y	Y	Y
User documentation—English		Y	Y	Y	Y
<b>Remaining available resources</b>					
I/O slots PCI 32-bit wide			6	6	6
EISA			1	1	1
Memory options (a)			4	4	4
SCSI bays Internal 5.25"			1	1	1
Internal 3.50"			3	3	3
<b>Note:</b> 3.5-inch hard disk drive supported in 5.25-inch CD-ROM bay, brackets are included. Brackets support 3.5 x 1-inch disk drive <b>only</b>					
<b>1. Country Options</b>	Select		1	1	1
PS/2 style keyboard (b)		M	LK47W-xx	LK47W-xx	LK47W-xx
VMS / VT style keyboard			LK46W-xx	LK46W-xx	LK46W-xx
Power Cord (c)		M	BNxxx-xx	BNxxx-xx	BNxxx-xx
<b>Note:</b> LK47W-AA and LK46W-AA, Include English keyboards and U.S. power cord. Power cord does not need to be ordered separately.					
<b>2. Memory</b>			Minimum Required	Minimum Required	Minimum Required
Required: 1			64 MB	64 MB	32 MB
Optional Available: 2, 3, or 4	Select		1, 2, 3 or 4	1, 2, 3, or 4	1, 2,3 or 4
32 MB	1 option	M	MSP01-CE	MSP01-CE	MSP01-CE
64 MB	1 option	M	MSP01-CF	MSP01-CF	MSP01-CF
128 MB	1 option	M	MSP01-CG	MSP01-CG	MSP01-CG
256 MB	1 option	M	MSP01-CH	MSP01-CH	MSP01-CH
<b>Note:</b> To reach 1 GB maximum memory order MSP01-CH options					
<b>3. Wide hard drive</b>	Select		1, 2 or 3	1, 2 or 3	1, 2 or 3
2.1 GB drive 7200 RPM (d)	1" bay 1 SCSI	M	PBXRW-JB	PBXRW-JB	PBXRW-JB
4.3 GB drive 7200 RPM (d)	1.6" bay 1 SCSI	M	PBXRW-NA	PBXRW-NA	PBXRW-NA
<b>4. Monitors</b>	Select		1	1	1
17" Color Monitor NH/SH (e)		M	SN-VRTX7-WA/W3 SN-VRT17-WA	SN-VRTX7-WA/W3 SN-VRT17-WA	SN-VRTX7-WA/W3 SN-VRT17-WA
21" Color Monitor NH/SH (e)		M	SN-VRCX1-WA/W4	SN-VRCX1-WA/W4	SN-VRCX1-WA/W4
<b>5. Graphics</b>	Select		1	1	1
PowerStorm 3D30 8-plane (f)	1 PCI slot	M	PBXGB-AA	PBXGB-AA	PBXGB-AA
PowerStorm 4D20 24-plane (f)	1 PCI slot	M	PBXGB-CA	PBXGB-CA	PBXGB-CA
PowerStorm 4D40T (f)	2 PCI slots	M	PBXGI-AA		PBXGI-AA
PowerStorm 4D50T (f)	2 PCI slots	M	PBXGI-AB		PBXGI-AB
PowerStorm 4D60T (f)	2 PCI slots	M	PBXGI-AC		PBXGI-AC
<b>5a. PowerStorm Texture Memory Upgrades—supported on PowerStorm 4D40T, 4D50T, and 4D60T graphics options only</b>					
4 MB Texture memory module		O	PBXGI-GA		PBXGI-GA
16 MB Texture memory module		O	PBXGI-GB		PBXGI-GB
32 MB Texture memory module		O	PBXGI-GC		PBXGI-GC

## AlphaStation 600A 5/500 Base Configurations (continued)

Y=in base configuration; M=mandatory option; O=option

AlphaStation 600A 5/500	Resources Used		DIGITAL UNIX	Open VMS	Windows NT
120V/240V	21164A 500-MHz		PB65A-AA	PB65A-BA	PB65A-CA
<b>6. Removable media</b>	Select		0 or 1	0 or 1	0 or 1
8 GB 4 mm DAT TLZ09	5.25" SCSI bay	O	PBXTL-DA	PBXTL-DA	PBXTL-DA
2.3 GB QIC TZK20	5.25" SCSI bay	O	PBXTZ-CA	PBXTZ-CA	PBXTZ-CA
<b>7. SCSI Storage Controller</b>					
PCI Fast SCSI-2 controller*	1 PCI slot	O	KZPAA-AA	KZPAA-AA	KZPAA-AA
* Maximum two Fast SCSI-2 controllers per system					
<b>8. Communication Options</b>					
EISA Ethernet	1 EISA slot	O	DE425-AA	DE425-AA	DE425-AA
PCI High-performance Ethernet	1 PCI slot	O	DE435-AA	DE435-AA	DE435-AA
PCI FDDI controller (fiber)	1 PCI slot	O	DEFPA-AB	DEFPA-AB	DEFPA-AB
<b>9. Software Media and Documentation kits</b>					
DIGITAL UNIX		O	QA-MT4AA-H8		
OpenVMS		O		QA-MT1AA-H8	
AlphaStation 600A User Documentation		O	EK-AL655-UI*	EK-AL655-UI*	EK-AL655-UI*
AlphaStation 600A Installation Guide		O	EK-AS800-IN*	EK-AS800-IN*	EK-AS800-IN*
* English User Documentation and Installation Guide are included with Advantage and Base Configurations.					
<b>10. 500 MHz CPU Upgrade with 8 MB Onboard Cache</b>					
AlphaStation 600 5/266 or 5/333 to AlphaStation 600A 5/500 MHz CPU upgrade		O	PB62U-CA	PB62U-CA	PB62U-CA
<b>Note:</b> Installation is not included with CPU upgrade, order FM-WSDSD-IN separately					
<b>11. Additional Options:</b> See AlphaStation Options for a comprehensive list of qualified options (g)					

- (a) Sixteen SIMM slots support four memory options (4 SIMMs per option). Memory options can be mixed.
- (b) Select country-specific keyboard from AlphaStation Options section.
- (c) Select country-specific power cord from AlphaStation Options section.
- (d) Selection of one hard disk drive is mandatory for Base systems. Internal SCSI uses a wide 68-pin connector. To add a narrow drive, order PBXKP-BA (wide to narrow adapter). Order one adapter for each additional drive.
- (e) Monitors include video cable and 120V power cord, order country specific power cord for 240V use from AlphaStation Options section.
- (f) Graphics options require DIGITAL Open3D media, included in factory installed software on DIGITAL UNIX and OpenVMS systems. Windows NT graphics options include Graphics Support Services Software license, media and documentation. 3D multiscreen not hardware accelerated for Windows NT

**Graphics configuration rules for DIGITAL UNIX systems:**

- Up to 3 PowerStorm 3D30 or 4D40 graphics options and 3 monitors are supported
- Up to 3 PowerStorm 4D40T, 4D50T or 4D60T graphics options and 3 monitors are supported
- PowerStorm graphics options must be homogeneous (Three 3D30, 4D20, 4D40T, 4D50T or 4D60T)

**Graphics configuration rules for OpenVMS systems:**

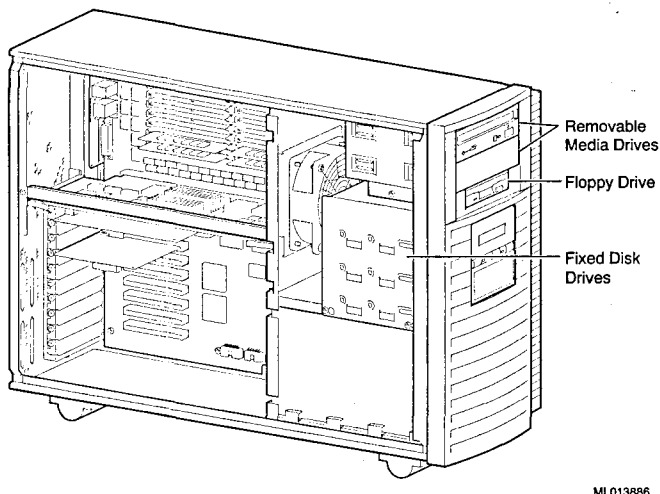
- Up to 3 PowerStorm 3D30 or 4D40 graphics options and 3 monitors are supported
- Graphics options must be homogeneous (Three 3D30 or 4D20)

**Graphics configuration rules for Windows NT systems:**

- 1 PowerStorm 3D30, 4D40, 4D40T, 4D50T or 4D60T graphics option and 1 monitor is supported
- (g) For PCI or EISA cards, check the availability of slots (6 PCI, and 1 EISA available).

# AlphaStation 600A

## System Diagram



ML013886

## Specifications

PCI -32 bit	132 MB/second
Fast Wide SCSI-2 bus	20 MB/s transfer rate
Ethernet	10 or 100 MBit/s Twisted Pair standard
<b>Power Requirements</b>	
Line voltage	120 V/240 V
Voltage tolerance	90-128 V/190-256 V
Frequency single phase	50 Hz/ 60 Hz
Frequency tolerance	47-63 Hz
Maximum running current	8.0A/4.0A A.C.
Typical power consumption	165 W A.C.
Maximum power consumption	960 VA
Typical power factor	0.6
<b>Operating Environment</b>	
Operating temperature	10° to 40° C (50° to 104° F)
Operating humidity	20% to 80% relative humidity
Maximum wet bulb	40° C (104° F)
Storage temperature	-20° C to 65° C (-4° F to 149° F)
Storage humidity	10% to 90% relative humidity
Maximum wet bulb	65° C (149° F)
Maximum altitude	
Operating	2,438 m (8,000 ft) maximum
Nonoperating	4,876 m (16,000 ft) maximum
Nonoperating shock	30G, 25 ms halfsine
<b>Physical Characteristics</b>	
Height	469.9 mm (18.5 inches)
Width	241.3 mm (9.5 inches)
Depth	660.4 mm (26.0 inches)
Weight	31.8 kg (70 lb)
<b>Regulatory</b>	
Agency Approval	AlphaStation 600A 5/500 is FCC Class B AlphaStation 600 5/266 to AlphaStation 600A 5/500 upgrade is FCC Class B

**AlphaStation Options**

Country Specific Keyboards and Power Cords

Monitors

Graphics

2D and 3D Input Devices

System Memory

Cache Memory

Internal SCSI Storage

SCSI Controllers and Adapters

External SCSI Storage

Communications

Multimedia

UPS

Software

User Documentation

Hardware Supplemental Services

Software Supplemental Services

Warranty Attributes



## AlphaStation Options

### AlphaStation Country Specific Keyboards and Power Cords

- LK47W and LK46W are Frost White keyboards for AlphaStation 255 and 500 Systems only.
- LK471 and LK461 are Light Gray keyboards for all other AlphaStations.

Required option		101/102 Key—PC style keyboard		108 Key—VT style keyboard	
Keyboard Country Table	Select	1		1	
North America/English		LK471-AA *	LK47W-AA *	LK461-AA *	LK46W-AA *
Arabic		LK471-BR	LK47W-BR		
Belgian		LK471-AB	LK47W-AB	LK461-AB	LK46W-AB
Canadian/French		LK471-AC	LK47W-AC	LK461-AC	LK46W-AC
Cyrillic		LK471-BT	LK47W-BT	LK461-BT	LK46W-BT
Czech		LK471-BV	LK47W-BV	LK461-BV	LK46W-BV
Danish		LK471-AD	LK47W-AD	LK461-AD	LK46W-AD
Finnish				LK461-AF	LK46W-AF
French		LK471-AP	LK47W-AP	LK461-AP	LK46W-AP
German		LK471-AG	LK47W-AG	LK461-AG	LK46W-AG
Dutch		LK471-AH	LK47W-AH	LK461-AH	LK46W-AH
Greek		LK471-BH	LK47W-BH	LK461-BH	LK46W-BH
Hebrew		LK471-AT	LK47W-AT	LK461-AT	LK46W-AT
Hungarian		LK471-BQ	LK47W-BQ	LK461-BQ	LK46W-BQ
Icelandic		LK471-CQ	LK47W-CQ		
Italian		LK471-AI	LK47W-AI	LK461-AI	LK46W-AI
Latin American		LK471-AR	LK47W-AR		
Norwegian		LK471-AN	LK47W-AN	LK461-AN	LK46W-AN
Polish		LK471-PB	LK47W-PB	LK461-BP	LK46W-BP
Portuguese		LK471-AV	LK47W-AV	LK461-AV	LK46W-AV
Romanian				LK461-BL	LK46W-BL
Slovak		LK471-CZ	LK47W-CZ	LK461-CZ	LK46W-CZ
Spanish		LK471-AS	LK47W-AS	LK461-AS	LK46W-AS
Swiss/Generic		LK471-AK	LK47W-AK		
Swiss/French				LK461-AK	LK46W-AK
Swiss/German				LK461-AL	LK46W-AL
Swedish				LK461-AM	LK46W-AM
Swedish/Finnish		LK471-AF	LK47W-AF		
Taiwanese		LK471-BI	LK47W-BI		
Thai		LK471-CB	LK47W-CB		
Turkish		LK471-BU	LK47W-BU	LK461-BU	LK46W-BU
Turkish F.		LK471-BW	LK47W-BW	LK461-BW	LK46W-BW
United Kingdom/English		LK471-AE	LK47W-AE	LK461-A2	LK46W-A2
Yugoslavia		LK471-BY	LK47W-BY	LK461-BY	LK46W-BY

\* LK471-AA, LK461-AA, LK471W, and LK461W English keyboards, include U.S. power cord; power cord does not need to be ordered separately.

Power Cord	Select 1	System	Monitor
Africa/India		BN19S-2E	BN19S-2E
Australia, NZ		BN19H-2E	BN19H-2E
Denmark		BN19K-2E	BN19K-2E
Italy		BN19M-2E	BN19M-2E
Israel		BN18L-2E	BN18L-2E
North America		BN19P-1K	BN19P-1K
Central Europe		BN03A-2E	BN03A-2E
Switzerland		BN19E-2E	BN19E-2E
UK, Ireland		BN26D-2E	BN26D-2E

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Refer to System Sections for allowable option configurations. All options will be factory installed unless specified as Spares on original order.

Used On	200 4/100	200 4/166, 4/233	250 4/266	255/233 255/300	400 4/233	500/333 500/400, 500/500	600 5/333 600A 5/500
<b>Monitors</b>							
VRC15-KA	Y	N	N	N	N	N	N
SN-VRCX5-WA/W3/W4	N	N	N	Y	N	N	N
VRT17-PA	Y	Y	Y	N	Y	N	Y
SN-VRTX7-WA/W3 SN-VRT17-W4	N	N	N	Y	N	Y	N
VRC21-LA	Y	Y	Y	N	Y	N	Y
SN-VRCX1-WA/W3/W4	N	N	N	Y	N	Y	N

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Refer to System Sections for allowable option configurations. All options will be factory installed unless specified as Spares on original order.

<b>Monitors</b>	
15" (13.9" viewable image size) high-resolution color monitor with Light Gray enclosure. Flat-square CRT with 0.28 mm dot pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1024 x 768 at 75Hz NI refresh rates. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 1.4-meter HD15 male-to-male video cable. - Select -KA for Northern Hemisphere, if purchased in North America, -KA includes 120V power cord, otherwise power cord for -KA not included, order separately.	<b>VRC15-KA</b>
15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.	<b>SN-VRCX5-WA/ W3/W4</b>
17" (16.0" viewable image size) high-resolution color monitor with Light Gray enclosure. Trinitron aperture grille CRT with 0.26mm stripe pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1280 x 1024 at 75Hz NI refresh rates. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 3.0-meter HD15 male-to-BNC video cable. Select -PA for Northern Hemisphere, if purchased in North America, -PA includes 120V power cord, otherwise power cords for -PA not included, order separately.	<b>VRT17-PA</b>
17" (16.0" viewable image size) Professional Series auto-scan color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 @ 75Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord, SN-VRT17-W4 = Southern Hemisphere. Select country specific power cord for W3 and W4 variant.	<b>SN-VRTX7-WA/W3 SN-VRT17-W4</b>
21" (19.6" viewable image size) ultra high-resolution color monitor with Light Gray enclosure. Diamondtron aperture grille CRT with 0.30 mm stripe pitch and anti-reflection, anti-glare, anti static coating. Auto-scanning from VGA to 1600 x 1200 at 75Hz NI refresh rates. On Screen display (OSD). Stereo viewing compatible. MPR-II, Energy Star, DPMS and NUTEK compliant. 120/240V universal power supply. Includes 3.0-meter HD15 male-to-BNC video cable. If purchased in North America, includes 120V power cord, otherwise power cords not included, order separately.	<b>VRC21-LA</b>
21" (19.7" viewable image size) professional series auto-scan color monitor, Diamondtron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.	<b>SN-VRCX1-WA/ W3/W4</b>

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Used On	Operating System (a)	200 4/100	200 4/166, 4/233	250 4/266	255/233 255/300	400 4/233	500/333 500/400, 500/500	600 5/333 600A 5/500
<b>Graphics</b>								
PBXGB-AA (b)	U, V, NT	N	N	N	Y*	N	Y	Y
PBXGB-CA (b)	U, V, NT	N	N	N	Y*	N	Y	Y
PBXGI-AA (c)	U, NT	N	N	N	N	N	Y	Y
PBXGI-AB (c)	U, NT	N	N	N	N	N	Y	Y
PBXGI-AC (c)	U, NT	N	N	N	N	N	Y	Y
PBXGI-GA (d)	N/A	N	N	N	N	N	Y	Y
PBXGI-GB (d)	N/A	N	N	N	Y	N	Y	Y
PBXGI-GC (d)	N/A	N	N	N	Y	N	Y	Y
PBXGC-AA (e)	U, V	N	Y	Y	Y*	Y	Y	Y
PBXGC-AN (f)	NT	N	Y	Y	Y*	Y	Y	Y
PBXGC-BA (e)	U, V	N	Y	Y	Y*	Y	Y	Y
PBXGC-BN (e)	NT	N	Y	Y	N	Y	Y	Y

(a) Supported operating systems: U=DIGITAL UNIX  
V=OpenVMS, NT=Windows NT, N/A=Not applicable.

(b) Up to 3 PowerStorm 3D30 or 3 PowerStorm 4D20, or any combination of up to 3 PowerStorm 3D30/4D20 options and 3 monitors are supported on DIGITAL UNIX and OpenVMS systems. **Note:** AlphaStation 255 support 2 PowerStorm options and 2 monitors on OpenVMS systems. Options require DIGITAL Open3D media, included in factory installed software (FIS) on DIGITAL UNIX and OpenVMS systems. Multi screen support for Windows NT must be homogeneous (3 PowerStorm 3D30 options or 3 PowerStorm 4D20). Windows NT options include Graphics Support

\* AlphaStation 255 systems running OpenVMS do not support graphics cards in shared slot #0 (1st slot), due to shared interrupt with the Ethernet.

Services Software license, media and documentation. 3D multi screen not hardware accelerated for Windows NT. PowerStorm 3D30 and 4D20 options and ZLXp-Ex options **cannot** be mixed in same system.

- (c) One PowerStorm 4DxxT option supported per system. PowerStorm 4DxxT graphics cannot be mixed with any other graphics option. Includes Graphics Support Services Software License, media and documentation.
- (d) Maximum supported, one per graphics module.
- (e) One ZLXp-Lx option supported per system; -Lx graphics cannot be mixed with any other graphics option.

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Bus / Slots Required	Description	
<b>Graphics</b>		
1 PCI slot	PowerStorm 3D30 2D 8-plane PCI graphics accelerator, 2 MB memory, 1280x1024, 72 Hz, 256 colors for DIGITAL UNIX, OpenVMS and Windows NT	<b>PBXGB-AA</b>
1 PCI slot	PowerStorm 4D20 3D 24-plane double buffered PCI graphics accelerator, 24-bit Z-buffer, 16 MB memory, 1280x1024 75Hz (1600x1200 75Hz 12 planes double buffered plus 24-bit Z-buffer) for DIGITAL UNIX, OpenVMS and Windows NT	<b>PBXGB-CA</b>
2 PCI slots	(†) PowerStorm 4D40T Advanced 3D graphics accelerator with 16 MB video memory, 1280 x 1024 resolution, 24 bit true color, double buffered, 24 bit Z-buffer, hardware accelerated 3D shading and texture mapping.	<b>PBXGI-AA</b>
2 PCI slots	(†) PowerStorm 4D50T Advanced 3D graphics accelerator with enhanced performance, 16 MB video memory, 1280 x 1024 resolution, 24 bit true color, double buffered, 24 bit Z-buffer, hardware accelerated 3D shading and texture mapping.	<b>PBXGI-AB</b>
2 PCI slots	(†) PowerStorm 4D60T Advanced 3D Graphics accelerator with enhanced performance, 32 MB video memory, 1600 x 1280 resolution, 24 bit true color, double buffered 32 bit Z buffer, hardware accelerated 3D shading and texture mapping.	<b>PBXGI-AC</b>
	4 MB Texture Memory Module. Supports hardware accelerated texture mapping on PowerStorm 4D40T, 4D50T, and 4D60T graphics accelerators.	<b>PBXGI-GA</b>
	16 MB Texture Memory Module. Supports hardware accelerated texture mapping on PowerStorm 4D40T, 4D50T, and 4D60T graphics accelerators.	<b>PBXGI-GB</b>
	32 MB Texture Memory Module. Supports hardware accelerated texture mapping on PowerStorm 4D40T, 4D50T, and 4D60T Graphics Accelerators.	<b>PBXGI-GC</b>
1 PCI slot	ZLXp-L1 3D 24-plane double buffered PCI graphics accelerator, 24-bit Z-buffer, 16 MB memory, 1280x1024 72 Hz, 1 rendering engine, for DIGITAL UNIX and OpenVMS	<b>PBXGC-AA</b>
1 PCI slot	ZLXp-L1 3D 24-plane double buffered PCI graphics accelerator, 24-bit Z-buffer, 16 MB memory, 1280x1024 72 Hz, 1 rendering engine, for Windows NT	<b>PBXGC-AN</b>
2 PCI slots	ZLXp-L2 3D 24-plane double buffered PCI graphics accelerator, 24-bit Z-buffer, 32 MB memory, 1280x1024 72 Hz, 2 rendering engines, for DIGITAL UNIX and OpenVMS	<b>PBXGC-BA</b>
2 PCI slots	ZLXp-L2 3D 24-plane double buffered PCI graphics accelerator, 24-bit Z-buffer, 32 MB memory, 1280x1024 72 Hz, 2 rendering engines, for Windows NT	<b>PBXGC-BN</b>

† Minimum operating software required: DIGITAL UNIX V4.0, and Windows NT 3.51. Hardware-accelerated texturing requires Texture Memory Module.

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Used On	200 4/100	200 4/166, 4/233	250 4/266	255/233 255/300	400 4/233	500/333 500/400, 500/500	600 5/333 600A 5/500
<b>2D and 3D Input Devices</b>							
PBXWA-AA	Y	Y	Y	Y	Y	Y	Y
PBXWB-AA	Y	Y	Y	Y	Y	Y	Y
PBXWT-AA	Y	Y	Y	Y	Y	Y	Y
PBXWT-AB	Y	Y	Y	Y	Y	Y	Y
PBXWT-AC	Y	Y	Y	Y	Y	Y	Y
PBXWT-AD	Y	Y	Y	Y	Y	Y	Y
PBXWT-BA	Y	Y	Y	Y	Y	Y	Y
PBXWS-AA	Y	Y	Y	N	Y	N	Y
PBXWS-WA	N	N	N	Y	N	Y	N

<b>System Memory</b>							
MSP01-AA	Y	Y	N	N	Y	N	N
MSP01-AB	Y	Y	N	N	Y	N	N
MSP01-AC	Y	Y	N	N	Y	N	N
MSP01-AD	Y	Y	N	N	Y	N	N
MSP01-AE	Y	Y	N	N	Y	N	N
MSP01-BA	N	N	Y	Y	N	N	N
MSP01-BB	N	N	Y	Y	N	N	N
MSP01-BC	N	N	Y	Y	N	N	N
MSP01-BD	N	N	Y	Y	N	N	N
MSP01-FA	N	N	N	N	N	Y	N
MSP01-FB	N	N	N	N	N	Y	N
MSP01-FC	N	N	N	N	N	Y	N
MSP01-FD	N	N	N	N	N	Y	N
MSP01-FE	N	N	N	N	N	Y (a)	N
MSP01-CA	N	N	N	N	N	N	Y
MSP01-CB	N	N	N	N	N	N	Y
MSP01-CC	N	N	N	N	N	N	Y
MSP01-CD	N	N	N	N	N	N	Y

<b>Cache Memory</b>							
MSP01-EB	N	N	N	N	N	N	Y

(a) Supported on AlphaStation 500/400 and 500/500 only

## AlphaStation Options and Technical Specifications

Description		
<b>2D and 3D Input Devices</b>		
Spaceball Model 3003 3D Motion Control Device. Full simultaneous six-degree-of-freedom control with dynamic pan, zoom, and rotation of models (X,Y,Z translations and rotations) instantly. Serial port interface. Includes Spaceware device driver on CD-ROM. Supported on DIGITAL UNIX, OpenVMS and Windows NT. Check with ISV for application support status.		PBXWA-AA
3-button Trackball. Replaces standard AlphaStation mouse as an alternative pointing device. Plugs into AlphaStation mouse port. No special device drivers required. Supported on DIGITAL UNIX, OpenVMS and Windows NT.		PBXWB-AA
12" x 12" Digitizing Tablet with Opaque surface, user selectable resolution up to 2,540 lpi, 16 button cordless cursor, serial interface cable, 9 to 25 pin adapter cable, DIGITAL UNIX driver, Windows NT (WinTab compliant) driver, OpenVMS driver, 120V North American wall mounted power supply.		PBXWT-AA
12" x 12" Digitizing Tablet with Opaque surface, user selectable resolution up to 2,540 lpi, 16 button cordless cursor, serial interface cable, 9 to 25 pin adapter cable, DIGITAL UNIX driver, Windows NT (WinTab compliant) driver, OpenVMS driver, 220V European wall mounted power supply.		PBXWT-AB
12" x 12" Digitizing Tablet with Opaque surface, user selectable resolution up to 2,540 lpi, 16 button cordless cursor, serial interface cable, 9 to 25 pin adapter cable, DIGITAL UNIX driver, Windows NT (WinTab compliant) driver, OpenVMS driver, 240V U.K. wall mounted power supply.		PBXWT-AC
12" x 12" Digitizing Tablet with Opaque surface, user selectable resolution up to 2,540 lpi, 16 button cordless cursor, serial interface cable, 9 to 25 pin adapter cable, DIGITAL UNIX driver, Windows NT (WinTab compliant) driver, OpenVMS driver, 100V Japan wall mounted power supply.		PBXWT-AD
Two button click tip pen for PBXWT-Ax Digitizing Tablet		PBXWT-BA
Spare 3-button mouse, Light Gray enclosure		PBXWS-AA
Spare 3-button mouse, Frost White enclosure		PBXWS-WA

System Memory		
1 bank	8 MB (2 x 4 MB SIMMs) 1Mx33	MSP01-AA
1 bank	16 MB (2 x 8 MB SIMMs) 2Mx33	MSP01-AB
1 bank	32 MB (2 x 16 MB SIMMs) 4Mx33	MSP01-AC
1 bank	64 MB (2 x 32 MB SIMMs) 8Mx33	MSP01-AD
1 bank	128 MB (2 x 64 MB SIMMs) 16Mx33	MSP01-AE
1 bank	32 MB (4 x 8 MB SIMMs) 2Mx33	MSP01-BA
1 bank	64 MB (4 x 16 MB SIMMs) 4Mx33	MSP01-BB
1 bank	128 MB (4 x 32 MB SIMMs) 8Mx33	MSP01-BC
1 bank	256 MB (4 x 64 MB SIMMs) 16Mx33	MSP01-BD
1 bank	32 MB (4 x 8 MB DIMMs) 1Mx72	MSP01-FA
1 bank	64 MB (4 x 16 MB DIMMs) 2Mx72	MSP01-FB
1 bank	128 MB (4 x 32 MB DIMMs) 4Mx72	MSP01-FC
1 bank	256 MB (4 x 64 MB DIMMs) 8Mx72	MSP01-FD
1 bank	512 MB (4 x 128 MB DIMMs) 16Mx72	MSP01-FE (a)
1 bank	32 MB (8 x 4 MB SIMMs) 1Mx36	MSP01-CA
1 bank	64 MB (8 x 8 MB SIMMs) 2Mx36	MSP01-CB
1 bank	128 MB (8 x 16 MB SIMMs) 4Mx36	MSP01-CC
1 bank	256 MB (8 x 32 MB SIMMs) 8Mx36	MSP01-CD

Cache Memory		
	4 MB 3 x 1.33 MB SIMMs	MSP01-EB

(a) Supported on AlphaStation 500/400 and 500/500 only

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Used On	200 4/100	200 4/166, 4/233	250 4/266	255/233 255/300	400 4/233	500/333 500/400, 500/500	600 5/333 600A 5/500
<b>Internal SCSI Storage</b>							
PBXR- AA	Y	Y	Y	N	Y	N	Y
PBXR- AB	N	N	N	Y	N	Y	N
PBXR- DA	Y	Y	Y	N	Y	N	Y
PBXR- DB	N	N	N	Y	N	Y	N
PBXR- EB	Y	Y	Y	Y	Y	Y (b)	Y (b)
PBXR- ED (a)	Y	Y	N	Y	N	N	N
PBXR- HB	Y	Y	Y	Y	Y	Y (b)	Y (b)
PBXR- JC	Y	Y	Y	Y	Y	Y (b)	Y (b)
PBXR- NB	Y	Y	Y	Y	Y	Y (b)	Y (b)
PBXR- SA	Y	Y	Y	Y	Y	Y (b)	Y (b)
PBXR- EB	N	N	N	N	N	Y	Y
PBXR- HB	N	N	N	N	N	Y	Y
PBXR- JC	N	N	N	N	N	Y	Y
PBXR- NB	N	N	N	N	N	Y	Y
PBXR- SA	N	N	N	N	N	Y	Y
PBXT- DA	Y (c, d)	Y (c, d)	Y (c, d)	N	Y (d)	N	Y (d)
PBXT- DB	N	N	N	Y (m)	N	N	N
PBXT- AA	Y (c)	Y (c)	Y (c)	N	Y	N	Y
PBXT- CA	Y (c, e)	Y (c, e)	Y (c, e)	N	Y (e)	N	Y (e)
PBXT- CB	N	N	N	Y (m)	N	N	N

<b>SCSI Controllers and Adapter</b>							
KZPA- AA	Y	Y	Y	Y	Y	Y	Y
KZPS- BB	Y (f, g)	Y (f, g)	Y (g)	N	Y	Y (h)	Y (g)
KZPD- AA	N	N	N	Y (i)	Y (h)	Y (h)	N
DWZZ- B	Y	Y	Y	N	Y	N	Y
KZPS- AA	N	N	Y (j)	Y (f, j)	Y (j)	Y (j, k)	Y (j, k)
KZPS- BA	N	N	Y (j)	Y (f, j)	Y (j)	Y (j, k)	Y (j, k)
SWIR- CD	N	N	Y	Y	Y	Y	Y
SWIR- CF	N	N	Y	Y	Y	Y	Y
SWIR- CG	N	N	Y	Y	Y	Y	Y
SWIR- CH	N	N	Y	Y	Y	Y	Y
SWIR- CK	N	N	Y	Y	Y	Y	Y
PBXK- BA (b)	N	N	N	N	N	Y	Y

- (a) Does not support Tag Command Queuing, Seek Reordering, Spindle Sync, Variable Sector Size, or OpenVMS SCSI clusters.
- (b) To add a narrow SCSI drive to AlphaStation 500 and 600, order wide to narrow adapter (PBXK-BA) for each drive.
- (c) Supported as embedded only in place of CD-ROM drive
- (d) Supported on DIGITAL UNIX, OpenVMS, and Windows NT 4.0. For use with Windows NT 3.51, obtain upgrade kit part number QC-00LAC-UC, which includes driver and installation instructions. Driver and instructions are also available at Web Site <http://www.storage.digital.com> under, the "Technomania" section.
- (e) Supported on DIGITAL UNIX and OpenVMS. Windows NT requires 4.0 minimum, with jumper changed to generic brick mode.
- (f) DIGITAL UNIX V3.2D and OpenVMS V6.2-1H1 both require SRM console V6.1-2 minimum, which support bootable versions of ARC/Alphabios, and V3.6 or V3.7 or later firmware CD-ROM which contains ARC/Alphabios images required to build a bootable floppy (V3.6) or boot

- directly from the CD-ROM (V3.7 or later). Allows user to configure referenced adapters without re-flashing the SRM console. Refer to Web Site: <http://ftp.digital.com/pub/Digital/Alpha/firmware/utilities/>
- (g) Not supported on OpenVMS SCSI clusters.
- (h) Supported on DIGITAL UNIX and Windows NT only.
- (i) Supported on DIGITAL UNIX and Windows NT only, requires console firmware update to V6.3-4, available on V3.8 Firmware CD via update utility V7.4; maximum two per system.
- (j) Boot support of RAID set under OpenVMS requires minimum of OpenVMS V6.2-1H3, previous versions support data device RAID set only. DIGITAL UNIX support requires minimum of V3.2D, and requires patch OSF350-135.
- (k) KZPS hardware Rev C or greater requires console firmware upgrade to V6.0-21 or later. Access Website: <http://ftp.digital.com:80/pub/Digital/Alpha/firmware/interim/>
- (m) Supported on AlphaStation 255 enclosures purchased after April 7, 1997 with DIGITAL UNIX or OpenVMS only. Supported in Floppy diskette drive bay only.

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Bus / Slots Required	Description	
<b>Internal SCSI Storage</b>		
3.5" x 1" bay	1.44 MB 3.5" diskette drive, included in most systems (FDI), Light Gray	PBXRX-AA
3.5" x 1" bay	1.44 MB 3.5" x 1 diskette drive, Frost White	PBXRX-AB
5.25" bay	600 MB 5.25" half-height 12X CD-ROM drive, included in most systems, Light Gray	PBXRZ-DA
5.25" bay	600 MB 5.25" half-height 12X CD-ROM drive, included in most systems Frost White	PBXRZ-DB
3.5 x 1" or 1.6" bay	1.05 GB 3.5" x 1" <b>narrow</b> hard disk drive 5400 RPM	PBXRZ-EB
3.5 x 1" or 1.6" bay	1.05 GB 3.5" x 1" <b>narrow</b> hard disk drive 5400 RPM	PBXRZ-ED
3.5 x 1.6" bay	2.1 GB 3.5" x 1.6" <b>narrow</b> hard disk drive 5400 RPM	PBXRZ-HB
3.5 x 1" or 1.6" bay	2.1 GB 3.5" x 1.6" <b>narrow</b> hard disk drive 7200 RPM	PBXRZ-JC
3.5 x 1" or 1.6" bay	4.3 GB 3.5" x 1" <b>narrow</b> hard disk drive 7200 RPM	PBXRZ-NB
3.5 x 1.6" bay	9.1 GB 3.5" x 1.6" <b>narrow</b> hard disk drive 7200 RPM	PBXRZ-SA
3.5 x 1" or 1.6" bay	1.05 GB 3.5" x 1" <b>wide</b> hard disk drive 5400 RPM	PBXRW-EB
3.5 x 1" or 1.6" bay	2.1 GB 3.5" x 1" <b>wide</b> hard disk drive 5400 RPM	PBXRW-HB
3.5 x 1" or 1.6" bay	2.1 GB 3.5" x 1" Ultra <b>wide</b> hard disk drive 7200 RPM	PBXRW-JC
3.5 x 1" or 1.6" bay	4.3 GB 3.5" x 1" Ultra <b>wide</b> hard disk drive 7200 RPM	PBXRW-NB
3.5 x 1.6" bay	9.1 GB 3.5" x 1.6" Ultra <b>wide</b> hard disk drive 7200 RPM	PBXRW-SA
5.25" bay	4.0/8.0 GB 5.25" x 1.6" 4-mm DAT drive, Light Gray	PBXTL-DA
3.5 x 1.6" bay	4.0/8.0 GB 3.5" x 1.6" 4-mm DAT drive, Frost White	PBXTL-DB
5.25" bay	2.0 GB 5.25" half-height QIC tape drive, Light Gray	PBXTZ-AA
5.25" bay	2.3 GB 5.25" half-height mini-cartridge QIC tape drive, Light Gray	PBXTZ-CA
3.5 x 1.6" bay	2.3 GB 3.5 x 1.6" half-height mini cartridge QIC tape drive, Frost White	PBXTZ-CB

<b>SCSI Controllers and Adapter</b>		
1 PCI slot	PCI-based Fast Narrow Single Ended (FNSE) SCSI-2 controller, maximum 2 per system, requires BN21H-02 SCSI cable.	KZPAA-AA
1 PCI slot	PCI-based Fast Wide Differential (FWD) SCSI-2 controller, requires DWZZB-AA adapter	KZPSA-BB
1 PCI slot	PCI-based one port Fast Wide Single Ended (FWSE) SCSI-2 controller, requires BN21K-02 SCSI cable.	KZPDA-AA
External	SCSI bus extender and converter, Fast Wide Differential on one end to Fast Wide Single Ended on other, requires BN21K-xx SCSI cable.	DWZZB
1 PCI slot	PCI-based one port RAID controller, requires BN31S-1E SCSI cable	KZPSC-AA
1 or 2 PCI slots*	PCI-based three port RAID controller, requires three BN31S-1E and one BN31K-0E bulkhead kit adapter for third port connection	KZPSC-BA
1 PCI slot	PCI-based RAID Array RA230 1-port SCSI subsystem with 3 x 1 GB disks	SWIRA-CD
1 PCI slot	PCI-based RAID Array RA231 1-port SCSI subsystem with 3 x 4.3 GB disks	SWIRA-CF
1 PCI slot	PCI-based RAID Array RA231 1-port SCSI subsystem with 3 x 2.1 GB disks	SWIRA-CG
1 or 2 PCI slots*	PCI-based RAID Array RA233 3-port SCSI subsystem with 3 x 2.1 GB disks	SWIRA-CH
1 or 2 PCI slots*	PCI-based RAID Array RA233 3-port SCSI subsystem with 3 x 4.3 GB disks	SWIRA-CK
internal adapter	Wide to Narrow SCSI adapter	PBXKP-BA

\* Third port connection requires one additional PCI bulkhead slot

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Used On	200 4/100	200 4/166, 4/233	250 4/266	255/233 255/300	400 4/233	500/333 500/400, 500/500	600 5/333 600A 5/500
<b>External SCSI Storage (a, b)</b>							
BA353-AA (d)	Y	Y	Y	Y	Y	Y (c)	(c, e)
BA356-KC	Y (f, l)	Y (f, l)	Y (f, l)	Y (f, l)	Y (f, l)	Y (f, l)	Y (f, l)
BA362-AA/AB	Y (g, l)	Y (g, l)	Y (g, l)	Y (g, l)	Y (g, l)	Y (g, l)	Y (g, l)
BA364-AA/AB	Y (g, l)	Y (g, l)	Y (g, l)	Y (g, l)	Y (g, l)	Y (g, l)	Y (g, l)
TSZ07-CA/FA	Y (k)	Y (k)	Y (k)	Y (k)	Y (k)	Y (c, k)	Y (c, k)
TKZ60-FA/HA	Y (k)	Y (k)	Y (k)	Y (k)	Y (k)	Y (c, k)	Y (c, k)
TKZ61-AC/AF	Y (k)	Y (k)	Y (k)	Y (k)	Y (k)	Y (c, k)	Y (c, k)
TKZ62-AC/AF	Y (k)	Y (k)	Y (k)	Y (k)	Y (k)	Y (c, k)	Y (c, k)
TKZ9E-TA/VA	Y (k)	Y (k)	Y (k)	Y (k)	Y (k)	Y (c, k)	Y (c, k)
TLZ09-DB	Y (h)	Y (h)	Y (h)	Y (h)	Y (h)	N	Y (h)
TLZ09-DC	N	N	N	N	N	Y (h)	N
TZ88N-TA	Y	Y	Y	Y	Y	Y (c, i)	Y (c)
TZ885-NT	Y	Y	Y	N	Y	Y (c, i)	Y (c)
TZ887-NT	Y	Y	Y	N	Y	Y (c, i)	Y (c)
TZK20-DB	Y (j)	Y (j)	Y (j)	Y (j)	Y (j)	N	Y (j)
TZK20-DC	N	N	N	N	N	Y (j)	N
TZK11-DA	Y	Y	Y	Y	Y	Y (c)	Y (c)

- (a) For more than 7 internal or external devices, a fast SCSI-2 controller, which supports 7 devices, is required.
- (b) Each external device requires a 3-foot SCSI cable.
- (c) To run narrow devices/enclosures off the Wide external SCSI bus, order BN36A-0B, 68-pin HD to 50-pin HD hi-byte terminator adapter, and either 50-pin HD to 50-pin LD BN23G-01 one-meter cable for tabletop devices, or 50-pin HD to 50-pin HD BN21H-01 one-meter cable for BA350/BA353.
- (d) Supports 5400 RPM drives only.
- (e) See AlphaStation 600 external expansion in order menu.
- (f) For narrow connection to BA356-KC with AlphaStation 200, 250, 255, and 400, order a KZPAA-AA controller and BN21N-02 SCSI cable. For wide connection off the external wide bus on AlphaStations 500 and 600, order a BN21K-01.
- (g) For narrow device support from external 8-bit narrow SCSI port on AlphaStations 200, 250, 255 and 400, order a one-meter 68-pin HD to 50-pin HD external SCSI cable BN31V-01. For wide device support from external 16-bit wide SCSI port on AlphaStations 500 and 600, order a 1-meter 68-pin HD to 68-pin HD external SCSI cable BN31G-01.
- (h) Supported on DIGITAL UNIX, OpenVMS, and Windows NT 4.0. For use with Windows NT 3.51, obtain upgrade kit part number QC-00LAC-UC, which includes driver and installation instructions. Driver and instructions are also available at Web Site <http://www.storage.digital.com> under, the "Technomania" section.
- (i) Supported on DIGITAL UNIX and OpenVMS only.
- (j) Supported on DIGITAL UNIX and OpenVMS only. Windows NT requires 4.0 minimum, with jumper changed to generic brick mode..
- (k) Supported on DIGITAL UNIX, OpenVMS and Windows NT 3.5 and 3.51. **Note:** Not supported on Windows NT 4.0.
- (l) Ultra Wide drives in these StorageWorks enclosures are limited to Fast Wide performance and attachment to Fast Wide controllers and adapters.

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Bus / Slots Required	Description	
<b>External SCSI Storage</b>		
(e)	StorageWorks desktop expansion box (up to three devices). Requires BN21H-01 off external SCSI bus, or BN21H-02 off KZPAA-AA SCSI controller	BA353-AA
(e)	Deskside unit with BA356 shelf and power supply BA35X-HF, pedestal kit BA35X-VA, dual-speed blowers, 16-bit I/O module BA35X-MH, and North American power cord. Supports up to seven Narrow and Wide device	BA356-KC
external	StorageWorks desktop expansion for Narrow and Wide devices, supports up to two devices	BA362-AA/AB
external	StorageWorks desktop expansion for Narrow and Wide devices, supports up to four devices	BA364-AA/AB
external	40/140 MB reel/reel tape drive, tabletop, narrow SCSI, requires BN23G-01 SCSI cable.	TSZ07-CA/FA
external	400 MB 3480/3490 compatible tape drive, single slot tabletop, narrow SCSI, requires BN23G-01 SCSI cable.	TKZ60-FA/HA
external	4.0 GB, 3480/3490 compatible tape drive, 10-slot autoloader, tabletop, narrow SCSI, requires BN23G-01 SCSI cable.	TKZ61-AC/AF
external	24 GB, 3480/3490/3490E compatible tape drive, 10-slot autoloader, tabletop, narrow SCSI, requires BN23G-01 SCSI cable	TKZ62-AC/AF
external	2/5/7/10/14 GB 8 mm tape drive, tabletop, narrow SCSI, requires BN23G-01 SCSI cable.	TKZ9E-TA/VA
external	8.0 GB 4-mm DAT tape drive, Tabletop, Frost White (DIGITAL UNIX and OpenVMS, see note (h) for Windows NT); includes SCSI cable	TLZ09-DB
external	8.0 GB 4-mm DAT tape drive, Tabletop with wide to narrow SCSI adapter and cable, Frost White (DIGITAL UNIX, OpenVMS support, see note (h) for Windows NT)	TLZ09-DC
external	40/20 GB DLT cartridge tape drive, single slot, Tabletop, requires BN23G-01 SCSI cable (DIGITAL UNIX and OpenVMS only)	TZ88N-TA
external	200/100 GB DLT (5 cartridge loader) Tabletop, requires BN23G-01 SCSI cable (DIGITAL UNIX and OpenVMS only)	TZ885-NT
external	280/140 GB DLT (7 cartridge loader) Tabletop, requires BN23G-01 SCSI cable (DIGITAL UNIX and OpenVMS only)	TZ887-NT
external	2.3 GB QIC tape drive, Tabletop, includes SCSI cable, Frost White	TZK20-DB
external	2.3 GB QIC tape drive, Tabletop with wide to narrow SCSI adapter and cable, Frost White	TZK20-DC
external	2.0 GB QIC tape, Tabletop, requires BN23G-01 SCSI cable	TZK11-DA

(e) See AlphaStation 600 external expansion in order menu.

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Used On	200 4/100	200 4/166, 4/233	250 4/266	255/233 255/300	400 4/233	500/333 500/400, 500/500	600 5/333 600A 5/500
<b>Communication Options—Check availability of PCI, EISA, and ISA slots</b>							
DE425-AA	N	N	N	N	N	N	Y
DE450-CA	Y	Y	Y	Y	Y	Y	Y
DE450-TA	Y	Y	Y	Y	Y	Y	Y
DE500-XA/AA (a)	Y	Y	Y	Y	Y	Y	Y
DE205-AC	Y	Y	Y	Y	Y	N	N
DGLPB-AB (a)	Y	Y	Y	Y	Y	Y	Y
DI1AA-AA (b)	Y	Y	Y	Y	Y	N	Y
DI1AA-AB (b)	Y	Y	Y	Y	Y	N	Y
PBXDC-DA	N	N	N	Y	N	N	N
PBXDF-AA	Y	Y	Y	Y	Y	N	Y (b)
PBXDF-BA	Y	Y	Y	Y	Y	N	Y
PBXDI-AA	Y (c)	Y (c)	Y (c)	Y/N (d)	Y (c)	N	N
PBXDI-AB	Y (c)	Y (c)	Y (c)	Y/N (d)	Y (c)	N	N
PBXDI-AC	Y (c)	Y (c)	Y (c)	Y/N (d)	Y (c)	N	N
PBXDP-AA	N	N	N	N/Y (e, f)	N	Y	N (e)
PBXNP-AA (e)	Y	Y	Y	Y	Y	Y	Y
DEFPA-AB	Y	Y	Y	Y	Y	Y	Y
DEFPA-DB	Y	Y	Y	Y	Y	Y	Y
DEFPA-UB	Y	Y	Y	Y	Y	Y	Y
DEFPA-MB	Y	Y	Y	Y	Y	Y	Y
DETTR-BA/BB	Y	Y	Y	Y	Y	N	N
PBXDC-DB	N	N	N	N	N	Y	N
PBXDC-DC	N	N	N	N	N	Y	N
DNSES-AA (e)	N	N	N	N	N	N	Y (e)
DW300-AA	N	N	N	N	N	N	Y
CXI01-AA	Y	Y	Y	N	Y	N	N
CXI01-AD	Y	Y	Y	N	Y	N	N
CXI01-AE	Y	Y	Y	N	Y	N	N
DJ-ML200-AA				N		Y	
PCP3H-AG				Y		Y	

(a) Supported on DIGITAL UNIX and Windows NT systems only.

(b) Supported on Windows NT systems only.

(c) Supported in ISA/combo slot only.

(d) Supported on AlphaStation 255/233 systems only.

(e) Supported on DIGITAL UNIX and OpenVMS systems only.

(f) Supported on AlphaStation 255/300 systems only.

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Bus / Slots Required	Description	
<b>Communication Options</b>		
1 EISA	EISA Ethernet	DE425-AA
1 PCI	PCI Ethernet, Twisted Pair, ThinWire, Thick wire	DE450-CA
1 PCI	PCI Ethernet, Twisted Pair	DE450-TA
1 PCI	PCI Fast Ethernet, 100 MB	DE500-XA/AA
1 ISA	ISA Ethernet for DIGITAL UNIX and Windows NT	DE205-AC
1 PCI	PCI to ATM adapter features multi-mode fiber cable interface and SONET/SDH framing, for DIGITAL UNIX and Windows NT	DGLPB-AB
1 ISA	ISA ISDN adapter/network interface card for Windows NT. U interface for U.S. and Canada	DIIAA-AA
1 ISA	ISA ISDN adapter/network interface card for Windows NT. S/T interface for Europe, APA	DIIAA-AB
	Ethernet Halo AUI Card, ThinWire	PBXDC-DA
1 ISA	ISA modem 14.4K (U.S. only)	PBXDF-AA
1 ISA	ISA modem 28.8K (U.S. only)	PBXDF-BA
1 ISA/ Combo slot	2-port ISA Synchronous communication controller, X.25/SNA V.24/V.28 equivalent to EIA 232, supported in ISA/Combo slot only	PBXDI-AA
1 ISA/ Combo slot	2-port ISA Synchronous communication controller, X.25/SNA V 35, supported in ISA/Combo slot only	PBXDI-AB
1 ISA/ Combo slot	2-port ISA Synchronous communication controller, X25/SNA V 21/EIA-530, supported in ISA/Combo slot only	PBXDI-AC
1 PCI	2 port PCI synchronous communications controller, EIA-232, -422, -423, -449, -485, -530, V.35, and or X.21	PBXDP-AA
1 PCI	PCI Token Ring Network Adapter for DIGITAL UNIX and OpenVMS	PBXNP-AA
1 PCI	PCI-based DIGITAL FDDI-SAS/PCI (MMF) controller, Single attachment	DEFPA-AA
1 PCI	PCI-based DIGITAL FDDI-DAS/PCI (MMF) controller, Dual attachment	DEFPA-DA
1 PCI	PCI-based DIGITAL FDDI-SAS/PCI (UTP) controller	DEFPA-UA
1 PCI	PCI-based DIGITAL FDDI-DAS/PCI (UTP) controller, Dual attachment	DEFPA-MA
	10BaseT to AUI (UTP to thick wire) single port adapter/repeater, 120/240V, 120V variant includes North American power cord; order country specific power cord for 240V variant. Supported on all systems.	DETTR-BA/BB
	ThinWire/Twisted pair MAU converter	PBXDC-DB
	Thick wire MAU converter	PBXDC-DC
1 EISA	2 port EISA Synchronous communication controller, X.25/SNA V.24/V.28 Equivalent to EIA-232	DNSES-AA
1 EISA	EISA Proteon Bus Master EISA Interface card Unshielded twisted pair/shielded twisted pair	DW300-AA
1 ISA	16-64 Port Asynchronous Multiplexer for DIGITAL UNIX and Windows NT	CXI01-AA
1 ISA	16-224 Port Asynchronous Multiplexer for DIGITAL UNIX and Windows NT	CXI01-AD
	16-Port expander for CXI08-AD	CXI01-AE
1 PCI	PCI Prestoserve 2 MB DIGITAL UNIX	DJ-ML200-AA
external	Kensington lock for added security	PCP3H-AG

## AlphaStation Options

### AlphaStation Options and Technical Specifications

Used On	200 4/100	200 4/166, 4/233	250 4/266	255/233 255/300	400 4/233	500/333 500/400, 500/500	600 5/333 600A 5/500
<b>Multimedia and Audio</b>							
AVH01-AA	Y	Y	Y	Y	Y	Y	Y
AV301-AA	Y	Y	Y	Y	Y	Y	Y
AV321-AA	Y	Y	Y	Y	Y	Y	Y
SN-AVC01-AA	Y	Y	Y	Y	Y	Y	Y
SN-AVC01-AE	Y	Y	Y	Y	Y	Y	Y
SN-AVC01-CA	Y	Y	Y	Y	Y	Y	Y
<b>Recommended UPS</b>							
4N-AEABC-AF 120V	Y	Y	Y	Y	N	N	N
4N-AEABC-BF 240V	Y	Y	Y	Y	N	N	N
4N-AEABD-AF 120V	N	N	N	N	Y	N	N
4N-AEABD-BF 240V	N	N	N	N	Y	N	N
4N-AEABF-AA 120V	N	N	N	N	N	Y	Y
4N-AEABF-BF 240V	N	N	N	N	N	Y	Y
<b>Data Line Surge protectors (For complete protection select surge protectors for UPS products)</b>							
4N-GA249-AB	Y	Y	Y	Y	Y	Y	Y
4N-GA249-CA	Y	Y	Y	Y	Y	Y	Y
4N-GA249-BF	Y	Y	Y	Y	Y	Y	Y

## AlphaStation Options

### AlphaStation Options and Technical Specifications

<b>Description</b>		
<b>MultiMedia and Audio</b>		
	Replacement headphones and microphone	AVH01-AA
1 PCI slot	FullVideo Supreme for all systems	AV301-AA
1 PCI slot	FullVideo Supreme JPEG for all systems	AV321-AA
	Philips camera, North America	SN-AVC01-AA
	Philips camera, UK	SN-AVC01-AE
	Philips camera, Europe	SN-AVC01-CA

<b>Recommended UPS</b>		
	Prestige Model 650 for 120V systems	4N-AEABC-AF
	Prestige Model 650 for 240V systems	4N-AEABC-BF
	Prestige Model 800 for 120V systems	4N-AEABD-AF
	Prestige Model 800 for 240V systems	4N-AEABD-BF
	Prestige Model 1250 EXT for 120V systems. Unit includes plug-in battery extension provisions to over 2 hours at full load	4N-AEABF-AA
	Prestige Model 1250 EXT for 240V systems. Unit includes plug-in battery extension provisions to over 2 hours at full load	4N-AEABF-BF

<b>Data Line Surge protectors—Surge protectors for UPS products</b>		
	Data line surge protector for two wire modem	4N-GA249-AB
	Data line surge protector for 10BaseT	4N-GA249-CA
	Data line surge protector for ThinWire	4N-GA249-BF

## AlphaStation Options

### Operating System and Layered Software

Used On	200 4/100	200 4/166, 4/233	250 4/266	255/233 255/300	400 4/233	500/333 500/400, 500/500	600 5/333 600A 5/500
Processor Code	E	E	E	E	E	E	G
<b>DIGITAL UNIX Media and Documentation</b>							
QA-MT4AA-H8	Y	Y	Y	Y	Y	Y	Y
QA-MT4AA-GZ	Y	Y	Y	Y	Y	Y	Y
QA-MT4AB-GZ	Y	Y	Y	Y	Y	Y	Y
QA-MT5AA-GZ	Y	Y	Y	Y	Y	Y	Y
QA-MT6AA-GZ	Y	Y	Y	Y	Y	Y	Y
<b>DIGITAL UNIX Layered Products CD-ROM</b>							
QA-054AA-H8	Y	Y	Y	Y	Y	Y	Y
<b>DIGITAL Open3D for DIGITAL UNIX</b>							
QA-0AFAA-H8	Y	Y	Y	Y	Y	Y	Y
<b>DIGITAL NAS Client 150 for DIGITAL UNIX</b>							
Included with operating system	Y	Y	Y	Y	Y	Y	Y
<b>OpenVMS Media and Documentation</b>							
QA-MT1AA-H8 (a)	Y	Y	Y	Y	Y	Y	Y
QA-MT1AG-H8				Y		Y	
QA-MT1AH-GZ				Y		Y	
QA-001AA-GZ	Y	Y	Y	Y	Y	Y	Y
<b>OpenVMS Layered Products CD-ROM</b>							
QA-03XAA-H8	Y	Y	Y	Y	Y	Y	Y
<b>DIGITAL Open 3D for OpenVMS</b>							
QA-0ADAA-H8	Y	Y	Y	Y	Y	Y	Y
<b>DIGITAL NAS Client 150 for OpenVMS</b>							
Included with operating system	Y	Y	Y	Y	Y	Y	Y
<b>Media for Microsoft Windows NT</b>							
QB-0QRAA-SA	Y	Y	Y	Y	Y	Y	N
QB-4LTAA-SA	Y	Y	Y	Y	Y	Y	Y
<b>Support Services Software for Microsoft Windows NT</b>							
QM-356AA-AA	Y	Y	Y	Y	Y	Y	Y
QB-356AA-SA	Y	Y	Y	Y	Y	Y	Y
QA-356AA-GZ	Y	Y	Y	Y	Y	Y	Y
<b>Layered Software</b>							
QA-4DEAA-GZ	Y	Y	Y	Y	Y	Y	Y
QM-4DFAA-BA	Y	Y	Y	Y	Y	Y	Y
QB-4DFAA-WA	Y	Y	Y	Y	Y	Y	Y

(a) OpenVMS V6.2-1H1 kit is required for AlphaStation 255 and AlphaStation 500. It must be installed over OpenVMS V6.2 media when reloading operating system

## AlphaStation Options

### Operating System and Layered Software

<b>DIGITAL UNIX Media and Documentation</b>	
DIGITAL UNIX media and documentation on CD-ROM	QA-MT4AA-H8
DIGITAL UNIX base hardcopy documentation	QA-MT4AA-GZ
DIGITAL UNIX End User documentation	QA-MT4AB-GZ
DIGITAL UNIX Developer's documentation	QA-MT5AA-GZ
DIGITAL UNIX Server Extension documentation	QA-MT6AA-GZ
<b>DIGITAL UNIX Layered Products CD-ROM</b>	
Layered products media and documentation for on CD-ROM	QA-054AA-H8
<b>DIGITAL Open3D for DIGITAL UNIX</b>	
DIGITAL Open3D for DIGITAL UNIX media and documentation	QA-0AFAA-H8
<b>DIGITAL NAS Client 150 for DIGITAL UNIX</b>	
DIGITAL NAS Client 150 license is included with DIGITAL UNIX systems. Media available on layered products CD-ROM.	Included with operating system
<b>OpenVMS Media and Documentation</b>	
OpenVMS V6.2 media and documentation on CD-ROM	QA-MT1AA-H8
OpenVMS V62-1H1 media and documentation on CD-ROM	QA-MT1AG-H8
OpenVMS Base hardcopy documentation	QA-MT1AH-GZ
OpenVMS Full hardcopy documentation	QA-001AA-GZ
<b>OpenVMS Layered Products CD-ROM</b>	
Layered products media and documentation for OpenVMS on CD-ROM	QA-03XAA-H8
<b>DIGITAL Open 3D for OpenVMS</b>	
DIGITAL Open3D for OpenVMS media and documentation on CD	QA-0ADAA-H8
<b>DIGITAL NAS Client 150 for OpenVMS</b>	
DIGITAL NAS Client 150 license is included with OpenVMS systems. Media available on layered products CD-ROM.	Included with operating system
<b>Media for Microsoft Windows NT</b>	
Windows NT Media Kit (CD-ROM)	QB-0QRAA-SA
DIGITAL Light & Sound Pack (License and CD-ROM)	QB-4LTAA-SA
<b>Support Services Software for Microsoft Windows NT</b>	
License for Graphics Support Services Software for Microsoft Windows NT	QM-356AA-AA
Graphics Services Software for Microsoft Windows NT, license, media (diskette), and documentation	QB-356AA-SA
Graphics Services Software for Microsoft Windows NT (documentation only)	QA-356AA-GZ
<b>Layered Software</b>	
Communique! Administrators Guide and documentation kit for DIGITAL UNIX	QA-4DEAA-GZ
Communique! Starter license for DIGITAL UNIX	QM-4DFAA-BA
Communique! Starter kit for DIGITAL UNIX and Windows NT (License and CD-ROM)	QB-4DFAA-WA

## AlphaStation Options

### AlphaStation Concurrent Use Licenses

Used On Processor Code	200 4/100 E	200 4/166, 4/233 E	250 4/266 E	255/233 255/300 E	400 4/233 E	500/333 500/400, 500/500 E	600 5/333 600A 5/500 G
<b>DIGITAL UNIX Concurrent Use Licenses</b>							
Note: DIGITAL UNIX Concurrent Use Licenses are not specific to a single system and can be moved from one system to another at user discretion.							
QL-MT7AM-3B	Y	Y	Y	Y	Y	Y	Y
QL-MT7AM-3C	Y	Y	Y	Y	Y	Y	Y
QL-MT7AM-3D	Y	Y	Y	Y	Y	Y	Y
QL-MT7AM-3E	Y	Y	Y	Y	Y	Y	Y
QL-MT7AM-3F	Y	Y	Y	Y	Y	Y	Y
QL-MT7A*-AA	* = E	* = E	* = E	* = E	* = E	* = E	* = G
QL-MT6AE-AA	Y	Y	Y	Y	Y	Y	Y
QL-MT5AE-AA	Y	Y	Y	Y	Y	Y	Y

### OpenVMS Concurrent Use Licenses

Note: OpenVMS Concurrent Use Licenses are not specific to a single system and can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster..

QL-MT3AA-3B	Y	Y	Y	Y	Y	Y	Y
QL-MT3AA-3C	Y	Y	Y	Y	Y	Y	Y
QL-MT3AA-3D	Y	Y	Y	Y	Y	Y	Y
QL-MT3AA-3E	Y	Y	Y	Y	Y	Y	Y
QL-MT3AA-3F	Y	Y	Y	Y	Y	Y	Y
QL-MT3AA-3G	Y	Y	Y	Y	Y	Y	Y
QL-MT3AA-3H	Y	Y	Y	Y	Y	Y	Y
QL-MT3AA-3J	Y	Y	Y	Y	Y	Y	Y
QL-MT3AA-3K	Y	Y	Y	Y	Y	Y	Y
QL-MT2A*-AA	* = E	* = E	* = E	* = E	* = E	* = E	* = G

## AlphaStation Options

### AlphaStation Concurrent Use Licenses

<b>DIGITAL UNIX Concurrent Use Licenses</b>	
<b>Note:</b> DIGITAL UNIX Concurrent Use Licenses are not specific to a single system and can be moved from one system to another at user discretion.	
DIGITAL UNIX Concurrent Use 1-user license	QL-MT7AM-3B
DIGITAL UNIX Concurrent Use 2-user license	QL-MT7AM-3C
DIGITAL UNIX Concurrent Use 4-user license	QL-MT7AM-3D
DIGITAL UNIX Concurrent Use 8-user license	QL-MT7AM-3E
DIGITAL UNIX Concurrent Use 16-user license	QL-MT7AM-3F
DIGITAL UNIX Traditional unlimited user license	QL-MT7A*-AA
DIGITAL UNIX server extension license	QL-MT6AE-AA
DIGITAL UNIX developer's extension license	QL-MT5AE-AA
<b>OpenVMS Concurrent Use Licenses</b>	
<b>Note:</b> OpenVMS Concurrent Use Licenses are not specific to a single system and can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.	
OpenVMS Concurrent Use 1-user license	QL-MT3AA-3B
OpenVMS Concurrent Use 2-user license	QL-MT3AA-3C
OpenVMS Concurrent Use 4-user license	QL-MT3AA-3D
OpenVMS Concurrent Use 8-user license	QL-MT3AA-3E
OpenVMS Concurrent Use 16-user license	QL-MT3AA-3F
OpenVMS Concurrent Use 32-user license	QL-MT3AA-3G
OpenVMS Concurrent Use 64-user license	QL-MT3AA-3H
OpenVMS Concurrent Use 128-user license	QL-MT3AA-3J
OpenVMS Concurrent Use 256-user license	QL-MT3AA-3K
OpenVMS Traditional unlimited user license	QL-MT2A*-AA

## AlphaStation Options

### User Documentation

Used On	200 4/100	200 4/166, 4/233	250 4/266	255/233 255/300	400 4/233	500/333 500/400, 500/500	600 5/333 600A 5/500
<b>User Documentation</b>							
EK-PCDTA-UI	Y	Y	N	N	N	N	N
EK-PCDTA-UP	Y	Y	N	N	N	N	N
EK-PCDTA-UG	Y	Y	N	N	N	N	N
EK-PCDTA-UU	Y	Y	N	N	N	N	N
EK-PCDTA-US	Y	Y	N	N	N	N	N
EK-PCDTA-UH	Y	Y	N	N	N	N	N
EK-PCCTA-UI	N	N	N	N	Y	N	N
EK-PCDSA-TI	N	N	N	N	N	N	N
EK-PCDSA-UI	N	N	N	N	N	N	N
EK-PCDSA-CI	N	N	N	N	N	N	N
EK-PCDSP-UI	N	N	N	N	N	N	N
EK-PCDSP-CI	N	N	N	N	N	N	N
EK-PCDSG-UI	N	N	N	N	N	N	N
EK-PCDSG-CI	N	N	N	N	N	N	N
EK-PCDSI-UI	N	N	N	N	N	N	N
EK-PCDSI-CI	N	N	N	N	N	N	N
EK-PCDSS-UI	N	N	N	N	N	N	N
EK-PCDSS-CI	N	N	N	N	N	N	N
EK-PCDSH-UI	N	N	N	N	N	N	N
EK-PCDSH-CI	N	N	N	N	N	N	N
EK-PCDSY-UI	N	N	N	N	N	N	N
EK-PCDSY-CI	N	N	N	N	N	N	N
EK-AS800-UI	N	N	N	N	N	N	Y
EK-AS800-IN	N	N	N	N	N	N	Y
EK-VLLXA-UI	N	N	N	Y	N	N	N
EK-VLLXS-UI	N	N	N	Y	N	N	N
EK-VLLXF-UI	N	N	N	Y	N	N	N
EK-VLLXG-UI	N	N	N	Y	N	N	N
EK-VLLXI-UI	N	N	N	Y	N	N	N
EK-VLLXD-UI	N	N	N	Y	N	N	N
EK-VLLXJ-UI	N	N	N	Y	N	N	N
EK-VLLXA-TI	N	N	N	Y	N	N	N
EK-VLLXA-II	N	N	N	Y	N	N	N
AK-QUBKA-CA	N	N	N	Y	N	N	N
EK-A0864-UG	N	N	N	N	N	Y	N
EK-A0865-UG	N	N	N	N	N	Y	N
EK-A0866-UG	N	N	N	N	N	Y	N
EK-A0867-UG	N	N	N	N	N	Y	N
EK-A0868-UG	N	N	N	N	N	Y	N
EK-A0869-UG	N	N	N	N	N	Y	N
EK-ALPH5-UI	N	N	N	N	N	Y	N

## AlphaStation Options

### User Documentation

<b>User Documentation</b>	
User Documentation—English	EK-PCDTA-UI
User Documentation—French	EK-PCDTA-UP
User Documentation—German	EK-PCDTA-UG
User Documentation—Italian	EK-PCDTA-UU
User Documentation—Spanish	EK-PCDTA-US
User Documentation—Dutch	EK-PCDTA-UH
User Documentation—English—Alpha Station 250 4/266	EK-PCCTA-UI
Technical Documentation	EK-PCDSA-TI
User Documentation—English	EK-PCDSA-UI
CPU Documentation—English	EK-PCDSA-CI
User Documentation—French	EK-PCDSP-UI
CPU Documentation—French	EK-PCDSP-CI
User Documentation—German	EK-PCDSG-UI
CPU Documentation—German	EK-PCDSG-CI
User Documentation—Italian	EK-PCDSI-UI
CPU Documentation—Italian	EK-PCDSI-CI
User Documentation—Spanish	EK-PCDSS-UI
CPU Documentation—Spanish	EK-PCDSS-CI
User Documentation—Dutch	EK-PCDSH-UI
CPU Documentation—Dutch	EK-PCDSH-CI
User Documentation—Japanese	EK-PCDSY-UI
CPU Documentation—Japanese	EK-PCDSY-CI
User Documentation—English	EK-AS800-UI
Installation Guide—English	EK-AS800-IN
AlphaStation 255 User Information—English	EK-VLLXA-UI
AlphaStation 255 User Information—Spanish	EK-VLLXS-UI
AlphaStation 255 User Information—French	EK-VLLXF-UI
AlphaStation 255 User Information—German	EK-VLLXG-UI
AlphaStation 255 User Information—Italian	EK-VLLXI-UI
AlphaStation 255 User Information—Dutch	EK-VLLXD-UI
AlphaStation 255 User Information—Japanese	EK-VLLXJ-UI
AlphaStation 255 Technical Information	EK-VLLXA-TI
AlphaStation 255 Installation Information	EK-VLLXA-II
AlphaStation 255 Service Guide Floppy	AK-QUBKA-CA
AlphaStation 500 Series User Information—German	EK-A0864-UG
AlphaStation 500 Series User Information—French	EK-A0865-UG
AlphaStation 500 Series User Information—Spanish	EK-A0866-UG
AlphaStation 500 Series User Information—Italian	EK-A0867-UG
AlphaStation 500 Series User Information—Dutch	EK-A0868-UG
AlphaStation 500 Series User Information—Japanese	EK-A0869-UG
AlphaStation 500 Series User Information—English	EK-ALPH5-UI

## AlphaStation Options

### AlphaStation Service Options

Hardware Supplemental Services	200 4/100	200 4/166, 4/233	250 4/266	255/233 255/300	400 2/233
Year 2&3, 5x9, next day	FM-AFXHW-36	FM-AFXHW-36	FM-AFXHW-36	FM-AFXHW-36	FM-ACXHW-36
Year 1-3, 5x9, 4 hour	FM-AF4HR-36	FM-AF4HR-36	FM-AF4HR-36	FM-AF4HR-36	FM-AC4HR-36
Year 1-3, 5x12, 4 hour	FM-AF512-36	FM-AF512-36	FM-AF512-36	FM-AF512-36	FM-AC512-36
Year 1-3, 6x16, 4 hour	FM-AF616-36	FM-AF616-36	FM-AF616-36	FM-AF616-36	FM-AC616-36
Year 1-3, 7x24, 4 hour	FM-AF724-36	FM-AF724-36	FM-AF724-36	FM-AF724-36	FM-AC724-36
Year 2-4, 5x9, next day	FM-AFXHW-48	FM-AFXHW-48	FM-AFXHW-48	FM-AFXHW-48	FM-ACXH2-48
Year 1-4, 5x9, 4 hour	FM-AF4HR-48	FM-AF4HR-48	FM-AF4HR-48	FM-AF4HR-48	FM-AC4HR-48
Year 1-4, 5x12, 4 hour	FM-AF512-48	FM-AF512-48	FM-AF512-48	FM-AF512-48	FM-AC512-48
Year 1-4, 6x16, 4 hour	FM-AF616-48	FM-AF616-48	FM-AF616-48	FM-AF616-48	FM-AC616-48
Year 1-4, 7x24, 4 hour	FM-AF724-48	FM-AF724-48	FM-AF724-48	FM-AF724-48	FM-AC724-48
Year 2-5, 5x9, next day on site	FM-AFXHW-60	FM-AFXHW-60	FM-AFXHW-60	FM-AFXHW-60	FM-ACHXW-60
Year 1-5, 5x9, 4 hour	FM-AF4HR-60	FM-AF4HR-60	FM-AF4HR-60	FM-AF4HR-60	FM-AC4HR-60
Year 1-5, 5x12, 4 hour	FM-AF512-60	FM-AF512-60	FM-AF512-60	FM-AF512-60	FM-AC512-60
Year 1-5, 6x16, 4 hour	FM-AF616-60	FM-AF616-60	FM-AF616-60	FM-AF616-60	FM-AC616-60
Year 1-5, 7x24, 4 hour	FM-AF724-60	FM-AF724-60	FM-AF724-60	FM-AF724-60	FM-AC724-60

### Software Supplemental Services

12-month - DIGITAL UNIX OpenVMS Windows NT	FM-A4OSF-12 FM-A4VMS-12 FM-A4NTS-12	FM-A2OSF-12 FM-A2VMS-12 FM-A2NTS-12	FM-M3OSF-12 FM-M3VMS-12 FM-M3NTS-12	FM-M3OSF-12 FM-M3VMS-12 FM-M3NTS-12	FM-A4OSF-12 FM-A4VMS-12 FM-A4NTS-12
36-month - DIGITAL UNIX OpenVMS Windows NT	FM-A4OSF-36 FM-A4VMS-36 FM-A4NTS-36	FM-A2OSF-36 FM-A2VMS-36 FM-A2NTS-36	FM-M3OSF-36 FM-M3VMS-36 FM-M3NTS-36	FM-M3OSF-36 FM-M3VMS-36 FM-M3NTS-36	FM-A4OSF-36 FM-A4VMS-36 FM-A4NTS-12
60-month - DIGITAL UNIX OpenVMS Windows NT	FM-A4OSF-60 FM-A4VMS-60 FM-A4NTS-60	FM-A2OSF-60 FM-A2VMS-60 FM-A2NTS-60	FM-M3OSF-60 FM-M3VMS-60 FM-M3NTS-60	FM-M3OSF-60 FM-M3VMS-60 FM-M3NTS-60	FM-A4OSF-60 FM-A4VMS-60 FM-A4NTS-60

Year 2&3, 5x9, next day	FM-MNXHW-36	FM-MNXHW-36	FM-MNXHW-36	FM-MNXHW-36	FM-MNXHW-36
Year 1-3, 5x9, 4 hour	FM-MN4HR-36	FM-MN4HR-36	FM-MN4HR-36	FM-MN4HR-36	FM-MN4HR-36
Year 1-3, 5x12, 4 hour	FM-MN512-36	FM-MN512-36	FM-MN512-36	FM-MN512-36	FM-MN512-36
Year 1-3, 6x16, 4 hour	FM-MN616-36	FM-MN616-36	FM-MN616-36	FM-MN616-36	FM-MN616-36
Year 1-3, 7x24, 4 hour	FM-MN724-36	FM-MN724-36	FM-MN724-36	FM-MN724-36	FM-MN724-36

### Warranty Attributes

The above extended coverage offerings can be purchased at any time during the warranty duration. Supplemental Service commencement date is the same as warranty commencement date.

DIGITAL honors the warranty worldwide where DIGITAL maintains a direct service presence. For orders placed with ultimate destination in a country where DIGITAL has an indirect presence, warranty is not available except with the express written consent of the country distributor, and when DIGITAL provides parts, parts replacement and training. Contact DIGITAL Services for additional Warranty information.

### AlphaStations are covered by a three (3) year warranty

- One (1) year hardware service 8am - 5pm, Monday through Friday, next business day response.
- Years two (2) and three (3) Return-To-DIGITAL support for hardware.
- Ninety (90) days software advisory level telephone support, 8am-5pm, Monday through Friday, for DIGITAL UNIX, OpenVMS, Multimedia Services (MMS), Open 3D, and NAS purchased and shipped with the hardware.
- In the case of distributor shipments to end users, DIGITAL AlphaStation options integrated with the base hardware system, including graphics, storage disks, keyboards and mouse will be covered by the three (3) year warranty.
- Monitor are covered by a 3-year Customer Returnable Unit (CRU) warranty.

## AlphaStation Options

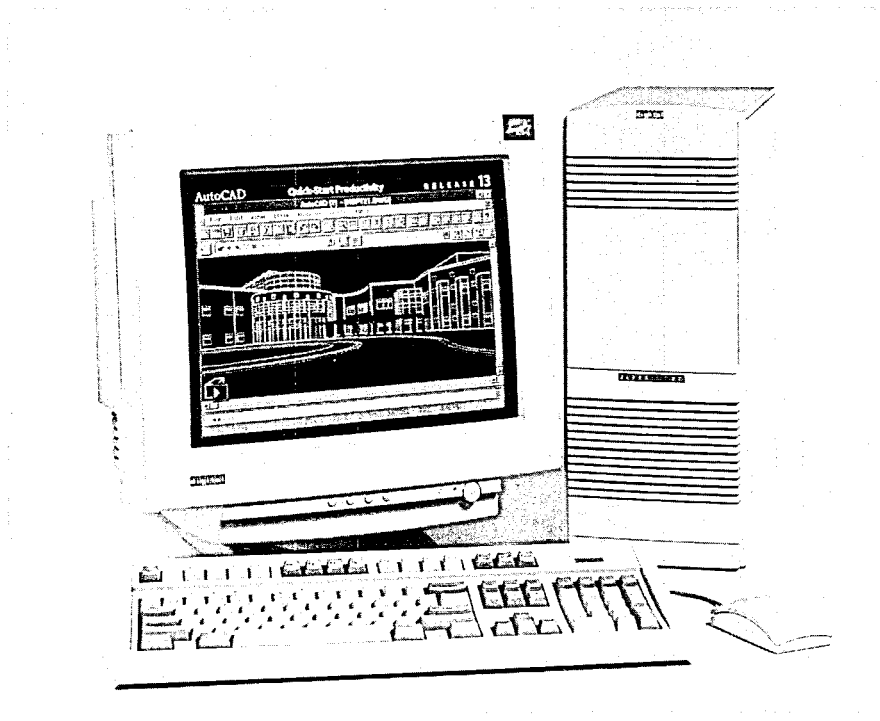
### AlphaStation Service Options

500/333 500/400, 500/500	600 5/333 600A 5/500	Hardware Supplemental Services
FM-AF4HR-36	FM-PBXHW-36	Years 2 and 3, 5 x 9, next day response time
FM-AFXHW-36	FM-PB4HR-36	Years 1 to 3, 5 x 9, 4 hour response time
FM-AF512-36	FM-PB512-36	Years 1 to 3, 5 x 12, 4 hour response time
FM-AF616-36	FM-PB616-36	Years 1 to 3, 6 x 16, 4 hour response time
FM-AF724-36	FM-PB724-36	Years 1 to 3, 7 x 24, 4 hour response time
FM-AFXHW-48	FM-PBXHW-48	Years 2 to 4, 5 x 9, next day response time
FM-AF4HR-48	FM-PB4HR-48	Years 1 to 4, 5 x 9, 4 hour response time
FM-AF512-48	FM-PB512-48	Years 1 to 4, 5 x 12, 4 hour response time
FM-AF616-48	FM-PB616-48	Years 1 to 4, 6 x 16, 4 hour response time
FM-AF724-48	FM-PB724-48	Years 1 to 4, 7 x 24, 4 hour response time
FM-AFXHW-60	FM-PBXHW-60	Year 2-5, 5x9, next day on site
FM-AF4HR-60	FM-PB4HR-60	Years 1 to 5, 5 x 9, 4 hour response time
FM-AF512-60	FM-PB512-60	Years 1 to 5, 5 x 12, 4 hour response time
FM-AF616-60	FM-PB616-60	Years 1 to 5, 6 x 16, 4 hour response time
FM-AF724-60	FM-PB724-60	Years 1 to 5, 7 x 24, 4 hour response time

500/333 500/400	600 5/333	Software Supplemental Services
FM-M3OSF-12	FM-PB6UX-12	12 Month DIGITAL UNIX
FM-M3VMS-12	FM-PB6VM-12	OpenVMS
FM-HD505-12	FM-HD505-12	Windows NT Helpdesk Pro
FM-M3OSF-36	FM-PB6UX-36	36 Month DIGITAL UNIX
FM-M3VMS-36	FM-PB6VM-36	OpenVMS
FM-HD515-36	FM-HD515-36	Windows NT Helpdesk Pro
FM-M3OSF-60	FM-PB6UX-60	60 Month DIGITAL UNIX
FM-M3VMS-60	FM-PB6VM-60	OpenVMS
FM-HD525-60	FM-HD525-60	Windows NT Helpdesk Pro

500/333 500/400	600 5/333	Monitor Supplemental Services
FM-MNXHW-36	FM-MNXHW-36	Years 2 and 3, 5 x 9, next day response time
FM-MN4HR-36	FM-MN4HR-36	Years 1 to 3, 5 x 9, 4 hour response time
FM-MN512-36	FM-MN512-36	Years 1 to 3, 5 x 12, 4 hour response time
FM-MN616-36	FM-MN616-36	Years 1 to 3, 6 x 16, 4 hour response time
FM-MN724-36	FM-MN724-36	Years 1 to 3, 7 x 24, 4 hour response time





## Alpha XL Personal Workstation for Windows NT

### Product Description

Alpha XL Personal Workstation for Windows NT family is targeted at the rapidly expanding market of Windows NT based workstations. The 64-bit Alpha microprocessors accommodate demanding technical applications such as 2D CAD and 3D CAD. New 3D graphics options significantly improve productivity for demanding, floating point intensive, graphics applications, such as MCAD, ECAD, GIS and animation.

Alpha XL Personal Workstation for Windows NT is available in three models:

- Alpha XL 300—Alpha microprocessor 21164 300 MHz CPU
- Alpha XL 366—Alpha microprocessor 21164 366 MHz CPU
- Alpha XL 433 Upgrade—Alpha microprocessor 21164 433 MHz CPU

All variants support Windows NT V3.51, or later. The operating system is factory installed on Alpha XL Advantage Configurations.

The system enclosure supports integral Fast narrow SCSI-2 controller with one external port, two PCI slots, one PCI/ISA combination slot, and two ISA slots for industry standard options. Storage bays support one 5.25" half height CD-ROM, one 3.5" floppy diskette, one internal 3.5" bay for hard disk drive, and two front accessible bays for 5.25-inch or 3.5-inch devices. Other standard features include integrated network adapter, two serial and one bi-directional, enhanced parallel ports for serial/parallel communications, and external SCSI connectors.

Alpha XL models come standard with a three-year limited warranty. Year one features on-site service; years two and three are return to DIGITAL service. This warranty represents one of the most comprehensive in the industry and includes product lifetime toll-free technical assistance.

## Alpha XL ADVANTAGE CONFIGURATIONS

Y=in base configuration; M=mandatory option; O=option

Alpha XL Workstation	Resources Used		Alpha XL 300		Alpha XL 366
120 V U.S. North America (a)			SN-A22AA-NM		SN-A23AA-NM
240 V Worldwide (b)			SN-A22WW-CM		SN-A23WW-CM
CPU Alpha microprocessor	21164 300 MHz	Y	Y		
	21164 366 MHz			Y	Y
Memory	1 bank	Y	32 MB	Y	32 MB
1.44 MB Floppy disk drive	3.5" x 1" bay	Y	Y	Y	Y
600 MB SCSI CD-ROM	5.25" x 1.6" SCSI bay	Y	Y	Y	Y
Internal storage	3.5" x 1.6" SCSI bay	Y	1.05 GB	Y	1.05 GB
Matrox Millennium 2D/3D graphics	1 PCI slot	Y	Y	Y	Y
Ethernet	Integrated on-board	Y	Y	Y	Y
Windows NT Operating System (c)	Included in country kit	Y	Y	Y	Y
<b>Remaining available resources</b>					
I/O Slots: PCI/ISA/Combination			1 / 2 / 1		1 / 2 / 1
Memory banks			1		1
5.25" x 1.6" bays			2		2
3.5" x 1.6" bays			0		0
SCSI Devices			5		5
<b>1. Color Monitors (d)</b>	Select		1		1
15" (13.9" viewable) Color monitor		O	SN-PCXBV-YA/YC/ID	O	SN-PCXBV-YA/YC/ID
17" (16.0" viewable) Color monitor		O	SN-PCXAV-YB/YC	O	SN-PCXAV-YB/YC
21" (19.6" viewable) Color monitor		O	SN-PCXAV-ZB/ZC	O	SN-PCXAV-ZB/ZC
<b>2. Additional Memory</b>	Select		1		1
32 MB	1 bank	O	SN-PC77M-AK	O	SN-PC77M-AK
64 MB	1 bank	O	SN-PC77M-AL	O	SN-PC77M-AL
128 MB	1 bank	O	SN-PC77M-AM	O	SN-PC77M-AM
<b>3. Additional Hard Drives (e)</b>	Select		1 or 2		1 or 2
1.0 GB SCSI	1.6" bay	O	SN-PCXRE-AB	O	SN-PCXRE-AB
2.1 GB SCSI	1.6" bay	O	SN-PCXAR-AY	O	SN-PCXAR-AY
4.3 GB SCSI	1.6" bay	O	SN-PCXAR-AZ	O	SN-PCXAR-AZ
<b>4. Network Connection</b>	Select		1		1
PCI EtherWORKS adapter	1 PCI slot		Integrated		Integrated
PCI 10/100 mb FastEthernet	1 PCI slot	O	DE500-XA	O	DE500-XA
<b>5. Country Kits include keyboard, 3-button mouse, power cord, Windows NT media and license, Alpha XL User Guide</b>					
120V system (a)		Y	Y	Y	Y
240V system (b)	See Options list	M	SN-PCA1N-xx	M	SN-PCA1N-xx
<b>6. Additional Options: See Alpha XL Options for a comprehensive list of qualified options</b>					

(a) 120 V U.S. North America systems include country kit (SN-PCA1N-AA) with keyboard, 3-button mouse, power cord, Windows NT media and license, and Alpha XL User Guide.

(b) Country kit ordered for 240 V Worldwide systems determines language variant of Windows NT and user documentation. See Options list.

(c) Windows NT is factory-installed on all Advantage Systems.

(d) Monitors include video cable and 120 V power cord, order country-specific power cord for 240 V use. See Option List.

(e) Integrated Fast SCSI-2 controller supports up to seven internal and external SCSI devices. For more than seven, a second PCI Fast SCSI-2 controller is required. See Options List.

(f) Network options (DE450, DE500) ordered for Europe, Australia, and New Zealand are **not** factory integrated, options ship as spares.

## Alpha XL 300 BASE SYSTEMS

Y=in base configuration; M=mandatory option; O=option

Alpha XL Workstation	Resources Used		Alpha XL 300		Alpha XL 300		Alpha XL 300
120 V U.S. North America (a)			SN-A22AA-AG		SN-A22AA-AH		SN-A22AA-AJ
240 V Worldwide (b)			SN-A22WW-AG		SN-A22WW-AH		SN-A22WW-AJ
CPU Alpha microprocessor	21164 300 MHz	Y	Y	Y	Y	Y	Y
Memory	1 bank	Y	32 MB	Y	64 MB	Y	128 MB
1.44 MB Floppy disk drive	3.5" x 1" disk bay	Y	Y	Y	Y	Y	Y
600 MB SCSI CD-ROM	5.25" x 1.6" SCSI bay	Y	Y	Y	Y	Y	Y
Ethernet	Integrated on-board	Y	Y	Y	Y	Y	Y
Windows NT Operating System	Included in country kit	Y	Y	Y	Y	Y	Y
<b>Remaining available resources</b>							
I/O Slots: PCI/ISA/Combination			2 / 2 / 1		2 / 2 / 1		2 / 2 / 1
Memory banks			1		1		1
5.25" x 1.6" bays			2		2		2
3.5" x 1.6" bays			1		1		1
SCSI Devices			6		6		6
<b>1. Color Monitors (c)</b>	<b>Select</b>		<b>1</b>		<b>1</b>		<b>1</b>
15" (13.9" viewable) Color monitor		O	SN-PCXBV-YA/YC/TD	O	SN-PCXBV-YA/YC/TD	O	SN-PCXBV-YA/YC/TD
17" (16.0" viewable) Color monitor		O	SN-PCXAV-YB/YC	O	SN-PCXAV-YB/YC	O	SN-PCXAV-YB/YC
21" (19.6" viewable) Color monitor		O	SN-PCXAV-ZB/ZC	O	SN-PCXAV-ZB/ZC	O	SN-PCXAV-ZB/ZC
<b>2. Additional Memory Options</b>	<b>Select</b>		<b>1</b>		<b>1</b>		<b>1</b>
32 MB	1 bank	O	SN-PC77M-AK	O	SN-PC77M-AK	O	SN-PC77M-AK
64 MB	1 bank	O	SN-PC77M-AL	O	SN-PC77M-AL	O	SN-PC77M-AL
128 MB	1 bank	O	SN-PC77M-AM	O	SN-PC77M-AM	O	SN-PC77M-AM
<b>3. Additional Hard Drives (d)</b>	<b>Select</b>		<b>1, 2 or 3</b>		<b>1, 2 or 3</b>		<b>1, 2 or 3</b>
1.0 GB SCSI	1.6" bay	O	SN-PCXRE-AB	O	SN-PCXRE-AB	O	SN-PCXRE-AB
2.1 GB SCSI	1.6" bay	O	SN-PCXAR-AY	O	SN-PCXAR-AY	O	SN-PCXAR-AY
4.3 GB SCSI	1.6" bay	O	SN-PCXAR-AZ	O	SN-PCXAR-AZ	O	SN-PCXAR-AZ
<b>4. Country Kits includes keyboard, 3-button mouse, power cord, Windows NT media and license, and Alpha XL User Guide</b>							
120V system (a)		Y	Y	Y	Y	Y	Y
240V system (b)	See Options List	M	SN-PCA1N-xx	M	SN-PCA1N-xx	M	SN-PCA1N-xx
<b>5. Graphics Accelerator</b>	<b>Select</b>		<b>1</b>		<b>1</b>		<b>1</b>
Matrox Millennium 2D/3D Graphics	1 PCI slot	O	SN-PCXAG-AD	O	SN-PCXAG-AD	O	SN-PCXAG-AD
PowerStorm 4D20 3D, 16MB	1 PCI slot	O	SN-PBXGB-CN	O	SN-PBXGB-CN	O	SN-PBXGB-CN
PowerStorm 4D40T 3D, 16 MB	1 PCI slot	O	SN-PBXGI-AA	O	SN-PBXGI-AA	O	SN-PBXGI-AA
PowerStorm 4D50T 3D, 16 MB	1 PCI slot	O	SN-PBXGI-AB	O	SN-PBXGI-AB	O	SN-PBXGI-AB
PowerStorm 4D60T 3D, 32 MB	1 PCI slot	O	SN-PBXGI-AC	O	SN-PBXGI-AC	O	SN-PBXGI-AC
<b>6. Additional Options: See Alpha XL Options for a comprehensive list of qualified options</b>							

(a) 120 V U.S. North America systems include country kit (SN-PCA1N-AA) with keyboard, 3-button mouse, power cord, Windows NT media and license, and Alpha XL User Guide.

(b) Country Kit ordered for 240 V Worldwide systems determines language variant of Windows NT and user documentation. See Options List.

(c) Monitors include video cable and 120 V power cord, order country-specific power cord for 240 V use. See Options List.

(d) Integrated Fast SCSI-2 controller supports up to seven internal and external SCSI devices. For more than seven, a second PCI Fast SCSI-2 controller is required. See Options List.

## Alpha XL 366 BASE SYSTEMS

Y=in base configuration; M=mandatory option; O=option

Alpha XL Workstation	Resources Used		Alpha XL 366		Alpha XL 366		Alpha XL 366
120 V U.S. North America (a)			SN-A23AA-AG		SN-A23AA-AH		SN-A23AA-AJ
240 V Worldwide (b)			SN-A23WW-AG		SN-A23WW-AH		SN-A23WW-AJ
CPU Alpha microprocessor	21164 366 MHz	Y	Y	Y	Y	Y	Y
Memory	1 bank	Y	32 MB	Y	64 MB	Y	128 MB
1.44 MB Floppy disk drive	3.5" x 1" disk bay	Y	Y	Y	Y	Y	Y
600 MB SCSI CD-ROM	5.25" x 1.6" SCSI bay	Y	Y	Y	Y	Y	Y
Ethernet	Integrated on-board	Y	Y	Y	Y	Y	Y
Windows NT Operating System	Included in country kit	Y	Y	Y	Y	Y	Y
<b>Remaining available resources</b>							
I/O Slots: PCI/ISA/Combination			2 / 2 / 1		2 / 2 / 1		2 / 2 / 1
Memory banks			1		1		1
5.25" x 1.6" bays			2		2		2
3.5" x 1.6" bays			1		1		1
SCSI Devices			6		6		6
<b>1. Color Monitors (c)</b>	Select		1		1		1
15" (13.9" viewable) Color monitor		O	SN-PCXBV-YA/YC/ID	O	SN-PCXBV-YA/YC/ID	O	SN-PCXBV-YA/YC/ID
17" (16.0" viewable) Color monitor		O	SN-PCXAV-YB/YC	O	SN-PCXAV-YB/YC	O	SN-PCXAV-YB/YC
21" (19.6" viewable) Color monitor		O	SN-PCXAV-ZB/ZC	O	SN-PCXAV-ZB/ZC	O	SN-PCXAV-ZB/ZC
<b>2. Additional Memory Options</b>	Select		1		1		1
32 MB	1 bank	O	SN-PC77M-AK	O	SN-PC77M-AK	O	SN-PC77M-AK
64 MB	1 bank	O	SN-PC77M-AL	O	SN-PC77M-AL	O	SN-PC77M-AL
128 MB	1 bank	O	SN-PC77M-AM	O	SN-PC77M-AM	O	SN-PC77M-AM
<b>3. Additional Hard Drives (d)</b>	Select		1, 2 or 3		1, 2 or 3		1, 2 or 3
1.0 GB SCSI	1.6" bay	O	SN-PCXRE-AB	O	SN-PCXRE-AB	O	SN-PCXRE-AB
2.1 GB SCSI	1.6" bay	O	SN-PCXAR-AY	O	SN-PCXAR-AY	O	SN-PCXAR-AY
4.3 GB SCSI	1.6" bay	O	SN-PCXAR-AZ	O	SN-PCXAR-AZ	O	SN-PCXAR-AZ
<b>5. Country Kit includes keyboard, 3-button mouse, power cord, Windows NT media and license, and Alpha XL User Guide</b>							
120V system (a)		Y	Y	Y	Y	Y	Y
240V system (b)	See Options List	M	SN-PCA1N-xx	M	SN-PCA1N-xx	M	SN-PCA1N-xx
<b>5. Graphics Accelerator</b>	Select		1		1		1
Matrox Millennium 2D/3D Graphics	1 PCI slot	O	SN-PCXAG-AD	O	SN-PCXAG-AD	O	SN-PCXAG-AD
PowerStorm 4D20 3D, 16MB	1 PCI slot	O	SN-PBXGB-CN	O	SN-PBXGB-CN	O	SN-PBXGB-CN
PowerStorm 4D40T 3D, 16 MB	1 PCI slot	O	SN-PBXGI-AA	O	SN-PBXGI-AA	O	SN-PBXGI-AA
PowerStorm 4D50T 3D, 16 MB	1 PCI slot	O	SN-PBXGI-AB	O	SN-PBXGI-AB	O	SN-PBXGI-AB
PowerStorm 4D60T 3D, 32 MB	1 PCI slot	O	SN-PBXGI-AC	O	SN-PBXGI-AC	O	SN-PBXGI-AC
<b>6. Additional Options: See Alpha XL Options for a comprehensive list of qualified options</b>							

- (a) 120 V U.S. North America systems include country kit (SN-PCA1N-AA) with keyboard, 3-button mouse, power cord, Windows NT media and license, and Alpha XL User Guide.
- (b) Country Kit ordered for 240 V Worldwide systems determines language variant of Windows NT and user documentation. See Options List.

- (c) Monitors include video cable and 120 V power cord, order country-specific power cord for 240 V use. See Options List.
- (d) Integrated Fast SCSI-2 controller supports up to seven internal and external SCSI devices. For more than seven, a second PCI Fast SCSI-2 controller is required. See Options List.

## Alpha XL Workstation Options

Color Monitors	Description
SN-PCXBV-YA/YC/TD	15" (13.9" viewable) high-resolution auto-scanning color monitor, flat-square invar CRT, 0.28 dot pitch, refresh rates up to 75Hz non-interlaced from VGA through 1024x768 resolution modes, MPRII, Energy Star compliant, 120/240V universal power supply, includes video cable. Select -YA for Northern Hemisphere operation, variant includes 120V North American power cord. Select -TD for Northern Hemisphere/Europe, and -YC for Southern Hemisphere operation. -TD and -YC variants require country specific power cords for 240V use.
SN-PCXAV-YB/YC	17" (16.0" viewable) high-resolution auto-scanning color monitor, cylindrical aperature grill CRT, 0.26 dot pitch, refresh rates up to 75Hz non-interlaced from VGA through 1280x1024 resolution modes, MPRII, Energy Star compliant, 120/240V universal power supply, includes video cable. Select -YB for Northern Hemisphere, or -YC for Southern Hemisphere operation. Order country-specific power cords for 240V use.
SN-PCXAV-ZB/ZC	21" (19.6" viewable) high-resolution auto-scanning color monitor, cylindrical aperature grill CRT, 0.31 dot pitch, refresh rates up to 75Hz non-interlaced from VGA through 1280x1024 resolution modes, MPRII, Energy Star compliant, 120/240V universal power supply, includes video cable. Select -ZB for Northern Hemisphere, or -ZC for Southern Hemisphere operation. Order country specific power cords for 240V use.

## Monitor Power Cords

BN22X-2E	Africa, India
BN19H-2E	Australia, New Zealand
BN19K-2E	Denmark
BN18L-2E	Israel
BN24X-2E	Italy
BN19P-1K	North America
BN03A-2E	Other Europe
BN19E-2E	Switzerland
BN26D-2E	UK, Ireland

Graphics Options	Slots Required	Description
SN-PCXAG-AD	1 PCI slot	Matrox Millennium PCI 2D/3D adapter, 2 MB WRAM
SN-PBXGB-CN	1 PCI slot	PowerStorm 4D20 3D 24-plane double buffered PCI graphics accelerator, 24-bit Z-buffer, 16 MB VRAM
SN-PBXGI-AA	1 PCI slot	PowerStorm 4D40T Advanced 3D graphics accelerator with 16 MB video memory, 1280 x 1024 resolution, 24 bit true color, double buffered, 24 bit Z-buffer, hardware accelerated 3D shading and texture mapping.
SN-PBXGI-AB	1 PCI slot	PowerStorm 4D50T Advanced 3D graphics accelerator with enhanced performance, 16 MB video memory, 1280 x 1024 resolution, 24 bit true color, double buffered, 24 bit Z-buffer, hardware accelerated 3D shading and texture mapping.
SN-PBXGI-AC	1 PCI slot	PowerStorm 4D60T Advanced 3D Graphics accelerator with enhanced performance, 32 MB video memory, 1600 x 1280 resolution, 24 bit true color, double buffered 32 bit Z buffer, hardware accelerated 3D shading and texture mapping.
SN-PBXGI-GA		4 MB Texture Memory Module. Supports hardware accelerated texture mapping on PowerStorm 4D40T, 4D50T, and 4D60T graphics accelerators.
SN-PBXGI-GB		16 MB Texture Memory Module. Supports hardware accelerated texture mapping on PowerStorm 4D40T, 4D50T, and 4D60T graphics accelerators.
SN-PBXGI-GC		32 MB Texture Memory Module. Supports hardware accelerated texture mapping on PowerStorm 4D40T, 4D50T, and 4D60T Graphics Accelerators.

Graphics Options	Slots Required	Description
SN-PCCAM-CA		2 MB WRAM upgrade for Matrox Millennium adapter

Memory	Slots Required	Description
SN-PC77M-AK	1 slot	32 MB (4 x 8 MB 70 ns SIMMs, 36-bit)
SN-PC77M-AL	1 slot	64 MB (4 x 16 MB 70 ns SIMMs, 36-bit)
SN-PC77M-AM	1 slot	128 MB (4 x 32 MB 70 ns SIMMs, 36-bit)

Alpha XL Workstation Options (*continued*)

Storage Controller	Slots Required	Description
KZPAA-AA	1 PCI slot	PCI-based Fast Narrow Single Ended (FNSE) SCSI-2 controller

Storage	Slots Required	Description
SN-PCXRE-AB	1.6" bay	1.05 Gbyte 3.5" x 1" hard disk drive 5400 RPM
SN-PCXAR-AY	1.6" bay	2.0 Gbyte 3.5" x 1.6", hard disk drive 7200 RPM
SN-PCXAR-AZ	1.6" bay	4.0 Gbyte 3.5" x 1.6", hard disk drive 7200 RPM
SN-TLZ09-LK	5.25 x 1.6" bay	4.0/8.0 Gbyte 5.25" half-height 4mm SCSI DAT drive

Networks and Communications		
DE450-CA	1 PCI slot	High-performance Ethernet. Select BNE4G-02 for AUI BN26K-xx for 10BaseT (twisted pair) BC16M-xx for ThinWire
DE500-XA	1 PCI slot	10/100mbs Fast Ethernet
SN-PCXHF-AA	1 ISA slot	ISA Fax/Data Modem 28.8 baud

User Documentation	
EK-ALXLA-UG	Alpha XL User's Guide—English
EK-ALXLF-UG	Alpha XL User's Guide—French
EK-ALXLG-UG	Alpha XL User's Guide—German
EK-ALXLJ-UG	Alpha XL User's Guide—Japanese
EK-ALXLS-UG	Alpha XL User's Guide—Spanish
EK-ALXLA-CG	Alpha XL CPU Guide
EK-ALXLA-WI	Alpha XL Warranty and Service Information

Hardware Supplemental Services	
FM-PCXHW-36	Years 2 and 3, 5 x 9, Next day response time
FM-PC4HR-12	Year 1, 5 x 9, 4 Hour Response time
FM-PC4HR-36	Years 1 to 3, 5 x 9, 4 Hour Response time
FM-PC724-12	Year 1, 7 x 24, 4 Hour Response time
FM-PC724-36	Years 1 to 3, 7 x 24, 4 Hour Response time

Software Supplemental Services	
FM-PCXSW-12	12 Month Software Supplemental Support Services
FM-PCXSW-24	36 Month Software Supplemental Support Services
FM-PCXSW-36	60 Month Software Supplemental Support Services

CPU Upgrades			
Order Number	From	To	Includes
SN-A230U-AA	Alpha XL 233 Alpha XL 266 Celebris XL 5100, 5120, 5133, 6150, 6180, 6200	Alpha XL 366	366 MHz CPU and motherboard upgrade kit
SN-A230U-AB	Alpha XL 300	Alpha XL 366	366 MHz CPU upgrade kit
SN-A250U-AA	Alpha XL 233, 266, 300 Celebris XL 5100, 5120, 5133, 6150, 6180, 6200	Alpha XL 433	433 MHz CPU and motherboard upgrade kit
SN-A250U-AB	Alpha XL 366 Celebris XL 5100, 5120, 5133, 6150, 6180, 6200	Alpha XL 433	433 MHz CPU upgrade kit

## Alpha XL Workstation Options (continued)

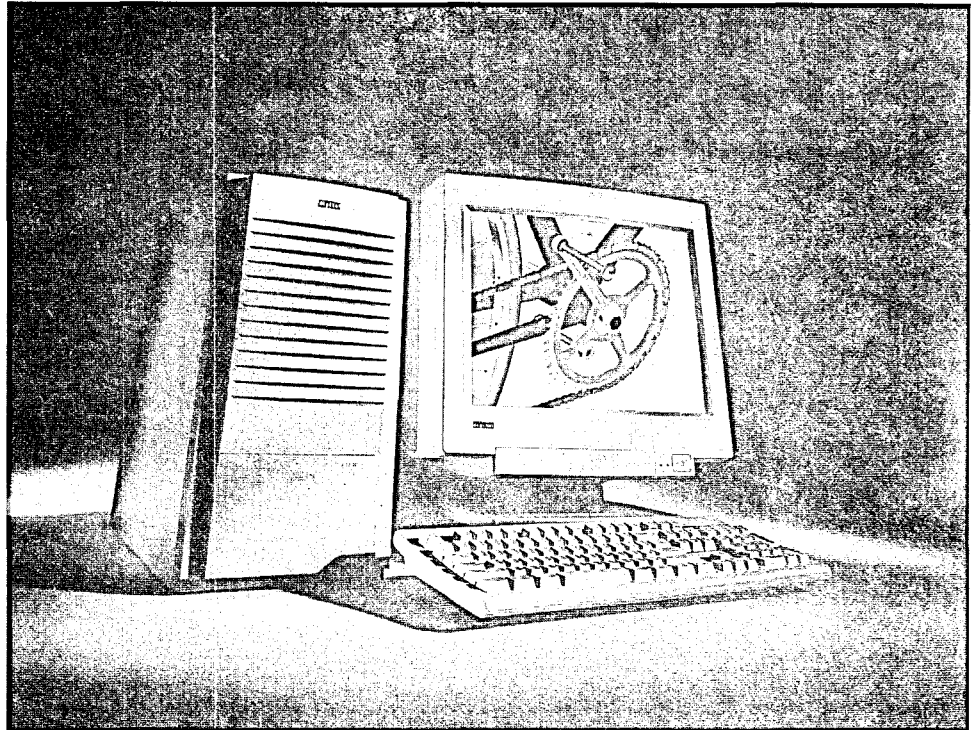
## Alpha XL Country Kits

**Note:** Country Kit must be order for system to be operational. Windows NT Country Kit includes: country keyboard and power cord, 3-button mouse, user documentation, and Windows NT operating system license and media. Availability of local language Windows NT is dependent upon Microsoft's release schedule.

Order Number	Area	Power Cord	Keyboard	Country	Keyboard Language	Windows NT Language	User Documentation
SN-PCA1N-AA	America	PC7XC-AA	PCXLA-GA	U.S.	English	English	English
SN-PCA1N-AB	Europe	BN19C-2E	PCXLA-GB	Belgium	Flemish	French	French
SN-PCA1N-AC	America	PC7XC-AA	PCXLA-GC	Canada	French	French	French
SN-PCA1N-AD	Europe	BN19K-2E	PCXLA-GD	Denmark	Danish	Danish	English
SN-PCA1N-AE	Europe	BN19A-2E	PCXLA-GE	U.K./Ireland	English	English	English
SN-PCA1N-AF	Europe	BN19C-2E	PCXLA-GF	Finland	Swami	Finish	English
SN-PCA1N-AG	Europe	BN19C-2E	PCXLA-GG	Germany/Austria	German	German	German
SN-PCA1N-AH	Europe	BN19C-2E	PCXLA-GH	Holland	Dutch	Dutch	English
SN-PCA1N-AI	Europe	BN19C-2E	PCXLA-GI	Italy	Italian	Italian	Italian
SN-PCA1N-AJ	APA	PC7XC-AA	PCXJA-NA	Japan	Japanese	Japanese	Japanese
SN-PCA1N-AK	Europe	BN24T-2E	PCXLA-GK	Switzerland	French	French	French
SN-PCA1N-AL	Europe	BN24T-2E	PCXLA-GL	Switzerland	German	German	German
SN-PCA1N-AM	Europe	BN19C-2E	PCXLA-GF	Sweden	Swedish	English	English
SN-PCA1N-AN	Europe	BN19C-2E	PCXLA-GN	Norway	Norwegian	English	English
SN-PCA1N-AP	Europe	BN19C-2E	PCXLA-GP	France/Belgium	French	French	French
SN-PCA1N-AQ	America	PC7XC-AA	PCXAL-TB	Canada	French	French	French
SN-PCA1N-AS	Europe	BN19C-2E	PCXLA-GS	Spain	Spanish	English	English
SN-PCA1N-AT	Europe	BN18L-2E	PCXLA-GT	Israel	Hebrew	English	English
SN-PCA1N-AV	Europe	BN19C-2E	PCXLA-GV	Portugal	Portuguese	Portuguese	English
SN-PCA1N-AZ	APA	BN19H-2E	PCXLA-GA	Australia/NewZealand	English	English	English
SN-PCA1N-BH	Europe	BN19C-2E	PCXLA-HH	Greece	Greek	English	English
SN-PCA1N-BI	APA	PC7XC-AA	PCXLA-HI	Taiwan	Tiawanese	English	English
SN-PCA1N-BK	APA	BN19C-2E	PCXLA-HK	Korea	Korean	English	English
SN-PCA1N-BL	Europe	BN19C-2E	PCXLA-HL	Romania	Romanian	English	English
SN-PCA1N-BP	Europe	BN19C-2E	PCXLA-GA	Poland	Polish	English	English
SN-PCA1N-BQ	Europe	BN19C-2E	PCXLA-HQ	Hungary	Hugararian	English	English
SN-PCA1N-BR	Europe	BN19C-2E	PCXLA-HR	Arabic	English	English	English
SN-PCA1N-BT	Europe	BN19C-2E	PCXLA-HT	Russia	Russian	English	English
SN-PCA1N-BU	Europe	BN19C-2E	PCXLA-HU	Turkey	Turkish	English	English
SN-PCA1N-BY	Europe	BN19C-2E	PCXLA-HY	Serbia	Serbian	English	English
SN-PCA1N-CA	APA	PC7XC-AE	PCXLA-GA	Far East	English	English	English
SN-PCA1N-CE	APA	PC7XC-AA	PCXLA-GA	Phillipines	Filipino	English	English
SN-PCA1N-CG	APA	BN19C-2E	PCXLA-GA	Vietnam	Vietnamese	English	English
SN-PCA1N-CP	APA	BN19C-2E	PCXLA-GA	Thailand	Thai	English	English
SN-PCA1N-CQ	Europe	BN19C-2E	PCXLA-JQ	Iceland	Icelandic	English	English
SN-PCA1N-CS	America	PC7XC-AA	PCXLA-GR	Latin America	Spanish	Spanish	Spanish
SN-PCA1N-CV	APA	BN19A-2E	PCXLA-GA	China	English	English	English
SN-PCA1N-CZ	Europe	BN19C-2E	PCXLA-JZ	Czechoslovakia	Slovak	English	English
SN-PCA1N-EC	Europe	BN19C-2E	PCXLA-GA	Europe	English	English	English

## Specifications

Height	43 cm (17 inches)
Width	18 mm (7 inches)
Depth	43 mm (17 inches)



## DIGITAL Personal Workstation 200i, 200i<sup>2</sup> for Windows NT

### Product Description

The DIGITAL Personal Workstation (PWS) is targeted at the rapidly emerging market category of Windows NT Intel-based Workstations. The processing power of the Intel Pentium Pro Processor coupled with the standard applications interfaces provided by Windows NT create a powerful platform to run many ISV applications.

The Intel Pentium Pro microprocessor accommodates demanding applications. New 3D graphics options significantly improve productivity for high end 2D and entry level 3D floating point intensive, graphics applications such as PTC's ProEngineer, SoftImage, AutoDesk's AutoCAD and 3DStudio, EDS/UG, Solidworks, Bentley's MicroStation, ESRI, Veribest, Viewlogic, Quark, and Adobe—just to name a few.

The DIGITAL Personal Workstation is available in Packaged and Base systems. Packaged systems include graphics and installed memory; either EDO or Fast Page/Parity that allows for soft ECC support. The graphics adapters available are Matrox Millennium, AccelGraphics AccelPRO 2500 TX, and DIGITAL PowerStorm.

DIGITAL Personal Workstation for Windows NT is available in two models:

- DIGITAL PWS 200i—One Intel Microprocessor 200 MHz/256K cache
- DIGITAL PWS 200i<sup>2</sup>—Two Intel Microprocessors 200 MHz/256K cache

DIGITAL Personal Workstation systems use the short tower chassis and are dual processor capable with a future Alpha upgrade option. 10BaseT/2 Ethernet, 16-bit FM synthesized audio, 5 PCI slots, and 300W power supply are standard on all systems. The system chassis has three 5.25" user accessible bays, one user accessible 3.5" dedicated floppy diskette bay, and two internal 3.5" bays. System ports include: 2 serial, 1 parallel, 2 USB, 1-PS/2 keyboard, 1-PS/2 mouse, 1 external UW SCSI port, 2 speaker, 1 headphone port, 1 microphone port, 1 Midi port. Packaged and Base systems include one 3.5" floppy drive, one EIDE CD-ROM and 32 MB, 64 MB, or 128 memory.

The DIGITAL Personal Workstations come standard with a three-year (1 year on-site/2 year depot) limited warranty. This warranty represents one of the most comprehensive in the workstation industry and includes product lifetime toll-free technical assistance.

**DIGITAL Personal Workstation 200i Packaged Systems—Windows NT 3.5.1**

Y=in base configuration; M=mandatory option; O=option

200i Packaged systems	Resources Used		DIGITAL PWS 200i
120 V N. American Windows NT 3.5.1 (a)		Y	SN-B34AN-EL
200 MHz Pentium Pro Processor 256 Kbyte		Y	Y
Memory	1 bank	Y	32-MB EDO
ECC Capability enabled			N
1.44-Mbyte Floppy disk drive	3.5" x 1" bay	Y	Y
Adaptec 2940 UW SCSI controller	1 PCI/ISA slot	Y	Y
600-Mbyte EIDE CD-ROM	5.25" x 1.6" SCSI bay	Y	Y
Internal storage	3.5" x 1.0" bay	Y	2.0 GB UW drive
On-board Ethernet 10BaseT/10Base2		Y	Y
On-board 16-bit Soundblaster Audio		Y	Y
Matrox Millennium 3D graphics	1 PCI slot	Y	Y
<b>Remaining available resources</b>			
I/O Slots: PCI slots			1
PCI/ISA Combination slots			2
Memory banks			3
5.25" x 1.6"	User accessible bays		2
3.5" x 1.0"	Internal bay		1
EIDE device connections			2
SCSI device connections			14
<b>Windows NT Country Kit</b>			
120 V N. American Windows NT 3.5.1	Included	Y	Y

**DIGITAL Personal Workstation 200i Packaged Systems—Windows NT 4.0**

200i Packaged systems	Resources Used		DIGITAL PWS 200i	DIGITAL PWS 200i	DIGITAL PWS 200i
120 V N. American Windows NT 4.0 (a)		Y	SN-B34AP-EL	SN-B3KAP-EL	SN-B3KAP-LL
240 V Worldwide (b)		M	SN-B34WW-EL	SN-B3KWW-EL	SN-B3KWW-LL
200 MHz Pentium Pro Processor 256 Kbyte		Y	Y	Y	Y
Memory	1 bank	Y	32 MB EDO	32 MB EDO	128 MB EDO
ECC Capability enabled			N	N	Y
1.44-Mbyte Floppy disk drive	3.5" x 1" bay	Y	Y	Y	Y
Adaptec 2940 UW SCSI controller	1 PCI/ISA slot	Y	Y	Y	Y
600-Mbyte EIDE CD-ROM	5.25" x 1.6" SCSI bay	Y	Y	Y	Y
Internal storage	3.5" x 1.0" bay	Y	2.0 GB UW drive	2.0 GB UW drive	2.0 GB UW drive
On-board Ethernet 10BaseT/10Base2		Y	Y	Y	Y
On-board 16-bit Soundblaster Audio		Y	Y	Y	Y
Matrox Millennium 3D graphics	1 PCI slot		Y		
AccelPRO 2500TX graphics	1 PCI slot			Y	Y
<b>Remaining available resources</b>					
I/O Slots: PCI slots			1	1	1
PCI/ISA Combination slots			2	2	2
Memory banks			3	3	2
5.25" x 1.6"	User accessible bays		2	2	2
3.5" x 1.0"	Internal bay		1	1	1
EIDE device connections			2	2	2
SCSI device connections			14	14	14
<b>Windows NT Country Kit</b>					
120 V N. American Windows NT 4.0	Included	Y	Y	Y	Y
240 V Worldwide Windows NT 4.0	See Options List	M	SN-PBB3P-xx	SN-PBB3P-xx	SN-PBB3P-xx
Windows NT 3.5.1			SN-PCB3N-xx	(c)	(c)

(a) 120 V U.S. systems variants include Windows NT 3.5.1 or 4.0 Country kit

(b) 240 V Worldwide variants require selection of Windows NT 3.5.1 or 4.0 Country Kit.

(c) AccelPRO 2500TX graphics support on Windows NT 4.0 only.

**DIGITAL Personal Workstation 200i, and 200i<sup>2</sup> Base Systems**

Y=in base configuration; M=mandatory option; O=option

200i, 200i <sup>2</sup> Base Systems	Resources Used		DIGITAL PWS 200i	DIGITAL PWS 200i <sup>2</sup>
120 V N. American Windows NT 3.5.1 (a)			SN-B31AX-E1	SN-B32AX-E1
120 V N. American Windows NT 4.0 (a)			SN-B31AY-E1	SN-B32AY-E1
240 V Worldwide (b)			SN-B31WW-E1	SN-B32WW-E1
200 MHz Pentium Pro processor			Y	
Two 200 MHz Pentium Pro processors				Y
Memory	1 bank	Y	32-MB EDO	32-MB EDO
1.44-Mbyte Floppy disk drive	3.5" x 1" bay	Y	Y	Y
Adaptec 2940 UW SCSI controller	1 PCI/ISA slot	Y	Y	Y
Internal storage	3.5"x1.0" or 5.25"x1.6" bay	M	Select from option 5	Select from option 5
600-Mbyte EIDE CD-ROM	5.25" x 1.6" SCSI bay	Y	Y	Y
On-board Ethernet 10BaseT/10Base2		Y	Y	Y
On-board 16-bit Soundblaster Audio		Y	Y	Y
<b>Remaining available resources</b>				
I/O Slots: PCI slots			2	2
PCI/ISA Combination slots			2	2
Memory banks			3	3
5.25" x 1.6"	User accessible bays		2	2
3.5" x 1.0"	Internal bays		2	2
EIDE device connections			2	2
SCSI device connections			15	15
<b>1. Windows NT Country Kit</b>				
120 V N.American Windows NT 3.5.1 or 4.0	Included	Y	Y	Y
240 V Worldwide Windows NT 3.5.1 Windows NT 4.0	See Options List	M	SN-PCB3N-xx SN-PBB3P-xx	SN-PCB3N-xx SN-PBB3P-xx

**DIGITAL Personal Workstation 200i Base Systems**

200i Base Systems	Resources Used		DIGITAL PWS 200i	DIGITAL PWS 200i
120 V N. American Windows NT 3.5.1 (a)			SN-B3PAX-E1	
120 V N. American Windows NT 4.0 (a)			SN-B3PAY-E1	SN-B31AY-N1
240 V Worldwide (b)			SN-B3PWW-E1	SN-B31WW-N1
200 MHz Pentium Pro processor 256 Kbyte			Y	Y
Memory	1 bank	Y	32 MB EDO	64 MB Fast Page
1.44-Mbyte Floppy disk drive	3.5" x 1" bay	Y	Y	Y
Adaptec 2940 UW SCSI controller	1 PCI/ISA slot		N	Y
Internal storage	3.5"x1.0" or 5.25"x1.6" bay	M	Select EIDE disk from option 5	Select from option 5
600-Mbyte EIDE CD-ROM	5.25" x 1.6" SCSI bay	Y	Y	Y
On-board Ethernet 10BaseT/10Base2		Y	Y	Y
On-board 16-bit Soundblaster Audio		Y	Y	Y
<b>Remaining available resources</b>				
I/O Slots: PCI slots			3	2
PCI/ISA Combination slots			2	2
Memory banks			3	3
5.25" x 1.6"	User accessible bays		2	2
3.5" x 1.0"	Internal bays		1	1
EIDE device connections			2	2
SCSI device connections			(c)	15
<b>1. Windows NT Country Kit</b>				
120 V N. American Windows NT 3.5.1 or 4.0	Included	Y	Y	Y
240 V Worldwide Windows NT 3.5.1 Windows NT 4.0	See Options List	M	SN-PCB3N-xx SN-PBB3P-xx	SN-PCB3N-xx SN-PBB3P-xx

(a) 120 V U.S. systems variants include Windows NT 3.5.1 or 4.0 Country kit

(b) 240 V Worldwide variants require selection of Windows NT 3.5.1 or 4.0 Country Kit.

(c) Adding SCSI devices requires selection of UWide SCSI controller (SN-PCTAZ-DE).

## DIGITAL Personal Workstation Options

Y=in base configuration; M=mandatory option; O=option

2. Color Monitors		(a) Select		1	1
15" (14.0" viewable) Color monitor	Americas/Asia	O		SN-PCXCV-UW	SN-PCXCV-UW
15" (14.0" viewable) Color monitor	Europe	O		SN-PCXCV-TW	SN-PCXCV-TW
17" (16.0" viewable) Color monitor	Americas/Asia	O		SN-VRTX7-WA	SN-VRT17-WA
17" (16.0" viewable) Color monitor	Europe	O		SN-VRTX7-W3	SN-VRTX7-W3
17" (16.0" viewable) Color monitor	Southern Hemisphere	O		SN-VRT17-W4	SN-VRT17-W4
21" (19.6" viewable) Color monitor	Americas/Asia	O		SN-VRCX1-WA	SN-VRCX1-WA
21" (19.6" viewable) Color monitor	Europe	O		SN-VRCX1-W3	SN-VRCX1-W3
21" (19.6" viewable) Color monitor	Southern Hemisphere	O		SN-VRCX1-W4	SN-VRCX1-W4
3. Graphics Options		(b) Select		0 or 1	0 or 1
Matrox Millennium graphics adapter	1 PCI slot	O		SN-PCXAG-AD	SN-PCXAG-AD
AccelPRO 2500TX 3D graphics, 15 bits, Double Buffered with 16-bit Z-Buffer	1 PCI slot	O		SN-PCXAG-AW	SN-PCXAG-AW
PowerStorm 4D40T graphics with riser card. Windows NT 3.5.1 and 4.0	1 PCI slot and 1 PCI/ISA slot	O		SN-PBXGI-KA	SN-PBXGI-KA
4. EDO 60 ns Memory		(e) Select		0, 1, 2, or 3	0, 1, 2, or 3
16 MB EDO, Two 8 MB SIMMs	1 bank	O		SN-PCCAM-BA	SN-PCCAM-BA
32 MB EDO, Two 16 MB SIMMs	1 bank	O		SN-PCCAM-BB	SN-PCCAM-BB
64 MB EDO, Two 32 MB SIMMs	1 bank	O		SN-PCCAM-BC	SN-PCCAM-BC
4a. Fast Page/Parity 70 ns Memory		Select		0, 1, 2, or 3	0, 1, 2, or 3
16 MB, Two 8 MB SIMMs, 36 bit	1 bank	O		SN-PC77M-AB	SN-PC77M-AB
32 MB, Two 16 MB SIMMs, 36 bit	1 bank	O		SN-PC77M-AC	SN-PC77M-AC
64 MB, Two 32 MB SIMMs, 36 bit	1 bank	O		SN-PC77M-AD	SN-PC77M-AD
128 MB, Two 32 MB SIMMs, 36 bit	1 bank	O		SN-PC77M-AJ	SN-PC77M-AJ
5. Hard Disks		(f) Select			
2.1 GB EIDE 4500 RPM disk drive	3.5 x 1 or 1.6" bay	O		SN-PCXRA-AN	SN-PCXRA-AN
3.2 GB EIDE 4500 RPM disk drive	3.5 x 1 or 1.6" bay	O		SN-PCXRA-AP	SN-PCXRA-AP
2.1 GB UltraWide 7200 RPM disk drive	3.5 x 1 or 1.6" bay	O		SN-PBXRW-JC	SN-PBXRW-JC
4.3 GB UltraWide 7200 RPM disk drive	3.5 x 1 or 1.6" bay	O		SN-PBXRW-NB	SN-PBXRW-NB
9.1 GB UltraWide 7200 RPM disk drive	5.25 x 1.6" bay	O		SN-PBXRW-SA	SN-PBXRW-SA
6. Storage Option		Select			
Adaptec 2940 UltraWide SCSI controller	1 PCI/ISA slot	O		SN-PCTAZ-DE	SN-PCTAZ-DE
Wide to narrow SCSI adapter		O		SN-PBXKP-BA	SN-PBXKP-BA
7. Removable media		Select			
4.0/8.0 GB 4 mm DAT tape	5.25 x 1.6" bay	O		SN-TLZ09-LK	SN-TLZ09-LK
12X EIDE CD-ROM	5.25 x 1.6" bay	O		SN-PBXRW-DB	SN-PBXRW-DB
8. Network		Select		0 or 1	0 or 1
10/100 Mbs Fast Ethernet	(h) 1 PCI slot	O		DE500-AA	DE500-AA
10BaseT to 10/100 Mbs Fast Ethernet Upgrade Bulkhead Connector		O		SN-PCXAN-DA	SN-PCXAN-DA

- (a) Packaged and Base systems do not include a monitor. Monitors include video cable and 120V power cord, order country specific power cord for 240V use.
- (b) Base systems do not include a video adapter. A video adapter is required for system to function.
- (c) AccelPRO 2500TX graphics support on Windows NT 4.0 only.
- (d) PCI-based PowerStorm 4D40T 3D graphics accelerator card must be installed in slots 4 and 5. 4D40T graphics options ordered with system will be factory installed unless specified as **spare**. Field installation of 4D40T graphics requires Digital Customer Services, option is **not** customer installable.

- (e) Each memory bank contains two memory SIMMs. Memory banks must be populated with same SIMM densities. EDO and Fast Page DRAM may be mixed, however, only one type may be used within a bank. Mixing of EDO and Fast Page memory will default all memory to 70 ns speed.
- (f) Selection of one hard disk drive is **mandatory** for Base systems.
- (g) 3.5" x 1.6" disk drive supported in 5.25" x 1.6" bay only, Maximum of two 3.5 x 1.6" hard disk drives supported per system.
- (h) Fast Ethernet (DE500-AA) option ordered in Europe is not factory integrated, option ships as **spare**.

**DIGITAL Personal Workstation Options (continued)**

<b>CPU Upgrades</b>			
<b>Order Number</b>	<b>From</b>	<b>To</b>	<b>Includes</b>
SN-PBXBA-BA	200i	200 MP/2	200 MHz Pentium Pro and VRM Module
<b>Color Monitors</b>		<b>Description</b>	
SN-VRCX5-WA/W3/W4	15" (13.9" viewable image size) Corporate series auto-scan color monitor, flat square invar CRT, 28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, Energy Star, MPRII, attached video cable. -WA = Northern Hemisphere with 120 V power cord -W3 = Northern Hemisphere, order power cord -W4 = Southern Hemisphere, order power cord		
SN-VRIX7-WA/W3 SN-VRT17-W4	17" (16" viewable image size) Professional series auto-scan color monitor, Trinitron CRT, .25 mm dot pitch, VGA to 1280 x 1024 @ 75 Hz, TCO 92, Energy Star, MPRII, male to male video cable. -WA = Northern Hemisphere with 120 V power cord -W3 = Northern Hemisphere, order power cord -W4 = Southern Hemisphere, order power cord		
SN-VRCX1-WA/W3/W4	21" (19.6" viewable image size) Professional series auto-scan color monitor, Diamondtron CRT, .28 mm dot pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, Energy Star, MPRII, male to male video cable. -WA = Northern Hemisphere with 120 V power cord -W3 = Northern Hemisphere, order power cord -W4 = Southern Hemisphere, order power cord		
<b>Monitor Power Cords</b>			
BN18L-2E	Israel		
BN19C-2E	Italy		
17-00083-54	North America		
BN19C-2E	Other Europe		
BN24T-2E	Switzerland		
BN19A-2E	Ireland		
BN22X-2E	Africa, India		
BN19H-2E	Australia, New Zealand		
<b>Graphics Memory Options</b>			
SN-PCCAM-CA	2 MB WRAM upgrade for Matrox Millennium		
SN-PCCAM-CB	6 MB WRAM upgrade for Matrox Millennium		
SN-PCCAG-AA	Media XL video upgrade for Matrox Millennium		
SN-PBXGI-GA	4 MB texture memory upgrade for PowerStorm 4D40T		
SN-PBXGI-GB	16 MB texture memory upgrade for PowerStorm 4D40T		
SN-PBXGI-GC	32 MB texture memory upgrade for PowerStorm 4D40T		
SN-PCCAM-DA	AccelPRO 2000SX to 2500SX 4 MB upgrade		
<b>Hardware Supplemental Services</b>			
FM-PCXHW-36	Years 2 and 3, 5 x 9, Next day response time		
FM-PC4HR-12	Year 1, 5 x 9, 4 Hour response time		
FM-PC4HR-36	Years 1 to 3, 5 x 9, 4 Hour response time		
FM-PC724-12	Year 1, 7 x 24, 4 Hour response time		
FM-PC724-36	Years 1 to 3, 7 x 24, 4 Hour response time		
<b>Software Supplemental Services</b>			
FM-PCXSW-12	12 Month Software Supplemental Support Services		
FM-PCXSW-24	36 Month Software Supplemental Support Services		
FM-PCXSW-36	60 Month Software Supplemental Support Services		

**Specifications**

Height	40.64 cm (16 inches)
Width	21.59 cm (8.5 inches)
Depth	44.45 cm (17.5 inches)

## Windows NT 3.5.1 Country Kits

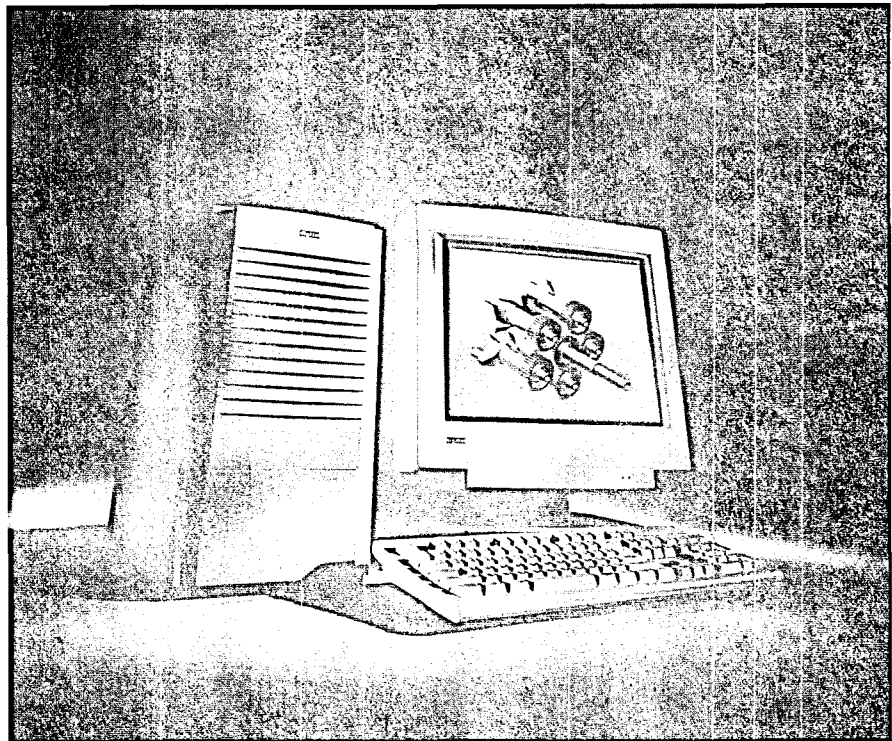
- 120 V U.S. North America Packaged and Base systems include Windows NT Country kit
- Country Kit must be ordered for 240V systems to be operational
- Windows NT Country Kit includes:
  - Windows NT operating system license and media, country keyboard, power cord, User Documentation, and PS/2 style 3-button mouse

Order Number	Area	Keyboard	Keyboard Language	Power Cord (2 in Each Kit)	User Documentation	Windows NT 3.5.1 Language
<b>Americas</b>						
SN-PCB3N-AA	United States	PCXLA-KA or -NA	English	17-00083-54	English	English
SN-PCB3N-CS	LACR-Spanish	PCXLA-KR or -NR	S. Amer. Spanish	17-00083-54	Spanish	Spanish
SN-PCB3N-AC	French Canadian	PCXLA-KC or -NC	French Canadian	17-00083-54	French	French
<b>Europe</b>						
SN-PCB3N-AB	Belgium	PCXLA-KB or -NB	Belgian	BN19C-2E	French	English
SN-PCB3N-AE	UK	PCXLA-KE or -NE	English	BN19A-2E	English	English
SN-PCB3N-AG	Germany	PCXLA-KG or -NG	German	BN19C-2E	German	German
SN-PCB3N-AK	Switzerland	PCXLA-KK or -NK	Swiss	BN24T-2E	French	French
SN-PCB3N-AL	Switzerland/Germany	PCXLA-KK or -NK	Swiss/German	BN24T-2E	German	German
SN-PCB3N-AP	France	PCXLA-KP or -NP	French	BN19C-2E	French	French
SN-PCB3N-AS	Spain	PCXLA-KS or -NS	Spanish	BN19C-2E	Spanish	Spanish
SN-PCB3N-AT	Israel	PCXLA-KT or -NT	Hebrew	BN18L-2E	English	English
SN-PCB3N-AV	Portugal	PCXLA-KV or -NV	Portuguese	BN19C-2E	English	English
SN-PCB3N-BH	Greece	PCXLA-LH or -PH	Greek	BN19C-2E	English	English
SN-PCB3N-BR	Arabic	PCXLA-LR or -PR	Arabic	BN19C-2E	English	English
SN-PCB3N-BT	Russia	PCXLA-LA	Russian	BN19C-2E	English	English
SN-PCB3N-BU	Turkey	PCXLA-LU or -PU	Turkish	BN19C-2E	English	English
SN-PCB3N-CQ	Iceland	PCXLA-MQ or -QQ	Icelandic	BN19C-2E	English	English
SN-PCB3N-CZ	Czech Republic	PCXLA-MZ or -QZ	Czech	BN19C-2E	English	English
SN-PCB3N-EC	European	PCXLA-KA or -NA	N. American	BN19C-2E	English	English
<b>APA</b>						
SN-PCB3N-AJ	Japan	PCXLA-KY	Japanese	17-00083-54	Japanese	Japanese
SN-PCB3N-CA	Far East	PCXLA-KA or -NA	N. American	BN19A-2E	English	English
SN-PCB3N-CE	Philippines	PCXLA-KA or -NA	N. American	17-00083-54	English	English
SN-PCB3N-CG	Vietnam	PCXLA-KA or -NA	N. American	BN19C-2E	English	English
SN-PCB3N-CP	Thailand	PCXLA-KA or -NA		17-04364-02	English	English
SN-PCB3N-CV	China	PCXLA-KA or -NA	N. American	BN19A-2E	English	English

## Windows NT 4.0 Country Kits

- . 120 V U.S. North America Packaged and Base systems include Windows NT Country kit
- . Country Kit must be ordered for 240V systems to be operational
- . Windows NT Country Kit includes:
  - Windows NT operating system license and media, country keyboard, power cord, User Documentation, and PS/2 style 3-button mouse
  - Additional local language variants of Windows NT 4.0 kits will be available as they are released from Microsoft.

Order Number	Area	Keyboard	Keyboard Language	Power Cord (2 in Each Kit)	User Documentation	Windows NT 4.0 Language
<b>Americas</b>						
SN-PBB3P-AA	United States	PCXLA-KA or -NA	English	17-04537-02	English	English
SN-PBB3P-AR	LACR-Spanish	PCXLA-KR or -NR	S. Amer. Spanish	17-04537-02	Spanish	Spanish
SN-PBB3P-AC	French Canadian	PCXLA-KC or -NC	French Canadian	17-04537-02	French	French
<b>Europe</b>						
SN-PBB3P-AB	Belgium	PCXLA-KB or -NB	Belgian	17-04364-07	French	English
SN-PBB3P-AD	Denmark	PCXLA-KD or -ND	Danish	17-04364-06	English	Danish
SN-PBB3P-AE	UK	PCXLA-KE or -NE	English	17-04364-01	English	English
SN-PBB3P-AF	Finland	PCXLA-KF or -NF	Finland/Suomi	17-04364-07	English	Finish
SN-PBB3P-AG	Germany	PCXLA-KG or -NG	German	17-04364-07	German	German
SN-PBB3P-AH	Netherlands	PCXLA-KH or -NH	N. American	17-04364-07	English	Dutch
SN-PBB3P-AI	Italy	PCXLA-KI or -NI	Italian	17-04364-04	Italian	Italian
SN-PBB3P-AK	Switzerland	PCXLA-KK or -NK	Swiss	17-04364-02	French	French
SN-PBB3P-AL	Switzerland/Germany	PCXLA-KK or -NK	Swiss/German	17-04364-02	German	German
SN-PBB3P-AM	Sweden	PCXLA-KF or -NF	Finland/Suomi	17-04364-07	English	Swedish
SN-PBB3P-AN	Norway	PCXLA-KN or -NN	Norwegian	17-04364-07	English	Norwegian
SN-PBB3P-AP	France	PCXLA-KP or -NP	French	17-04364-07	French	French
SN-PBB3P-AS	Spain	PCXLA-KS or -NS	Spanish	17-04364-07	Spanish	Spanish
SN-PBB3P-AT	Israel	PCXLA-KT or -NT	Hebrew	17-04364-05	English	Hebrew
SN-PBB3P-AV	Portugal	PCXLA-KV or -NV	Portuguese	17-04364-07	English	English
SN-PBB3P-BH	Greece	PCXLA-LH or -PH	Greek	17-04364-07	English	English
SN-PBB3P-BP	Poland	PCXLA-KA or -NA	N. American	17-04364-07	English	Polish
SN-PBB3P-BQ	Hungary	PCXLA-LQ or -PQ	Hungarian	17-04364-07	English	English
SN-PBB3P-BR	Arabic	PCXLA-LR or -PR	Arabic	17-04364-07	English	Arabic
SN-PBB3P-BT	Russia	PCXLA-LT	Russian	17-04364-07	English	Russian
SN-PBB3P-BU	Turkey	PCXLA-LU or -PU	Turkish	17-04364-07	English	English
SN-PBB3P-CQ	Iceland	PCXLA-MQ or -QQ	Icelandic	17-04364-07	English	English
SN-PBB3P-CZ	Czech Republic	PCXLA-MZ or -QZ	Czech	17-04364-07	English	Czech
SN-PBB3P-EC	European	PCXLA-KA or -NA	N. American	17-04364-07	English	English
<b>APA</b>						
SN-PBB3P-AJ	Japan	PCXLA-KY	Japanese	17-04357-02	Japanese	Japanese
SN-PBB3P-BI	Taiwan	PCXLA-LI or -PI	Traditional Chinese	17-04364-01	English	Trad. Chinese
SN-PBB3P-BK	South Korea	PCXLA-LK or -PK	Korean	17-04364-02	English	Korean
SN-PBB3P-CA	Far East	PCXLA-KA or -NA	N. American	17-04357-02	English	English
SN-PBB3P-CE	Philippines	PCXLA-KA or -NA	N. American	17-04364-07	English	English
SN-PBB3P-CG	Vietnam	PCXLA-KA or -NA	N. American	17-04364-02	English	English
SN-PBB3P-CP	Thailand	PCXLA-KA or -NA	N. American	17-04364-02	English	English
SN-PBB3P-CV	China	PCXLA-KA or -NA	N. American	17-04357-02 2J-6510A-01	English	Chinese



## DIGITAL Personal Workstation a-Series (Windows NT) and au-Series (Digital UNIX)

### Product Description

The DIGITAL Personal Workstations a-Series for Windows NT, and au-Series for Digital UNIX are designed to provide price and performance leadership for all workstation users in the targeted MCAD, ECAD, GIS and Science and Research markets. They are the next generation of products to be introduced to existing users of DIGITAL UNIX and the expanding market of Windows NT desktop computing.

The DIGITAL EV56 microprocessor accommodates demanding integer applications and runs 3D graphics options to significantly improve productivity for high end 2D and the spectrum of 3D floating point intensive, graphics applications.

DIGITAL Personal Workstation a-Series and au-Series products have leveraged their commonality with the DIGITAL Personal Workstation i-Series family to achieve unprecedented cost benefits.

The DIGITAL Personal Workstation system chassis supports 5 PCI slots (two PCI slots, three PCI/ISA combination slots) for industry standard options. All systems also include an on-board EIDE disk controller, a dedicated floppy diskette drive, and 600 MB ATAPI CD-ROM drive.

Storage supported in system enclosure includes up to three 5.25-inch half height removable media bays, one dedicated floppy disk drive bay, and two internal 3.5" hard disk drives bays. System ports include one bi-directional enhanced parallel port, two serial ports and external SCSI connectors.

All U.S. variants include Country kits with American English Language documentation. Worldwide system users must select a Country Kit from the option list. The Country Kit determines the language variant of user documentation.

DIGITAL Personal Workstations come standard with a three-year limited warranty. Year one features on-site service; years two and three are return to DIGITAL service, parts only. This warranty represents one of the most comprehensive in the industry and includes product lifetime toll-free technical assistance.

## DIGITAL Personal Workstation a-Series Windows NT

### DIGITAL Personal Workstation a-Series Packaged and Base systems include

- Short-tower enclosure with
  - Alpha microprocessor 21164 433-MHz CPU, or
  - Alpha microprocessor 21164 500-MHz CPU
  - 5 Option slots
    - Slot 1—32-bit PCI only 1/2 length slot
    - Slot 2—32-bit PCI/ISA 1/2 length slot
    - Slot 3—32-bit PCI/ISA slot
    - Slot 4—64-bit PCI/ISA (dedicated graphics slot)
    - Slot 5—64-bit PCI only (dedicated graphics slot)
  - Three memory option slots
  - Six internal storage bays
    - One dedicated diskette drive bay
    - Three removable media bays
    - Two 3.5" x 1" hard disk drive bays
- 300W power supply
- On-board EIDE controller
- On-board ESS 1888 16-bit audio
- Two serial ports, supports full modem control
- One parallel port
- Keyboard port and mouse port
- 1.44 MB Floppy diskette drive
- 12X ATAPI CD-ROM
- 10/100 BaseT Ethernet Media Access card (MAU)
- Windows NT 4.0 media kit included in U.S. country kit. Windows NT language specific country kit is **mandatory** for Worldwide variants, see Step 7

### Step 1—Packaged Systems

#### Package System also include:

- Qlogic UltraWide single-ended PCI-based SCSI adapter
- 2.1 GB or 4.3 GB UltraSCSI disk
- 64 MB or 128 MB of Synchronous DRAM Memory
- 2 MB of Level 3 SRAM Cache

**Note:** Packaged system **mandatory** components are:

Graphics option, Step 5, and

Windows NT language specific country kit for Worldwide variants, Step 7

#### a-Series Windows NT 4.0 Packaged Systems

Order Number	Variants	CPU	Memory	Cache	SCSI Hard Drive	Graphics
SN-B3AAP-FL	U.S.	433 MHz	64 MB	2 MB	2.1 GB UltraWide	Mandatory
SN-B3AAP-WL	Worldwide	433 MHz	64 MB	2 MB	2.1 GB UltraWide	Mandatory
SN-B3DAP-LK	U.S.	500 MHz	128 MB	2 MB	4.3 GB UltraWide	Mandatory
SN-B3DAP-XK	Worldwide	500 MHz	128 MB	2 MB	4.3 GB UltraWide	Mandatory

### Step 1a—Base Systems

- **Mandatory** components must be selected from Step 2—Step 7 for a-Series Windows NT Base systems.
- All other components are optional.

#### a-Series Windows NT 4.0 Base Systems

Order Number	Variants	CPU
SN-B3AAP-T1	U.S.	433 MHz
SN-B3AAP-U1	Worldwide	433 MHz
SN-B3DAP-T1	U.S.	500 MHz
SN-B3DAP-U1	Worldwide	500 MHz

## DIGITAL Personal Workstation a-Series—Mandatory Components

### Step 2—Memory—Mandatory for Base Systems

- Base systems require minimum of one 64 MB ECC DIMM pair.
- System supports up to three memory options for maximum of 384 MB.

SN-MSP01-HC 64 MB ECC DIMM pair (2 x 32 MB), maximum 3 per system

SN-MSP01-HD 128 MB ECC DIMM pair (2 x 64 MB), maximum 3 per system

### Step 3—Disk Drives—Mandatory for Base Systems

- Base systems require minimum of one disk drive
- System supports up to two EIDE, or four SCSI disk drives. Selection of SCSI drives requires SCSI adapter, see Step 4.
- System includes brackets for mounting 3.5" x 1 and 1.6" hard drives in 5.25" removable media bays

SN-PCXRA-AN 2.1 GB EIDE 4500 RPM disk, 1" or 1.6" bay, maximum 2 per system

SN-PCXRA-AP 3.2 GB EIDE 4500 RPM disk, 1" or 1.6" bay, maximum 2 per system

SN-PBXRW-HC 2.1 GB UltraWide SCSI 5400 RPM, 1" or 1.6" bay, maximum 4 per system

SN-PBXRW-JC 2.1 GB UltraWide SCSI 7200 RPM, 1" or 1.6" bay, maximum 4 per system

SN-PBXRW-NB 4.3 GB UltraWide SCSI 7200 RPM, 1" or 1.6" bay, maximum 4 per system

SN-PBXRW-SA 9.1 GB UltraWide SCSI 7200 RPM, 1.6" bay, maximum 2 per system, supported in 5.25" removable media bays only

### Step 4—SCSI Adapters—Mandatory for SCSI Base Systems

- SCSI adapter is mandatory if SCSI disks are selected from Step 3 for Base Systems
- System supports one SCSI adapter

SN-KZPBA-CA Qlogic 1040B UltraSCSI adapter, requires 1 PCI 32-bit slot

SN-PCTAZ-DE Adaptec 2940UW UltraSCSI adapter, requires 1 PCI 32-bit slot

### Step 5—Graphics—Mandatory for Packaged and Base Systems

- Graphics options must be installed in primary PCI slots 4 and 5 only

SN-PCXAG-AD Matrox Millennium 3D graphics, 1 PCI-64 bit slot

SN-PCXAG-AW Accelgraphics 2500TX 3D graphics, 1 PCI-64 bit slot

SN-PBXGI-AA PowerStorm 4D40T 3D graphics, 2 PCI-64 bit slots

SN-PBXGI-AB PowerStorm 4D50T 3D graphics, 2 PCI-64 bit slots

SN-PBXGI-AC PowerStorm 4D60T 3D graphics, 2 PCI-64 bit slots

### Step 6—Color Monitors—Mandatory for Base Systems

SN-VRTX7-WA/W3 17" (16.0" viewable image size) -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Monitor power cord included in Country Kit.

SN-VRCX1-WA/W3/W4 21" (19.7" viewable image size) -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Monitor power cord included in Country Kit.

## DIGITAL Personal Workstation a-Series—Mandatory Components

### Step 7—Windows NT 4.0 Country Kit—Mandatory for Worldwide Systems

- U.S. North America Packaged and Base systems include Windows NT Country kit
- Country Kit is **mandatory** for Worldwide systems to be operational
- Windows NT Country Kit includes:
  - Windows NT operating system license and media, Universal DIGITAL UNIX/Windows NT keyboard, two power cords, user documentation, and PS/2 style 3-button mouse

Order Number	Country	Keyboard	User Documentation	Windows NT 4.0 Media
<b>Americas</b>				
SN-PBB3P-AA	United States	English	English	English
SN-PBB3P-AR	LACR-Spanish	S. Amer. Spanish	Spanish	Spanish
SN-PBB3P-AC	French Canadian	French Canadian	French	French
<b>Europe</b>				
SN-PBB3P-AB	Belgium	Belgian	French	English
SN-PBB3P-AD	Denmark	Danish	English	Danish
SN-PBB3P-AE	UK	English	English	English
SN-PBB3P-AF	Finland	Finland	English	Finish
SN-PBB3P-AG	Germany	German	German	German
SN-PBB3P-AH	Netherlands	Dutch	Dutch	Dutch
SN-PBB3P-AI	Italy	Italian	Italian	Italian
SN-PBB3P-AK	Switzerland	Swiss	French	French
SN-PBB3P-AL	Switzerland/Germany	Swiss/French/German	German	German
SN-PBB3P-AM	Sweden	Swedish	English	Swedish
SN-PBB3P-AN	Norway	Norwegian	English	Norwegian
SN-PBB3P-AP	France	French	French	French
SN-PBB3P-AS	Spain	Spanish	Spanish	Spanish
SN-PBB3P-AT	Israel	Hebrew	English	English
SN-PBB3P-AV	Portugal	Portuguese	English	English
SN-PBB3P-BH	Greece	Greek	English	English
SN-PBB3P-BP	Poland	Polish	English	Polish
SN-PBB3P-BQ	Hungary	Hungarian	English	English
SN-PBB3P-BR	Arabic	Arabic	English	English
SN-PBB3P-BT	Russia	Russian	English	Russian
SN-PBB3P-BU	Turkey	Turkish	English	English
SN-PBB3P-CQ	Iceland	Icelandic	English	English
SN-PBB3P-CZ	Czech Republic	Czech	English	Czech
SN-PBB3P-EC	European	N. American	English	English
<b>APA</b>				
SN-PBB3P-BI	Taiwan	Traditional Chinese	English	Trad. Chinese
SN-PBB3P-BK	South Korea	Korean	English	Korean
SN-PBB3P-CA	Far East	N. American	English	English
SN-PBB3P-CE	Philippines	N. American	English	English
SN-PBB3P-CG	Vietnam	N. American	English	English
SN-PBB3P-CP	Thailand	N. American	English	English
SN-PBB3P-CV	China	N. American	English	Simple Chinese
SN-PBB3P-AJ	Japan	Japanese	Japanese	Japanese

## DIGITAL Personal Workstation a-Series—Optional Components

### Step 8—Graphics Texture Memory

- Matrox Millennium base card includes 2 MB WRAM plus a WRAM option slot
- Maximum of one PowerStorm Texture memory option supported

SN-PCCAM-CA	2 MB WRAM for Matrox Millennium, supported in WRAM slot on Matrox Millennium card (base card includes 2 MB WRAM)
SN-PCCAM-CB	6 MB WRAM for Matrox Millennium, supported in WRAM slot on Matrox Millennium card (base card includes 2 MB WRAM)
SN-PBXGI-GA	4 MB Texture memory for PowerStorm 4DxxT series, supported in PowerStorm memory slot
SN-PBXGI-GB	16 MB Texture memory for PowerStorm 4DxxT series, supported in PowerStorm memory slot
SN-PBXGI-GC	32 MB Texture memory for PowerStorm 4DxxT series, supported in PowerStorm memory slot

### Step 9—Cache memory

SN-MS01-AB	2 MB Level 3 SRAM Cache, supported in main logic board cache slot
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### Step 10—SCSI Adapters

SN-KZPAA-AA	Fast Narrow single ended SCSI-2 adapter, requires 1 PCI slot, maximum of 1 supported
SN-PBXKP-BA	Wide to Narrow SCSI connection adapter

### Step 11—Removable Media

SN-TLZ09-LK	4/8 GB 4mm internal DAT drive, 1.6" bay, maximum of 2 supported
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### Step 12—Network Adapters

SN-PCXAN-DB	10 BaseT/2 Ethernet Media Access card, rear MAU I/O slot (10Mbps only, Twisted Pair or Thin wire), must be ordered as spare
SN-DE500-AA	PCI EtherWorks adapter (TP only), requires one PCI slot
SN-DE450-CA	PCI EtherWorks adapter (TW, TP, AUI), requires one PCI slot
SN-DEFPA-AA	PCI to FDDI adapter (SAS), requires one PCI slot

### Step 13—Multimedia Options

AV321-AA	Supreme Video JPEG PCI card, requires one PCI slot
SN-AVC01-AA	Desktop Camera / North America, requires AV321-AA JPEG PCI option
SN-AVC01-AE	Desktop Camera / UK, requires AV321-AA JPEG PCI option
SN-AVC01-CA	Desktop Camera / Europe, requires AV321-AA JPEG PCI option
AVH01-AA	Microphone and Headset, external connections

**DIGITAL Personal Workstation au-Series DIGITAL UNIX**

**DIGITAL Personal Workstation au-Series Packaged and Base systems include**

- . Short-tower enclosure with
  - Alpha microprocessor 21164 433-MHz CPU, or
  - Alpha microprocessor 21164 500-MHz CPU
  - 5 Option slots
    - Slot 1—32-bit PCI only 1/2 length slot
    - Slot 2—32-bit PCI/ISA 1/2 length slot
    - Slot 3—32-bit PCI/ISA slot
    - Slot 4—64-bit PCI/ISA (dedicated graphics slot)
    - Slot 5—64-bit PCI only (dedicated graphics slot)
  - Three memory option slots
  - Six internal storage bays
    - One dedicated diskette drive bay
    - Three removable media bays
    - Two 3.5" x 1" hard disk drive bays
  - 300W power supply
- On-board EIDE controller
- On-board ESS 1888 16-bit audio
- Two serial ports, supports full modem control
- One parallel port
- Keyboard port and mouse port
- . Qlogic UltraWide single-ended PCI-based SCSI adapter
- . 1.44 MB Floppy diskette drive
- . 12X ATAPI CD-ROM
- . 10/100 BaseT Ethernet Media Access card (MAU)
- . DIGITAL UNIX 2-user Base license
  - U.S. variants include country kit
  - Country kit is **mandatory** for Worldwide variants, see Step 6.

**Step 1—Packaged systems**

**Package System also include:**

- . 64 MB or 128 MB of Synchronous DRAM Memory
- . 2.1 GB or 4.3 GB UltraWide SCSI disk
- . 2 MB of Level 3 SRAM Cache
- . DIGITAL UNIX V4.0c FIS on hard disk drive

**Note:** Packaged system **mandatory** components are:  
 Graphics option, Step 5, and  
 DIGITAL UNIX language specific country kit for Worldwide variants, Step 6

**au-Series DIGITAL UNIX Packaged Systems**

Order Number	Variants	CPU	Memory	Cache	SCSI Hard Drive	Graphics
SN-B3AAU-FL	U.S.	433 MHz	64 MB	2 MB	2.1 GB UltraWide	Mandatory
SN-B3AAU-WL	Worldwide	433 MHz	64 MB	2 MB	2.1 GB UltraWide	Mandatory
SN-B3DAU-LK	U.S.	500 MHz	128 MB	2 MB	4.3 GB UltraWide	Mandatory
SN-B3DAU-XK	Worldwide	500 MHz	128 MB	2 MB	4.3 GB UltraWide	Mandatory

**Step 1a—Base systems**

- . **Mandatory** components must be selected from Step 2—Step 6 for au-Series DIGITAL UNIX Base systems.
- . All other components are optional.

**au-Series DIGITAL UNIX Base Systems**

Order Number	Variants	CPU
SN-B3AAU-T1	U.S.	433 MHz
SN-B3AAU-U1	Worldwide	433 MHz
SN-B3DAU-T1	U.S.	500 MHz
SN-B3DAU-U1	Worldwide	500 MHz

**DIGITAL Personal Workstation au-Series—Mandatory Components****Step 2—Memory—Mandatory for Base Systems**

- Base systems require minimum of one 64 MB ECC DIMM pair.
- System supports up to three memory options for maximum of 384 MB.

SN-MSP01-HC          64 MB ECC DIMM pair (2 x 32 MB), maximum 3 per system

SN-MSP01-HD          128 MB ECC DIMM pair (2 x 64 MB), maximum 3 per system

**Step 3—Disk Drives—Mandatory for Base Systems**

- Base systems require minimum of one disk drive.
- System supports up to four SCSI disk drives.
- System includes brackets for mounting 3.5" x 1 and 1.6" hard drives in 5.25" removable media bays

SN-PBXRW-HC          2.1 GB UltraWide SCSI 5400 RPM, 1" or 1.6" bay, maximum 4 per system

SN-PBXRW-JC          2.1 GB UltraWide SCSI 7200 RPM, 1" or 1.6" bay, maximum 4 per system

SN-PBXRW-NB          4.3 GB UltraWide SCSI 7200 RPM, 1" or 1.6" bay, maximum 4 per system

SN-PBXRW-SA          9.1 GB UltraWide SCSI 7200 RPM, 1.6" bay, maximum 2 per system, supported in 5.25" removable media bays only

**Step 4—Graphics—Mandatory for Packaged and Base Systems**

- Graphics options must be installed in primary PCI slots 4 and 5 only

SN-PBXGB-AA          PowerStorm 3D30 8-plane graphics, 1 PCI 64-bit slot

SN-PBXGB-CA          PowerStorm 4D20 24-plane graphics, 1 PCI 64-bit slot

SN-PBXGI-AA          PowerStorm 4D40T 3D graphics, 2 PCI-64 bit slots

SN-PBXGI-AB          PowerStorm 4D50T 3D graphics, 2 PCI-64 bit slots

SN-PBXGI-AC          PowerStorm 4D60T 3D graphics, 2 PCI-64 bit slots

**Step 5—Color Monitors—Mandatory for Base Systems**

SN-VRTX7-WA/W3      17" (16.0" viewable image size) -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Monitor power cord included in Country Kit.

SN-VRCX1-WA/W3/W4      21" (19.7" viewable image size) -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Monitor power cord included in Country Kit.

**DIGITAL Personal Workstation au-Series—Mandatory Components****Step 6—DIGITAL UNIX V4.0c Country Kit—Mandatory for Worldwide Systems**

- All DIGITAL UNIX systems include 2-user Base license
- U.S. North America Packaged and Base systems include DIGITAL UNIX Country kit
- Country Kit is **mandatory** for Worldwide systems to be operational
- DIGITAL UNIX Country Kit includes
  - Universal DIGITAL UNIX/Windows NT keyboard, two power cords, user documentation, and PS/2 style 3-button mouse. Order DIGITAL UNIX media and documentation separately.
  - Availability of local language for DIGITAL UNIX is limited to English, Japanese, French, Italian, German, Spanish, and Dutch.

Order Number	Country	Keyboard	User Documentation	DIGITAL UNIX V4.0c
<b>Americas</b>				
SN-PBB3U-AA	United States	English	English	English
SN-PBB3U-AR	LACR-Spanish	S. Amer. Spanish	Spanish	Spanish
SN-PBB3U-AC	French Canadian	French Canadian	French	French
<b>Europe</b>				
SN-PBB3U-AB	Belgium	Belgian	French	English
SN-PBB3U-AD	Denmark	Danish	English	English
SN-PBB3U-AE	UK	English	English	English
SN-PBB3U-AF	Finland	Finland	English	English
SN-PBB3U-AG	Germany	German	German	German
SN-PBB3U-AH	Netherlands	Dutch	Dutch	Dutch
SN-PBB3U-AI	Italy	Italian	Italian	Italian
SN-PBB3U-AK	Switzerland	Swiss	French	French
SN-PBB3U-AL	Switzerland/Germany	Swiss/French/German	German	German
SN-PBB3U-AM	Sweden	Swedish	English	English
SN-PBB3U-AN	Norway	Norwegian	English	English
SN-PBB3U-AP	France	French	French	French
SN-PBB3U-AS	Spain	Spanish	Spanish	Spanish
SN-PBB3U-AT	Israel	Hebrew	English	English
SN-PBB3U-AV	Portugal	Portuguese	English	English
SN-PBB3U-BH	Greece	Greek	English	English
SN-PBB3U-BP	Poland	Polish	English	English
SN-PBB3U-BQ	Hungary	Hungarian	English	English
SN-PBB3U-BR	Arabic	Arabic	English	English
SN-PBB3U-BT	Russia	Russian	English	English
SN-PBB3U-BU	Turkey	Turkish	English	English
SN-PBB3U-CQ	Iceland	Icelandic	English	English
SN-PBB3U-CZ	Czech Republic	Czech	English	English
SN-PBB3U-EC	European	N. American	English	English
<b>APA</b>				
SN-PBB3U-BI	Taiwan	Traditional Chinese	English	English
SN-PBB3U-BK	South Korea	Korean	English	English
SN-PBB3U-CA	Far East	N. American	English	English
SN-PBB3U-CE	Philippines	N. American	English	English
SN-PBB3U-CG	Vietnam	N. American	English	English
SN-PBB3U-CP	Thailand	N. American	English	English
SN-PBB3U-CV	China	N. American	English	English
SN-PBB3U-AJ	Japan	Japanese	Japanese	Japanese

**DIGITAL Personal Workstation au-Series—Optional Components****Step 7—Graphics Texture Memory**

- Maximum of one PowerStorm Texture memory option supported per system

SN-PBXGI-GA	4 MB Texture memory for PowerStorm 4DxxT series, supported in PowerStorm memory slot
SN-PBXGI-GB	16 MB Texture memory for PowerStorm 4DxxT series, supported in PowerStorm memory slot
SN-PBXGI-GC	32 MB Texture memory for PowerStorm 4DxxT series, supported in PowerStorm memory slot

**Step 8—Cache memory**

SN-MSC01-AB	2 MB Level 3 SRAM Cache, supported in main logic board cache slot
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**Step 9—SCSI Adapters**

- Packaged and Base systems include Qlogic 1040B UltraSCSI adapter

SN-KZPAA-AA	Fast Narrow single ended SCSI-2 adapter, requires 1 PCI slot, maximum of 1 supported
SN-PBXKP-BA	Wide to Narrow SCSI connection adapter

**Step 10—Removable Media**

SN-TLZ09-LK	4/8 GB 4mm internal DAT drive, 1.6" bay, maximum of 2 supported
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**Step 11—Network Adapters**

SN-PCXAN-DB	10 BaseT/2 Ethernet Media Access card, rear MAU I/O slot (10Mbps only, Twisted Pair or Thin wire), must be ordered as spare
SN-DE500-AA	PCI EtherWorks adapter (TP only), requires one PCI slot
SN-DE450-CA	PCI EtherWorks adapter (TW, TP, AUI), requires one PCI slot
SN-DEFFA-AA	PCI to FDDI adapter (SAS), requires one PCI slot

**Step 12—Multimedia Options**

AV321-AA	Supreme Video JPEG PCI card, requires one PCI slot
SN-AVC01-AA	Desktop Camera / North America, requires AV321-AA JPEG PCI option
SN-AVC01-AE	Desktop Camera / UK, requires AV321-AA JPEG PCI option
SN-AVC01-CA	Desktop Camera / Europe, requires AV321-AA JPEG PCI option
AVH01-AA	Microphone and Headset, external connections

## DIGITAL Personal Workstation a-Series and au-Series Options

### Windows NT

#### Windows NT User Documentation

EK-ALMIA-UI	DIGITAL Personal Workstation User's Guide—English
EK-ALMIF-UI	DIGITAL Personal Workstation User's Guide—French
EK-ALMID-UI	DIGITAL Personal Workstation User's Guide—German
EK-ALMIJ-UI	DIGITAL Personal Workstation User's Guide—Japanese
EK-ALMIS-UI	DIGITAL Personal Workstation User's Guide—Spanish
EK-ALMII-UI	DIGITAL Personal Workstation User's Guide—Italian
ER-B30WW-IM	DIGITAL Personal Workstation Quick Setup Guide—Multilingual

#### Hardware Supplement Services

FM-WSDTP-IN	Hardware Installation
FM-W****-**	Please refer to the Supplemental Services Quick Quote Card for specific service part numbers

#### Windows NT Software Supplemental Services

FM-HD5**-**	5 x 9 HelpDesk support, Please refer to the Supplemental Services Quick Quote Card for specific service part numbers
FM-HD7**-**	7 x 24 HelpDesk support, Please refer to the Supplemental Services Quick Quote Card for specific service part numbers

### DIGITAL UNIX

#### Digital UNIX Software Media and Optional Licenses—All DIGITAL UNIX systems include 2-user Base license

QA-MT4AA-H8	DIGITAL UNIX 4.0c Media & Documentation kit
QL-MT7AE-AA	DIGITAL UNIX 4.0c Unlimited User License
QL-MT6AE-AA	DIGITAL UNIX 4.0c Server Extensions License
QL-MT5AE-AA	DIGITAL UNIX 4.0c C Developer's Extensions License
QL-MT7AM-3B	DIGITAL UNIX 4.0c 1-User Concurrent License
QL-MT7AM-3C	DIGITAL UNIX 4.0c 2-User Concurrent License
QL-MT7AM-3D	DIGITAL UNIX 4.0c 4-User Concurrent License
QL-MT7AM-3E	DIGITAL UNIX 4.0c 8-User Concurrent License
QL-MT7AM-3F	DIGITAL UNIX 4.0c 16-User Concurrent License
QL-MT7AM-3G	DIGITAL UNIX 4.0c 32-User Concurrent License
QL-MT7AM-3H	DIGITAL UNIX 4.0c 64-User Concurrent License

#### Digital UNIX User Documentation

QA-MT4AA-GZ	DIGITAL UNIX 4.0c Full Documentation kit
QA-MT4AB-GZ	DIGITAL UNIX 4.0c End-User Documentation kit *(included in Full Documentation kit)

#### Digital UNIX Hardware Supplemental Services

FM-WSDTP-IN	Hardware Installation
FM-W****-**	Please refer to the Supplemental Services Quick Quote Card for specific service part numbers

#### Digital UNIX Software Supplemental Services

FM-3BUNS-12	12 Month FULL Software Supplemental Support Services
FM-3BUNS -36	36 Month FULL Software Supplemental Support Services
FM-3BUNS -60	60 Month FULL Software Supplemental Support Services
FM-3BUNN -12	12 Month NODE Software Supplemental Support Services
FM-3BUNN -36	36 Month NODE Software Supplemental Support Services
FM-3BUNN -60	60 Month NODE Software Supplemental Support Services

## DIGITAL Personal Workstation a-Series (Windows NT) Existing Systems

### DIGITAL Personal Workstation a-Series Packaged and Base systems include

- Short-tower enclosure with
  - Alpha microprocessor 21164 433-MHz CPU, or
  - Alpha microprocessor 21164 500-MHz CPU
  - 5 Option slots
    - Slot 1—32-bit PCI only 1/2 length slot
    - Slot 2—32-bit PCI/ISA 1/2 length slot
    - Slot 3—32-bit PCI/ISA slot
    - Slot 4—64-bit PCI/ISA (dedicated graphics slot)
    - Slot 5—64-bit PCI only (dedicated graphics slot)
  - Three memory option slots
  - Six internal storage bays
    - One dedicated diskette drive bay
    - Three removable media bays
    - Two 3.5" x 1" hard disk drive bays
- 300W power supply
- On-board EIDE controller
- On-board ESS 1888 16-bit audio
- Two serial ports, supports full modem control
- One parallel port
- Keyboard port and mouse port
- 1.44 MB Floppy diskette drive
- 12X ATAPI CD-ROM
- 10/100 BaseT Ethernet Media Access card (MAU)
- Windows NT 4.0 media kit included in U.S. country kit. Windows NT language specific country kit is **mandatory** for Worldwide variants, see Step 6

### Step 1—a-Series Existing Packaged systems

#### Package System also include:

- Qlogic UltraWide single-ended PCI-based SCSI adapter
- 32 MB, 64 MB or 128 MB of Synchronous DRAM Memory
- 2.1 GB or 4.3 GB UltraSCSI disk
- 0 or 2 MB of Level 3 SRAM Cache
- 2D or 3D Graphics option

**Note:** Packaged system **mandatory** components are:  
Windows NT language specific country kit for Worldwide variants, Step 6

### a-Series Windows NT 4.0 Existing Packaged Systems

Order Number	Variants	CPU	Memory	Cache	SCSI Adapter	UltraWide SCSI Drive	Graphics
SN-B3AAP-FS	U.S.	433 MHz	64 MB	0	Qlogic UltraSCSI	4.3 GB	AcellPro 2500TX
SN-B3AWW-FS	Worldwide	433 MHz	64 MB	0	Qlogic UltraSCSI	4.3 GB	AcellPro 2500TX
SN-B3AAP-FW	U.S.	433 MHz	64 MB	0	Qlogic UltraSCSI	4.3 GB	PowerStorm 4D40T
SN-B3AWW-FW	Worldwide	433 MHz	64 MB	0	Qlogic UltraSCSI	4.3 GB	PowerStorm 4D40T
SN-B3DAP-FW	U.S.	500 MHz	64 MB	2 MB	Qlogic UltraSCSI	4.3 GB	PowerStorm 4D40T
SN-B3DWW-FW	Worldwide	500 MHz	64 MB	2 MB	Qlogic UltraSCSI	4.3 GB	PowerStorm 4D40T
SN-B3DAP-LX	U.S.	500 MHz	128 MB	2 MB	Qlogic UltraSCSI	4.3 GB	PowerStorm 4D60T
SN-B3DWW-LX	Worldwide	500 MHz	128 MB	2 MB	Qlogic UltraSCSI	4.3 GB	PowerStorm 4D60T

### Step 1a—a-Series Existing Entry Level Systems

#### a-Series Windows NT 4.0 Existing Entry Level Systems

Order Number	Variants	CPU	Memory	Cache	SCSI Adapter	EIDE Drive	Graphics
SN-B3AAP-EB	U.S.	433 MHz	32 MB	0	—	2.1 GB	Matrox Millennium
SN-B3AWW-EB	Worldwide	433 MHz	32 MB	0	—	2.1 GB	Matrox Millennium
Order Number	Variants	CPU	Memory	Cache	SCSI Adapter	UltraWide SCSI drive	Graphics
SN-B3AAP-FQ	U.S.	433 MHz	64 MB	0	Qlogic UltraSCSI	2.1 GB	—
SN-B3AWW-FQ	Worldwide	433 MHz	64 MB	0	Qlogic UltraSCSI	2.1 GB	—

**DIGITAL Personal Workstation a-Series (Windows NT) Mandatory Components****Step 1b—Existing a-Series Base Systems**

- Mandatory components must be selected from Step 2—Step 6 for a-Series Windows NT Base systems.
- All other components are optional.

**a-Series Windows NT 4.0 Existing a-Series Base Systems**

Order Number	Variants	CPU	Memory
SN-B3AAP-F1	U.S.	433 MHz	64 MB
SN-B3AAP-L1	U.S.	433 MHz	128 MB
SN-B3DAP-F1	U.S.	500 MHz	64 MB
SN-B3DAP-L1	U.S.	500 MHz	128 MB
SN-B3AWW-F1	Worldwide	433 MHz	64 MB
SN-B3AWW-L1	Worldwide	433 MHz	128 MB
SN-B3DWW-F1	Worldwide	500 MHz	64 MB
SN-B3DWW-L1	Worldwide	500 MHz	128 MB

**Step 2—Disk Drives—Mandatory for Base Systems**

- Base systems require minimum of one disk drive
- System supports up to two EIDE, or four SCSI disk drives. Selection of SCSI drives requires SCSI adapter, see Step 3.
- System includes brackets for mounting 3.5" x 1 and 1.6" hard drives in 5.25" removable media bays

SN-PCXRA-AN	2.1 GB EIDE 4500 RPM disk, 1" or 1.6" bay, maximum 2 per system
SN-PCXRA-AP	3.2 GB EIDE 4500 RPM disk, 1" or 1.6" bay, maximum 2 per system
SN-PBXRW-HC	2.1 GB UltraWide SCSI 5400 RPM, 1" or 1.6" bay, maximum 4 per system
SN-PBXRW-JC	2.1 GB UltraWide SCSI 7200 RPM, 1" or 1.6" bay, maximum 4 per system
SN-PBXRW-NB	4.3 GB UltraWide SCSI 7200 RPM, 1" or 1.6" bay, maximum 4 per system
SN-PBXRW-SA	9.1 GB UltraWide SCSI 7200 RPM, 1.6" bay, maximum 2 per system, supported in 5.25" removable media bays only

**Step 3—Disk Adapters—Mandatory for Base Systems**

- SCSI adapter is mandatory if SCSI disks are selected from Step 2 for Base systems and Existing Entry Level (SN-B3AAP-EB and SN-B3AWW-EB) Systems, see Step 1a.

SN-KZPBA-CA	Qlogic 1040B UltraSCSI adapter, included in Packaged and Base systems, requires 1 PCI slot, maximum 1 supported
SN-PCTAZ-DE	Adaptec 2940UW UltraSCSI adapter, requires 1 PCI slot, maximum of 1 supported

**Step 4—Graphics—Mandatory for Base Systems**

- Graphics options must be installed in primary PCI slots 4 and 5 only

SN-PCXAG-AD	Matrox Millennium 3D graphics, 1 PCI 64-bit slot
SN-PCXAG-AW	Accelgraphics 2500TX 3D graphics, 1 PCI 64-bit slot
SN-PBXGI-AA	PowerStorm 4D40T 3D graphics, 2 PCI-64 bit slots
SN-PBXGI-AB	PowerStorm 4D50T 3D graphics, 2 PCI-64 bit slots
SN-PBXGI-AC	PowerStorm 4D60T 3D graphics, 2 PCI-64 bit slots

**Step 5—Color Monitors—Mandatory for Base Systems**

SN-VRTX7-WA/W3	17" (16.0" viewable image size) -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Monitor power cord included in Country Kit.
SN-VRT17-W4	
SN-VRCX1-WA/W3	21" (19.7" viewable image size) -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Monitor power cord included in Country Kit.
/W4	

**DIGITAL Personal Workstation a-Series (Windows NT) Mandatory Components****Step 6—Windows NT 4.0 Country Kit—Mandatory for Worldwide Systems**

- U.S. North America Packaged, Entry Level, and Base systems include Windows NT Country kit
- Country Kit is **mandatory** for Worldwide systems to be operational
- Windows NT Country Kit includes:
  - Windows NT operating system license and media, Universal DIGITAL UNIX/Windows NT keyboard, two power cords, user documentation, and PS/2 style 3-button mouse

Order Number	Country	Keyboard	User Documentation	Windows NT 4.0 Media
<b>Americas</b>				
SN-PBB3P-AA	United States	English	English	English
SN-PBB3P-AR	LACR-Spanish	S. Amer. Spanish	Spanish	Spanish
SN-PBB3P-AC	French Canadian	French Canadian	French	French
<b>Europe</b>				
SN-PBB3P-AB	Belgium	Belgian	French	English
SN-PBB3P-AD	Denmark	Danish	English	Danish
SN-PBB3P-AE	UK	English	English	English
SN-PBB3P-AF	Finland	Finland	English	Finish
SN-PBB3P-AG	Germany	German	German	German
SN-PBB3P-AH	Netherlands	Dutch	Dutch	Dutch
SN-PBB3P-AI	Italy	Italian	Italian	Italian
SN-PBB3P-AK	Switzerland	Swiss	French	French
SN-PBB3P-AL	Switzerland/Germany	Swiss/French/German	German	German
SN-PBB3P-AM	Sweden	Swedish	English	Swedish
SN-PBB3P-AN	Norway	Norwegian	English	Norwegian
SN-PBB3P-AP	France	French	French	French
SN-PBB3P-AS	Spain	Spanish	Spanish	Spanish
SN-PBB3P-AT	Israel	Hebrew	English	English
SN-PBB3P-AV	Portugal	Portuguese	English	English
SN-PBB3P-BH	Greece	Greek	English	English
SN-PBB3P-BP	Poland	Polish	English	Polish
SN-PBB3P-BQ	Hungary	Hungarian	English	English
SN-PBB3P-BR	Arabic	Arabic	English	English
SN-PBB3P-BT	Russia	Russian	English	Russian
SN-PBB3P-BU	Turkey	Turkish	English	English
SN-PBB3P-CQ	Iceland	Icelandic	English	English
SN-PBB3P-CZ	Czech Republic	Czech	English	Czech
SN-PBB3P-EC	European	N. American	English	English
<b>APA</b>				
SN-PBB3P-BI	Taiwan	Traditional Chinese	English	Trad. Chinese
SN-PBB3P-BK	South Korea	Korean	English	Korean
SN-PBB3P-CA	Far East	N. American	English	English
SN-PBB3P-CE	Philippines	N. American	English	English
SN-PBB3P-CG	Vietnam	N. American	English	English
SN-PBB3P-CP	Thailand	N. American	English	English
SN-PBB3P-CV	China	N. American	English	Simple Chinese
SN-PBB3P-AJ	Japan	Japanese	Japanese	Japanese

**DIGITAL Personal Workstation a-Series (Windows NT) Optional Components****Step 7—Graphics Texture Memory**

- Matrox Millennium base card includes 2 MB WRAM plus a WRAM option slot

SN-PCCAM-CA	2 MB WRAM for Matrox Millennium, supported in WRAM slot on Matrox Millennium card, (base card includes 2 MB WRAM)
SN-PCCAM-CB	6 MB WRAM for Matrox Millennium, supported in WRAM slot on Matrox Millennium card, (base card includes 2 MB WRAM)
SN-PBXGI-GA	4 MB Texture memory for PowerStorm 4DxxT series, supported in PowerStorm memory slot
SN-PBXGI-GB	16 MB Texture memory for PowerStorm 4DxxT series, supported in PowerStorm memory slot
SN-PBXGI-GC	32 MB Texture memory for PowerStorm 4DxxT series, supported in PowerStorm memory slot

**Step 8—Memory**

- System supports up to three memory options for maximum of 384 MB.

SN-MSP01-HC	64 MB ECC DIMM pair (2 x 32 MB), maximum 3 per system
SN-MSP01-HD	128 MB ECC DIMM pair (2 x 64 MB), maximum 3 per system

**Step 9—Cache memory**

SN-MS01-AB	2 MB Level 3 SRAM Cache, supported in main logic board cache slot
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**Step 10—SCSI Adapters**

SN-KZPAA-AA	Fast Narrow single ended SCSI-2 adapter, requires 1 PCI slot, maximum of 1 supported
SN-PBXKP-BA	Wide to Narrow SCSI connection adapter

**Step 11—Removable Media**

SN-TLZ09-LK	4/8 GB 4mm internal DAT drive, 1.6" bay, maximum of 2 supported
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**Step 12—Network Adapters**

SN-PCXAN-DB	10 BaseT/2 Ethernet Media Access card, rear MAU I/O slot (10Mbps only, Twisted Pair or Thin wire), must be ordered as spare
SN-DE500-AA	PCI EtherWorks adapter (TP only), requires one PCI slot
SN-DE450-CA	PCI EtherWorks adapter (TW, TP, AUI), requires one PCI slot
SN-DEFPA-AA	PCI to FDDI adapter (SAS), requires one PCI slot

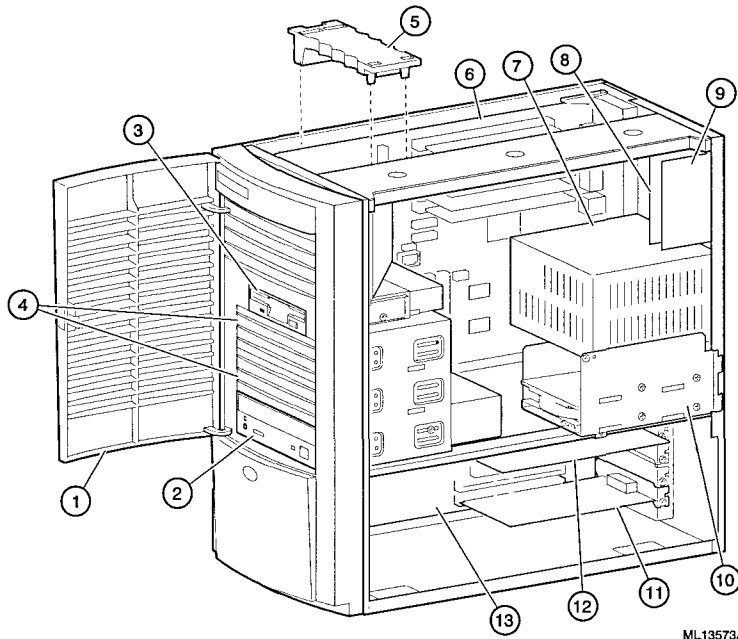
**Step 13—Multimedia Options**

AV321-AA	Supreme Video JPEG PCI card, requires one PCI slot
SN-AVC01-AA	Desktop Camera / North America, requires AV321-AA JPEG PCI option
SN-AVC01-AE	Desktop Camera / UK, requires AV321-AA JPEG PCI option
SN-AVC01-CA	Desktop Camera / Europe, requires AV321-AA JPEG PCI option
AVH01-AA	Microphone and Headset, external connections

**Specifications**

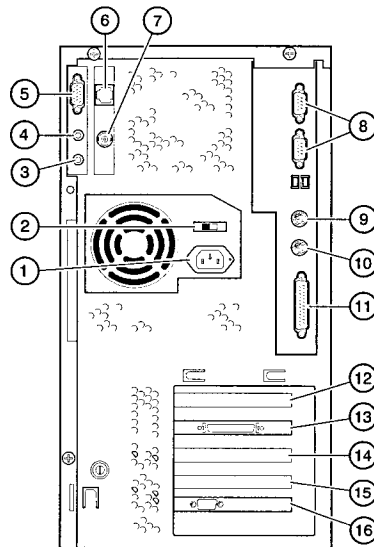
Height	40.64 cm (16 inches)
Width	21.59 cm (8.5 inches)
Depth	44.45 cm (17.5 inches)

DIGITAL Personal Workstation a-Series and au-Series System Diagram



ML13573A

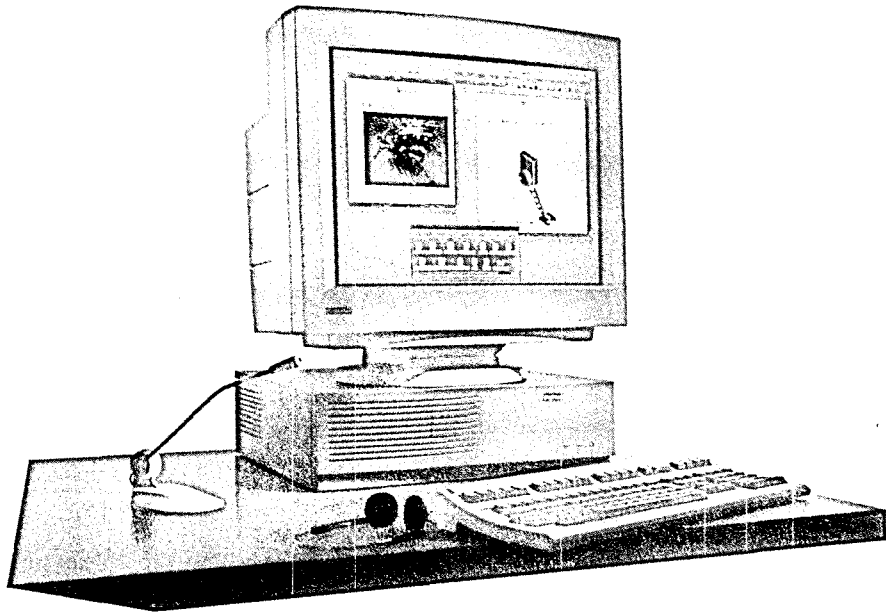
- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Front door assembly</li> <li>2. 5.25" CD-ROM drive bay</li> <li>3. 3.5" floppy diskette drive bay</li> <li>4. Three 5.25" removable media bays</li> <li>5. Main Logic Board retainer bracket</li> <li>6. Main Logic Board</li> <li>7. Power supply</li> </ol> | <ol style="list-style-type: none"> <li>8. Ethernet connector card (MAU or MII)</li> <li>9. Audio connector card</li> <li>10. Two 3.5" hard disk drive bays</li> <li>11. 64-bit (or 320bit) PCI option installed on riser card</li> <li>12. ISA card installed in PCI/ISA combination slot</li> <li>12. Riser card</li> </ol> |
|---|--|



ML014011

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. AC power connector</li> <li>2. Voltage selector switch</li> <li>3. Audio line In</li> <li>4. Speaker Out</li> <li>5. MIDI adapter or joystick connector</li> <li>6. Ethernet Twisted pair</li> <li>7. ThinWire Ethernet</li> <li>8. Communication ports 1 and 2</li> </ol> | <ol style="list-style-type: none"> <li>9. Mouse port</li> <li>10. Keyboard port</li> <li>11. Parallel port</li> <li>12. Slot 1: 32-bit PCI (half size slot)</li> <li>13. Slot 2: 32-bit PCI/ISA (half size slot)</li> <li>14. Slot 3: 32-bit PCI/ISA (full size slot)</li> <li>15. Slot 4: 64-bit PCI/ISA (full size slot)</li> <li>16. Slot 5: 64-bit PCI (full size slot)</li> </ol> |
|--|--|





## AlphaServer 300

### Product Description

The AlphaServer 300 4/266 delivers premium performance and provides access to tens of thousands of applications running on DIGITAL UNIX, OpenVMS or Microsoft Windows NT systems.

The AlphaServer 300 4/266 uses the Alpha microprocessor 21064A processor running at 266 MHz with 2 Mbytes of onboard secondary cache. The CPU performance measures 5.18 SPECint95 and 6.27 SPECfp95.

The system is housed in a low-profile desktop with capacity for 512 Mbytes of parity memory, 128-bit wide memory bus, four storage slots, and three option slots (one PCI, one combination PCI/ISA and one ISA). The high performance PCI I/O bus, running at 132 Mbytes/second, provides expansion for options such as high-performance graphics, networking, and SCSI adapters. Lower performance options are supported on the ISA bus. The system supports a wide variety of industry-standard peripherals and PCI/ISA options. Other standard features include integrated Twisted Pair/ThinWire Ethernet, and an array of external ports for serial/parallel communications, and external SCSI connector. This combination of standard features allows multiple in-box configurations without the need for additional tabletop options or expansion boxes.

## Step 1—AlphaServer 300 Desktop Systems

- DIGITAL UNIX and OpenVMS Packaged and Base systems ordered with a minimum of a 1.05 GB disk include factory installed software (FIS).
- Windows NT Packaged and Base systems
  - North American variants include Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kit North American English
  - Selection of language specific Windows NT license, media (CD-ROM) kit is **mandatory** for all non-North American variants, see Step 9
- Options ordered will be factory installed unless specified as **spares**.

### AlphaServer 300 Desktop Systems include

- Alpha microprocessor 21064A 266-MHz CPU with 2 Mbyte on-board secondary cache
- Slimline desktop enclosure with:
  - Three expansion slots: One PCI, one combination PCI/ISA, and one ISA
  - 8 SIMM memory slots support two memory options
  - 4 storage slots:
    - One Floppy diskette drive slot
    - One 5.25" removable media slot
    - Two 3.5" hard disk drive slots
  - Integrated Fast Narrow single ended SCSI-2 controller with DMA and external SCSI-2 connector
  - Integrated PCI-based high-performance Twisted Pair/ThinWire Ethernet
  - 210-watt power supply
  - Two serial ports, support full modem control
  - One bi-directional enhanced parallel port
  - Keyboard port and mouse port
- 1.44 Mbyte diskette drive
- North American variants include 120V power cord (North America, Japan). Mandatory selection of country-specific power cord for all non-North American variants.
- Hardware documentation
- Integrated Advanced Server Management features, including ServerWorks Manager kit
- Hardware Warranty: Three-year on-site\*
- Software Warranty:\*
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kit **or**†
- DIGITAL UNIX V4.0B unlimited user license, **or**
- OpenVMS V7.1 Base license and Enterprise Integration Package (EIP)

\* Service upgrades are available; see Step 12, Hardware and Software Supplemental Services

† Windows NT language specific media kit is mandatory for non-North American variants.

### Desktop Packaged Systems

- Include 600 MB CD-ROM—uses 5.25" removable media slot
- One 1.05 GB hard disk drive
- One 32 MB memory option

**Note:** Selection of graphics option is **mandatory** for Windows NT systems

Desktop Packaged Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB30B-AA	Windows NT	Included <sup>1</sup>	120 V	Included	32 MB	1.05 GB	Mandatory	Required
PB30B-AB	Windows NT	Mandatory	Mandatory	Required	32 MB	1.05 GB	Mandatory	Required
PB30B-FC	DIGITAL UNIX	FIS <sup>2</sup>	120 V	Included	32 MB	1.05 GB	Recommended	Recommended
PB30B-FD	DIGITAL UNIX	FIS <sup>2</sup>	Mandatory	Required	32 MB	1.05 GB	Recommended	Recommended
PB30B-MC	OpenVMS	FIS <sup>2</sup>	120 V	Included	32 MB	1.05 GB	Recommended	Recommended
PB30B-MD	OpenVMS	FIS <sup>2</sup>	Mandatory	Required	32 MB	1.05 GB	Recommended	Recommended

1. Windows NT Server license, media (CD-ROM) kit North American English

**Key:** Mandatory items **must** be on purchase order at initial order acceptance

Required items are essential for full system operation.

Recommended items enhance system functionality

FIS = Factory Installed Software

## Step 1—AlphaServer 300 Desktop Systems (continued)

### Desktop Base Systems

Selection of graphics option is **mandatory** for Windows NT Pedestal Base Systems

**Note:** Mandatory items **must** be on purchase order at initial order acceptance

Desktop Base Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory and Hard Disk <sup>2</sup>	CD-ROM Drive	Graphics	Monitor
PB30C-AA	Windows NT	Included <sup>1</sup>	120 V	Required	Mandatory	Mandatory	Mandatory	Required
PB30C-AB	Windows NT	Mandatory	Mandatory	Required	Mandatory	Mandatory	Mandatory	Required
PB30C-FC	DIGITAL UNIX	FIS <sup>2</sup>	Included	Required	Mandatory	Recommended	Recommended	Recommended
PB30C-FD	DIGITAL UNIX	FIS <sup>2</sup>	Required	Required	Mandatory	Recommended	Recommended	Recommended
PB30C-MC	OpenVMS	FIS <sup>2</sup>	Included	Required	Mandatory	Recommended	Recommended	Recommended
PB30C-MD	OpenVMS	FIS <sup>2</sup>	Required	Required	Mandatory	Recommended	Recommended	Recommended

1. Windows NT Server license, media (CD-ROM) kit North American English.
2. Base systems ordered with one hard disk include factory installed software (FIS). **Note:** 4.3 GB hard disk (PBXRZ-NA) is not supported as a system disk on Windows NT servers

Key: Mandatory items **must** be on purchase order at initial order acceptance  
 Required items are essential for full system operation.  
 Recommended items enhance system functionality  
 FIS = Factory Installed Software

## Step 1a—AlphaServer 300 Rackmount Systems

### Rackmount Packaged Systems

- Include 600 MB CD-ROM drive—uses 5.25" removable media slot

**Note:** Selection of graphics option is **mandatory** for Windows NT systems

Rackmount Packaged Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB30P-AA	Windows NT	Included <sup>1</sup>	120 V	Included	32 MB	1.05 GB	Mandatory	Required
PB30P-AB	Windows NT	Mandatory	240 V	Required	32 MB	1.05 GB	Mandatory	Required
PB30P-FC	DIGITAL UNIX	FIS	120 V	Included	32 MB	1.05 GB	Recommended	Recommended
PB30P-FD	DIGITAL UNIX	FIS	240 V	Required	32 MB	1.05 GB	Recommended	Recommended
PB30P-MC	OpenVMS	FIS	120 V	Included	32 MB	1.05 GB	Recommended	Recommended
PB30P-MD	OpenVMS	FIS	240 V	Required	32 MB	1.05 GB	Recommended	Recommended

1. Windows NT Server license, media (CD-ROM) kit North American English.

Key: Mandatory items **must** be on purchase order at initial order acceptance  
 Required items are essential for full system operation.  
 Recommended items enhance system functionality  
 FIS = Factory Installed Software

## Step 1a—AlphaServer 300 Rackmount Systems (*continued*)

### Rackmount Base Systems

- Selection of 600 MB CD-ROM and a graphics option is **mandatory** for Windows NT Base systems

**Note:** Mandatory items **must** be on purchase order at initial order acceptance

Rackmount Base Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory and Hard Disk <sup>2</sup>	CD-ROM Drive	Graphics	Monitor
PB30S-AA	Windows NT	Included <sup>1</sup>	120 V	Required	Mandatory	Mandatory	Mandatory	Required
PB30S-AB	Windows NT	Mandatory	240 V	Required	Mandatory	Mandatory	Mandatory	Required
PB30S-FC	DIGITAL UNIX	FIS <sup>2</sup>	120 V	Required	Mandatory	Recommended	Recommended	Recommended
PB30S-FD	DIGITAL UNIX	FIS <sup>2</sup>	240 V	Required	Mandatory	Recommended	Recommended	Recommended
PB30S-MC	OpenVMS	FIS <sup>2</sup>	120 V	Required	Mandatory	Recommended	Recommended	Recommended
PB30S-MD	OpenVMS	FIS <sup>2</sup>	240 V	Required	Mandatory	Recommended	Recommended	Recommended

1. Windows NT Server license, media (CD-ROM) kit North American English.
2. Base systems ordered with one hard disk include factory installed software (FIS). **Note:** 4.3 GB hard disk (PBXRZ-NA) is not supported as a system disk on Windows NT servers

Key: Mandatory items **must** be on purchase order at initial order acceptance  
 Required items are essential for full system operation.  
 Recommended items enhance system functionality  
 FIS = Factory Installed Software

### Step 2—Memory

- Eight SIMM slots support 2 memory options for maximum of 512 MB. Memory options can be mixed.
- Packaged systems include 32 MB memory, one MSP01-BA. Base systems require minimum of 32 MB
- System maximum of 512 MB can be obtained by selecting a Base system and 2 MSP01-BD 256 MB memory options.

MSP01-BA	32 MB (4 x 8 MB 70ns SIMMs)
MSP01-BB	64 MB (4 x 16 MB 70ns SIMMs)
MSP01-BC	128 MB (4 x 32 MB 70ns SIMMs)
MSP01-BD	256 MB (4 x 64 MB 70ns SIMMs)

### Step 2a—Prestoserve Non-Volatile Random Access Memory (NVRAM)

- Supported on DIGITAL UNIX systems **only**, maximum one Prestoserve option per system.

DJ-ML200-AA	2-MB PCI Prestoserve option
DJ-ML200-BA	4-MB PCI Prestoserve option
DJ-ML200-CA	8-MB PCI Prestoserve option

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### Step 3—Monitors

- Windows NT systems require a graphics monitor to run all functions.

**SN-VRCX5-WA/W3/W4** 15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.

**SN-VRTX7-WA/W3** 17" (16.0" viewable image size) Professional Series auto-scan color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 @ 75Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord, **SN-VRT17-W4** = Southern Hemisphere. Select country specific power cord for W3 and W4 variant.

**SN-VRCX1-WA/W3/W4** 21" (19.7" viewable image size) professional series auto-scan color monitor, Diamondtron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.

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### Step 4—Storage

- Integrated Fast Narrow SCSI-2 controller supports maximum of seven narrow SCSI devices, three of which may be internal.
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#### Step 4a—Internal Storage

- System enclosure supports four devices. One dedicated diskette drive slot, one 5.25-inch slot for SCSI removable media, one 3.5-inch x 1-inch and one 3.5-inch x 1.6-inch slot for SCSI hard disk drives.
- Packaged systems include: one 1.44 MB diskette drive, one 1.05 GB narrow SCSI hard drive, and one CD-ROM.
- A hard disk drive is mandatory for base systems. **Note:** 4.3 GB hard disk (PBXRZ-NA) is not supported as a system disk on Windows NT servers
- CD-ROM drive is mandatory for Windows NT Base systems; software distribution is only available on CD-ROM.

#### Removable Media Devices

**PBXRX-AA** 1.44 MB 3.5 inch floppy diskette drive  
**PBXRZ-CA** 600 MB 5.25-inch half-height dual-speed CD-ROM drive (RRD45)

#### Internally Supported Hard Drives

- 3.5 x 1-inch hard disk drives are supported in either hard drive slot

**PBXRZ-EB** 1.05 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive (RZ26N)  
**PBXRZ-JB** 2.1 GB 8-bit narrow 7200 RPM 3.5 x 1" SCSI disk drive (RZ28D)

- 3.5 x 1.6-inch hard disk drive supported in upper hard drive slot only

**PBXRZ-NA\*** 4.3 GB 8-bit narrow 7200 RPM 3.5 x 1.6" SCSI hard disk drive (RZ29B)

- \* Not supported as a system disk on Windows NT servers.

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## Step 4b—External Expansion

- Systems support four external devices on integrated PCI-based Fast Narrow SCSI-2 controller when three devices are installed in system enclosure.
- Seven external narrow SCSI devices are supported on integrated Fast Narrow SCSI-2 controller if storage devices are not installed in system enclosure.
- Select additional PCI-based wide or narrow SCSI-2 controllers if additional external storage is required.
- PCI-based SCSI-2 controllers supports seven additional external devices.

### Controllers

<b>KZPAA-AA</b>	PCI-based one-port high-performance Fast Narrow Single Ended (FNSE) SCSI-2 controller
<b>BN21H-xx</b>	Connects from KZPAA-AA to BA353 narrow storage enclosure
<b>KZPSA-BB</b>	PCI-based one-port high-performance Fast Wide Differential (FWD) SCSI controller. Supports external disks only
<b>BN21K-01</b>	Connects from KZPSA to DWZZA-VA in narrow BA353, or DWZZB-VW in wide BA356/BA346 storage enclosures
<b>KZPSC-AA</b>	One-port PCI backplane RAID Fast Wide Single Ended (FWSE) controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit.
<b>BN31S-1E</b>	Connects from KZPSC-AA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>BN31L-1E</b>	Connects from KZPSC-AA to narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves
<b>KZPSC-BA*</b>	Three-port PCI backplane RAID (FWSE) controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit.
<b>BN31K-0E</b>	SCSI cable/bulkhead assembly kit for KZPSC-BA; required for connection to third port; uses one PCI bulkhead slot.
<b>BN31S-1E</b>	Connects from KZPSC-BA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>BN31L-1E</b>	Connects from KZPSC-BA to narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves

### External Tabletop Tape Expansion

- Tabletop expansion units include North American power cord; order country-specific power cord for 240 V use.

**RRD45-DA** 600 MB 5.25-inch half-height quad-speed CD-ROM, requires BC09D-03 SCSI cable

**TLZ09-DB\*** 8.0 GB 3.50-inch half-height 4 mm DAT tape drive, includes SCSI cable

**TZK11-DA** 2.0 GB Quarter-Inch Cartridge (QIC) tabletop tape drive, includes SCSI cable

\* Supported on DIGITAL UNIX, OpenVMS, and Windows NT 4.0. Systems running Windows NT 3.51 require upgrade kit, part number QC-00LAC-UC, which includes driver and installation instructions. Driver and instructions are also available at Web Site <http://www.storage.digital.com> under "Technomania" section.

### External Disk Expansion

- BA353 expansion unit is supported on wide and narrow SCSI controllers. Devices operate in narrow mode when BA353 is connected to a Fast Wide SCSI controller.
- BA356 and BA346 expansion units are supported on Fast Wide SCSI controllers.

### StorageWorks Modular Storage Options

**BA353-AA** StorageWorks 8-bit **Narrow** Desktop expansion unit includes enclosure and 120 V power cord. Supports up to three 3.5" narrow hard disk drives. Not supported with RAID controllers.

**BA362-AA/AB** StorageWorks 16-bit office expansion enclosures for narrow/wide devices. Supports up to two 3.5" modular storage devices

**BA364-AA/AB** StorageWorks 16-bit office expansion enclosures for narrow/wide devices. Supports a fixed CD-ROM drive plus four 3.5" devices, or one 3.5" device and one 5.25" device.

**BA356-KC** StorageWorks 16-bit **Wide** Pedestal expansion unit includes BA356 basic shelf, BA35X universal ac power supply, pedestal mounting kit, and 120 V power cord. Supports up to seven 3.5" wide or narrow drives; narrow drives operate in narrow mode.

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## Step 4b—External Expansion (*continued*)

### StorageWorks Modular Storage Options

<b>BA346-KB</b>	StorageWorks 16-bit <b>Wide Pedestal</b> expansion unit includes BA356 basic shelf, BA35X universal ac power supply, pedestal mounting kit, and 120 V power cord. Supports up to nine devices, two 5.25" narrow and seven 3.5" wide or narrow drives; narrow drives operate in narrow mode.
<b>DWZZA-VA</b>	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 bit Fast Narrow Single-Ended SCSI-2 on other end.
<b>DWZZB-VW</b>	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 or 16 bit Fast Wide or Fast Narrow Single-Ended SCSI-2 on other end.

### Externally supported SCSI devices

<b>RZ26N-VA</b>	1.05 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28M-VA</b>	2.1 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28D-VA</b>	2.1 GB 8-bit narrow 7200 RPM 3.5 x 1" SCSI disk drive
<b>RZ29B-VA</b>	4.3 GB 8-bit narrow 7200 RPM 3.5 x 1.6" SCSI hard disk drive
<b>RZ26N-VW</b>	1.05 GB 16-bit wide 5400 RPM 3.5 x 1" half-height disk drive
<b>RZ28M-VW</b>	2.1 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI disk drive
<b>RZ28D-VW</b>	2.1 GB 16-bit wide 7200 RPM 3.5 x 1" SCSI disk drive
<b>RZ29B-VW</b>	4.3 GB 16-bit wide 7200 RPM 3.5 X 1.6" SCSI disk drive
<b>RRD45-VA</b>	600 MB 5.25-inch half-height compact disk drive
<b>RRD45-VU*</b>	600 MB 5.25-inch half-height compact disk drive

\* 600 MB CD-ROM drive can be added to RRD45-VA or TZK11-VA for a total of two 5.25-inch drives in one carrier.

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## Step 5—Graphics Adapters

Selection of graphics option is **mandatory** for Windows NT systems

<b>PB2GA-JC</b>	PCI based 1MB DRAM graphics adapter 1024 x 768
<b>PB2GA-JD</b>	PCI based 2MB DRAM graphics adapter 1024 x 768
<b>PBXGB-AA</b>	PCI based 8-plane 1280 x 1024 graphics adapter
<b>PBXGB-CA</b>	PCI based 24-plane 1280 x 1024 graphics adapter

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## Step 6—Communications and Miscellaneous Adapters

Systems include integrated high-performance Twisted Pair/ThinWire Ethernet

<b>DE450-TA</b>	PCI-based Ethernet, Twisted Pair
<b>DE450-CA</b>	PCI-based Ethernet, Twisted Pair, ThinWire, Thick wire
<b>DE500-XA</b>	PCI-based Fast Ethernet network interface card (see PCI Option Slot Table)
<b>DEFPA-AB<sup>1</sup></b>	PCI-based DEC FDDI controller, Single Attachment
<b>DEFPA-DB<sup>1</sup></b>	PCI-based DEC FDDI controller, Dual Attachments
<b>DEFPA-UB<sup>1</sup></b>	PCI-based DEC FDDI (UTP) controller
<b>DGLPB-AB</b>	PCI-based ATMworks 350 adapter
<b>PBXNP-AA</b>	PCI-based Token Ring adapter, no boot support. DIGITAL UNIX and OpenVMS systems require driver floppy. Not supported on Windows NT.

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## Step 6—Communications and Miscellaneous Adapters (*continued*)

CXI01-AA	ISA Asynchronous MUX Adapter, 16 lines. Expandable to 64 lines
CXI01-AD	ISA Asynchronous MUX Adapter, 16 lines. Expandable to 224 lines
PBXDI-AA <sup>2</sup>	ISA-based Two Port Synchronous Communications controller with interface support for EIA-232/V.24/V.28
PBXDI-AB <sup>2</sup>	ISA-based Two Port Synchronous Communications controller with interface support for V.35
PBXDI-AC <sup>2</sup>	ISA-based Two Port Synchronous Communications controller with interface support for X.21 and EIA-530
PBXDF-AA	FAX/DATA Modem 14.4K Data-Fax, North American
PBXDF-BA	FAX/DATA Modem 28.8K Data-Fax, North American

1 Supported as data device only.

2 Supported in ISA/combination slot only

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## Step 7—Software

### Windows NT Servers

North American variants of Windows NT Packaged and Base systems include Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kit North American English. **Note:** Selection of language specific Windows NT media kit is **mandatory** for non North American variants.

### Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kits

QB-23CAA-SB	Windows NT Server license, media kit—North American English
QB-23C8A-SB	Windows NT Server license, media kit—International English
QB-23CPA-SB	Windows NT Server license, media kit—French
QB-23CGA-SB	Windows NT Server license, media kit—German
QB-23CSA-SB	Windows NT Server license, media kit—Spanish
QB-23CUA-SB	Windows NT Server license, media kit—Italian
QB-23CJA-SB	Windows NT Server license, media kit—Japanese
QB-23CMA-SB	Windows NT Server license, media kit—Swedish
QB-23CHA-SB	Windows NT Server license, media kit—Dutch
QB-23CVA-SB	Windows NT Server license, media kit—Portuguese
QB-23C4A-SB	Windows NT Server license, media kit—Korean
QB-23C3A-SB	Windows NT Server license, media kit—Taiwanese
QB-23C2A-SB	Windows NT Server license, media kit—PRC Chinese
QB-23CTA-SB	Windows NT Server license, media kit—Hebrew
QB-23CQA-SB	Windows NT Server license, media kit—Arabic
QB-23C5A-SB	Windows NT Server license, media kit—Thai

### Windows NT Server Optional Software

QB-4G45A-AA	Purveyor Web Server Software V1.1 for Process Software Corp.
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**Step 7—Software (continued)**
**DIGITAL UNIX Concurrent Use Licenses****Software Processor Code = E**

- DIGITAL UNIX Packaged and Base systems **require** operating system media and documentation for **first** system on site.
- DIGITAL UNIX Concurrent Use Licenses are **not** specific to a single system and can be moved from one system to another at user discretion.

QL-MT7AM-3B	DIGITAL UNIX Concurrent Use 1-user license
QL-MT7AM-3C	DIGITAL UNIX Concurrent Use 2-user license
QL-MT7AM-3D	DIGITAL UNIX Concurrent Use 4-user license
QL-MT7AM-3E	DIGITAL UNIX Concurrent Use 8-user license
QL-MT7AM-3F	DIGITAL UNIX Concurrent Use 16-user license
QL-MT7AE-AA	DIGITAL UNIX Traditional unlimited user license
QL-MT5AE-AA	DIGITAL UNIX developer's extension license

**DIGITAL UNIX Media and Documentation—required for first system on site**

QA-MT4AA-H8	DIGITAL UNIX media and on-line documentation on CD-ROM
QA-MT4AA-GZ	DIGITAL UNIX full hardcopy documentation

**DIGITAL UNIX Layered Products CD-ROM**

QA-054AA-H8	Layered products media and documentation for DIGITAL UNIX on CD-ROM
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**DECnet for DIGITAL UNIX**

QL-MTJAE-AA	DECnet/OSI end-system license for DIGITAL UNIX
QL-MTKAE-AA	DECnet/OSI extended function license for DIGITAL UNIX

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**OpenVMS Concurrent Use Licenses**
**Software Processor Code = E**

- OpenVMS Packaged and Base systems **require** operating system media and documentation for **first** system on site.
- OpenVMS Concurrent Use Licenses are **not** specific to a single system and can be moved between systems at user discretion. OpenVMS Concurrent Use Licenses can also be shared in a mixed OpenVMS VAX and OpenVMS Alpha Cluster.

QL-MT3AA-3B	OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C	OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D	OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E	OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F	OpenVMS Concurrent Use 16-user license
QL-MT3AA-3G	OpenVMS Concurrent Use 32-user license
QL-MT3AA-3H	OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J	OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K	OpenVMS Concurrent Use 256-user license
QL-MT2AE-AA	OpenVMS Traditional unlimited user license

**OpenVMS Media and Documentation—required for first system on site**

QA-MT1AA-H8	OpenVMS media and on-line documentation CD-ROM
QA-001AA-GZ	OpenVMS hardcopy documentation

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## Step 7—Software (*continued*)

### OpenVMS Layered Products CD-ROM

QA-03XAA-H8 Layered products media and documentation for OpenVMS on CD-ROM

### DECnet for OpenVMS

QL-MTGAE-AA DECnet extended function license for OpenVMS

QL-MTHAE-AA DECnet end-system to extended function upgrade license for OpenVMS

### DSSI Information

EK-410AB-MG DSSI VMScluster Installation Guide

EK-D4AXP-TS DSSI VMScluster Troubleshooting Guide

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## Step 8—Power Cords, Keyboards, and Documentation

### Pedestal and Monitor Power Cords

- North American variants include BN26J-1K 120 V (North American, Japan) power cord. If an other power cord is selected, both power cords ship with system.

BN26J-1K	North American, Japan, 120 V
BN19H-2E	Australia, New Zealand, 2.5 meters long
BN19C-2E	Central Europe, 2.5 meters long
BN19A-2E	U.K., Ireland, 2.5 meters long
BN19E-2E	Switzerland, 2.5 meters long
BN19K-2E	Denmark, 2.5 meters long
BN19N-2E	Italy, 2.5 meters long
BN19S-2E	Egypt, India, South Africa, 2.5 meters long
BN18L-2E	Israel, 2.5 meters long

### Rackmount Power Cords

- 120V and 240V 15 foot power cords are included with all systems, variant designates power cord voltage (See Step 1).

**Note:** AlphaServer 300 Pedestal system power cords are less than 15-feet long and are **not** supported in Rackmount cabinet enclosure

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## Step 8—Power Cords, Keyboards, and Documentation (*continued*)

### Keyboards

- North American variants include LK471-AA keyboard (see Step 1). For these variants, if an additional keyboard is ordered, both keyboards ship with system.
- LK471-xx are 101 key PC style keyboards. LK461-xx are 108 key VT style keyboards.

LK471-A2	LK461-A2	North American, Japan (English)
LK471-AB	LK461-AB	Belgium (French)
LK471-AD	LK461-AD	Denmark
LK471-AE	LK461-AE	United Kingdom (English)
LK471-AG	LK461-AG	Germany
LK471-AI	LK461-AI	Italy
LK471-AK	LK461-AK	Switzerland (Generic)
LK471-AN	LK461-AN	Norway
LK471-AP	LK461-AP	France
LK471-AS	LK461-AS	Spain
LK471-AV	LK461-AV	Portugal
LK471-AQ	LK461-AQ	Canada (English)
LK471-AC	LK461-AC	Canada (French)
	LK461-AL	Switzerland (German)
	LK461-AM	Sweden

### Mouse and Extension Cable Kit

PBXWS-AA	3-button mouse (included with all systems, order as spare or replacement)
2T-450KM-AA	Extension cable kit for VGA, PC style keyboard, and mouse, for use with Rackmount systems.

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## Step 9—Cabinet Enclosure

Select cabinet enclosure for Packaged and Base AlphaServer 300 Rackmount systems, if required.

- H9A10 19-inch EIA Cabinet Enclosure Dimensions
  - Outside: 66.9-inches high, 23.62-inches wide, 33.8-inches deep
  - Internal usable rackmountable space: 56-inches high, 19-inches wide, 32.2-inches deep

H9A10-CE	120V Retma Cabinet assembly with dual power controller
H9A10-CJ	240V Retma Cabinet assembly with dual power controller
H9A10-CG	120V Retma Cabinet assembly with dual power controller and front door
H9A10-CK	240V Retma Cabinet assembly with dual power controller and front door
H9A10-AB	Retma Cabinet assembly with no power controller
H9A10-AD	Retma Cabinet assembly with front door, with no power controller

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## Step 10—Hardware and Software Supplemental Support Services

### Hardware—Americas and Asia Pacific only

- Systems include three-year hardware warranty, on-site with 5 x 9, 24-hour response time.
- Select optional Hardware Supplemental Support Services if required.

FM-CHXHW-48	Year 2-4, 5 x 9, next day response
FM-CHXHW-60	Year 2-5, 5 x 9, next day response
FM-CH4HR-36	Year 1-3, 5 x 9, 4 hour response
FM-CH4HR-48	Year 1-4, 5 x 9, 4 hour response
FM-CH4HR-60	Year 1-5, 5 x 9, 4 hour response
FM-CH512-36	Year 1-3, 5 x 12, 4 hour response
FM-CH512-48	Year 1-4, 5 x 12, 4 hour response
FM-CH512-60	Year 1-5, 5 x 12, 4 hour response
FM-CH616-36	Year 1-3, 6 x 16, 4 hour response
FM-CH616-48	Year 1-4, 6 x 16, 4 hour response
FM-CH616-60	Year 1-5, 6 x 16, 4 hour response
FM-CH724-36	Year 1-3, 7 x 24, 4 hour response
FM-CH724-48	Year 1-4, 7 x 24, 4 hour response
FM-CH724-60	Year 1-5, 7 x 24, 4 hour response

### Software—Americas and Asia Pacific only

FM-WNT03-12	12-month Software Supplemental Support for Windows NT AlphaServer 300 4/266 systems
FM-WNT03-36	36-month Software Supplemental Support for Windows NT AlphaServer 300 4/266 systems
FM-WNT03-60	60-month Software Supplemental Support for Windows NT AlphaServer 300 4/266 systems
FM-M3OSF-12	12-month Software Supplemental Support for DIGITAL UNIX AlphaServer 300 4/266 systems
FM-M3OSF-36	36-month Software Supplemental Support for DIGITAL UNIX AlphaServer 300 4/266 systems
FM-M3OSF-60	60-month Software Supplemental Support for DIGITAL UNIX AlphaServer 300 4/266 systems
FM-M3VMS-12	12-month Software Supplemental Support for OpenVMS AlphaServer 300 4/266 systems
FM-M3VMS-36	36-month Software Supplemental Support for OpenVMS AlphaServer 300 4/266 systems
FM-M3VMS-60	60-month Software Supplemental Support for OpenVMS AlphaServer 300 4/266 systems

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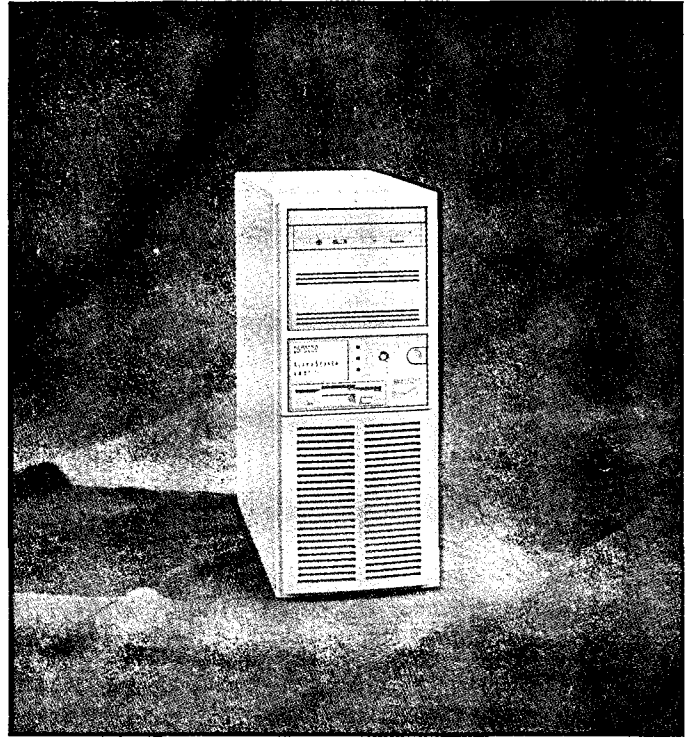
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## Step 10a—Hardware and Software Supplemental Support Services (Europe only)

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

## Specifications

PCI	132 Mbyte/second
Fast SCSI-2 bus	10 Mbyte/s transfer rate
Ethernet	10-Mbit/s Twisted Pair/Thin Wire standard
<b>Power Requirements</b>	
Line voltage	120 V/240 V
Voltage tolerance	90-128 V / 190-256 V
Frequency single phase	50 Hz / 60 Hz
Frequency tolerance	47-63 Hz
Maximum running current	7.0A/3.3A with monitor 5.0A/2.3A without monitor
Maximum power consumption	180 W
<b>Operating Environment</b>	
Operating temperature	10° to 40° C (50° to 104° F)
Operating humidity	20% to 80% relative humidity
Maximum wet bulb	40° C (104° F)
Storage temperature	-20° C to 65° C (-4° F to 149° F)
Storage humidity	10% to 90% relative humidity
Maximum wet bulb	65° C (149° F)
Maximum altitude	
Operating	2,438 m (8,000 ft) maximum
Nonoperating	4,876 m (16,000 ft) maximum
Nonoperating shock	30G, 25 ms halfsine
<b>Physical Characteristics</b>	<b>Pedestal</b>
Height	10 cm (4 inches)
Width	43 cm (17 inches)
Depth	41 cm (16 inches)
Weight	11-14 kg (25-30lb)



## AlphaServer 400

### Product Description

The AlphaServer 400 Mini Tower System is an Alpha microprocessor 233 MHz CPU system. This highly reliable product offers many server specific features, including management and security, with remote management possible via a simple serial link. For investment protection, customers get a choice of three popular operating systems: DIGITAL UNIX, OpenVMS, and Microsoft Windows NT Server. The product also has been designed to allow for future, seamless upgrades to faster Alpha processors.

The server supports up to 384 MB of industry-standard SIMM memory and has an integrated Fast Narrow SCSI-2 controller. The system enclosure supports five storage devices including a floppy diskette drive, CD-ROM, and hard drives. Six industry standard I/O expansion slots (two PCI, three ISA, and one PCI/ISA slot) provide for options such as high-performance graphics, networking and SCSI adapters.

Advanced server management features are provided with all AlphaServer 400 shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX, and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

All AlphaServer 400 systems come with a three year on-site warranty. DIGITAL's ADVANTAGE-UPGRADE Program provides a cost-effective upgrade path for investment protection.

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## Step 1—Systems

- DIGITAL UNIX and OpenVMS Packaged and Base systems ordered with a minimum of a 1.05 GB disk include factory installed software (FIS).
- Windows NT Packaged and Base systems include Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kit.
- Options ordered will be factory installed unless specified as **spares**.

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### AlphaServer 400 Systems include

- Alpha microprocessor 21064A 233-MHz CPU with 512-Kbyte onboard secondary cache
- Mini tower enclosure with:
  - Six expansion slots: 2 PCI, 3 ISA, and 1 PCI/ISA combination
  - 6 SIMM memory slots support 3 memory options
  - Five storage slots:
    - One dedicated diskette drive slot,
    - Three 5.25-inch removable media or hard disk drives slots
    - One internal 3.5-inch hard disk drive slot
  - Integrated PCI-based Fast Narrow SCSI-2 controller with DMA and external SCSI-2 connector
  - 300-Watt power supply
  - Two serial ports, support full duplex asynchronous modem control
  - One bi-directional enhanced parallel port
  - PS/2 style keyboard port and mouse port
- 1.44 MB diskette drive in dedicated slot
- High-performance Ethernet adapter—uses one PCI slot (included in Packaged systems only)
- 3-button mouse
- Hardware documentation (Americas and AP orders only)
- Hardware Warranty: Three-year on-site\*
- Software Warranty:\*
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kit **or**
- DIGITAL UNIX unlimited user license and Server Extension License, **or**
- OpenVMS base license with System Manager license Enterprise Integrated Package (EIP)

\* Service upgrades are available; see Step 11, Hardware and Software Supplemental Services.

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### Packaged Systems

- Packaged systems ordered in the Americas and Asia Pacific (AP) include 120 V power cord packaged with keyboard, and English hardware documentation.
- Select country-specific power cord, keyboard and hardware documentation for all Packaged systems ordered in Europe.
- All Packaged systems include high-performance PCI-based Ethernet adapter—uses one PCI slot
- Windows NT Packaged systems include entry level graphics (PB2GA) 1280 x 1024 x 256 colors, 72 Hz—uses one PCI slot

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Order Number	Operating System	Memory	Graphics	Monitor	1.05 GB Hard Drive	600 MB CD-ROM	Ethernet
PB523-AC/AD	DIGITAL UNIX	32 MB	Recommended	Recommended	Included	Included	Included
PB524-AC/AD	OpenVMS	32 MB	Recommended	Recommended	Included	Included	Included
PB525-AA/AB	Windows NT	32 MB	Included	Required	Included	Included	Included

**Note:** xA = 120V and xB = 240V

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## Step 1—Systems (continued)

### Base Systems

- **DIGITAL UNIX and OpenVMS Base systems require:**
  - Minimum of 32 MB memory
  - One hard disk drive
  - Country-specific power cord
  - Graphics option, monitor, and keyboard for DIGITAL UNIX and OpenVMS base systems are available as options if required
- **Windows NT base systems require:**
  - Minimum of 32 MB memory
  - One hard 1.05 GB or 2.1 GB disk drive
  - One CD-ROM Drive
  - Graphics Option
  - Monitor and keyboard
  - Country-specific power cord

**Note:** Mandatory items **must** be on purchase order at initial order acceptance.

Order Number	Operating System	Memory	Graphics	Monitor	Hard Drive <sup>1</sup>	600 MB CD-ROM	Ethernet
PB51C-AB	DIGITAL UNIX	Mandatory	Recommended	Recommended	Mandatory	Recommended	Recommended
PB51C-BB	OpenVMS	Mandatory	Recommended	Recommended	Mandatory	Recommended	Optional
PB51C-CA	Windows NT	Mandatory	Required	Required	Mandatory	Mandatory	Optional

1. Base systems ordered with one hard disk include factory installed software (FIS). **Note:** 4.3 GB hard disk (PBXRZ-NA) is not supported as a system disk on Windows NT servers

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## Step 2—Memory

- Six SIMM slots support 3 memory options for maximum of 384 MB. Memory pairs can be mixed.
- Packaged systems include 32 MB memory, one MSP01-AC. Base systems require minimum of 32 MB
- System maximum of 384 MB can be obtained by selecting a Base system and 3 MSP01-AE 128 MB memory options.

MSP01-AA	8 MB (2 x 4 MB 70ns SIMMs)
MSP01-AB	16 MB (2 x 8 MB 70ns SIMMs)
MSP01-AC	32 MB (2 x 16 MB 70ns SIMMs)
MSP01-AD	64 MB (2 x 32 MB 70ns SIMMs)
MSP01-AE	128 MB (2 x 64 MB 70ns SIMMs)
DJ-ML200-AA	PCI-based 2-MB PrestoServe I/O performance enhancement option for DIGITAL UNIX systems only, maximum 1 per system

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## Step 3—Monitors

- Windows NT Packaged systems include video adapter that support 1024 x 768 and 1280 x 1024 resolution, 72 Hz monitors. Systems require a graphics monitor to run all functions.

SN-VRCX5-WA/W3/W4	15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.
SN-VRTX7-WA/W3 SN-VRT17-W4	17" (16.0" viewable image size) Professional Series auto-scan color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 @ 75Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord, SN-VRT17-W4 = Southern Hemisphere. Select country specific power cord for W3 and W4 variant.
SN-VRCX1-WA/ W3/W4	21" (19.7" viewable image size) professional series auto-scan color monitor, Diamondtron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.

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## Step 4—Storage

- Integrated Fast Narrow SCSI-2 controller supports maximum of seven narrow devices, four of which may be internal.
- Maximum Integrated SCSI bus length cannot exceed 3.0 meters.

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### Step 4a—Internal Storage

- System enclosure supports five narrow SCSI storage devices: One dedicated diskette drive slot, three front accessible 5.25-inch slots for removable media (tapes or CD-ROM) or hard drives, and one internal 3.5-inch hard drive slot. See system diagram.
- Packaged systems include: one 1.44 MB diskette drive, one 1.05 GB narrow SCSI hard drive, and one CD-ROM.
- Base systems include one 1.44 MB diskette drive.
- A hard disk drive is mandatory for base systems. **Note:** 4.3 GB hard disk (PBXRZ-NA) is not supported as a system disk on Windows NT servers
- CD-ROM drive is mandatory for Windows NT Base systems; software distribution is only available on CD-ROM.

### Removable Media Devices

PBXRZ-DA	600 MB 5.25-inch half-height 12X CD-ROM drive (RRD46)
PBXTZ-AA	2.0 MB 5.25-inch half-height QIC tape drive (TZK11)
PBXTL-DA	8.0 MB 5.25-inch half-height 4-mm DAT drive (TLZ09)

### Internally Supported Hard Drives

PBXRZ-EB	1.05 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive (RZ26N-E)
PBXRZ-HB	2.1 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive (RZ28M-E)
PBXRZ-JB	2.1 GB 8-bit narrow 7200 RPM 3.5 x 1" SCSI disk drive (RZ28D-E)
PBXRZ-NA*	4.3 GB 8-bit narrow 7200 RPM 3.5 x 1.6" SCSI hard disk drive (RZ29B-E)

\* Not supported as a system disk on Windows NT servers.

**Note:** Wide drives installed in system enclosure require a wide SCSI controller and BC25V-1A cable.

PBXRW-EB	1.05 GB 16-bit wide 5400 RPM 3.5 x 1" half-height disk drive (RZ26N-W)
PBXRW-HB	2.1 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI disk drive (RZ28M-W)
PBXRW-JB	2.1 GB 16-bit wide 7200 RPM 3.5 x 1" SCSI disk drive (RZ28D-W)
PBXRW-NA	4.3 GB 16-bit wide 7200 RPM 3.5 X 1.6" SCSI disk drive (RZ29B-W)

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### Step 4b—External Expansion

- Systems support three external devices on integrated PCI-based Fast Narrow SCSI-2 controller when four devices are installed in system enclosure.
- Seven external narrow SCSI devices are supported on integrated Fast Narrow SCSI-2 controller if storage devices are not installed in system enclosure.
- Select additional PCI-based wide or narrow SCSI-2 controllers if additional external storage is required.
- System supports maximum of three PCI-based SCSI-2 controllers (**Note:** Packaged systems have two PCI slots available due to installed PCI-based Ethernet controller.)
- PCI-based SCSI-2 controllers supports 7 additional external devices.

### Controllers

KZPAA-AA	PCI-based one-port high-performance Fast Narrow Single Ended (FNSE) SCSI-2 controller
BN21H-xx	Connects from KZPAA-AA to BA353 narrow storage enclosure
KZPSA-BB	PCI-based one-port high-performance Fast Wide Differential (FWD) SCSI controller. Supports external disks only.
BN21K-01	Connects from KZPSA to DWZZA-VA in narrow BA353, or DWZZB-VW in wide BA356/BA346 storage enclosure

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**Step 4b—External Expansion (continued)****Controllers**

<b>KZPSC-AA*</b>	One-port PCI backplane RAID Fast Wide Single Ended (FWSE) controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit. Supports external disks only.
<b>BN31S-1E</b>	Connects from KZPSC-AA to BA346/BA356 wide storage enclosure
<b>BN31L-1E</b>	Connects from KZPSC-AA to BA353 narrow storage enclosure
<b>KZPSC-BA*</b>	Three-port PCI backplane RAID (FWSE) controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit. Supports external disks only.
<b>BN31K-0E</b>	SCSI cable/bulkhead assembly kit for KZPSC-BA; required for connection to third port; uses one PCI bulkhead slot
<b>BN31S-1E</b>	Connects from KZPSC-BA to BA346/BA356 wide storage enclosures
<b>BN31L-1E</b>	Connects from KZPSC-BA to BA353 narrow storage enclosure
<b>KFPSC-AA</b>	PCI-based single-DSSI controller (OpenVMS systems only). See Step 4d DSSI cables.

\* See Storage Devices for additional information on StorageWorks RAID Array 230 systems.

**External Tabletop Tape Expansion**

- Tabletop expansion units include North American power cord; order country-specific power cord for 240 V use.

**TLZ09-DB\***      8.0 GB 5.25-inch half-height 4 mm DAT tape drive, includes SCSI cable

\* Supported on DIGITAL UNIX, OpenVMS, and Windows NT 4.0. Systems running Windows NT 3.51 require upgrade kit, part number QC-00LAC-UC, which includes driver and installation instructions. Driver and instructions are also available at Web Site <http://www.storage.digital.com> under "Technomania" section.

**External Disk Expansion**

- BA353 expansion units are supported on wide and narrow SCSI controllers. Devices operate in narrow mode when BA353 is connected to a Fast Wide SCSI controller.
- BA356 and BA346 expansion units are supported on Fast Wide SCSI controllers.

**StorageWorks Modular Storage Options**

<b>BA353-AA</b>	StorageWorks 8-bit <b>Narrow</b> Desktop expansion unit, supports up to three 3.5" narrow hard disk drives, includes 120 V power cord. Not supported with RAID controllers.
<b>BA356-KC</b>	StorageWorks 16-bit <b>Wide</b> Pedestal expansion unit includes BA356 basic shelf, BA35X-HF 150-W universal ac power supply, pedestal mounting kit, and 120 V power cord. Supports up to seven 3.5" wide or narrow drives; narrow drives operate in narrow mode.
<b>BA346-KB</b>	StorageWorks 16-bit <b>Wide</b> Pedestal expansion unit includes BA356 basic shelf, BA35X-HA universal ac power supply, pedestal mounting kit, and 120 V power cord. Supports up to nine devices, two 5.25" narrow and seven 3.5" wide or narrow drives; narrow drives operate in narrow mode.
<b>DWZZA-VA</b>	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 bit Fast Narrow Single-Ended SCSI-2 on other end.
<b>DWZZB-VW</b>	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 or 16 bit Fast Wide or Fast Narrow Single-Ended SCSI-2 on other end.

**Externally supported SCSI devices**

<b>RZ26N-VA</b>	1.05 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28M-VA</b>	2.1 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28D-VA</b>	2.1 GB 8-bit narrow 7200 RPM 3.5 x 1" SCSI disk drive
<b>RZ29B-VA</b>	4.3 GB 8-bit narrow 7200 RPM 3.5 x 1.6" SCSI hard disk drive

**Step 4b—External Expansion (continued)****Externally supported SCSI devices**

<b>DS-RZ26N-VZ</b>	1.05 GB 16-bit wide 5400 RPM 3.5 x 1" half-height disk drive
<b>DS-RZ28M-VZ</b>	2.1 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI disk drive
<b>RZ28D-VW</b>	2.1 GB 16-bit wide 7200 RPM 3.5 x 1" SCSI disk drive
<b>RZ29B-VW</b>	4.3 GB 16-bit wide 7200 RPM 3.5 X 1.6" SCSI disk drive

**Step 5—Graphics Adapters and Multimedia Options**

Windows NT systems include entry-level (PB2GA) graphics adapter.

<b>PB2GA-JC</b>	PCI based 1MB DRAM graphics adapter 1024 x 768
<b>PB2GA-JD</b>	PCI based 2MB DRAM graphics adapter 1024 x 768
<b>PBXGB-AA</b>	PCI based 8-plane 1280 x 1024 graphics adapter
<b>PBXGB-CA</b>	PCI based 24-plane 1280 x 1024 graphics adapter

**Multimedia Options**

<b>AVA01-AA</b>	Window sound system; compatible sound card, headset and microphone	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
<b>AVH01-AA</b>	Headset and microphone for AVA01 sound card	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
<b>AV301-AA</b>	FullVideo Supreme for all systems	DIGITAL UNIX OpenVMS Windows NT	
<b>AV321-AA</b>	FullVideo Supreme JPEG for all systems	DIGITAL UNIX OpenVMS Windows NT	
<b>AVC00-AA</b>	Toshiba camera, North America	DIGITAL UNIX OpenVMS Windows NT	

## Step 7—Communications and Miscellaneous Adapters

- Packaged systems include high-performance Ethernet—Thick wire, Twisted Pair, ThinWire)

Order Number	Description	Supported Operating Systems	Bus Slots Required / Recommended Slot
DE205-AC	ISA-based EtherWORKS 3 Network Interface Card	DIGITAL UNIX OpenVMS Windows NT	One ISA/3a, 4, 5, 6
DE435-AA	PCI based High-performance Ethernet. Select AUI (Thick wire), 10BaseT (Twisted Pair) or ThinWire networking cable BNE4G-02 for AUI BN26K-xx for 10BaseT (twisted pair) BC16M-xx for ThinWire	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
DE500-XA	PCI-based Fast Ethernet network interface card	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
DEFPA-AB <sup>1</sup>	PCI-based DEC FDDI controller, Single Attachment	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
DEFPA-DB <sup>1</sup>	PCI-based DEC FDDI controller, Dual Attachment	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
DEFPA-UB <sup>1</sup>	PCI-based DEC FDDI (UTP) controller	DIGITAL UNIX OpenVMS Windows NT	One PCI/1, 2, 3a
DGLPB-AB	PCI-based ATMworks 350 adapter	DIGITAL UNIX V3.2D-1 Windows NT 3.51/4.0	One PCI/1, 2, 3a
PBXNP-AA <sup>1</sup>	PCI-based Token Ring adapter, no boot support.	DIGITAL UNIX OpenVMS	One PCI/1, 2, 3a
CXI01-AA	ISA Asynchronous MUX Adapter, 16 lines. Expandable to 64 lines.	DIGITAL UNIX Windows NT	One ISA/3b, 4, 5, 6
CXI01-AD	ISA Asynchronous MUX Adapter, 16 lines. Expandable to 224 lines.	DIGITAL UNIX Windows NT	One ISA/3b, 4, 5, 6
PBXDI-AA	ISA-based Two Port Synchronous Communications controller with interface support for EIA-232/V.24/V.28,	Windows NT	One ISA/3b, 4, 5, 6
PBXDI-AB	ISA-based Two Port Synchronous Communications controller with interface support for V.35	Windows NT	One ISA/3b, 4, 5, 6
PBXDI-AC	ISA-based Two Port Synchronous Communications controller with interface support for X.21 and EIA-530	Windows NT	One ISA/3b, 4, 5, 6
DIIAA-AA	ISA-based ISDN terminal adapter (U.S.)	Windows NT	One ISA/3b, 4, 5, 6
DIIAA-AB	ISA-based ISDN terminal adapter (non-U.S.)	Windows NT	One ISA/3b, 4, 5, 6
PBXDF-AA	Modem 14.4K	Windows NT	One ISA/3b, 4, 5, 6

<sup>1</sup> DIGITAL UNIX and OpenVMS systems require driver floppy.

## Step 8—Printers

The AlphaServer 400 includes two serial ports and one bi-directional parallel port on rear of system enclosure. Either port may be used as a printer port depending on printer type.

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## Step 9—Software

### Windows NT Servers

Windows NT Packaged and Base systems include Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kit.

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### DIGITAL UNIX Concurrent Use Licenses

#### Software Processor Code = E

Select user licenses and additional software as required. Media and documentation is recommended for first system on site. DIGITAL UNIX Concurrent Use licenses are not specific to a single system and can be moved from one system to another at user discretion.

QL-MT7AM-3B	DIGITAL UNIX Concurrent Use 1-user license
QL-MT7AM-3C	DIGITAL UNIX Concurrent Use 2-user license
QL-MT7AM-3D	DIGITAL UNIX Concurrent Use 4-user license
QL-MT7AM-3E	DIGITAL UNIX Concurrent Use 8-user license
QL-MT7AM-3F	DIGITAL UNIX Concurrent Use 16-user license
QL-MT7AE-AA	DIGITAL UNIX Traditional unlimited user license
QL-MT6AE-AA	DIGITAL UNIX server extension license
QL-MT5AE-AA	DIGITAL UNIX C developer's extension license

#### DIGITAL UNIX Media and Documentation

QA-MT4AA-H8	DIGITAL UNIX media and documentation (end user, developer, server) on CD-ROM
QA-MT4AA-GZ	DIGITAL UNIX full hardcopy documentation
QA-MT4AB-GZ	DIGITAL UNIX end user documentation
QA-MT5AA-GZ	DIGITAL UNIX developer's documentation
QA-MT6AA-GZ	DIGITAL UNIX server extension documentation

#### DIGITAL UNIX Layered Products (CD-ROM)

DIGITAL UNIX systems include Multimedia Services License, order media and documentation separately. Media and documentation for Multimedia Services is included in DIGITAL UNIX Layered Products CD-ROM.

QA-054AA-H8	Layered products media and documentation for DIGITAL UNIX on CD-ROM
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#### Internet for AlphaServers

QB-4GQAA-KA	Internet AlphaServer Software (USA and Canada Only)
QB-4GQAA-KB	Internet AlphaServer Software (International)

#### DIGITAL UNIX Logical Storage Manger

QL-2GVAE-AA	DIGITAL UNIX Logical Storage Manager License
QT-2GVAE-AA	DIGITAL UNIX Logical Storage Manger Product Support Services

#### POLYCENTER NetWorker Save and Restore Licenses

QL-2ALAE-AA	POLYCENTER NetWorker Save and Restore Server License
QL-3P2AE-AA	POLYCENTER NetWorker Save and Restore Archive Server Add-on License. <b>Note:</b> NetWorker Server License is a requirement for Archive License.

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**Step 9—Software (continued)****DECsafe Available Server for DIGITAL UNIX**

QL-05SAE-AA	DECsafe ASE U/A Traditional license
QB-05SAE-AA	DECsafe ASE U/A Traditional license and configuration guide

**Server Extension License**

QL-MT6AE-AA	DIGITAL UNIX server extension license
QL-MT5AE-AA	DIGITAL UNIX C developer's extension license

**DIGITAL NAS Base Server 200 for DIGITAL UNIX**

QL-36MAE-RA	DIGITAL NAS Base Server 200 for DIGITAL UNIX Update license
QT-36MAE-L9	DIGITAL NAS Base Server 200 for DIGITAL UNIX Layered Product Support Service

**DECnet for DIGITAL UNIX**

QL-MTJAE-AA	DECnet/OSI end-system license for DIGITAL UNIX
QL-MTKAE-AA	DECnet/OSI extended function license for DIGITAL UNIX

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**OpenVMS Concurrent Use Licenses**

OpenVMS Concurrent Use license provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system. OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.

QL-MT3AA-3B	OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C	OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D	OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E	OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F	OpenVMS Concurrent Use 16-user license
QL-MT3AA-3G	OpenVMS Concurrent Use 32-user license
QL-MT3AA-3H	OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J	OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K	OpenVMS Concurrent Use 256-user license
QL-MT2AE-AA	OpenVMS Traditional unlimited user license

**OpenVMS Media and Documentation—required for first system on site**

QA-MT1AA-H8	OpenVMS V6.2 media and documentation on CD-ROM
QA-MT1AP-H8	OpenVMS V6.1-1H2 media and documentation on CD-ROM
QA-MT1AH-GZ	OpenVMS hardcopy documentation

**OpenVMS Layered Products (CD-ROM)**

QA-03XAA-H8	Layered products media and documentation for OpenVMS on CD-ROM
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**DIGITAL NAS Base Server 200 for OpenVMS**

QL-23EAE-RA	DIGITAL NAS Base Server 200 for OpenVMS upgrade license
QT-23EAE-L9	DIGITAL NAS Base Server 200 for OpenVMS Layered Product Support Service

**DECnet for OpenVMS**

QL-MTGAE-AA	DECnet extended function license for OpenVMS
QL-MTHAE-AA	DECnet end-system to extended function upgrade license for OpenVMS

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**Step 9—Software (continued)**
**Support Services Software for Microsoft Windows NT**

ZLXp-Ex graphics options for Windows NT servers include the following license, media and documentation.

QM-356AA-AA	License for ZLXp-Ex Support Services Software for Microsoft Windows NT
QB-356AA-SA	ZLXp-Ex Support Services Software for Microsoft Windows NT—license, media (diskette) and documentation
QA-356AA-GZ	ZLXp-Ex Support Services Software for Microsoft Windows NT (documentation only)

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**Step 10—Power Cords, Keyboards, and Documentation**

- Packaged systems ordered in the Americas and Asia Pacific (AP) include 120 V U.S. power cord packaged with keyboard, and English hardware documentation. Select country-specific power cord, keyboard and documentation for all Packaged systems ordered in Europe.
- Base systems **require** country-specific power cord
- Windows NT Base systems **require** a keyboard. Selection of keyboard is optional for DIGITAL UNIX and OpenVMS Base systems.
- Packaged and Base systems include mouse.
- LK471-xx are 101/102 key PC style keyboards. LK461-xx are 108 key VT style keyboards.

Power Cord	PC style keyboards	VT style keyboards	Country
BN19P-1K	LK471-A2	LK461-A2	North America, Japan (English)
BN19C-2E	LK471-AB	LK461-AB	Belgium (French)
BN19K-2E	LK471-AD	LK461-AD	Denmark
BN19C-2E	LK471-AP	LK461-AP	France
BN19C-2E	LK471-AF	LK461-AM	Sweden (Finnish)
BN19C-2E	LK471-AG	LK461-AG	Germany
BN19Z-2E	LK471-AI	LK461-AI	Italy
BN19C-2E	LK471-AN	LK461-AN	Norway
BN19C-2E	LK471-AV	LK461-AV	Portugal
BN19C-2E	LK471-AS	LK461-AS	Spain
BN19E-2E	LK471-AK	LK461-AK	Switzerland (French)
BN19A-2E	LK471-AE	LK461-AA	UK, Ireland
BN18L-2E	LK471-AT	LK461-AT	Israel (Hebrew)
BN19S-2E	LK471-AA	LK461-AA	Africa, India (English)
BN19H-2E	LK471-AA	LK461-AA	Australia, New Zealand (English)

**Mouse—included in all Packaged and Base systems**

PCXWS-AA	PS/2 compatible 3-button Mouse
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**User Documentation—select for 240 V systems**

**User Documentation**

EK-PCSVJ-UI	User Documentation—English
EK-PCSVJ-UI	User Documentation—Japanese

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## Step 11—Hardware and Software Supplemental Support Services

### Hardware—Americas and Asia Pacific only

- Systems include three-year, on-site, 24 hr. response hardware warranty.
- Select optional Hardware Supplemental Support Services if required.

<b>FM-CH4HR-36</b>	Years 1-3, 5 x 9, 4 hour response
<b>FM-CH4HR-48</b>	Years 1-4, 5 x 9, 4 hour response
<b>FM-CH4HR-60</b>	Years 1-5, 5 x 9, 4 hour response
<b>FM-CH512-36</b>	Years 1-3, 5 x 12, 4 hour response
<b>FM-CH512-48</b>	Years 1-4, 5 x 12, 4 hour response
<b>FM-CH512-60</b>	Years 1-5, 5 x 12, 4 hour response
<b>FM-CH616-36</b>	Years 1-3, 6 x 16, 4 hour response
<b>FM-CH616-48</b>	Years 1-4, 6 x 16, 4 hour response
<b>FM-CH616-60</b>	Years 1-5, 6 x 16, 4 hour response
<b>FM-CH724-36</b>	Years 1-3, 7 x 24, 4 hour response
<b>FM-CH724-48</b>	Years 1-4, 7 x 24, 4 hour response
<b>FM-CH724-60</b>	Years 1-5, 7 x 24, 4 hour response
<b>FM-CHXHW-48</b>	Year 4, 5 x 9, next day response, on-site
<b>FM-CHXHW-60</b>	Years 4&5, 5 x 9 next day response, on-site

### Software—Americas and Asia Pacific only

- Software Warranty:
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- Software service upgrades for DIGITAL UNIX and OpenVMS include advisory and remedial software support with new version license rights for operating system and DIGITAL NAS 200 for the time period indicated.
- Software Supplemental Support Service options upgrade 90-day service to time period indicated below.

<b>FM-MKOSF-12</b>	1 year Software Supplemental Support Services for DIGITAL UNIX systems
<b>FM-MKOSF-36</b>	3 year Software Supplemental Support Services for DIGITAL UNIX systems
<b>FM-MKOSF-60</b>	5 year Software Supplemental Support Services for DIGITAL UNIX systems
<b>FM-MKVMS-12</b>	1 year Software Supplemental Support Services for OpenVMS systems
<b>FM-MKVMS-36</b>	3 year Software Supplemental Support Services for OpenVMS systems
<b>FM-MKVMS-60</b>	5 year Software Supplemental Support Services for OpenVMS systems
<b>FM-WNTN3-12</b>	1 year Software Supplemental Support Services for Windows NT systems
<b>FM-WNTN3-36</b>	3 year Software Supplemental Support Services for Windows NT systems
<b>FM-WNTN3-60</b>	5 year Software Supplemental Support Services for Windows NT systems

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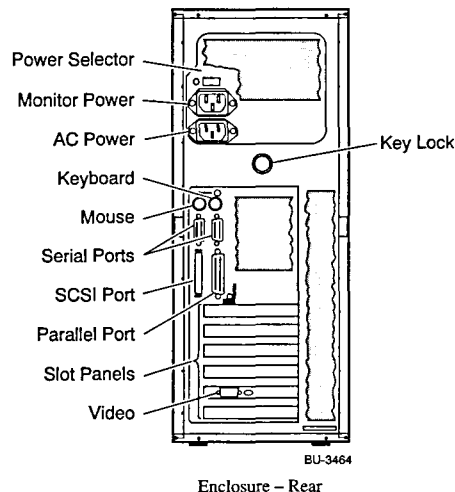
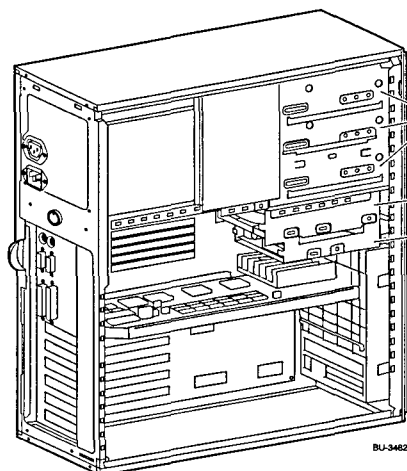


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### Step 11a—Hardware and Software Supplemental Support Services (Europe only)

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

AlphaServer 400 System Diagram



Specifications Specifications

PCI	132 MB/second
ISA	16 MB/second
Fast SCSI-2 bus	10 MB/s transfer rate
Ethernet	DE435-xx 10-Mbit/s Twisted Pair/Thin Wire and AUI thick wire

**Power Requirements**

Line voltage	120/240 V
Voltage tolerance	88-132/176-264 V
Frequency single phase	50/60 Hz
Frequency tolerance	47-63 Hz
Maximum running current	8.0A/4.0A
Maximum power consumption	300 W

**Operating Environment**

Operating temperature	10° to 40° C (50° to 104° F)
Operating humidity	20% to 80% relative humidity
Maximum wet bulb	40° C (104° F)
Storage temperature	-20° C to 65° C (-4° F to 149° F)
Storage Humidity	10% to 90% relative humidity
Maximum wet bulb	65° C (149° F)
Maximum altitude	
Operating	2,438 m (8,000 ft) maximum
Nonoperating	4,876 m (16,000 ft) maximum

Nonoperating shock	30G, 25 ms halfsine
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**Physical Characteristics**

Height	43 cm (17 inches)
Width	18 cm (7 inches)
Depth	43 cm (17 inches)
Weight	12+ kg (28+ lb)

**Prestige Model 800 "On-line" UPS**

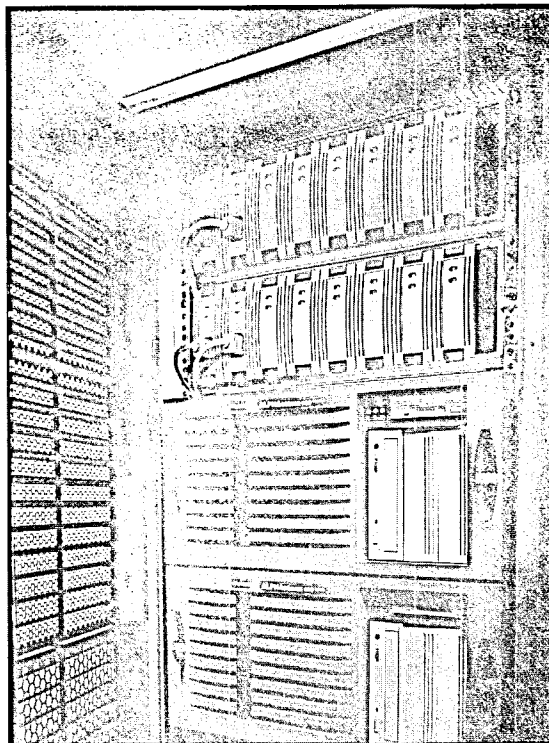
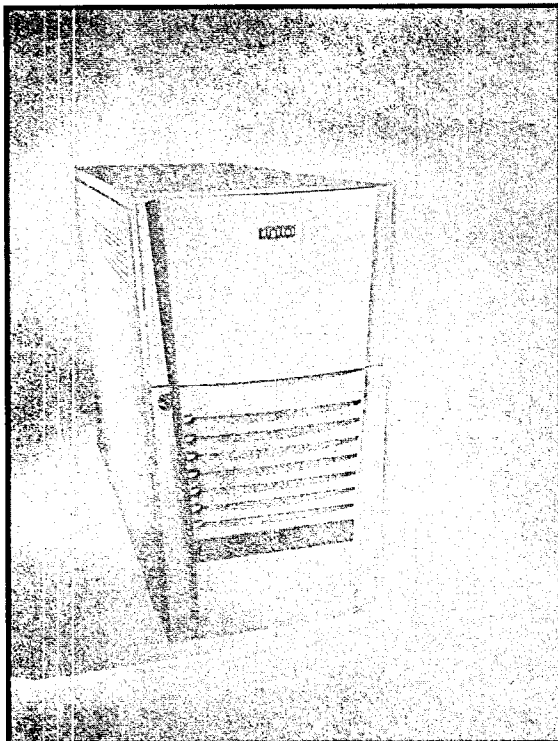
For complete protection, UPS products should be used with data line surge protectors.

<b>4N-AEABD-AF</b>	For 120 Vac, 50 or 60 Hz systems Includes detachable 6-foot input power cord with 5-15P plug and four NEMA 5-15R output receptacles.
<b>4N-AEABD-BF</b>	For 240 Vac, 50 or 60 Hz systems Selectable 220, 230 or 240V ac output. Uses system power cord for detachable IEC 320 input connection at UPS. Unit has 3 IEC 320 receptacles and includes two output jumpers with IEC 320 connectors to connect to system.
<b>4N-GA249-AB</b>	Surge Protectors for 2 wire modem
<b>4N-GA249-CA</b>	Surge Protectors for 10BaseT
<b>4N-GA510-BF</b>	Surge Protectors for ThinWire
<b>4N-AEAEO-PA/PB</b>	Optional hot-swap power pass with built in surge protected outlets including one extra off-line for laser printer. -PA for 120 V, -PB for 220 V models.
<b>4N-AEWAR-G1</b>	5 year vendor on-site exchange warranty upgrade (available in Intercontinental U.S. only at time of purchase).

**Monitoring and Unattended Shutdown Software for above UPS systems only**

- Include cables, media and documentation.
- SNMP Network connectivity adapters (4N-AEAEO-DA/DC) Twisted Pair/ThinWire are available.

<b>4N-AEAES-AA/AB</b>	Windows NT for Alpha and Intel x86
<b>4N-AEAES-AK</b>	DIGITAL UNIX
<b>4N-AEAES-EM</b>	OpenVMS



### AlphaServer 800 Pedestal and Rackmount

#### Product Description

The AlphaServer 800 is an Alpha microprocessor server, available in 333 MHz and 400 MHz with 2 MB ECC cache. The system offers up to 8 internal storage devices including a floppy diskette drive, three 5.25-inch bays for optional removable media drives, and four hot swap storage disks. The system supports up to 1 GB of memory and up to 36 GB of internal storage with four 9 GB disks. Integrated on the system board are a Fast Wide Single-Ended SCSI-2 controller, SVGA controller with 1 MB Video ram, a Remote Management Console, two serial ports, one parallel port, and keyboard and mouse interfaces. AlphaServer 800 is available with DIGITAL UNIX, OpenVMS, or Microsoft Windows NT.

The AlphaServer 800 is available in two packages—Pedestal and Rackmount. The pedestal package has an extremely small footprint and can be located practically anywhere in an office environment. The Rackmount package can be mounted in any cabinet equipped with industry-standard RETMA or METRIC rails in compliance with standard EIA 310D and occupies only 8.75 inches [5U] of vertical rack space.

The AlphaServer 800 offers the following high-reliability features: temperature sensor, fan speed sensor, power supply over/under protection and ECC memory. The AlphaServer 800 integrated Remote Management Console (RMC) features significantly enhances the ability to remotely manage and diagnose system conditions. The RMC allows a remote operator to monitor server voltages, temperatures, and fan, as well as manipulate the server (Power On/Off, reset, halt). The RMC is powered by an auxiliary regulator in the main power system that allows system to be remotely interrogated even if system is turned off or shuts down. In the event of an alert condition, the RMC can be setup to automatically dial a user definable pager phone or another system to make a remote operator aware of the alert condition.

Advanced server management features are provided with all AlphaServer 800 shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX, and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit).

**Product Description (continued)**

The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application/database management software through BMC software's PATROL family of products.

### Step 1—AlphaServer 800 Pedestal and Rackmount System

- Windows NT Packaged systems include factory installed (FIS) Windows NT Server 4.0 on hard disk drive.
  - North American variants include Windows NT license, media (CD-ROM) kit North American English
  - Non-North American variants include factory installed (FIS) Windows NT 4.0 English.
  - Selection of language specific Windows NT license, media (CD-ROM) kit is **mandatory** for all non-North American variants, see Step 7.
- DIGITAL UNIX and OpenVMS Packaged systems include factory installed (FIS) software on hard disk drive.
  - All DIGITAL UNIX systems ship with UNIX V4.0B
  - All DIGITAL OpenVMS systems ship with OpenVMS V7.1.
- Rackmount systems include slide rails and mounting hardware to mount system in any cabinet equipped with industry-standard RETMA or METRIC rails in compliance with standard EIA 310D; see Step 9 for recommended DIGITAL cabinets.
- Uninterruptable Power Supplies are available; see UPS Information following System Specifications.
- Options ordered that are factory installable, will be factory installed unless specified as **spares**.

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#### Pedestal and Rackmount Systems include

- Alpha microprocessor 21164
  - 333 MHz CPU with 2 MB ECC onboard cache, **or**
  - 400-MHz CPU with 2 MB ECC onboard cache
- Pedestal and Rackmount enclosures with:
  - Six Bus Slots
    - Three 32-bit PCI slots
    - Two EISA slots
    - One shared 64-bit PCI and EISA slot
  - 8 DIMM memory slots support 2 memory options
  - 8 storage slots:
    - One diskette drive slot
    - Three removable media slots
    - Four hot swap storage disks wide and/or UltraWide SCSI drive slots
  - Integral Fast Wide Single-Ended SCSI-2 controller
  - Integrated SVGA with 1 MB Video Ram
  - 300-Watt switch select (120/240V, 60/50Hz) power supply
  - Two serial ports, support full duplex asynchronous modem control
  - One parallel port
  - PS/2 style keyboard port and mouse port
- PCI-based Fast 100 Ethernet (Twisted Pair)—uses one PCI slot
- 600 MB 12X CD-ROM—uses one removable media slot
- One 2.1 GB wide hard disk drive
- 1.44 MB diskette drive in dedicated slot
- One memory option
  - North American Windows NT and DIGITAL UNIX variants include a 104-key, PC style U.S. English keyboard.
  - North American OpenVMS variants include a 108 key, VT style U.S. English keyboard.
  - Select country-specific keyboard for all non-U.S. variants, see Step 8.
  - 3-button mouse
  - North American variants include 120V power cord (North America, Japan). Mandatory selection of country-specific power cord for all non-North American variants, see Step 8.
  - English language documentation
  - EISA Configuration Utility (ECU)
  - Integrated Advanced Server Management features, including ServerWorks Manager kit
  - Hardware Warranty, Three-year on-site\*
  - Software Warranty\*
    - DIGITAL UNIX and OpenVMS, 90-day SPD conformance with advisory telephone support
    - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
  - Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kit, **or**†
  - DIGITAL UNIX V4.0B, Unlimited User license, Server Extension license, Internet AlphaServer System Software kit, **or**
  - OpenVMS V7.1 base license, System Manager license, Enterprise Integrated Package (EIP)

\* Service upgrades are available; see Step 10, Hardware and Software Supplemental Services

† Windows NT language specific media kit is **mandatory** for non-North American variants; see Step 7.

**Step 1—AlphaServer 800 5/333 Pedestal and Rackmount Systems**

AlphaServer 800 5/333 Pedestal Packaged Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB80B-AA	Windows NT	FIS	120 V	Included	64 MB	2.1 GB	Included	Required
PB80B-AB	Windows NT	Mandatory*	Mandatory	Required	64 MB	2.1 GB	Included	Required
PB80B-AC	Windows NT	FIS	120 V	Included	128 MB	2.1 GB	Included	Required
PB80B-AD	Windows NT	Mandatory*	Mandatory	Required	128 MB	2.1 GB	Included	Required
PB80B-FA	DIGITAL UNIX	FIS	120 V	Included	64 MB	2.1 GB	Included	Recommended
PB80B-FB	DIGITAL UNIX	FIS	Mandatory	Required	64 MB	2.1 GB	Included	Recommended
PB80B-FC	DIGITAL UNIX	FIS	120 V	Included	128 MB	2.1 GB	Included	Recommended
PB80B-FD	DIGITAL UNIX	FIS	Mandatory	Required	128 MB	2.1 GB	Included	Recommended
PB80B-MA	Open VMS	FIS	120 V	Included	64 MB	2.1 GB	Included	Recommended
PB80B-MB	Open VMS	FIS	Mandatory	Required	64 MB	2.1 GB	Included	Recommended
PB80B-MC	Open VMS	FIS	120 V	Included	128 MB	2.1 GB	Included	Recommended
PB80B-MD	Open VMS	FIS	Mandatory	Required	128 MB	2.1 GB	Included	Recommended

AlphaServer 800 5/333 Rackmount Packaged Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB80P-AA	Windows NT	FIS	120 V	Included	64 MB	2.1 GB	Included	Required
PB80P-AB	Windows NT	Mandatory*	Mandatory	Required	64 MB	2.1 GB	Included	Required
PB80P-AC	Windows NT	FIS	120 V	Included	128 MB	2.1 GB	Included	Required
PB80P-AD	Windows NT	Mandatory*	Mandatory	Required	128 MB	2.1 GB	Included	Required
PB80P-FA	DIGITAL UNIX	FIS	120 V	Included	64 MB	2.1 GB	Included	Recommended
PB80P-FB	DIGITAL UNIX	FIS	Mandatory	Recommended	64 MB	2.1 GB	Included	Recommended
PB80P-FC	DIGITAL UNIX	FIS	120 V	Included	128 MB	2.1 GB	Included	Recommended
PB80P-FD	DIGITAL UNIX	FIS	Mandatory	Recommended	128 MB	2.1 GB	Included	Recommended
PB80P-MA	Open VMS	FIS	120 V	Included	64 MB	2.1 GB	Included	Recommended
PB80P-MB	Open VMS	FIS	Mandatory	Recommended	64 MB	2.1 GB	Included	Recommended
PB80P-MC	Open VMS	FIS	120 V	Included	128 MB	2.1 GB	Included	Recommended
PB80P-MD	Open VMS	FIS	Mandatory	Recommended	128 MB	2.1 GB	Included	Recommended

\* Includes Factory Installed Windows NT Server 4.0, English. Selection of Windows NT Server license and language specific media kit is **mandatory**.

Key: Mandatory items **must** be on purchase order at initial order acceptance

Required items are essential for full system operation

Recommended items enhance system functionality

FIS = Factory Installed Software

## Step 1—AlphaServer 800 5/400 Pedestal and Rackmount Systems

AlphaServer 5/400 Pedestal Packaged Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB81B-AA	Windows NT	FIS	120 V	Included	64 MB	2.1 GB	Included	Required
PB81B-AB	Windows NT	Mandatory*	Mandatory	Required	64 MB	2.1 GB	Included	Required
PB81B-AC	Windows NT	FIS	120 V	Included	128 MB	2.1 GB	Included	Required
PB81B-AD	Windows NT	Mandatory*	Mandatory	Required	128 MB	2.1 GB	Included	Required
PB81B-AE	Windows NT	FIS	120 V	Included	256 MB	2.1 GB	Included	Required
PB81B-AF	Windows NT	Mandatory*	Mandatory	Required	256 MB	2.1 GB	Included	Required
PB81B-FA	DIGITAL UNIX	FIS	120 V	Included	64 MB	2.1 GB	Included	Recommended
PB81B-FB	DIGITAL UNIX	FIS	Mandatory	Recommended	64 MB	2.1 GB	Included	Recommended
PB81B-FC	DIGITAL UNIX	FIS	120 V	Included	128 MB	2.1 GB	Included	Recommended
PB81B-FD	DIGITAL UNIX	FIS	Mandatory	Recommended	128 MB	2.1 GB	Included	Recommended
PB81B-FE	DIGITAL UNIX	FIS	120 V	Included	256 MB	2.1 GB	Included	Recommended
PB81B-FF	DIGITAL UNIX	FIS	Mandatory	Recommended	256 MB	2.1 GB	Included	Recommended
PB81B-MA	Open VMS	FIS	120 V	Included	64 MB	2.1 GB	Included	Recommended
PB81B-MB	Open VMS	FIS	Mandatory	Recommended	64 MB	2.1 GB	Included	Recommended
PB81B-MC	Open VMS	FIS	120 V	Included	128 MB	2.1 GB	Included	Recommended
PB81B-MD	Open VMS	FIS	Mandatory	Recommended	128 MB	2.1 GB	Included	Recommended
PB81B-ME	Open VMS	FIS	120 V	Included	256 MB	2.1 GB	Included	Recommended
PB81B-MF	Open VMS	FIS	Mandatory	Recommended	256 MB	2.1 GB	Included	Recommended

AlphaServer 800 5/400 Rackmount Packaged systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB81P-AA	Windows NT	FIS	120 V	Included	64 MB	2.1 GB	Included	Required
PB81P-AB	Windows NT	Mandatory*	Mandatory	Required	64 MB	2.1 GB	Included	Required
PB81P-AC	Windows NT	FIS	120 V	Included	128 MB	2.1 GB	Included	Required
PB81P-AD	Windows NT	Mandatory*	Mandatory	Required	128 MB	2.1 GB	Included	Required
PB81P-AE	Windows NT	FIS	120 V	Included	256 MB	2.1 GB	Included	Required
PB81P-AF	Windows NT	Mandatory*	Mandatory	Required	256 MB	2.1 GB	Included	Required
PB81P-FA	DIGITAL UNIX	FIS	120 V	Included	64 MB	2.1 GB	Included	Recommended
PB81P-FB	DIGITAL UNIX	FIS	Mandatory	Recommended	64 MB	2.1 GB	Included	Recommended
PB81P-FC	DIGITAL UNIX	FIS	120 V	Included	128 MB	2.1 GB	Included	Recommended
PB81P-FD	DIGITAL UNIX	FIS	Mandatory	Recommended	128 MB	2.1 GB	Included	Recommended
PB81P-FE	DIGITAL UNIX	FIS	120 V	Included	256 MB	2.1 GB	Included	Recommended
PB81P-FF	DIGITAL UNIX	FIS	Mandatory	Recommended	256 MB	2.1 GB	Included	Recommended
PB81P-MA	Open VMS	FIS	120 V	Included	64 MB	2.1 GB	Included	Recommended
PB81P-MB	Open VMS	FIS	Mandatory	Recommended	64 MB	2.1 GB	Included	Recommended
PB81P-MC	Open VMS	FIS	120 V	Included	128 MB	2.1 GB	Included	Recommended
PB81P-MD	Open VMS	FIS	Mandatory	Recommended	128 MB	2.1 GB	Included	Recommended
PB81P-ME	Open VMS	FIS	120 V	Included	256 MB	2.1 GB	Included	Recommended
PB81P-MF	Open VMS	FIS	Mandatory	Recommended	256 MB	2.1 GB	Included	Recommended

\* Includes Factory Installed Windows NT Server 4.0, English. Selection of Windows NT Server license and language specific media kit is **mandatory**.

Key: Mandatory items **must** be on purchase order at initial order acceptance  
 Required items are essential for full system operation  
 Recommended items enhance system functionality  
 FIS = Factory Installed Software

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## Step 2—Memory

- Packaged Systems include one 64 MB, 128 MB or 256 MB memory option.
- System supports one addition memory option for a maximum of two memory options supported per AlphaServer 800 system. Memory options include industry-standard EDO DIMMs with ECC support.
- System maximum of 1 GB memory

PB8MA-AB	32 MB 70ns (4 x 8 MB DIMMs) memory option
PB8MA-AC	64 MB 70ns (4 x 16 MB DIMMs) memory option
PB8MA-AD	128 MB 70ns (4 x 32 MB DIMMs) memory option
PB8MA-AE	256 MB 70ns (4 x 64 MB DIMMs) memory option
PB8MA-AF	512 MB 70ns (4 x 128 MB DIMMs) memory option

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## Step 2a—Prestoserve Non-Volatile Random Access Memory (NVRAM)

- Supported on DIGITAL UNIX systems **only**, maximum one Prestoserve option per system.

DJ-ML200-BA	PCI-based 4 MB PrestoServe I/O performance enhancement option
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## Step 3—Monitors

- Windows NT systems **require** a graphics monitor to run all functions.
- Graphics monitors other than those listed below can be used if compatible with SVGA graphics included with system.

**Note:** Higher resolution available with optional EISA or PCI graphics adapters (see Step 5).

SN-VRCX5-WA/W3/W4	15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.
VRTX7-WA/W3 VRT17-W4	17" (16.0" viewable image size) professional series auto-scanning color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 at 75 Hz, TCO 92, MPR-II, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120V power cord. -W3 = Northern Hemisphere without power cord. -W4 = Southern Hemisphere without power cord. Select country specific power cord for -W3 and -W4 variants.
VRCX1-WA/W3/W4	21" (19.7" viewable image size) auto-scanning color monitor, 0.28 Dot Pitch, VGA to 1600 x 1200 at 75 Hz NI, TCO 92, Energy Star, includes video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.

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## Step 4—Storage

### Configuration rules for Pedestal and Rackmount Storage

- Integral Fast Wide Single Ended (FWSE) SCSI-2 controller supports a maximum of seven wide devices.
    - Three 5.25 inch half-height removable media devices or One 5.25 inch half-height and one 5.25 full-height removable media devices.
    - Four internal hot-swappable SCSI SCA2 hard drives
- 

### Step 4a—Internal Storage

- Pedestal and Rackmount Packaged systems include:
  - One CD-ROM drive
  - One 2.1 GB SCSI SCA2 wide hard drive
  - 1.44 MB diskette drive in dedicated slot.

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**Step 4a—Internal Storage (continued)****Removable Media Devices**

<b>RRD46-AB</b>	600 MB 5.25 inch half-height 12X CD-ROM drive
<b>PBXTZ-AA</b>	2.0 GB 5.25 inch half-height SCSI QIC tape drive (TZK11)
<b>TLZ09-LK</b>	8.0 GB 5.25 inch x 1.6-inch SCSI 4 mm DAT drive
<b>TLZ9L-LG</b>	32/64 GB 5.25 inch full-height DAT loader

**System Hard Disk Drives**

Pedestal and Rackmount Packaged systems include one 2.1 GB SCSI SCA2 hard disk drive (RZ28M-SB)

<b>RZ26N-SB</b>	1.05 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI SCA2 hard disk drive
<b>RZ28M-SB</b>	2.1 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI SCA2 hard disk drive
<b>RZ1BB-SB</b>	2.1 GB UltraWide SCSI SCA2 7200 RPM 3.5 x 1" hard disk drive
<b>RZ1CB-SB</b>	4.3 GB UltraWide SCSI SCA2 7200 RPM 3.5 x 1" hard disk drive
<b>RZ1DB-SB</b>	9.0 GB UltraWide SCSI SCA2 7200 RPM 3.5 x 1.6" hard disk drive

**Internal SCSI Cable Kits**

<b>PB8HA-DA</b>	Includes 68-pin SCSI cable, connects 16-bit wide SCSI controller to internal storage assembly Example—connects KZPAC-xx PCI RAID controller to internal AlphaServer 800 storage assembly, maximum one per system.
<b>BC25V-1H</b>	Includes 68-pin SCSI cable, connects 16-bit wide SCSI Controller to bulkhead for external 16-bit wide SCSI expansion, maximum two per system

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**Step 4b—Storage Controllers**

- Maximum four PCI-based KZPAC-xx SCSI controllers supported per system.
- Maximum three EISA-based KZESC-xx SCSI controllers supported per system. Maximum number of EISA-based controllers of all types is limited by the total number of available EISA slots and available IRQs.
- Maximum combination number of KZESC-xx and KZPAC-xx SCSI controllers supported is four.
- KZPAC-xx StorageWorks RAID Array 230/Plus includes PCI backplane RAID controller and StorageWorks RAID Array 230/Plus Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX and Windows NT.
  - KZPAC-AA one-port controller installed in system requires a PB8HA-DA SCSI cable kit for connection to internal storage assembly.
  - KZPAC-CA three-port controller installed in system requires one PB8HA-DA SCSI cable kit for connection to internal storage assembly, or one BC25V-1H cable kit for connection to external expansion port bulkhead.
- KZESC-xx StorageWorks RAID Array 200 includes EISA backplane RAID controller and StorageWorks RAID Array 200 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX and Windows NT.
  - KZESC-AA/BA controllers support external disks only. Connection to the internal AlphaServer 800 Storage assembly is not supported.
  - KZESC-BA three-port controller installed in system requires two BC25V-1H cable kit for connection to external expansion port bulkhead.
- KZPSA-BB PCI-based one-port Fast Wide Differential SCSI controller supports externally connected wide devices in BA356/BA36R with DWZZB signal converter, or narrow disks in BA35R with DWZZA signal converter. Internal hard disk drives are not supported on FWD controller.
- SCSI cables are not included and must be ordered separately.
- External DSSI cables are not included and must be ordered separately.

**SCSI Controllers**

<b>KZPAA-AA</b>	PCI-based one-port high-performance Fast Narrow Single Ended (FNSE) SCSI-2 controller
<b>KZPSA-BB</b>	PCI-based one-port high-performance Fast Wide Differential (FWD) SCSI controller. Supports external disks only.
<b>BN21K-02</b>	Connects from KZPSA to DWZZA-VA in narrow StorageWorks enclosures and narrow StorageWorks Rackmount shelves, or DWZZB-VW in wide StorageWorks enclosures and wide StorageWorks Rackmount shelves.

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**Step 4b—Storage Controllers (continued)****SCSI Controllers**

<b>KZPDA-AA</b>	PCI-based one-port Fast Wide Single Ended (FWSE) SCSI controller
<b>BN21K-02</b>	Connects from KZPDA to wide StorageWorks enclosures and wide StorageWorks Rackmount shelves.
<b>KZPAC-AA*</b>	One-port PCI backplane RAID (FWSE) controller, UltraWide SCSI ready, with 4 MB EDRAM cache; includes StorageWorks RAID Array 230/Plus Subsystem family software and documentation kit. System requires PB8HA-DA SCSI cable kit for connection to internal Storage assembly.
<b>PB8HA-DA</b>	68-pin SCSI cable assembly for connection to internal storage assembly, maximum one per system
<b>BN31S-1E</b>	Connects from KZPAC-AA to wide StorageWorks enclosures and wide StorageWorks Rackmount shelves
<b>KZPAC-CA*</b>	Three-port PCI backplane RAID (FWSE) controller, UltraWide SCSI ready, with 4 MB of EDRAM cache ; includes StorageWorks RAID Array 230/Plus Subsystem family software and documentation kit. System requires PB8HA-DA SCSI cable kit for connection to internal Storage assembly.
<b>KZPAC-CB*</b>	Save as above with 8 MB of EDRAM cache
<b>PB8HA-DA</b>	68-pin SCSI cable assembly for connection to internal storage assembly, maximum one per system
<b>BC25V-1H</b>	SCSI cable assembly kit for connection to third port; uses one expansion bulkhead port, uses one PCI/ESIA bulkhead slot if three KZPAC-CA/CB are configured in system.
<b>BN31S-1E</b>	Connects from KZPAC-CA to wide StorageWorks enclosures and wide StorageWorks Rackmount shelves
<b>KZPSC-UB</b>	Battery backup for the KZPAC-xx.
<b>KZESC-AA*</b>	One-port EISA backplane RAID (FNSE) controller with 4 MB DRAM cache memory; includes StorageWorks RAID Array 200 Subsystem family software and documentation kit.
<b>BN21H-02</b>	Connects from KZPAA-AA to narrow StorageWorks enclosures and narrow StorageWorks Rackmount shelves
<b>BN21N-02</b>	Connects from KZESC-BA to wide StorageWorks enclosures and wide StorageWorks Rackmount shelves
<b>KZESC-BA*</b>	Three-port EISA backplane RAID (FNSE) controller with 4 MB DRAM cache memory ; includes StorageWorks RAID Array 200 Subsystem family software and documentation kit.
<b>CK-SWXCR-AA</b>	SCSI cable/bulkhead assembly kit for KZESC-BA, required for connecting second and third ports to bulkhead slot. Uses one PCI or EISA slot.
<b>BN21H-02</b>	Connects from KZESC-BA to narrow StorageWorks enclosures and wide StorageWorks Rackmount shelves
<b>BN21N-02</b>	Connects from KZESC-BA to wide StorageWorks enclosures and wide StorageWorks Rackmount shelves

\* See *Storage Devices* for additional information on StorageWorks RAID Array 2x0 Subsystems and external StorageWorks expansion

**DSSI Controllers**

<b>KFPSA-AA</b>	PCI-based single-DSSI controller (OpenVMS systems only). See Step 4f DSSI cables.
<b>KFESB-AA</b>	EISA-based single-DSSI controller (OpenVMS systems only). Uses one EISA slot if system is end node in OpenVMS cluster, or two slots if system is middle node in OpenVMS cluster. Maximum two (if end node in cluster) or maximum of one (if middle node in cluster). See Step 4d DSSI cables.

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**Step 4c—External Tape Expansion**

- External tape drives are also supported on optional PCI-based SCSI controllers.
  - KZPAA-AA—maximum bus length including cable and tape device cannot exceed 3.0 meters.
  - KZPSA-BB—maximum bus length including cable and tape device cannot exceed 25.0 meters.
- External tape drives are **not** supported on one-and three-port (KZESC-xx) Fast-SCSI-2 controllers.
- Each tabletop tape device **requires** high density 50-pin to low density 50-pin SCSI cable (BN23G-xx).

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**Step 4c—External Tape Expansion (continued)****External Tapes supported on Windows NT Servers**

TLZ09	4.0/8.0 GB 4 mm DAT tape drive
TLZ9L <sup>1,2</sup>	32/64 GB 4 mm DAT autoloader
TZK11-DA	2.0 GB 5.25-inch tabletop QIC tape drive
TZ875 <sup>2</sup>	100 GB, DLT tape autoloader
TZ877 <sup>2</sup>	140 GB, DLT tape autoloader
BN23G-0E	3 Foot Molded SCSI Cable, required for each tabletop tape device

**External Tapes supported on DIGITAL UNIX and OpenVMS servers**

TLZ09	4.0/8.0 GB 4 mm DAT tape drive
TLZ9L <sup>1,2</sup>	32/64 GB 4 mm DAT autoloader
TZK11-DA	2.0 GB 5.25-inch tabletop QIC tape drive
TKZ60-FA/HA	400 MB IBM 3480/3490 compatible tabletop tape drive
TKZ60-EA/GA	400 MB IBM 3480/3490 compatible tabletop tape drive
TKZ61-AA/AD	400 MB IBM compatible tape autoloader rackmountable
TKZ61-AC/AF	400 MB IBM compatible tape autoloader tabletop
TKZ62-AA/AD	2.4 GB IBM compatible tape autoloader rackmountable
TKZ62-AC/AF	2.4 GB IBM compatible tape autoloader tabletop
TSZ07-CA/FA	40/140 MB, reel/reel, tabletop tape drive
TSZ07-AA/DA	40/140 MB, reel/reel, tape drive rackmountable
TSZ07-BA/EA	40/140 MB, reel/reel, tape in a H9A10 cabinet
TZ877 <sup>2</sup>	140 GB, DLT tape autoloader
TZ88 <sup>2</sup>	20/40 GB, DLT tape drive
TZ887-NT	140/280 GB SCSI tape subsystem
TKZ9E-TA	2/5/7/10/14 GB 8 mm helical scan tape drive, tabletop
TKZ9E-VA	2/5/7/10/14 GB 8 mm helical scan tape drive in StorageWorks SBB carrier
BN23G-01	3 Foot Molded SCSI Cable, required for each tabletop tape device.

1 Includes four cartridge loader. Larger magazines are supported.

2 Base operating systems support sequential back-up mode only; additional software is required for random access backup. See *Storage Devices* for details.

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**Step 4d—DSSI Cables**

- KFESB-AA EISA-based DSSI controller cables:
  - KFESB to any external “Pin-Socket” DSSI connection (VAX 4000s, R400X) requires BC22Q-xx DSSI cable.
  - KFESB to any external “Micro-Ribbon” DSSI straight connection (all other DSSI systems and storage devices requiring straight connection) requires BC21Q-xx DSSI cable.
  - KFESB to any external “Micro-Ribbon” DSSI right-angle connection (all other DSSI systems and storage devices requiring right-angle connection) requires BC29S-xx DSSI cable.
- KFPSA PCI-based DSSI controller cables:
  - KFPSA to any external “Pin-Socket” DSSI connection requires BC22Q-xx
  - KFPSA to any external “Micro-Ribbon” DSSI straight connection (all other DSSI systems and storage devices requiring straight connection) requires BC21Q-xx
  - KFPSA to any external “Micro-Ribbon” DSSI right-angle connection (all other DSSI systems and storage devices requiring right-angle connection) requires BC29S-xx DSSI cable
  - Order BC29S-09 DSSI cable for HSD10 in BA36R-Ax shelves
  - Order BC29U-02 DSSI cable for HSD10 in adjacent BA36R-Ax shelves
  - Order BC29V-06 DSSI cable for HSD10 in non-adjacent BA36R-Ax shelves

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## Step 5—Graphics Adapters

**Note:** Select only if additional graphics card is required.

- All systems include onboard SVGA with 1 MB Video Ram.
- Maximum of one PB2GA-JD supported per system. Onboard SVGA must be disabled.
- Maximum four PBXGB-AA/CA supported on DIGITAL UNIX systems  
Maximum one PBXGB-AA/CA supported on OpenVMS and Windows NT. Onboard SVGA must be disabled.

<b>PB2GA-JD</b>	PCI-based 2-MB DRAM graphics adapter (DIGITAL UNIX, OpenVMS, Windows NT)
<b>PBXGB-AA</b>	PCI-based 8-plane 1280 x 1024 graphics adapter (DIGITAL UNIX, OpenVMS, Windows NT)
<b>PBXGB-CA</b>	PCI-based 24-plane 1280 x 1024 x 1024 graphics adapter (Digital UNIX, OpenVMS, Windows NT)

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## Step 6—Networks and Communications

- Packaged systems include PCI-based Fast 100 Ethernet (Twisted Pair) controller (DE500-AA), uses one PCI slot.
- Select networking cable for Ethernet controller
  - BN25G-03/04/07 for 10BaseT (twisted pair)
- Maximum number of **each** EISA-based network controllers supported per system:
  - Three DE425-AA, Three DW300-AA, Three DNSES

<b>DE500-AA</b>	PCI-based Fast Ethernet network interface card
<b>DE450-CA</b>	PCI-based DIGITAL Etherworks 32-bit network interface card (twisted pair, Thick wire, ThinWire)
<b>DEFPA-AB</b>	PCI-based DEC FDDI controller, Single Attachment; maximum four, OpenVMS, Windows NT, DIGITAL UNIX
<b>DEFPA-DB</b>	PCI-based DEC FDDI controller, Dual Attachment, maximum four, OpenVMS, Windows NT, DIGITAL UNIX
<b>DEFPA-UB</b>	PCI-based DEC FDDI (UTP) controller; maximum four, OpenVMS, Windows NT, DIGITAL UNIX
<b>DGLPB-AB</b>	PCI-based ATMworks 350 adapter, DIGITAL UNIX only
<b>PBXDP-AA</b>	PCI-based, 2-port, synchronous communications controller, maximum four, OpenVMS, Windows NT
<b>PBXDP-AB</b>	PCI-based, 4-port, synchronous communications controller, maximum four, OpenVMS, Windows NT
<b>PBXDP-AC</b>	PCI-based, 8-port, synchronous communications controller, maximum four, OpenVMS, Windows NT
<b>PBXNP-AA</b>	PCI-based Token-Ring, DIGITAL UNIX, OpenVMS
<b>PBXDA-AA</b>	PCI-based Async MUX Adapter, 4 lines, DIGITAL UNIX, Windows NT
<b>PBXDA-AB</b>	PCI-based Async MUX Adapter, 8 lines, DIGITAL UNIX, Windows NT
<b>DE425-AA</b>	EISA-based Ethernet, OpenVMS and DIGITAL UNIX only
<b>DW300-AA</b>	EISA-based Token-Ring adapter includes NetWare V2.15 driver, LAN Manager Driver, and documentation (Not supported by DECnet/OSI for OpenVMS)
<b>DNSES-AA</b>	EISA-based synchronous communications controller; DIGITAL UNIX, OpenVMS
<b>CXI01-AA</b>	ISA Async MUX Adapter, 16 lines—expandable to 64 lines; DIGITAL UNIX, Windows NT
<b>CXI01-AD</b>	ISA Async MUX Adapter, 16 lines—expandable to 224 lines; DIGITAL UNIX, Windows NT
<b>CXI01-AB</b>	Asynchronous 16 Port XEM expansion for CXI01-AA/AD
<b>CXI01-AC</b>	Asynchronous MUX cable converter (RJ45-DB25)
<b>CXI01-AE</b>	Asynchronous 16 Port EPC expansion for CXI01-AD, Maximum supported is four
<b>CXI01-AF</b>	Asynchronous MUX adapter (RJ45-MJ11), 8 pack
<b>DIIAA-AA</b>	ISA-based ISDN terminal adapter (U.S.), maximum one, Windows NT
<b>DIIAA-AB</b>	ISA-based ISDN terminal adapter (non-U.S.), maximum one, Windows NT

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## Step 6—Networks and Communications (*continued*)

### Video and Sound Options

AV301-AA	PCI-based, Full Video Supreme, maximum one, DIGITAL UNIX, OpenVMS
AV301-AN	PCI-based, Full Video Supreme, maximum one, Windows NT
AV321-AA	PCI-based, Full Video Supreme JPEG, maximum one, DIGITAL UNIX, OpenVMS, Windows NT
AVA01-AA	ISA-based, Sound Card, head phones and microphone, maximum one, DIGITAL UNIX, OpenVMS, Windows NT

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## Step 7—Software

- North American variants of Windows NT Packaged systems include Windows NT license, media (CD-ROM) kits (see Step 1). **Note:** Selection of language specific Windows NT media kit is **mandatory** for non North American variants.

### Windows NT Server plus 10-client access license, media (CD-ROM) kits

QB-23CAA-SB	Windows NT Server license, media kit North American English
QB-23C8A-SB	Windows NT Server license, media kit International English
QB-23CPA-SB	Windows NT Server license, media kit French
QB-23CGA-SB	Windows NT Server license, media kit German
QB-23CSA-SB	Windows NT Server license, media kit Spanish
QB-23CUA-SB	Windows NT Server license, media kit Italian
QB-23CJA-SB	Windows NT Server license, media kit Japanese
QB-23CTA-SB	Windows NT Server license, media kit Hebrew
QB-23CMA-SB	Windows NT Server license, media kit Swedish
QB-23CQA-SB	Windows NT Server license, media kit Arabic
QB-23C5A-SB	Windows NT Server license, media kit Thai
QB-23CHA-SB	Windows NT Server license, media kit Dutch
QB-23CVA-SB	Windows NT Server license, media kit Brazilian/Portuguese
QB-23C4A-SB	Windows NT Server license, media kit Korean
QB-23C3A-SB	Windows NT Server license, media kit Taiwanese
QB-23C2A-SB	Windows NT Server license, media kit PRC Chinese

### Windows NT Server Optional software and documentation

QB-53V9A-SA	Windows NT Server Cluster Kit
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## DIGITAL UNIX

### Software Processor Code = E

- DIGITAL UNIX Packaged systems **include** Traditional Unlimited User license.
- DIGITAL UNIX Packaged systems require operating system media and documentation for first system on site.

### DIGITAL UNIX Media and Documentation—required for first system on site

QA-MT4AA-H8	DIGITAL UNIX media and on-line documentation on CD-ROM
QA-MT4AA-GZ	DIGITAL UNIX full hardcopy documentation

### DIGITAL UNIX Layered Products CD-ROM

QA-054AA-H8	Layered products media and documentation for DIGITAL UNIX on CD-ROM
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### DIGITAL UNIX ASE

QL-05SAE-AA	DIGITAL UNIX Cluster license
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## Step 7—Software

### DECnet for DIGITAL UNIX

QL-MTJAE-AA	DECnet/OSI end-system license for DIGITAL UNIX
QL-MTKAE-AA	DECnet/OSI extended function license for DIGITAL UNIX

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### OpenVMS

#### Software Processor Code = E

OpenVMS Concurrent Use Licenses are **not** specific to a single system and can be moved between systems at user discretion. OpenVMS Concurrent Use Licenses can also be shared in a mixed OpenVMS VAX and OpenVMS Alpha Cluster.

#### OpenVMS Concurrent Use Licenses

QL-MT3AA-3B	OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C	OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D	OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E	OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F	OpenVMS Concurrent Use 16-user license
QL-MT3AA-3G	OpenVMS Concurrent Use 32-user license
QL-MT3AA-3H	OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J	OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K	OpenVMS Concurrent Use 256-user license
QL-MT2AE-AA	OpenVMS Traditional unlimited user license

#### OpenVMS Media and Documentation - required for first system on site

QA-MT1AA-H8	OpenVMS media and on-line documentation CD-ROM
QA-001AA-GZ	OpenVMS hardcopy documentation

#### OpenVMS Layered Products CD-ROM

QA-03XAA-H8*	Layered products media and documentation for OpenVMS on CD-ROM
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\* Includes DIGITAL Enterprise Integration Server for OpenVMS media and documentation

#### DIGITAL Enterprise Integration Package

QA-5LVAA-H8	DIGITAL Enterprise Integration Server for OpenVMS media and documentation
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#### DECnet for OpenVMS

QL-MTGAE-AA	DECnet extended function license for OpenVMS
QL-MTHAE-AA	DECnet end-system to extended function upgrade license for OpenVMS

#### DSSI Information

EK-410AB-MG	DSSI VMScluster Installation Guide
EK-D4AXP-TS	DSSI VMScluster Troubleshooting Guide

## Step 8—Power Cords, Keyboards, and Miscellaneous

### Pedestal and Monitor Power Cords

- North American variants include BN27Y-1J 120 V (North American, Japan) power cord. If another power cord is selected, both power cords ship with system.
- For non-North American system variants, selection of a power cord is mandatory.

BN27Y-1J	North American, Japan, 120 V, 75-inches long
BN19H-2E	Australia, New Zealand, 2.5 meters long
BN19C-2E	Central Europe, 2.5 meters long
BN19A-2E	UK, Ireland, 2.5 meters long
BN19E-2E	Switzerland, 2.5 meters long
BN19K-2E	Denmark, 2.5 meters long
BN19M-2E	Italy, 2.5 meters long
BN19S-2E	Egypt, India, South Africa, 2.5 meters long
BN18L-2E	Israel, 2.5 meters long

### Rackmount Power Cords

- North American variants include BN20Z-4E 120 V (North American, Japan) power cord. If another power cord is selected, both power cords ship with system.
- For non-North American system variants, selection of a power cord is mandatory.

**Note:** AlphaServer 800 Pedestal system power cords are less than 15-feet long and are **not** supported in cabinet enclosures.

BN20Q-4E	15-feet 240 V, North American, 50Hz power cord connects system to power distribution unit located inside cabinet
BN20Z-4E	15-feet 120 V, 60Hz power cord connects system to power distribution unit located inside cabinet

### Keyboards

- Some variants include a keyboard (see Step 1). For these variants, if an additional keyboard is ordered, both keyboards ship with system.

104/105 key PC style keyboard		Language	108 key VT style keyboard	
Windows NT	DIGITAL UNIX		OpenVMS	DIGITAL UNIX
LK97w-A2	LK97w-A2	U.S./English	LK46w-A2	LK46w-A2
LK97w-AB	LK97w-AB	Belgian	LK46w-AB	LK46w-AB
LK97w-AC	LK97w-AC	Canadian/French	LK46w-AC	LK46w-AC
LK97w-AD	LK97w-AD	Danish	LK46w-AD	LK46w-AD
LK97w-AE	LK97w-AE	United Kingdom	LK46w-A2	LK46w-A2
LK97w-AF	LK97w-AF	Finnish	LK46w-AF	LK46w-AF
LK97w-AG	LK97w-AG	German	LK46w-AG	LK46w-AG
LK97w-AH	LK97w-AH	Dutch	LK46w-AH	LK46w-AH
LK97w-AI	LK97w-AI	Italian	LK46w-AI	LK46w-AI
LK97w-AJ	LK97w-AJ	Japan		
		Swiss/French	LK46w-AK	LK46w-AK
		Swiss/German	LK46w-AL	LK46w-AL
LK97w-AK	LK97w-AK	Swiss/Generic		
LK97w-AF	LK97w-AF	Swedish	LK46w-AM	LK46w-AM
LK97w-AN	LK97w-AN	Norwegian	LK46w-AN	LK46w-AN
LK97w-AP	LK97w-AP	French	LK46w-AP	LK46w-AP
		Canadian/English		LK46w-AQ
LK97w-AR	LK97w-AR	Lat. America		

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**Step 8—Power Cords, Keyboards, and Miscellaneous (continued)**
**Keyboards**

104/105 key PC style keyboard		Language	108 key VT style keyboard	
Windows NT	DIGITAL UNIX		OpenVMS	DIGITAL UNIX
LK97w-AS	LK97w-AS	Spanish	LK46w-AS	LK46w-AS
LK97w-AV	LK97w-AV	Portuguese	LK46w-AV	LK46w-AV
LK97w-BH	LK97w-BH	Greek	LK46w-BH	LK46w-BH
LK97w-AT	LK97w-AT	Hebrew	LK46w-AT	LK46w-AT
LK97w-BI	LK97w-BI	Taiwanese		
LK97w-BP	LK97w-BP	Polish	LK46w-BP	LK46w-BP
LK97w-BQ	LK97w-BQ	Hungarian	LK46w-BQ	LK46w-BQ
LK97w-CZ	LK97w-CZ	Slovak	LK46w-CZ	LK46w-CZ
LK97w-BY	LK97w-BY	Serbian		
LK97w-CB	LK97w-CB	Thai		
LK97w-CQ	LK97w-CQ	Icelandic		
LK97w-BV	LK97w-BV	Czech	LK46w-BV	LK46w-BV
LK97w-BR	LK97w-BR	Arabic		
LK97w-BU	LK97w-BU	Turkish Q		
LK97w-BW	LK97w-BW	Turkish F	LK46w-BW	LK46w-BW
LK97w-BT	LK97w-BT	Cyrillic		

**Air Filter Option**

**PB8HA-CA** Pedestal Air filter, placed in front of fixed storage disk area.

**Pedestal to Rackmount Conversion kit**

**PB8HA-BA** AlphaServer 800 Pedestal to Rackmount conversion kit. Includes bezel, slide rails and mounting hardware necessary for mounting system in any cabinet equipped with industry-standard RETMA or METRIC rails. Rackmount power cords must be ordered separately.

**Mouse and Extension Cable Kit**

**PBXWS-WA** 3-button mouse (included with all systems, order as spare or replacement)

**2T-450KM-AA** Extension cable kit for VGA, PC style keyboard, and mouse, for use with Rackmount systems.

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**Step 9—Cabinet Enclosure**

Select cabinet enclosure for Packaged AlphaServer 800 Rackmount systems, if required.

**Note:** For integration of an AlphaServer 800 Rackmount system into a DIGITAL Cabinet, call Computer Special Systems (CSS) 1-800-DIGITAL.

The color of cabinets listed is Digital 277 Blue-Gray.

- H9A10 19-inch EIA Cabinet Enclosure Dimensions
  - Outside: 66.9-inches high, 23.62-inches wide, 33.8-inches deep
  - Internal usable rackmountable space: 56-inches high, 19-inches wide, 30.8-inches deep
  - An H9A10 cabinet with two H7600 power controllers can support a maximum of six AlphaServer 800 Rackmount systems.
- H9A15 19-inch EIA cabinet Enclosure Dimensions
  - Outside: 78.7-inches high, 23.62-inches wide, 33.4-inches deep
  - Internal usable rackmountable space: 68.25-inches high, 19-inches wide, 29.8-inches deep
  - An H9A15 cabinet with two H7600 power controllers can supported a maximum of six AlphaServer 800 Rackmount systems.

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## Step 9—Cabinet Enclosure (*continued*)

- H9A11 19-inch EIA Cabinet Enclosure Dimensions
  - Outside: 43.3-inches high, 33.8-inches wide, 30.8-inches deep
  - Internal usable rackmountable space: 35-inches high, 19-inches wide, 30.8 inches
  - An H9A11 cabinet with one H7600 power controller can support a maximum of three AlphaServer 800 Rackmount systems.
- Cabinet Power Plugs
  - 120v Cabinets have one or two L5-30P plugs
  - 240v Cabinets have one or two IEC pin and sleeve 316 P6 plugs

<b>H9A10-RL</b>	120V EIA Cabinet assembly, with two power controller, rear swing door
<b>H9A10-RT</b>	240V EIA Cabinet assembly, with two power controller, rear swing door
<b>H9A10-EJ</b>	120V EIA Cabinet assembly, with two power controller, front and rear swing door
<b>H9A10-EK</b>	240V EIA Cabinet assembly, with two power controller, front and rear swing door
<b>H9A15-RA</b>	120V EIA Cabinet assembly, with two power controllers, rear swing door
<b>H9A15-RG</b>	240V EIA Cabinet assembly, with two power controllers, rear swing door
<b>H9A15-RE</b>	EIA Cabinet assembly, no power, rear swing door
<b>H9A11-RA</b>	120V EIA Cabinet assembly, with one power controller, lift-off rear door
<b>H9A11-RG</b>	240V EIA Cabinet assembly, with one power controller, lift-off rear door

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## Step 10—Hardware and Software Supplemental Support Services

### Hardware—Americas and Asia Pacific only

- Systems include three-year hardware warranty, on-site with 5 x 9, 24-hour response time.
- Select optional Hardware Supplemental Support Services if required.
- Select optional Hardware Installation.

<b>FM-MK4HR-36</b>	5 x 9, 4-hour response time
<b>FM-MK512-36</b>	5 x 12, 4-hour response time
<b>FM-MK616-36</b>	6 x 16, 4-hour response time
<b>FM-MK724-36</b>	7 x 24, 4-hour response time
<b>FM-MKXHW-60</b>	Years 1-5, next day, Onsite
<b>FM-MK4HR-60</b>	Years 1-5, 5x9, 4-hour response time
<b>FM-MK512-60</b>	Years 1-5, 5x12, 4-hour response time
<b>FM-MK616-60</b>	Years 1-5, 6x16, 4-hour response time
<b>FM-MK724-60</b>	Years 1-5, 7x24, 4-hour response time
<b>FM-24INT-IN</b>	Hardware Installation

### Software—Americas and Asia Pacific only

- DIGITAL UNIX and OpenVMS systems include 90-day Conformance to SPD and Telephone Advisory Support. Select optional Software Supplemental Support Services, if required.
- Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of 90 days.
- Software service upgrades for Windows NT include advisory and remedial software support for the time period indicated.

<b>FM-WNT03-12</b>	12-month Software Supplemental Support for <b>Windows NT</b> AlphaServer 800 systems
<b>FM-WNT03-36</b>	36-month Software Supplemental Support for <b>Windows NT</b> AlphaServer 800 systems
<b>FM-WNT03-60</b>	60-month Software Supplemental Support for <b>Windows NT</b> AlphaServer 800 systems

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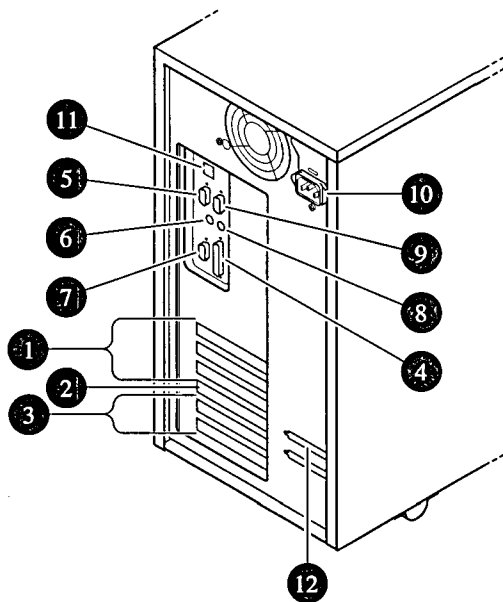
**Step 10—Hardware and Software Supplemental Support Services (*continued*)**
**Software—Americas and Asia Pacific only**

<b>FM-80BUS-12</b>	12-month Full Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 800 systems
<b>FM-80BUS-36</b>	36-month Full Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 800 systems
<b>FM-80BUS-60</b>	60-month Full Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 800 systems
<b>FM-80BUN-12</b>	12-month Node Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 800 systems
<b>FM-80BUN-36</b>	36-month Node Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 800 systems
<b>FM-80BUN-60</b>	60-month Node Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 800 systems
<b>FM-80BVS-12</b>	12-month Software Supplemental Support for <b>OpenVMS</b> AlphaServer 800 systems
<b>FM-80BVS-36</b>	36-month Software Supplemental Support for <b>OpenVMS</b> AlphaServer 800 systems
<b>FM-80BVS-60</b>	60-month Software Supplemental Support for <b>OpenVMS</b> AlphaServer 800 systems
<b>FM-80BVN-12</b>	12-month Node Software Supplemental Support for <b>OpenVMS</b> AlphaServer 800 systems
<b>FM-80BVN-36</b>	36-month Node Software Supplemental Support for <b>OpenVMS</b> AlphaServer 800 systems
<b>FM-80BVN-60</b>	60-month Node Software Supplemental Support for <b>OpenVMS</b> AlphaServer 800 systems

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**Step 10a—Hardware and Software Supplemental Support Services (Europe only)**

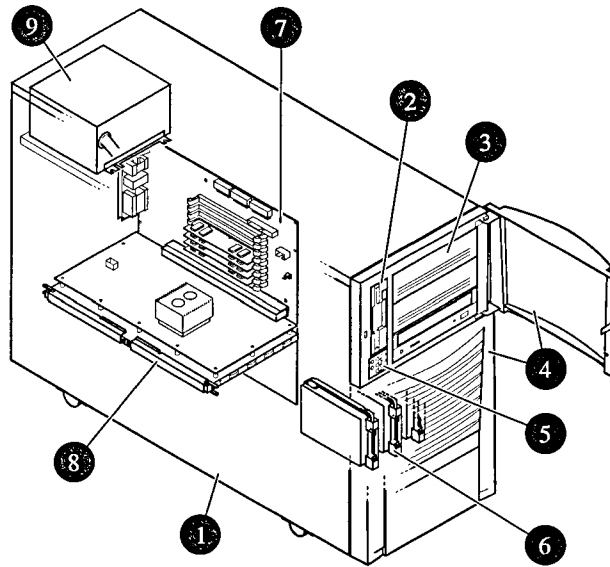
Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

**AlphaServer 800 System Diagram**

1. Three 32-bit PCI slots
2. One 64-bit PCI/EISA slot
3. Two EISA slots
4. Parallel port
5. Serial port
6. Mouse port

7. VGA port
8. Keyboard port
9. Remote console modem port
10. Power inlet
11. Serial port/terminal port (MMJ with data leads only)
12. SCSI breakouts

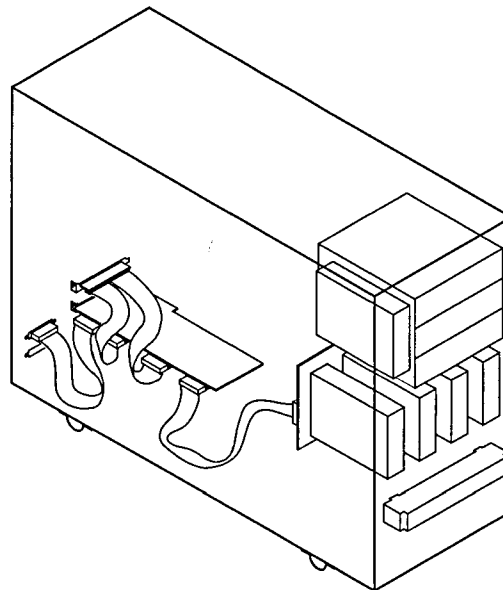
AlphaServer 800 System Diagram



- 1. Removable side cover of system enclosure
- 2. Floppy diskette drive
- 3. Removable media drives
- 4. Lower and upper doors
- 5. Control panel

- 6. Hard disk drives
- 7. System board
- 8. CPU daughter card
- 9. Power supply

**Example: AlphaServer 800 with KZPAC 3 port SCSI Controller using SCSI breakout for third port connection**



## AlphaServer 800 Pedestal System Specifications

<b>Shipping Dimension</b>		
Height	47 cm (18.5 in.)	
Width	60 cm (23.6 in.)	
Depth	77.5 cm (30.5 in.)	
Weight	33 kg (73 LB) typical 37 kg (82 LB) maximum	
<b>Installed Dimensions</b>		
Height	45 cm (17.1 in.)	
Width	22.6 cm (8.9 in.)	
Depth	65.8 cm (25.9 in.)	
Weight	24.5 kg (54 LB) typical 28 kg (62 LB) maximum	
<b>Clearances</b>	<b>Operating</b>	<b>Service</b>
Front	75 cm (29.5 in.)	75 cm (29.5 in.)
Rear	15 cm (5.9 in.)	75 cm (29.5 in.)
Left side	None	75 cm (29.5 in.)
Right side	None	5 cm (2 in.)
<b>Environmental</b>		
Temperature	Operating*	10–40° C (50–104° F)
	Nonoperating	Not tested
	Storage (60 days)	-40–66° C (-40–151° F)
	Rate of change	11° C/hr (20° F/hr)
Relative humidity	Operating	20–80%
	Nonoperating	20–80%
	Storage (60 days)	10–95%
	Rate of change	20%/hr
Maximum wet bulb temperature	Operating	28° C (82° F)
	Storage (60 days)	46° C (115° F)
Minimum dew point temperature	Operating	2° C (36° F)
	Storage (60 days)	Not tested
Maximum heat dissipation	380 Watt 1297 Btu/hr	
Air flow and quality	Intake location	Front
	Exhaust location	Rear
	Particle size	N/A
	Concentration	N/A
Altitude	Operating <sup>†</sup>	3097 m (10,000 ft)
	Nonoperating	12190 m (40,000 ft)
Mechanical shock	Operating	7.5 G 10 ms
	Nonoperating	20 G peak 30 ms
Vibration	Operating	10-500 Hz .1 G peak
Acoustics	Operating	LNPEc (BELs) 6.0 MAX per ISO 7779
<b>Electrical—Power Supplies are universal 120/240 Vac</b>		
Nominal ac voltage	100-120 Vac	220-240 Vac
Operating Voltage range	90-128 Vac	180-256 Vac
Power source phase	Single	Single
Nominal frequency	60 Hz	50 Hz
Frequency range	59-61 Hz	49-52 Hz
RMS current at nominal voltage (steady state)		
Maximum Power Consumption (Watts)	7.0 Amps 380 Watts	3.0 Amps
Power cord	Type	IEC 320 C13
	Length	190 cm (75 in.)
	U.S. plug	NEMA 5-15

\* Maximum operating temperature at Sea Level. Reduce by 1 C (1.8 F) for each 600 m (2000 ft) above Sea Level.

† Higher altitudes are possible if maximum operating temperature is reduced (see Temperature, above); other restrictions may apply, such as maximum permissible altitude for hard drives.

## AlphaServer 800 Pedestal and Rackmount

### AlphaServer 800 Pedestal System Specifications *(continued)*

<b>Regulatory</b>	
Agency approvals	UL Listed to UL1950 (3 <sup>rd</sup> edition) CSA Certified to CAN/CSA-C22.2 No. 950-M95 TUV EN 60950 GS marked CB Certification pending FCC (Class B) Part 15, Subpart B (CFR 54,1995) EMC Directive 89/336/EEC EN 55022:1994 Class B EN 50082-1 1992 Light Industrial CE Class B VCCI Class II ITE AS/NZS 3548:1992 (Class B)
Reviewed to	AS 3260:1993 Australian/New Zealand Standard EN 60 950: 1995 European Norm IEC 950

### AlphaServer 800 Rackmount System Specifications

<b>Shipping Dimension</b>	
Same as Pedestal	
<b>Installed Dimensions</b>	
Height	22 cm (8.6 in.) fits 8.75 in. [5U] standard EIA 310D
Width	standard EIA 310D (RETMA)
Depth	63.8 cm (25.1 in.)
Weight	24.5 kg (54 LB) typical 28 kg (62LB) maximum
<b>Clearances</b>	<b>Service</b>
Front	See requirements of specific cabinet
Rear	Slides forward 68.6 cm (27 in.)
Sides	then accessible from the top
<b>Environmental</b>	
Temperature	
Operating	10–35° C (50–95° F)
Nonoperating	Not tested
Storage (60 days)	-40–66° C (-40–151° F) 11 c/hr (20 F/HR)
Relative humidity	
Operating	20–80%
Nonoperating	20–80%
Storage (60 days)	10–95%
Rate of change	20%/hr
Air flow and quality	
Intake location	Front
Exhaust location	Rear
<b>Electrical—Power Supplies are universal 120/240 Vac</b>	
Same as Pedestal	
<b>Regulatory</b>	
Same as Pedestal	

## Uninterruptible Power Supplies

### Prestige 1250EXT

UPS offerings include EIA232 port for local or network monitoring and plug-in battery extension provisions to increase run time up to two hours. For complete protection, UPS products should be used with data line surge protectors and UPS monitoring software.

### Solutions for Pedestal Systems

4N-AEABF-AA	Prestige 1250EXT, 1250 VA/900W, 1 phase, 50/60 Hz, 120V 6-foot cord with 5-15P plug, (4) 5-15R receptacle, 9 minutes battery at full UPS load.
4N-AEABF-BF	Prestige 1250EXT, 1250 VA/900W, 1 phase, 50/60 Hz, 200-240V in/out selectable. Uses system power cord for detachable IEC320 input connection at UPS. Includes (3) IEC320 10A output receptacles, (2) output jumpers with IEC320 connectors to system.
4N-AEABF-BB	Extension pack for 120V 60 Hz models, up to four packs at 30 minutes per pack supported
4N-AEABF-BD	Extension pack for 240V 50 Hz models, up to four packs at 30 minutes per pack supported
4N-AEAE0-PA	Hot-swap Power-Pass Module for 60 Hz UPS with (7) 5-15R Surge Protected outlets.
4N-AEAE0-PB	Hot-swap Power-Pass Module for 50 Hz UPS with (6) IEC320, 10A surge protected outlets.
4N-AEWAR-G1	Prestige 5 year on-site exchange warranty upgrade (U.S. only).

### Rackmount UPS

UPS Model	Application	Type	Receptacle module
4N-AEAAH-FA 60Hz	Rackmount UPS, supports up to 5 systems	3kVA Custom RM <sup>1</sup>	Included <sup>2</sup>
4N-AEAAH-FB 50Hz	Rackmount UPS, supports up to 5 systems	3kVA Custom RM <sup>1</sup>	Included
4N-AEAAJ-CL <sup>3</sup> 60Hz	Out of Cabinet UPS	6kVA Prestige <sup>4</sup>	Included
4N-AEAAJ-CU 50Hz	Out of Cabinet UPS	6kVA Prestige <sup>4</sup>	Hardwired

1. Factory installation must be specified at time of order. Up to two UPS systems, one UPS for up to 5 fully configured systems. Recommended UPS distribution option combines multiple UPS input plugs into a single L6-30P plug-in connection to simplify future UPS add-on. Order 4NAEAAH-FF 60 Hz; 4N-AEAAH-FG 50 Hz).
2. Includes six IEC receptacle strips for connection to IEC plugs in cabinet.
3. 208-120/208V shown; order 4N-AEAAJ-CT for 240-120/240V models
4. Optional mobile stacker with seismic mounting provision for 6kVA Prestige (4N-AEACH-HD)

4N-AEAAJ-CL	Prestige 6 kVA (4 kW), single phase, 60Hz, 208-120/208V, 6 ft. cord with L6-30P and (2) L6-30R, (8) 5-15R receptacle. Modular hot-swap design with 7 minute battery at full UPS load, extendible plug and play batteries and receptacle provisions. Substitute -CT for 240V 240/120V operation.
4N-AEAAJ-CU	Prestige 6 kVA (4 kW) 50Hz package, single phase, 50Hz, 200-240V in/out selectable, hardwired input/output.
4N-AEWAR-G3/G4	Prestige 5 year on-site exchange warranty upgrade for 4N-AEAAH-CM/CT. G4 provides on-site remedial and start-up service.

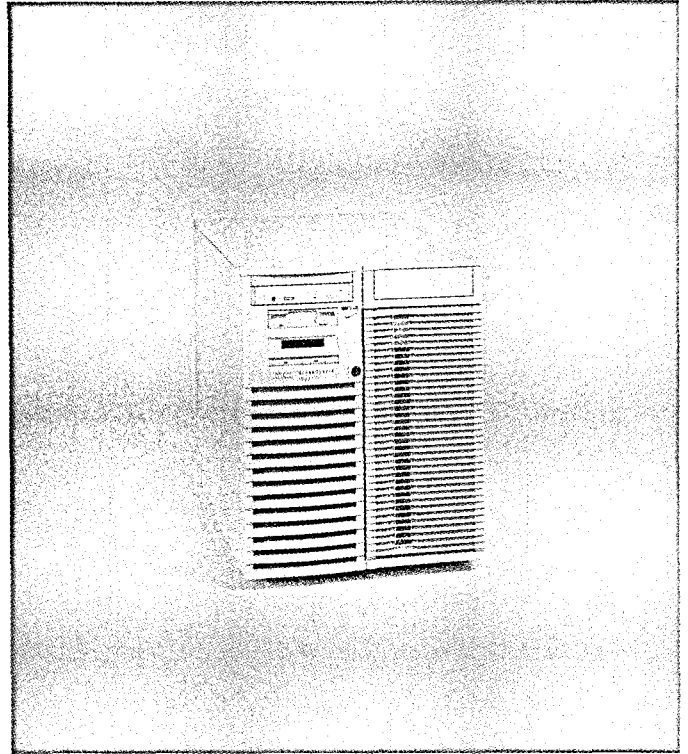
UPS Monitoring and Unattended Shutdown Software (for above UPS systems only) is included in ServerWorks Manager Kits shipping with all Alphaservers. Order Cable Kit separately.

4N-ONLIN-NT	Cable Kit for Windows NT and DIGITAL UNIX
4N-ONLIS-FE	Cable Kit for OpenVMS

Network Management or multi system shutdown (via SNMP or ServerWORKS Manager) for DIGITAL UNIX and OpenVMS requires Network Adapter option.

60 Hz Applications	50 Hz Application	Network Adapter Option
4N-AEAE0-DB/DD	4N-AEAE0-DB/DD	Prestige 3 kVA RM, DB=Twisted pair; DD=ThinWire
4N-AEAE0-DA/DC	4N-AEAE0-DB/DD	Prestige 6 kVA and PUPS Plus UPS, DA/DB=Twisted pair; DC=ThinWire

Note: Multiple system shutdown via OpenVMS requires multi-port hardware option (RN-JMIU4-AB). Ports can be daisy chained in increments of four.



## AlphaServer 1000 Pedestal—Rackmount—Cabinet

### Product Description

The AlphaServer 1000 5/300 system is a 300 MHz Alpha microprocessor server with 2 MB ECC cache. A choice of three operating systems are available: DIGITAL UNIX, OpenVMS, and Microsoft Windows NT Server. Integrated on system motherboard are SVGA controller, diskette controller, two serial ports, one parallel port, and keyboard and mouse controller.

Advanced server management features are provided with all AlphaServer 1000 shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

**AlphaServer 1000 5/300 Pedestal System** offers up to 10 internal storage devices including a floppy diskette drive, a CD-ROM drive and provision for an additional removable media device. Pedestal systems support up to 1 GB of memory and over 30 GB of internal storage with seven 4.3 GB narrow StorageWorks disk drives. The AlphaServer 1000 pedestal enclosure offers high-reliability features such as fully redundant power supplies, internal RAID, hot swap disk, dual Fast Narrow/Wide SCSI backplane, and ECC memory.

**AlphaServer 1000 5/300 Rackmount and Cabinet Systems** offer up to six internal storage devices including a floppy diskette drive, a CD-ROM drive and provision for an additional removable media device. Rackmount systems support up to 1 GB of memory and over 12.9 GB of internal storage with three 4.3 GB narrow disk drives.

**Product Descriptions (continued)**

Rackmount systems support additional storage through four SCSI knockouts located on rear panel of system for connecting StorageWorks shelves. Rackmount and Cabinet systems do not offer redundant power supplies or hot swap internal disk support, hot swap disk are supported in rackmount StorageWorks shelves.

## Step 1—AlphaServer 1000 Pedestal Systems

- Windows NT systems include Windows NT Server plus 5-client access license, media (CD-ROM) kit North American English.
- DIGITAL UNIX and OpenVMS Packaged systems and Base systems ordered with a minimum of a 1.05 GB disk, include factory installed software.
- Uninterruptable Power Supplies are available; see UPS Information following System Specifications.
- Options ordered that are factory installable, will be factory installed unless specified as **spares**.

**Pedestal Systems include**

- Alpha microprocessor 21164 300-MHz CPU with 2 MB ECC onboard cache
- Pedestal enclosure which includes:
  - 10 expansion slots: Seven EISA slots, two PCI slots and one PCI/EISA combination slot
  - Integrated Fast Narrow SCSI-2 controller with DMA and external SCSI-2 connector
  - Integrated SVGA graphics controller
  - 20 SIMM memory slots support 4 memory options
  - 10 storage slots:
    - One diskette drive slot
    - One CD-ROM drive slot
    - One additional removable media slot
    - Seven StorageWorks hard drive slots
  - 450-Watt self-sensing, self-switching (120/240V, 60/50Hz) power supply
  - Two serial ports, support full duplex asynchronous modem control
  - One bi-directional enhanced parallel port
  - PS/2 style keyboard port and mouse port
- 1.44 MB diskette drive (RX23L) in dedicated slot
- 3-button mouse
- North American variants include 120V power cord (North America, Japan). Mandatory selection of country-specific power cord for all non-North American variants, see Step 10.
- English language documentation. Certain language selections are available
- EISA Configuration Utility (ECU)
- Integrated Server Management
- Hardware Warranty
- Three-year on-site\*
- Software Warranty: 90-day SPD conformance with advisory telephone support\*
- Windows NT Server plus 5-client access license, media (CD-ROM) kit, **or**
- DIGITAL UNIX 2-user base license, Internet AlphaServer System Software Kit, DIGITAL NAS Base Server 200 license and **or**
- OpenVMS base license with System Manager license and DIGITAL NAS 200 license

\* Service upgrades are available; see Step 12, Hardware and Software Supplemental Services.

**Pedestal Packaged Systems include**

- PCI-based Ethernet—uses one PCI slot.
- 600 MB CD-ROM—uses one removable media slot.
- One hard drive, see below
- One memory option, see below
- North American variants include a 101-key, PC style North American English keyboard. Select country-specific keyboard for non-North American variants, see Step 10.

**5/300 Pedestal Packaged Systems**

Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Hard Drive	Monitor
PB75B-AA	Windows NT	Included*	120 V	Included	64 MB	2.1 GB	Required
PB75B-AB	Windows NT	Mandatory	Mandatory	Required	64 MB	2.1 GB	Required
PB75B-FA	DIGITAL UNIX	FIS	Included	Included	64 MB	2.1 GB	Recommended
PB75B-FB	DIGITAL UNIX	FIS	Mandatory	Recommended	64 MB	2.1 GB	Recommended
PB75B-MA	OpenVMS	FIS	Included	Included	64 MB	2.1 GB	Recommended
PB75B-MB	OpenVMS	FIS	Mandatory	Recommended	64 MB	2.1 GB	Recommended

\* Windows NT Server license, media (CD-ROM) kit North American English.

KEY: Mandatory items **must** be on purchase order at initial order acceptance  
 Required items are essential for full system operation.  
 Recommended items enhance system functionality  
 FIS = Factory Installed Software

## Step 1—AlphaServer 1000 Pedestal Systems (*continued*)

### Pedestal Base systems

#### 5/300 Pedestal Base systems

Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Hard Drive	CD-ROM	Monitor
PB75C-AA	Windows NT	Included <sup>1</sup>	120 V	Included <sup>2</sup>	Required	Required	Required	Required
PB75C-AB	Windows NT	Mandatory	Mandatory	Required	Required	Required	Required	Required
PB75C-FA	DIGITAL UNIX	FIS <sup>3</sup>	120 V	Included	Required	Required	Recommended	Recommended
PB75C-FB	DIGITAL UNIX	FIS <sup>3</sup>	Mandatory	Recommended	Required	Required	Recommended	Recommended
PB75C-MA	OpenVMS	FIS <sup>3</sup>	120 V	Included	Required	Required	Recommended	Recommended
PB75C-MB	OpenVMS	FIS <sup>3</sup>	Mandatory	Recommended	Required	Required	Recommended	Recommended

1. Windows NT Server license, media (CD-ROM) kit North American English.

2. 101-key, PC style, North American English, keyboard.

3. DIGITAL UNIX and OpenVMS Base systems ordered with a minimum of a 1.05 GB disk, include factory installed software (FIS).

KEY: Mandatory items **must** be on purchase order at initial order acceptance

Required items are essential for full system operation

Recommended items enhance system functionality

FIS = Factory Installed Software

## Step 1a—AlphaServer 1000 Rackmount Systems

- Windows NT North American variants include Windows NT license, media (CD-ROM) kit, North American English
  - Selection of language specific Windows NT license, media (CD-ROM) kit is **mandatory** for all non-North American variants.
- DIGITAL UNIX and OpenVMS Packaged systems include factory installed software (FIS) on hard disk drive. Base systems ordered with minimum of 1.05 Gbyte hard disk drive include factory installed software.
- See Uninterruptible Power Supplies (UPS) information following System Specifications.
- Options ordered will be factory installed unless specified as spares.

**Note:** AlphaServer 1000 rackmount systems do **not** support dual power supply configurations

### Rackmount Systems include

- Alpha microprocessor 21164 300 MHz CPU with 2 MB ECC on-board cache
- Rackmountable enclosure with
  - Ten expansion slots: Seven EISA slots, two PCI slots and one PCI/EISA combination slot
  - Integrated Fast Narrow Single Ended SCSI-2 controller with DMA and external SCSI-2 connector.
  - Integrated SVGA graphics controller
  - 20 industry-standard SIMM slots
  - 6 internal storage slots:
    - One dedicated diskette slot
    - One CD-ROM slot
    - One additional removable media slot
    - Three fixed hard disk drive slots
  - 450-Watt self-sensing, self-switching (120/240V, 60/50Hz) power supply
  - Two serial ports, support full duplex asynchronous modem control
  - One bi-directional enhanced parallel port
- PS/2 style keyboard port and mouse port
- 1.44 Mbyte diskette drive (RX23L) in dedicated slot.
- Three-button mouse.
- 15-foot Power cord (120V/240V as appropriate).
- Rackmount hardware (shelf and rails)
- English Language documentation kit.
- EISA Configuration Utility
- Integrated Server Management.
- Hardware Warranty: Three-year on-site\*
- Software Warranty: 90-day SPD conformance with advisory telephone support\*
- Windows NT Server plus 5-client access license, media (CD-ROM) kit **or**†
- DIGITAL UNIX 2-user base license, DIGITAL NAS Base Server 200 license, **or**
- OpenVMS base license with System Manager license, DIGITAL NAS Base Server 200 license.

\* Service upgrades are available; see Step 12, Hardware and Software Supplemental Services on AlphaServer 1000 4/266 desktide system menu.

† Windows NT language specific media kit is **mandatory** for non-North American variants; see Step 9.

### Rackmount Packaged Systems include

- PCI based Ethernet (DE435-AA)—uses one PCI slot.
- One 2.1 Gbyte narrow hard disk drive
- One memory option, see below
- 600 Mbyte CD-ROM—uses one removable media slot.
- North American variants include a 101-key, PC style North American English keyboard. Select country-specific keyboard for non-North American variants, see Step 10.
- Cabinet enclosure available separately, see Step 11.

### 5/300 Rackmount Packaged systems

Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Hard Drive	Monitor
PB75P-AA	Windows NT	Included*	120 V	Included	64 MB	2.1 GB	Required
PB75P-AB	Windows NT	Mandatory	240 V	Required	64 MB	2.1 GB	Required
PB75P-FA	DIGITAL UNIX	FIS	120 V	Included	64 MB	2.1 GB	Recommended
PB75P-FB	DIGITAL UNIX	FIS	240 V	Recommended	64 MB	2.1 GB	Recommended
PB75P-MA	OpenVMS	FIS	120 V	Included	64 MB	2.1 GB	Recommended
PB75P-MB	OpenVMS	FIS	240 V	Recommended	64 MB	2.1 GB	Recommended

\* Windows NT Server license, media (CD-ROM) kit North American English.

**KEY:** Mandatory items **must** be on purchase order at initial order acceptance  
 Required items are essential for full system operation  
 Recommended items enhance system functionality  
 FIS = Factory Installed Software

## Step 1a—AlphaServer 1000 Rackmount Systems *(continued)*

### Rackmount Base System

- Base systems include 120V or 240V power cord depending on variant chosen.
- Cabinet enclosure available separately, see Step 11.

#### 5/300 Rackmount Base Systems

Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Hard Drive	CD-ROM	Monitor
PB75S-AA	Windows NT	Included <sup>1</sup>	120 V	Included <sup>2</sup>	Required	Required	Required	Required
PB75S-AB	Windows NT	Mandatory	240 V	Required	Required	Required	Required	Required
PB75S-FA	DIGITAL UNIX	FIS <sup>3</sup>	120 V	Recommended	Required	Required	Recommended	Recommended
PB75S-FB	DIGITAL UNIX	FIS <sup>3</sup>	240 V	Recommended	Required	Required	Recommended	Recommended
PB75S-MA	OpenVMS	FIS <sup>3</sup>	120 V	Recommended	Required	Required	Recommended	Recommended
PB75S-MB	OpenVMS	FIS <sup>3</sup>	240 V	Recommended	Required	Required	Recommended	Recommended

1. Windows NT Server license, media (CD-ROM) kit North American English
2. 101-key, PC style, North American English, keyboard.
3. DIGITAL UNIX and OpenVMS Base systems ordered with a minimum of a 1.05 GB disk, include factory installed software (FIS).

KEY: Mandatory items **must** be on purchase order at initial order acceptance

Required items are essential for full system operation

Recommended items enhance system functionality

FIS = Factory Installed Software

## Step 1b—AlphaServer 1000 Cabinet Systems

### 5/300 Cabinet Packaged systems include

- Cabinet enclosure (H9A10 120 V or 240 V) with AlphaServer 1000 5/300 Rackmount Packaged System, plus
  - One BA36R-AF front-mounted StorageWorks shelf\*
- AlphaServer 1000 Rackmount Cabinet Systems ship with dual (2) H7600-xx cabinet power distribution units and the following power cords.
  - 120 V systems (H7600-AA) = 2 x 24A terminated with NEMA L5-30P (plugs) and require NEMA L5-30R (receptacles)
  - 240 V systems (H7600-AB) = 2 x 16A terminated with NEMA L6-20P (plugs) and require NEMA L6-20R (receptacles)
- H9A10-CE/-CF Cabinet Dimensions
  - Outside: 66.9-inches high, 23.62-inches wide, 33.8-inches deep
  - Usable internal rackmount: 56-inches high, 19-inches wide, 32.2-inches deep

\* BA36R-SF StorageWorks wide shelf requires a Fast Wide SCSI controller and SCSI cable, see Step 4b. Select SCSI devices for installation in BA36R-SF StorageWorks shelf from Step 4e.

#### 5/300 Cabinet Packaged systems

Order Number	Description
PB75R-AA*	Windows NT Rackmount Packaged system (PB75P-AA)
PB75R-AB	Windows NT Rackmount Packaged system (PB75P-AB)
PB75R-FA/FB	DIGITAL UNIX Rackmount Packaged system (PB75P-Fx)
PB75R-MA/MB	OpenVMS Rackmount Packaged system (PB75P-Mx)

\* Windows NT Server license, media (CD-ROM) kit North American English.

**Step 2—Memory**

- Packaged Systems include 64 MB memory (one PB7MA-CC) memory kit.
- System supports up to four memory kits (each kit includes industry-standard SIMMs and ECC support).
- System maximum of 1 GB can be obtained by selecting Base System and four PB7MA-CE 256 MB memory kits.

<b>PB7MA-CB</b>	32 MB 70ns (8 MB SIMMs) memory kit
<b>PB7MA-CC</b>	64 MB 70ns (16 MB SIMMs) memory kit
<b>PB7MA-CD</b>	128 MB 70ns (32 MB SIMMs) memory kit
<b>PB7MA-CE</b>	256 MB 70ns ( 64 MB SIMMs) memory kit
<b>DJ-ML200-BA</b>	PCI-based 4 MB PrestoServe I/O performance enhancement option for DIGITAL UNIX system only, maximum one per system

**Step 3—Monitors**

- Windows NT systems require a graphics monitor to run **all** functions.
- EISA Configuration Utility (ECU) is accessible via the console port for DIGITAL UNIX and OpenVMS systems. Optional graphics capability is available. Select graphics adapter, monitor, and country specific keyboard for DIGITAL UNIX and OpenVMS systems if required.
- Graphics monitors other than those listed below can be used if compatible with graphics adapter included with system.
  - OpenVMS supports 640 x 480 x 256 @ 60Hz, 800 x 600 x 256 @ 60Hz
  - DIGITAL UNIX supports 640 x 480 x 256 @ 60 Hz, 800 x 600 x 256 @ 60Hz
  - Windows NT supports 640 x 480 x 256 @ 60 Hz, 640 x 480 x 256 @ 72 Hz, 800 x 600 x 256 @ 56 Hz, 800 x 600 x 256 @ 60 Hz, 800 x 600 x 256 @ 72 Hz.

**Note:** Higher resolution available with optional EISA or PCI graphics adapters (see Step 5).

<b>SN-VRCX5-WA/W3/W4</b>	15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.
<b>SN-VRTX7-WA/W3 SN-VRT17-W4</b>	17" (16.0" viewable image size) Professional Series auto-scan color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 @ 75Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord, SN-VRT17-W4 = Southern Hemisphere. Select country specific power cord for W3 and W4 variant.
<b>SN-VRCX1-WA/ W3/W4</b>	21" (19.7" viewable image size) professional series auto-scan color monitor, Diamondtron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.

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## Step 4—Storage

### Configuration rules for Pedestal Internal Storage

- Integral Fast Narrow Single Ended (FNSE) SCSI-2 controller supports maximum of seven devices:
  - Two internal 5.25-inch removable media devices
  - Four 3.5-inch hard disk drives in internal storage assembly
  - One external storage device.
- Pedestal enclosure supports seven 3.5-inch narrow disk drives in internal storage assembly
- Internal storage assembly is normally configured for split-bus with four drives on first bus and three drives on second bus. By attaching the jumper cable and moving the terminator internal storage assembly can be re-configured for single-bus mode with support for a maximum of seven disk drives on one additional SCSI adapter.
- An additional SCSI-2 controller is required to support internal storage assembly if set for split-bus mode.

### Configuration rules for Rackmount Internal Storage

- Integral Fast Narrow Single Ended (FNSE) SCSI-2 controller supports maximum of seven devices:
  - Two internal 5.25-inch removable media devices
  - Three internal 3.5-inch disk drives
  - Two external storage devices. Maximum external cable length cannot exceed 1.5 meters.
- Rackmount enclosure supports three 3.5-inch narrow disk drives.

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## Step 4a—Internal Storage

All Pedestal and Rackmount systems include 1.44 MB diskette drive in dedicated slot.

- Pedestal and Rackmount Packaged systems include:
  - One CD-ROM drive
  - One 2.1 GB narrow hard drive

### Removable Media Devices

PBXRD-DA	600 MB 5.25 inch half-height 12X CD-ROM drive (RRD46)
PBXTZ-AA	2.0 GB 5.25-inch half-height SCSI QIC tape drive (TZK11)
PBXTL-DA	8.0 GB 5.25-inch half-height SCSI 4 mm DAT drive (TLZ09)

### Pedestal System Hard Drives

Wide disk drives require wide SCSI-2 controllers to operate in 16-bit wide mode.

RZ26N-VA	1.05 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive
RZ28D-VA	2.1 GB 8-bit narrow 7200 RPM 3.5 x 1" SCSI hard disk drive
RZ28M-VA	2.1 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive
RZ29B-VA	4.3 GB 8-bit narrow 7200 RPM 3.5 x 1.6" SCSI hard disk drive
RZ26N-VW	1.05 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI hard disk drive
RZ28D-VW	2.1 GB 16-bit wide 7200 RPM 3.5 x 1" SCSI hard disk drive
RZ28M-VW	2.1 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI hard disk drive
RZ29B-VW	4.3 GB 16-bit wide 7200 RPM 3.5 x 1.6" SCSI hard disk drive

### Pedestal system internal SCSI cables and terminators

PB7HA-AA	Internal SCSI cable and terminator for FNSE SCSI controllers and 8-bit narrow devices (50 pin)
PB7HA-BB	Internal SCSI cable and terminator for FNSE SCSI controllers and 16-bit wide devices (68-pin)
PB7HA-BA	Internal SCSI cable and terminator for FWSE SCSI controllers and 16-bit wide devices (68-pin)

### Rackmount System Hard Disk Drives (internal only)

PBXRZ-EB	1.05 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive (RZ26N)
PBXRZ-JB	2.1 GB 8-bit narrow 7200 RPM 3.5 x 1" SCSI disk drive (RZ28D)
PBXRZ-NA	4.3 GB 8-bit narrow 7200 RPM 3.5 x 1.6" SCSI hard disk drive (RZ29B)

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## Step 4b—Storage Controllers

- Maximum two KZESC-xx one- and three-port EISA-based RAID controllers supported per system.
  - KZESC-xx StorageWorks RAID Array 210 includes EISA backplane RAID controller and StorageWorks RAID Array 210 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX and Windows NT.
  - KZESC-xx controller installed in Pedestal system requires a PB7HA-AA SCSI cable kit for connection to internal StorageWorks shelf, two kits required for split bus mode.
  - Maximum number of EISA-based controllers of all types is limited by the total number of available EISA slots and available IRQs.
- Maximum of three KZPSC-xx one- and three port PCI-based RAID controllers supported per system. **Note:** Packaged systems have two PCI slots available due to installed PCI-based Ethernet controller.
  - KZPSC-xx controllers are supported in PCI slots 0, 1 and 2 only
  - KZPSC-xx StorageWorks RAID Array 230 includes PCI backplane RAID controller and StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX and Windows NT.
  - KZPSC-AA controller installed in Pedestal system requires a PB7HA-BA SCSI cable kit for connection to internal StorageWorks shelf, two kits required for split bus mode.
  - KZPSA-BB PCI-based one-port Fast Wide Differential SCSI controller supports externally connected wide disks in StorageWorks enclosures and Rackmount shelves with DWZZB signal converter, or narrow disks in narrow StorageWorks enclosures and Rackmount shelves with DWZZA signal converter. Internal storage assembly hard drives are **not** supported on Fast Wide Differential Controller.
  - Each controller requires one bus slot, except KFESB which requires two bulkhead slots when system is middle node in an OpenVMS cluster.
  - SCSI cables are not included and must be ordered separately.
  - External DSSI cables are not included and must be ordered separately.

## SCSI Controllers

**Note:** Pedestal systems **require** SCSI terminator and cable kit to connect SCSI controller to internal storage assembly:

- PB7HA-AA from FNSE SCSI-2 controller to 8-bit **narrow** devices in internal storage assembly(50 pin)
- PB7HA-BA from FWSE SCSI-2 controller to 16-bit **wide** devices in internal storage assembly(68-pin)
- PB7HA-BB from FNSE SCSI-2 controller to 16-bit **wide** devices in internal storage assembly (68-pin)

Rackmount Cabinet systems **include** KZPAA FNSE SCSI-2 controller and one BN21H-02 SCSI cable to connect to BA35R-SF StorageWorks shelf.

KZPAA-AA BN21H-xx	PCI-based one-port high-performance Fast Narrow Single Ended (FNSE) SCSI-2 controller Connects from KZPAA-AA to narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves. Pedestal system requires PB7HA-AA SCSI cable kit for connection to internal StorageWorks shelf
KZPDA-AA BN21K-02	PCI-based one-port Fast Wide Single Ended (FWSE) SCSI controller Connects from KZPDA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves.
KZPSA-BB BN21K-01	PCI-based one-port high-performance Fast Wide Differential (FWD) SCSI controller. Supports external disks only. Connects from KZPSA to DWZZA-VA in narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves, or DWZZB-VW in wide StorageWorks enclosures and wide StorageWorks rackmount shelves
KZESC-AA* BN21H-02 BN21N-02	One-port EISA backplane RAID (FNSE) controller; includes StorageWorks RAID Array 210 Subsystem family software and documentation kit. Pedestal system requires PB7HA-AA SCSI cable kit for connection to internal StorageWorks shelf Connects from KZPAA-AA to narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves Connects from KZESC-BA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves

**Step 4b—Storage Controllers (continued)**

<b>KZESC-BA*</b>	Three-port EISA backplane RAID controller; includes StorageWorks RAID Array 210 Subsystem family software and documentation kit. Pedestal system requires PB7HA-AA SCSI cable kit for connection to internal StorageWorks shelf.
<b>CK-SWXCR-AA</b>	SCSI cable/bulkhead assembly kit for KZESC-BA, required for connecting second and third ports to bulkhead slot
<b>BN21H-02</b>	Connects from KZESC-BA to narrow StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>BN21N-02</b>	Connects from KZESC-BA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>KZPSC-AA*</b>	One-port PCI backplane RAID Fast Wide Single Ended (FWSE) controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit. Pedestal system requires PB7HA-BA SCSI cable kit for connection to internal StorageWorks shelf.
<b>BN31S-1E</b>	Connects from KZPSC-AA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>BN31L-1E</b>	Connects from KZPSC-AA to narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves
<b>KZPSC-BA*</b>	Three-port PCI backplane RAID (FWSE) controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit. Pedestal system requires PB7HA-BA SCSI cable kit for connection to internal StorageWorks shelf.
<b>BN31K-0E</b>	SCSI cable/bulkhead assembly kit for KZPSC-BA; required for connection to third port; uses one PCI bulkhead slot.
<b>BN31S-1E</b>	Connects from KZPSC-BA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>BN31L-1E</b>	Connects from KZPSC-BA to narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves
<b>KZPSM-AA</b>	PCI-based SCSI Ethernet combination controller. (FWSE) SCSI controller, 10 Mbit Ethernet.
<b>BC25V-1A</b>	SCSI cable/bulkhead assembly kit for KZPSM-AA; connects from KZPSM-AA to bulkhead for external storage; requires BN21K-xx SCSI cable
<b>BN21K-xx</b>	Connects from KZPSM-AA bulkhead assembly kit wide StorageWorks enclosures and wide StorageWorks rackmount shelves

\* See *Storage Devices* for additional information on StorageWorks RAID Array 2x0 Subsystems

**DSSI Controllers**

<b>KFPSA-AA</b>	PCI-based single-DSSI controller (OpenVMS systems only). See Step 4f DSSI cables.
<b>KFESB-AA</b>	EISA-based single-DSSI controller (OpenVMS systems only). Uses one EISA slot if system is end node in OpenVMS cluster, or two slots if system is middle node in OpenVMS cluster. Maximum two (if end node in cluster) or maximum of one (if middle node in cluster). See Step 4f DSSI cables.

**Step 4c—External Tape Expansion**

- Integral Fast Narrow SCSI-2 controller can be extended outside the system enclosure via the SCSI-out port to support external SCSI devices. Maximum external bus length including cable and device cannot exceed 1.0 meter.
- External tape drives are also supported on optional PCI-based high-performance SCSI controllers; KZPAA-AA (maximum external bus length including cable and tape device cannot exceed 3.0 meter) and KZPSA-BB (maximum external bus length including cable and tape device cannot exceed 25.0 meters).
- External tape drives are not supported on one- and three-port (KZESC-xx) high performance Fast-SCSI-2 controllers.
- External tape drives supported on one- and three-port (KZPSC-xx) high performance SCSI controllers on Windows NT only.
- Each tabletop tape device requires a three-foot high density 50-pin to low density 50-pin SCSI cable (BN23G-0E).

**External Tapes supported on Windows NT servers**

TLZ09	8.0 GB 4 mm DAT tape drive
TLZ7L <sup>1,2</sup>	32.0 GB 4 mm DAT autoloader
TZK11-DA	2.0 GB 5.25-inch tabletop QIC tape drive
TZ87 <sup>2</sup>	20 GB, DLT tape drive
TZ875 <sup>2</sup>	100 GB, DLT tape autoloader
TZ877 <sup>2</sup>	140 GB, DLT tape autoloader
BN23G-0E	3 Foot Molded SCSI Cable, required for each tabletop tape device

**External Tapes supported on DIGITAL UNIX and OpenVMS servers**

TLZ09 <sup>3</sup>	8.0 GB 4 mm DAT tape drive
TLZ7L <sup>1,2,3</sup>	32.0 GB 4 mm DAT autoloader
TZK11-DA <sup>3</sup>	2.0 GB 5.25-inch tabletop QIC tape drive
TKZ60-FA/FC	400 MB IBM 3480/3490 compatible tabletop tape drive
TKZ60-EA <sup>3</sup>	400 MB IBM 3480/3490 compatible tabletop tape drive
TKZ61	400 MB IBM compatible tape autoloader
TKZ61-AC <sup>3</sup>	400 MB IBM compatible tape autoloader
TKZ62	2.4 GB IBM compatible tape autoloader
TKZ62-AC <sup>3</sup>	2.4 GB IBM compatible tape autoloader
TKZ15-TA	10 GB, 8 mm, tabletop tape drive
TKZ15-VA <sup>3,5</sup>	10 GB, 8 mm, tabletop tape drive
TSZ07-CA	40/140 MB, reel/reel, tabletop tape drive
TSZ07-AA <sup>3</sup>	40/140 MB, reel/reel, tabletop tape drive
TZ87 <sup>2</sup>	20 GB, DLT tape drive
TZ87-VA <sup>3</sup>	20 GB, DLT tape drive
TZ875 <sup>2</sup>	100 GB, DLT tape autoloader
TZ877 <sup>2</sup>	140 GB, DLT tape autoloader
TZ88 <sup>2</sup>	20/40 GB, DLT tape drive
TKZ9E-TA <sup>4</sup>	2/5/7/10/14 GB 8 mm helical scan tape drive, tabletop
TKZ9E-VA <sup>3</sup>	2/5/7/10/14 GB 8 mm helical scan tape drive in StorageWorks SBB carrier
BN23G-0E	3 Foot Molded SCSI Cable, required for each tabletop tape device.

1 Includes four cartridge loader. Larger magazines are supported.

2 Base operating systems support sequential back-up mode only; additional software is required for random access backup. See *Storage Devices* for details.

3 Variants for use in Rackmount systems

4 8 mm drive requires OpenVMS MK-driver patch when connected to KZPSA controller in OpenVMS system.

5 Windows NT require layered driver software QB-4STAA-SA

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### Step 4d—External Disk Expansion for Pedestal Systems

- BA353 expansion units are supported on wide and narrow SCSI controllers. Devices operate in narrow mode when BA353 is connected to a Fast Wide SCSI controller.
- BA356 and BA346 expansion units are supported on Fast Wide SCSI controllers.

#### StorageWorks Modular Storage Options

<b>BA353-AA</b>	StorageWorks 8-bit <b>Narrow</b> Desktop expansion unit includes enclosure and 120 V power cord. Supports up to three 3.5" narrow hard disk drives. Not supported with RAID controllers.
<b>BA356-KC</b>	StorageWorks 16-bit <b>Wide</b> Pedestal expansion unit includes BA356 basic shelf, BA35X-HA universal ac power supply, pedestal mounting kit, and 120 V power cord. Supports up to seven 3.5" wide or narrow drives; narrow drives operate in narrow mode.
<b>BA346-KB</b>	StorageWorks 16-bit <b>Wide</b> Pedestal expansion unit includes BA356 basic shelf, BA35X-HA universal ac power supply, pedestal mounting kit, and 120 V power cord. Supports up to nine devices, two 5.25" narrow and seven 3.5" wide or narrow drives; narrow drives operate in narrow mode.
<b>DWZZA-VA</b>	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 bit Fast Narrow Single-Ended SCSI-2 on other end.
<b>DWZZB-VW</b>	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 or 16 bit Fast Wide or Fast Narrow Single-Ended SCSI-2 on other end.

See *Storage Device* for additional ordering information for StorageWorks modular storage expansion and supported devices.

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### Step 4e—External Disk Expansion for Rackmount and Cabinet Systems

- External BA35R Rackmount StorageWorks shelves are supported on all Fast SCSI-2 controllers.
- External BA36R Rackmount StorageWorks shelves are supported on Fast Wide SCSI controller.
- AlphaServer 1000 Rackmount systems provide four SCSI expansion ports on rear panel of system.
- Order BN21H-02 cable to connect a single BA35R StorageWorks shelf to controllers.
- Order BN31\*-xx cable to connect a single BA36R StorageWorks shelf to controllers.

#### Rackmount StorageWorks Shelves

##### StorageWorks BA35R/BA36R 8-bit and 16-bit Rackmount Shelves

<b>BA36R-AF</b>	Front mount BA356 Rackmount StorageWorks Shelf, BA35R-MH 16-bit I/O module, BA35X-HF power supply
<b>BA36R-AR</b>	Rear mount BA356 Rackmount StorageWorks Shelf, BA35R-MH 16-bit I/O module, BA35X-HF power supply
<b>BA35R-SF</b>	Front Mount BA356 Rackmount StorageWorks Shelf, BA35X-MG 8-bit I/O module, BA35X-HF power supply
<b>BA35R-SR</b>	Rear Mount BA356 Rackmount StorageWorks Shelf, BA35X-MG 8-bit I/O module, BA35X-HF power supply
<b>DWZZA-VA</b>	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 bit Fast Narrow Single-Ended SCSI-2 on other end. <b>Requires</b> BN21K-** cable.
<b>DWZZB-VW</b>	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 or 16 bit Fast Wide Single-Ended SCSI-2 on other end. <b>Requires</b> BN21K-** cable.

#### Hard Disk Drives for Rackmount StorageWorks Shelves (External only)

- Wide drives require wide controller to operate in 16-bit wide mode.
- Wide drives are supported in BA36R Rackmount StorageWorks shelves
- Narrow drives are supported in BA35R Rackmount StorageWorks shelves

<b>RZ26N-VA</b>	1.05 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28M-VA</b>	2.1 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28D-VA</b>	2.1 GB 8-bit narrow 7200 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ29B-VA</b>	4.3 GB 8-bit narrow 7200 RPM 3.5 x 1.6" SCSI hard disk drive

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**Step 4e—External Disk Expansion for Rackmount and Cabinet Systems (continued)****Hard Disk Drives for Rackmount StorageWorks Shelves (External only)**

<b>RZ26N-VW</b>	1.05 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28M-VW</b>	2.1 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28D-VW</b>	2.1 GB 16-bit wide 7200 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ29B-VW</b>	4.3 GB 16-bit wide 7200 RPM 3.5 x 1.6" SCSI hard disk drive

\* Wide drives operate in 8-bit narrow mode when connected to integral Fast Narrow Single Ended SCSI-2 controller

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**Step 4f—DSSI Cables**

- EISA-based DSSI controller (KFESB-AA) uses "Micro-Ribbon" connection.
  - KFESB to any external "Pin-Socket" DSSI connection (VAX 4000s, R400X) requires BC22Q-xx DSSI cable.
  - KFESB to any external "Micro-Ribbon" DSSI straight connection (all other DSSI systems and storage devices requiring straight connection) requires BC21Q-xx DSSI cable.
  - KFESB to any external "Micro-Ribbon" DSSI right-angle connection (all other DSSI systems and storage devices requiring right-angle connection) requires BC29S-xx DSSI cable.
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**Step 5—Graphics Adapters**

- Integrated SVGA graphics controller supports the following monitors:
  - DIGITAL UNIX supports 640 x 480 x 256 @ 60 Hz monitors, 800 x 600 x 256 @ 60 Hz monitors
  - OpenVMS supports 640 x 480 x 256 @ 60 Hz monitors, 800 x 600 x 256 @ 60 Hz monitors
  - Windows NT supports 640 x 480 x 256 @ 60 Hz, 640 x 480 x 256 @ 72 Hz, 800 x 600 x 256 @ 56 Hz, 800 x 600 x 256 @ 60 Hz, 800 x 600 x 256 @ 72 Hz
- EISA Configuration Utility (ECU) is accessible via the console port for DIGITAL UNIX and OpenVMS systems. Optional graphics capability is available. Select graphics adapter, monitor, and country specific keyboard for DIGITAL UNIX and OpenVMS systems if required.

<b>PB2GA-JC</b>	PCI based 1MB DRAM graphics adapter 1024 x 768
<b>PB2GA-JD</b>	PCI based 2MB DRAM graphics adapter 1024 x 768
<b>PBXGB-AA</b>	PCI based 8-plane 1280 x 1024 graphics adapter
<b>PBXGB-CA</b>	PCI based 24-plane 1280 x 1024 graphics adapter

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## Step 6—Networks and Communications

- Packaged systems include PCI-based Ethernet controller, uses one PCI slot
- Two additional PCI-based controllers supported per system.
- Select networking cable for Ethernet controller
  - BNE4G-02 for AUI
  - BN26K-xx for 10BaseT (twisted pair)
  - BC16M-xx for ThinWire
- Maximum number of **each** EISA-based network controllers supported per system:
  - Three DE425-AA, Three DEFEA-xA
  - Four DW300-AA, Four DNSES

<b>DE435-AA</b>	PCI-based DIGITAL Etherworks 32-bit high-performance network interface card
<b>DE500-XA</b>	PCI-based Fast Ethernet network interface card (see PCI Option Slot Table)
<b>DEFPA-AB*</b>	PCI-based DEC FDDIcontroller, Single Attachment
<b>DEFPA-DB*</b>	PCI-based DEC FDDIcontroller, Dual Attachments
<b>DEFPA-UB*</b>	PCI-based DEC FDDIcontroller, Single Attachment (UTP)
<b>DGLPB-AB</b>	PCI-based ATMworks 350 adapter
<b>PBXNP-AA</b>	PCI-based Token Ring adapter, no boot support. DIGITAL UNIX and OpenVMS systems require driver floppy. Not supported on Windows NT.
<b>DE425-AA</b>	EISA-based Ethernet, OpenVMS and DIGITAL UNIX only
<b>DEFEA-AA</b>	EISA-based DEC FDDIcontroller, Single Attachment
<b>DEFEA-UA</b>	EISA-based DEC FDDI (UTP) controller
<b>DEFEA-DA</b>	EISA-based DEC FDDIcontroller, Dual Attachment (requires two slots)
<b>DW300-AA</b>	EISA-based Token-Ring adapter includes NetWare V2.15 driver, LAN Manager Driver, and documentation (Not supported by DECnet/OSI for OpenVMS)
<b>DNSES-AA</b>	EISA-based synchronous communications controller, DIGITAL UNIX and OpenVMS systems <b>only</b>
<b>CXI01-AA</b>	ISA Asynchronous MUX Adapter, 16 lines. Expandable to 64 lines. Supported on Windows NT and DIGITAL UNIX only.
<b>CXI01-AD</b>	ISA Asynchronous MUX Adapter, 16 lines. Expandable to 224 lines. Supported on Windows NT and DIGITAL UNIX only.
<b>PBXDI-AA</b>	ISA-based Two Port Synchronous Communications controller with interface support for EIA-232/V.24/V.28, Windows NT <b>only</b>
<b>PBXDI-AB</b>	ISA-based Two Port Synchronous Communications controller with interface support for V.35, Windows NT <b>only</b>
<b>PBXDI-AC</b>	ISA-based Two Port Synchronous Communications controller with interface support for X.21 and EIA-530, Windows NT <b>only</b>
<b>DI1AA-AA</b>	ISA-based ISDN terminal adapter (U.S.); Windows NT <b>only</b>
<b>DI1AA-AB</b>	ISA-based ISDN terminal adapter (non-U.S.); Windows NT <b>only</b>

\* Supported as data device only.

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## Step 6a—Integrated Telecommunications AlphaServer Option

- Integrated telecommunications options are supported on AlphaServer 1000 Windows NT Pedestal systems **only**
- Any combination of digital and analog trunk options can be installed in same system in available EISA slots
- Dual Power Supply is not supported when Integrated Telecommunications AlphaServer option is installed; the 48/96V Ring Generating Power supply occupies second power supply slot.
- See separate menu for Integrated Telecommunications Options for AlphaServer 1000 Pedestal systems for additional configuration information.

<b>PB71T-AB</b>	12 64 Kbps analog trunks by 24 client telephone stations, includes (1) ISA 12 port analog (Loop Start) trunk card (uses one EISA slot) (1) ISA 24 port POTS station card (uses one EISA slot) Mitel MediaPath Windows NT license and media, Integrated Telecommunications Services Windows NT license, documentation and media, DECTalk runtime license, MVIP cable -48/96V Ring Generating Power Supply (PBXCS-AA) and chassis assembly, 125 V North American power cord
<b>PB71T-AC<sup>1</sup></b>	24 64 Kbps digital trunks by 24 client telephone stations, includes (1) ISA T1 dual DSP trunk card (uses 1 EISA slot and blocks one PCI slot) <sup>1</sup> (1) ISA 24 port POTS station card (uses one EISA slot) Mitel MediaPath Windows NT license and media, Integrated Telecommunications Services Windows NT license, media and documentation, DECTalk runtime license, MVIP cable -48/96V Ring Generating Power Supply (PBXCS-AA) and chassis assembly, 125 V North American power cord
<b>PB71T-AD<sup>1</sup></b>	48 64 Kbps digital trunks by 96 client telephone stations, includes (1) ISA T1 quad DSP trunk card (uses 1 EISA slot and blocks one PCI slot) <sup>1</sup> (4) ISA 24 port POTS station cards (uses 4 EISA slots) Mitel MediaPath Windows NT license and media, Integrated Telecommunications Services Windows NT license, media and documentation, DECTalk runtime license, MVIP cable -48/96V Ring Generating Power Supply (PBXCS-AA) and chassis assembly, 125 V North America power cord

<sup>1</sup> T1 card should be installed in first EISA slot adjacent to PCI slots, otherwise it consumes two EISA slots. Installation in first EISA slot blocks one adjacent PCI bulkhead slot, this reduces the number of available PCI slots by one.

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## Step 7—Additional Power Supply—Pedestal Systems Only

**Note:** AlphaServer 1000 Rackmount and Cabinet systems do **not** support dual power supply configurations

- Additional power supply may be added to AlphaServer 1000 Pedestal system for n+1 redundancy
- Note: AlphaServer 1000 Windows NT Pedestal systems with Integrated Telecommunications options installed do **not** support dual power supply configurations; the -48/96V Ring Generating Power supply occupies second power supply slot.
- Country specific power cord must be ordered separately, see Step 10.

**H7290-AA** 450-Watt Redundant Power Supply Option

See UPS information following System Specifications.

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## Step 8—Terminals and Printers

Systems include two EIA-232 asynchronous serial ports with 9-pin D-subminiature connectors.

Select terminals and serial printers as required. A 9-pin to MMJ adapter (H8571-J) is required for each connection. A cable must be ordered unless otherwise provided.

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## Step 9—Software

- North American variants of Windows NT Packaged and Base systems include Windows NT Server plus 5-client access license, media (CD-ROM) kit North American English. Selection of language specific Windows NT media kit is mandatory for non-North American variants.

### Windows NT Server plus 5-client access license, media (CD-ROM) kits

QB-23CAA-SB	Windows NT Server license, media kit American/North American English
QB-23C8A-SB	Windows NT Server license, media kit International English
QB-23CPA-SB	Windows NT Server license, media kit French
QB-23CGA-SB	Windows NT Server license, media kit German
QB-23CSA-SB	Windows NT Server license, media kit Spanish
QB-23CUA-SB	Windows NT Server license, media kit Italian
QB-23CJA-SB	Windows NT Server license, media kit Japanese
QB-23CDA-SB	Windows NT Server license, media kit Danish
QB-23CMA-SB	Windows NT Server license, media kit Swedish
QB-23CNA-SB	Windows NT Server license, media kit Norwegian
QB-23CFA-SB	Windows NT Server license, media kit Finnish
QB-23CHA-SB	Windows NT Server license, media kit Dutch
QB-23CVA-SB	Windows NT Server license, media kit Portuguese
QB-23C4A-SB	Windows NT Server license, media kit Korean
QB-23C3A-SB	Windows NT Server license, media kit Taiwanese
QB-23C2A-SB	Windows NT Server license, media kit PRC Chinese

### Windows NT Server Optional Software

QB-4G45A-AA	Purveyor Web Server Software V1.1 for Process Software Corp.
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## DIGITAL UNIX Concurrent Use Licenses

### Software Processor Code = E

- DIGITAL UNIX Packaged and Base systems **require** operating system media and documentation for **first** system on site.

DIGITAL UNIX Concurrent Use Licenses are **not** specific to a single system and can be moved from one system to another at user discretion.

QL-MT7AM-3B	DIGITAL UNIX Concurrent Use 1-user license
QL-MT7AM-3C	DIGITAL UNIX Concurrent Use 2-user license
QL-MT7AM-3D	DIGITAL UNIX Concurrent Use 4-user license
QL-MT7AM-3E	DIGITAL UNIX Concurrent Use 8-user license
QL-MT7AM-3F	DIGITAL UNIX Concurrent Use 16-user license
QL-MT7AE-AA	DIGITAL UNIX Traditional unlimited user license
QL-MT5AE-AA	DIGITAL UNIX developer's extension license

### DIGITAL UNIX Media and Documentation—required for first system on site

QA-MT4AA-H8	DIGITAL UNIX media and on-line documentation on CD-ROM
QA-MT4AA-GZ	DIGITAL UNIX full hardcopy documentation

### DIGITAL UNIX Layered Products CD-ROM

QA-054AA-H8	Layered products media and documentation for DIGITAL UNIX on CD-ROM
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**Step 9—Software (continued)****DECnet for DIGITAL UNIX**

- QL-MTJAE-AA      DECnet/OSI end-system license for DIGITAL UNIX  
 QL-MTKAE-AA      DECnet/OSI extended function license for DIGITAL UNIX

**Internet AlphaServer Software for DIGITAL UNIX**

- Internet AlphaServer Software consists of license, CD-ROM media, and documentation for software listed below.
- Please reference the Internet AlphaServer 1000 4/233 menu for complete list of available Internet software and services.

- QB-4GQAA-KA      Internet AlphaServer Software (USA and Canada **only**)  
 QB-4GQAA-KB      Internet AlphaServer Software (International)

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**OpenVMS Concurrent Use Licenses****Software Processor Code = E**

- OpenVMS Packaged and Base systems **require** operating system media and documentation for **first** system on site.

OpenVMS Concurrent Use Licenses are **not** specific to a single system and can be moved between systems at user discretion. OpenVMS Concurrent Use Licenses can also be shared in a mixed OpenVMS VAX and OpenVMS Alpha Cluster.

- QL-MT3AA-3B      OpenVMS Concurrent Use 1-user license  
 QL-MT3AA-3C      OpenVMS Concurrent Use 2-user license  
 QL-MT3AA-3D      OpenVMS Concurrent Use 4-user license  
 QL-MT3AA-3E      OpenVMS Concurrent Use 8-user license  
 QL-MT3AA-3F      OpenVMS Concurrent Use 16-user license  
 QL-MT3AA-3G      OpenVMS Concurrent Use 32-user license  
 QL-MT3AA-3H      OpenVMS Concurrent Use 64-user license  
 QL-MT3AA-3J      OpenVMS Concurrent Use 128-user license  
 QL-MT3AA-3K      OpenVMS Concurrent Use 256-user license  
 QL-MT2AE-AA      OpenVMS Traditional unlimited user license

**OpenVMS Media and Documentation—required for first system on site**

- QA-MT1AA-H8      OpenVMS media and on-line documentation CD-ROM  
 QA-001AA-GZ      OpenVMS hardcopy documentation

**OpenVMS Layered Products CD-ROM**

- QA-03XAA-H8      Layered products media and documentation for OpenVMS on CD-ROM

**DECnet for OpenVMS**

- QL-MTGAE-AA      DECnet extended function license for OpenVMS  
 QL-MTHAE-AA      DECnet end-system to extended function upgrade license for OpenVMS

**DSSI Information**

- EK-410AB-MG      DSSI VMScluster Installation Guide  
 EK-D4AXP-TS      DSSI VMScluster Troubleshooting Guide

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## Step 10—Power Cords, Keyboards, and Documentation

### Pedestal and Monitor Power Cords

- North American variants include BN26J-1K 120 V (North American, Japan) power cord. If an other power cord is selected, both power cords ship with system.

<b>BN26J-1K</b>	North American, Japan, 120 V
<b>BN19H-2E</b>	Australia, New Zealand, 2.5 meters long
<b>BN19C-2E</b>	Central Europe, 2.5 meters long
<b>BN19A-2E</b>	U.K., Ireland, 2.5 meters long
<b>BN19E-2E</b>	Switzerland, 2.5 meters long
<b>BN19K-2E</b>	Denmark, 2.5 meters long
<b>BN19Z-2E</b>	Italy, 2.5 meters long
<b>BN19S-2E</b>	Egypt, India, South Africa, 2.5 meters long
<b>BN18L-2E</b>	Israel, 2.5 meters long

### Rackmount Power Cords

- 120V and 240V 15 foot power cords are included with all systems, variant designates power cord voltage (See Step 1).

**Note:** AlphaServer 1000 Pedestal system power cords are less than 15-feet long and are **not** supported in Rackmount cabinet enclosure

### Keyboards

- North American variants include LK471-AA keyboard (see Step 1). For these variants, if an additional keyboard is ordered, both keyboards ship with system.
- LK471-xx are 101 key PC style keyboards. LK461-xx are 108 key VT style keyboards.

<b>LK471-A2</b>	<b>LK461-A2*</b>	North American, Japan (English)
<b>LK471-AB</b>	<b>LK461-AB</b>	Belgium (French)
<b>LK471-AD</b>	<b>LK461-AD</b>	Denmark
<b>LK471-AE</b>	<b>LK461-AE</b>	United Kingdom (English)
<b>LK471-AG</b>	<b>LK461-AG</b>	Germany
<b>LK471-AI</b>	<b>LK461-AI</b>	Italy
<b>LK471-AK</b>	<b>LK461-AK</b>	Switzerland (Generic)
<b>LK471-AN</b>	<b>LK461-AN</b>	Norway
<b>LK471-AP</b>	<b>LK461-AP</b>	France
<b>LK471-AS</b>	<b>LK461-AS</b>	Spain
<b>LK471-AV</b>	<b>LK461-AV</b>	Portugal
<b>LK471-AQ</b>	<b>LK461-AQ</b>	Canada (English)
<b>LK471-AC</b>	<b>LK461-AC</b>	Canada (French)
	<b>LK461-AL</b>	Switzerland (German)
	<b>LK461-AM</b>	Sweden

### Mouse and Extension Cable Kit

<b>PBXWS-AA</b>	3-button mouse (included with all systems, order as spare or replacement)
<b>2T-450KM-AA</b>	Extension cable kit for VGA, PC style keyboard, and mouse, for use with Rackmount systems.

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## Step 10—Power Cords, Keyboards, and Documentation (*continued*)

### Pedestal Documentation: Customer and Service Kit

Customer Kit	Service Kit	
QZ-00MAA-GZ	QA-00MAB-GZ	Customer and Service kit for AlphaServer 1000 4/266—English
QZ-00MPA-GZ	QA-00MPB-GZ	Customer and Service kit for AlphaServer 1000 4/266—French
QZ-00MSA-GA	QZ-00MSB-GZ	Customer and Service kit for AlphaServer 1000 4/266—Spanish
QZ-00MJA-GZ	QZ-00MJB-GZ	Customer and Service kit for AlphaServer 1000 4/266—Japanese
QZ-00MUA-GZ	QZ-00MUB-GZ	Customer and Service kit for AlphaServer 1000 4/266—Italian
QZ-00MGA-GZ	QZ-00MGB-GZ	Customer and Service kit for AlphaServer 1000 4/266—German
AG-Q95HA-BE		Customer and Service kit On-line documentation—English

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## Step 11—Cabinet Enclosure

Select cabinet enclosure for Packaged and Base AlphaServer 1000 Rackmount systems, if required.

- H9A10 19-inch EIA Cabinet Enclosure Dimensions
  - Outside: 66.9-inches high, 23.62-inches wide, 33.8-inches deep
  - Internal usable rackmountable space: 56-inches high, 19-inches wide, 32.2-inches deep

H9A10-CE	120V Retma Cabinet assembly with dual power controller
H9A10-CJ	240V Retma Cabinet assembly with dual power controller
H9A10-CG	120V Retma Cabinet assembly with dual power controller and front door
H9A10-CK	240V Retma Cabinet assembly with dual power controller and front door
H9A10-AB	Retma Cabinet assembly with no power controller
H9A10-AD	Retma Cabinet assembly with front door, with no power controller

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## Step 12—Hardware and Software Supplemental Support Services

### Hardware—Americas and Asia Pacific only

- Systems include three-year hardware warranty, on-site with 5 x 9, 24-hour response time.
- Select optional Hardware Supplemental Support Services if required.

FM-MK4HR-36	5 x 9, 4-hour response time
FM-MK512-36	5 x 12, 4-hour response time
FM-MK616-36	6 x 16, 4-hour response time
FM-MK724-36	7 x 24, 4-hour response time
FM-MKXHW-60	Years 1-5, next day, Onsite
FM-MK4HR-60	Years 1-5, 5x9, 4-hour response time
FM-MK512-60	Years 1-5, 5x12, 4-hour response time
FM-MK616-60	Years 1-5, 6x16, 4-hour response time
FM-MK724-60	Years 1-5, 7x24, 4-hour response time

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**Step 12—Hardware and Software Supplemental Support Services (continued)****Software—Americas and Asia Pacific only**

- Systems include 90-day Conformance to SPD and Telephone Advisory Support. Select optional Software Supplemental Support Services, if required.
- Software service upgrades for Windows NT include advisory and remedial software support for the time period indicated.
- Software service upgrades for DIGITAL UNIX and OpenVMS include advisory and remedial software support with new version license rights for operating system and DIGITAL NAS 200 for the time period indicated.

<b>FM-NTS03-12</b>	12-month Software Supplemental Support for <b>Windows NT</b> AlphaServer 1000 4/266 systems
<b>FM-NTS03-36</b>	36-month Software Supplemental Support for <b>Windows NT</b> AlphaServer 1000 4/266 systems
<b>FM-NYS03-60</b>	60-month Software Supplemental Support for <b>Windows NT</b> AlphaServer 1000 4/266 systems
<b>FM-MKOSF-12</b>	12-month Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 1000 4/266 systems
<b>FM-MKOSF-36</b>	36-month Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 1000 4/266 systems
<b>FM-MKOSF-60</b>	60-month Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 1000 4/266 systems
<b>FM-MKVMS-12</b>	12-month Software Supplemental Support for <b>OpenVMS</b> AlphaServer 1000 4/266 systems
<b>FM-MKVMS-36</b>	36-month Software Supplemental Support for <b>OpenVMS</b> AlphaServer 1000 4/266 systems
<b>FM-MKVMS-60</b>	60-month Software Supplemental Support for <b>OpenVMS</b> AlphaServer 1000 4/266 systems

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**Step 12a—Hardware and Software Supplemental Support Services (Europe only)**

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

## Specifications

<b>Shipping Dimensions</b>	<b>Pedestal</b>	<b>Rackmount</b>
Height	60 cm (23.8 in.)	26.7 cm (10.5 in.)
Width <sup>1</sup>	43 cm (16.9 in.)	48.2 cm (19.0 in.)
Depth <sup>1</sup>	65 cm (25.6 in.)	73.7 cm (29.0 in.) system chassis & rackmount hardware 63.5 cm (25.0 in.) system chassis
Weight	43 kg (95 lb) typical 71 kg (156 lb) maximum	29 kg (65 lb) typical
<b>Installed Dimensions</b>		
Height	44.2 cm (18.1 in.)	
Width	35.8 cm (14.1 in.)	
Depth	53.3 cm (23 in.)	
Weight	39 kg (86 lb) typical 51 kg (113 lb) maximum	
<b>Clearances</b>		<b>Service clearance</b>
Front	75 cm (29.5 in.)	124.04 cm (50.0 in.)
Rear	15 cm (6 in.)	61.00 cm (24.0 in.)
Sides	None	None
<b>Environmental</b>	<b>Pedestal</b>	<b>Rackmount</b>
<b>Temperature</b>		
Operating <sup>2</sup>	10–40° C (50–104° F)	10–35° C (50–95° F)
Nonoperating	Not tested	Not tested
Storage (60 days)	-40–66° C (-40–151° F)	-40–66° C (-40–151° F)
Rate of change	11° C/hr (20° F/hr)	11° C/hr (20° F/hr)
<b>Relative humidity</b>		
Operating	20–80%	20–80%
Nonoperating	20–80%	20–80%
Storage (60 days)	10–95%	10–95%
Rate of change	20%/hr	20%/hr
<b>Maximum wet bulb temperature operating</b>		
	28° C (82° F)	
<b>Storage (60 days)</b>		
	39° C (115° F)	
<b>Minimum dew point temperature operating</b>		
	12° C (36° F)	
<b>Maximum heat dissipation</b>		
Current		
Single supply	2390 Btu/hr	
Dual supply	4097 Btu/hr	
<b>Air flow and quality</b>		
Intake location	Front	Front
Exhaust location	Rear	Rear
<b>Altitude</b>		
Operating	2000 m (6562 ft)	2000 m (6562 ft)
Nonoperating	3600 m (12,000 ft)	3600 m (12,000 ft)
<b>Mechanical shock</b>		
Operating	7.5 G 10 ms	
Nonoperating	20 G peak 30 ms	20 G peak 30 ms
<b>Vibration</b>		
Operating	10-500 Hz .1 G peak	
<b>Acoustics AverageDeclared</b>		
Operating	6.2 LwA, B6.5 LwAd, B	6.2 LwA, B6.5 LwAd, B
Idle	6.0 LwA, B6.3 LwAd, B	6.0 LwA, B6.3 LwAd, B

1 Dimensions of shipping pallet; fork-lift access is on the width dimension.

2 Maximum operating temperature at Sea Level. Reduce by 1 C (1.8 F) for each 600 m (2000 ft) above Sea Level.

3 Higher altitudes are possible if maximum operating temperature is reduced (see Temperature, above); other restrictions may apply, such as maximum permissible altitude for hard drive.

## Specifications (continued)

<b>Electrical—Universal Power Supplies are 120/240 Vac</b>		
	<b>Pedestal</b>	<b>Rackmount</b>
Nominal ac voltage	100-120 Vac / 220-240 Vac	120 Vac / 220-240 Vac
Operating Voltage range	90-128 Vac / 180-264 Vac	90-132 Vac / 180-264 Vac
Power source phase	Single	Single
Nominal frequency	60 Hz	50-60 Hz
Frequency range	59-61 Hz / 47-53 Hz	47-53 Hz
Maximum inrush current	50 Amps / 50 Amps	50 Amps
RMS current at nominal Voltage (steady state)		
Single power supply	8.0 Amps / 4.0 Amps	
Dual power supply	4.6 Amps each supply / 2.2 Amps each supply	
<b>Power cord</b>		
Type	IEC 320 C13	
Length	190 cm (75 in.)	4.57 m (15 ft.)
U.S. plug	NEMA 5-15	NEMA L5-30P Socket NEMA L5-30R
240 V plug		NEMA L6-20P Socket NEMA L6-20R
<b>Regulatory</b>		
Agency approvals	UL Listed to UL1950 (2nd edition) CSA Certified to CAN/CSA-C22.2 No. 950-M89 TUV EN 60950 VDE 0805 GS marked ZH1/618 FCC 15J Part 15 Class B Verified CE Class B Verified VCCI Class II ITE	UL Listed to UL1950 (2nd edition) CSA Certified to CAN/CSA-C22.2 No. 950-M89 TUV EN 60950 VDE 0805 GS marked ZH1/618 EMKO-TSE (74-SEC), summary of Nordic deviations FCC 15J Part 15 Verified Class A Verified CE Class A verified VCCI Class II ITE
Reviewed to	AS 3260 Australian Standard SS 436 14 50 Swedish Standard NZS 6661:1989 New Zealand Standard EN 60 950: 1992 European Norm IEC 950 (2nd edition)	EN 60 950/A1, JAN. 1993 European norm, January 1993 IEC950 (2nd edition)

## Specifications (continued)

## Prestige 1250EXT

UPS offerings include EIA232 port for local or network monitoring. For complete protection, UPS products should be used with data line surge protectors and UPS monitoring software.

## Pedestal UPS

4N-AEABF-AA	Prestige 1250EXT, 1250 VA/900W, 1 phase, 60 Hz, 120V 6-foot cord with 5-15P plug, (4) 5-15R receptacle, 9 minutes battery at full UPS load.
4N-AEABF-BF	Prestige 1250EXT, 1250 VA/900W, 1 phase, 50 Hz, 200-240V in/out selectable. Uses system power cord for detachable IEC320 input connection at UPS. Includes (3) IEC320 10A output receptacles, (2) output jumpers with IEC320 connectors to system.
4N-AEAE0-PA	Hot-swap Power-Pass Module for 60 Hz UPS with (7) 5-15R Surge Protected outlets.
4N-AEAE0-PB	Hot-swap Power-Pass Module for 50 Hz UPS with (6) IEC320, 10A surge protected outlets.
4N-AEWAR-G1	Prestige 5 year on-site exchange warranty upgrade (U.S. only).

## Rackmount UPS

4N-AEABF-CA	1.5k VA Rackmount 120V UPS. Rackmount kit included for mounting dimensions 6.17-inches high x 17-inches wide x 24-inches deep, Weight 81 lbs.
4N-AEABF-BG	1.5k VA Rackmount 240V UPS. Requires rackmount kit for dimensions 9.6-inches high x 5.6-inches wide x 15.8-inches deep, Weight 33 lbs
4N-AEAE0-RA	Rackmount kit for dimensions 22-27-inches deep
4N-AEAE0-RB	Rackmount kit for dimensions 28-34-inches deep

## Data Surge Protection

4N-GA249-AB*	Surge protector, modem connection, wall plug-in
4N-GA249-CA*	Surge protector, 10BaseT connection, wall plug-in
4N-GA510-BF	Surge Protector, ThinWire connection, device port
4N-GA245-xx	Surge Protector, multi-port connection, din rail/rackmount

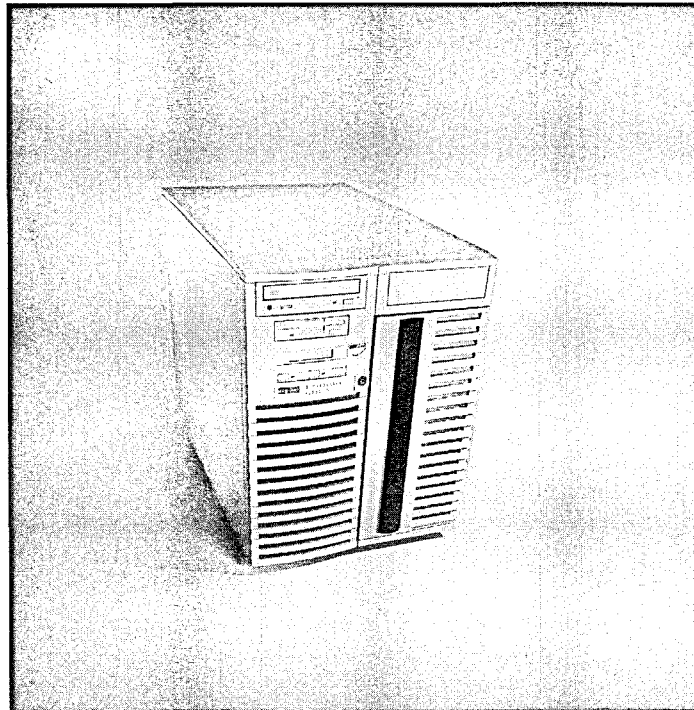
\* Additional plug-in data modules (4N-GA240-xx) available.

## Monitoring and Unattended Shutdown Software for above UPS systems only

- Include cables, media and documentation

4N-AEAES-AA	Single system shutdown for Windows NT
4N-AEAES-BA	NW management and multi system shutdown for Windows NT*
4N-AEAES-AK	Single system shutdown for DIGITAL UNIX
4N-AEAES-BK	NW management and multi system shutdown for DIGITAL UNIX*
4N-AEAES-EM	Single system shutdown for OpenVMS

\* Require network adapters: 4N-AEAE0-DA/DC for 120V 60 Hz; or 4N-AEAE0-DB/DD for 220V 50 Hz  
-DA and -DB = Twisted Pair; -DC and -DD = ThinWire



## AlphaServer 1000A Pedestal—Rackmount—Cabinet

### Product Description

The AlphaServer 1000A is an Alpha microprocessor server, available in 333 Mhz and 400 Mhz versions with 2MB ECC cache, and a 500 Mhz version with 8 MB ECC cache. All are available in Pedestal and Rackmount systems with a choice of three popular operating systems: DIGITAL UNIX, OpenVMS, and Microsoft Windows NT Server. The AlphaServer 1000A offers the following high-reliability features: heat sensor, fan failure and power supply sensors, and ECC memory. Integrated on system motherboard are fast wide single-ended SCSI-2 controller, diskette controller, two serial ports, one parallel port, and keyboard and mouse controller.

Advanced server management features are provided with all AlphaServer 1000A shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

**The AlphaServer 1000A Pedestal System** offers up to 10 internal storage devices including a floppy diskette drive, a CD-ROM, one additional 5.25-inch removable media bay, and seven hot swap StorageWorks wide or narrow disk drives. The system supports up to 30 GB of internal storage with seven 4.3 GB disks.

**The AlphaServer 1000A Rackmount System** offers up to 6 internal storage devices including a floppy diskette drive, a CD-ROM, one additional 5.25-inch removable media bay, and three wide and/or narrow disk drives. The system supports up to 12.9 GB of internal storage with three 4.3 GB disks.

## Step 1—AlphaServer 1000A Pedestal Systems

- Windows NT Packaged systems
  - North American variants include Windows NT license, media (CD-ROM) kit North American English
  - Selection of language specific Windows NT license, media (CD-ROM) kit is **mandatory** for all non-North American variants, see Step 9.
- DIGITAL UNIX and OpenVMS Packaged systems include factory installed (FIS) software on hard disk drive.
- Uninterruptable Power Supplies are available; see UPS Information following System Specifications.
- Options ordered that are factory installable, will be factory installed unless specified as **spares**.

### Pedestal Systems include

- Alpha microprocessor 21164
  - 333 MHz CPU with 2 MB ECC onboard cache, or
  - 400-MHz CPU with 2 MB ECC onboard cache, or
  - 500-MHz CPU with 8 MB ECC onboard cache
- Pedestal enclosure with:
  - Nine expansion slots: Seven PCI, and two EISA slots
  - Integral Fast Wide Single-Ended SCSI-2 controller supports wide and narrow devices
  - 16 SIMM memory slots support 4 memory options
  - 10 storage slots:
    - One diskette drive slot
    - One CD-ROM drive slot
    - One additional removable media slot
    - Seven StorageWorks wide and/or narrow hard drive slots
  - 450-Watt self-sensing, self-switching (120/240V, 60/50Hz) power supply
  - Two serial ports, support full duplex asynchronous modem control
  - One bi-directional enhanced parallel port
  - PS/2 style keyboard port and mouse port
- 1.44 MB diskette drive in dedicated slot
- 3-button mouse
- North American variants include 120V power cord (North America, Japan). Mandatory selection of country-specific power cord for all non-North American variants, see Step 10.
- English language documentation. Certain language selections are available; see Step 10.
- EISA Configuration Utility (ECU)
- Integrated Advanced Server Management features, including ServerWorks Manager kit
- Hardware Warranty: Three-year on-site\*
- Software Warranty:\*
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kit or†
- DIGITAL UNIX Unlimited User license, Server Extension license, Internet AlphaServer System Software kit, or
- OpenVMS base license with System Manager license, Enterprise Integrated Package (EIP)

\* Service upgrades are available; see Step 12, Hardware and Software Supplemental Services

† Windows NT language specific media kit is **mandatory** for non-North American variants; see Step 9.

### Pedestal Packaged Systems include

- PCI-based Fast 100 Ethernet (Twisted Pair) —uses one PCI slot
- 600 MB CD-ROM—uses one removable media slot
- One wide hard disk drive, see below
- One memory option, see below
- North American Windows NT and DIGITAL UNIX variants include a 101-key, PC style U.S. English keyboard.
- North American OpenVMS variants include a 108 key, VT style U.S. English keyboard.
- Select country-specific keyboard for all non-U.S. variants, see Step 10.

**Note:** Selection of graphics option is **mandatory** for Windows NT Pedestal Packaged Systems

5/333 Pedestal Packaged Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB76B-AA	Windows NT	Included*	120 V	Included	64 MB	1.05 GB	Mandatory	Required
PB76B-AB	Windows NT	Mandatory	Mandatory	Required	64 MB	1.05 GB	Mandatory	Required
PB76B-AD	Windows NT	Included*	120 V	Included	256 MB	1.05 GB	Mandatory	Required
PB76B-AE	Windows NT	Mandatory	Mandatory	Required	256 MB	1.05 GB	Mandatory	Required

**Step 1—AlphaServer 1000A Pedestal Systems (continued)**

5/333 Pedestal Packaged Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB76B-FE	DIGITAL UNIX	FIS	120 V	Included	64 MB	2.1 GB	Recommended	Recommended
PB76B-FF	DIGITAL UNIX	FIS	Mandatory	Recommended	64 MB	2.1 GB	Recommended	Recommended
PB76B-FG	DIGITAL UNIX	FIS	120 V	Included	256 MB	2.1 GB	Recommended	Recommended
PB76B-FH	DIGITAL UNIX	FIS	Mandatory	Recommended	256 MB	2.1 GB	Recommended	Recommended
PB76B-ME	OpenVMS	FIS	120 V	Included	64 MB	2.1 GB	Recommended	Recommended
PB76B-MF	OpenVMS	FIS	Mandatory	Recommended	64 MB	2.1 GB	Recommended	Recommended
PB76B-MG	OpenVMS	FIS	120V	Included	256 MB	2.1 GB	Recommended	Recommended
PB76B-MH	OpenVMS	FIS	Mandatory	Recommended	256 MB	2.1 GB	Recommended	Recommended

5/400 Pedestal Packaged Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB78B-AA	Windows NT	Included*	120 V	Included	128 MB	2.1 GB	Mandatory	Required
PB78B-AB	Windows NT	Mandatory	Mandatory	Required	128 MB	2.1 GB	Mandatory	Required
PB78B-AC	Windows NT	Included*	120 V	Included	256 MB	2.1 GB	Mandatory	Required
PB78B-AD	Windows NT	Mandatory	Mandatory	Required	256 MB	2.1 GB	Mandatory	Required
PB78B-FE	DIGITAL UNIX	FIS	120 V	Included	128 MB	2.1 GB	Recommended	Recommended
PB78B-FF	DIGITAL UNIX	FIS	Mandatory	Recommended	128 MB	2.1 GB	Recommended	Recommended
PB78B-FG	DIGITAL UNIX	FIS	120 V	Included	256 MB	2.1 GB	Recommended	Recommended
PB78B-FH	DIGITAL UNIX	FIS	Mandatory	Recommended	256 MB	2.1 GB	Recommended	Recommended
PB78B-ME	OpenVMS	FIS	120 V	Included	128 MB	2.1 GB	Recommended	Recommended
PB78B-MF	OpenVMS	FIS	Mandatory	Recommended	128 MB	2.1 GB	Recommended	Recommended
PB78B-MG	OpenVMS	FIS	120 V	Included	256 MB	2.1 GB	Recommended	Recommended
PB78B-MH	OpenVMS	FIS	Mandatory	Recommended	256 MB	2.1 GB	Recommended	Recommended

5/500 Pedestal Packaged Systems								
Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB79B-AA	Windows NT	Included*	120 V	Included	128 MB	4.3 GB	Mandatory	Required
PB79B-AB	Windows NT	Mandatory	Mandatory	Required	128 MB	4.3 GB	Mandatory	Required
PB79B-AC	Windows NT	Included*	120 V	Included	256 MB	4.3 GB	Mandatory	Required
PB79B-AD	Windows NT	Mandatory	Mandatory	Required	256 MB	4.3 GB	Mandatory	Required
PB79B-FA	DIGITAL UNIX	FIS	120 V	Included	128 MB	4.3 GB	Recommended	Recommended
PB79B-FB	DIGITAL UNIX	FIS	Mandatory	Recommended	128 MB	4.3 GB	Recommended	Recommended
PB79B-FC	DIGITAL UNIX	FIS	120 V	Included	256 MB	4.3 GB	Recommended	Recommended
PB79B-FD	DIGITAL UNIX	FIS	Mandatory	Recommended	256 MB	4.3 GB	Recommended	Recommended
PB79B-MA	OpenVMS	FIS	120 V	Included	128 MB	4.3 GB	Recommended	Recommended
PB79B-MB	OpenVMS	FIS	Mandatory	Recommended	128 MB	4.3 GB	Recommended	Recommended
PB79B-MC	OpenVMS	FIS	120 V	Included	256 MB	4.3 GB	Recommended	Recommended
PB79B-MD	OpenVMS	FIS	Mandatory	Recommended	256 MB	4.3 GB	Recommended	Recommended

\* Windows NT Server license, media (CD-ROM) kit North American English.

KEY: Mandatory items **must** be on purchase order at initial order acceptance.

Required items are essential for full system operation.

Recommended items enhance system functionality.

FIS = Factory Installed Software

## Step 1a—AlphaServer 1000A Rackmount Systems

- Windows NT Packaged systems
  - North American variants include Windows NT license, media (CD-ROM) kit North American English
  - Selection of language specific Windows NT license, media (CD-ROM) kit is **mandatory** for all non-North American variants, see Step 9.
- DIGITAL UNIX and OpenVMS Packaged systems include factory installed (FIS) software on hard disk drive.
- Uninterruptable Power Supplies are available; see UPS Information following System Specifications.
- Options ordered that are factory installable, will be factory installed unless specified as **spares**.

**Note:** AlphaServer 1000A rackmount systems do **not** support dual power supply configurations

### Rackmount Systems include

- Alpha microprocessor 21164
  - 333-MHz CPU with 2 MB ECC onboard cache, or
  - 400-MHz CPU with 2 MB ECC onboard cache, or
  - 500-MHz CPU with 8 MB ECC onboard cache
- Rackmount enclosure with:
  - Seven PCI slots
  - Two EISA slots
  - Integral Fast Wide Single-Ended SCSI-2 controller supports wide and narrow devices
  - 20 SIMM memory slots support 4 memory options
  - 6 storage slots:
    - One diskette drive slot
    - One CD-ROM drive slot
    - One additional removable media slot
    - Three fixed wide and/or narrow hard disk drive slots
  - 450-Watt self-sensing, self-switching (120/240V, 60/50Hz) power supply
  - Two serial ports, support full duplex asynchronous modem control
  - One bi-directional enhanced parallel port
  - PS/2 style keyboard port and mouse port
- 1.44 MB diskette drive in dedicated slot
- Three-button mouse
- 15-foot power cord (120V/240V as appropriate)
- Rackmount hardware (shelf and rails)
- English language documentation kit.
- EISA Configuration Utility (ECU)
- Integrated Advanced Server Management features, including ServerWorks Manager kit
- Hardware Warranty: Three-year on-site<sup>1</sup>
- Software Warranty:\*
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kit or†
- DIGITAL UNIX Unlimited User license, Server Extension license, or
- OpenVMS base license with System Manager license, Enterprise Integrated Package (EIP)

<sup>1</sup> Service upgrades are available; see Step 12, Hardware and Software Supplemental Services

<sup>2</sup> Windows NT language specific media kit is **mandatory** for non-North American variants; see Step 9.

### Rackmount Packaged Systems include

- PCI-based Fast 100 Ethernet (Twisted Pair)—uses one PCI slot
- One wide hard disk drive, see below
- One memory option, see below
- 600 MB CD-ROM—uses one removable media slot
- North American Windows NT and DIGITAL UNIX variants include a 101-key, PC style U.S. English keyboard.
- North American OpenVMS variants include a 108 key, VT style U.S. English keyboard.
- Select country-specific keyboard for non-North American variants, see Step 10.
- Systems include 120V or 240V power cord depending on variant chosen.
- Cabinet enclosure available separately, see Step 11.

**Note:** Selection of graphics option is **mandatory** for Windows NT Rackmount Packaged Systems

#### 5/333 Rackmount Packaged Systems

Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB76P-AA	Windows NT	Included*	120 V	Included	64 MB	1.05 GB	Mandatory	Required
PB76P-AB	Windows NT	Mandatory	240 V	Required	64 MB	1.05 GB	Mandatory	Required
PB76P-AC	Windows NT	Included*	120 V	Included	256 MB	1.05 GB	Mandatory	Required
PB76P-AD	Windows NT	Mandatory	240 V	Required	256 MB	1.05 GB	Mandatory	Required

**Step 1—AlphaServer 1000A Rackmount Systems (continued)****5/333 Rackmount Packaged Systems**

Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB76P-FE	DIGITAL UNIX	FIS	120 V	Included	64 MB	2.1 GB	Recommended	Recommended
PB76P-FF	DIGITAL UNIX	FIS	240 V	Recommended	64 MB	2.1 GB	Recommended	Recommended
PB76P-FG	DIGITAL UNIX	FIS	120 V	Included	256 MB	2.1 GB	Recommended	Recommended
PB76P-FH	DIGITAL UNIX	FIS	240 V	Recommended	256 MB	2.1 GB	Recommended	Recommended
PB76P-ME	OpenVMS	FIS	120 V	Included	64 MB	2.1 GB	Recommended	Recommended
PB76P-MF	OpenVMS	FIS	240 V	Recommended	64 MB	2.1 GB	Recommended	Recommended
PB76P-MG	OpenVMS	FIS	120 V	Included	256 MB	2.1 GB	Recommended	Recommended
PB76P-MH	OpenVMS	FIS	240 V	Recommended	256 MB	2.1 GB	Recommended	Recommended

**5/400 Rackmount Packaged systems**

Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB78P-AA	Windows NT	Included*	120 V	Included	128 MB	2.1 GB	Mandatory	Required
PB78P-AB	Windows NT	Mandatory	240 V	Required	128 MB	2.1 GB	Mandatory	Required
PB78P-AC	Windows NT	Included*	120 V	Included	256 MB	2.1 GB	Mandatory	Required
PB78P-AD	Windows NT	Mandatory	240 V	Required	256 MB	2.1 GB	Mandatory	Required
PB78P-FE	DIGITAL UNIX	FIS	120 V	Included	128 MB	2.1 GB	Recommended	Recommended
PB78P-FF	DIGITAL UNIX	FIS	240 V	Recommended	128 MB	2.1 GB	Recommended	Recommended
PB78P-FG	DIGITAL UNIX	FIS	120 V	Included	256 MB	2.1 GB	Recommended	Recommended
PB78P-FH	DIGITAL UNIX	FIS	240 V	Recommended	256 MB	2.1 GB	Recommended	Recommended
PB78P-ME	OpenVMS	FIS	120 V	Included	128 MB	2.1 GB	Recommended	Recommended
PB78P-MF	OpenVMS	FIS	240 V	Recommended	128 MB	2.1 GB	Recommended	Recommended
PB78P-MG	OpenVMS	FIS	120 V	Included	256 MB	2.1 GB	Recommended	Recommended
PB78P-MH	OpenVMS	FIS	240 V	Recommended	256 MB	2.1 GB	Recommended	Recommended

**5/500 Rackmount Packaged systems**

Order Number	Operating System	O/S Media	Power cord	Keyboard	Memory	Disk	Graphics	Monitor
PB79P-AA	Windows NT	Included*	120 V	Included	128 MB	4.3 GB	Mandatory	Required
PB79P-AB	Windows NT	Mandatory	240 V	Required	128 MB	4.3 GB	Mandatory	Required
PB79P-AC	Windows NT	Included*	120 V	Included	256 MB	4.3 GB	Mandatory	Required
PB79P-AD	Windows NT	Mandatory	240 V	Required	256 MB	4.3 GB	Mandatory	Required
PB79P-FA	DIGITAL UNIX	FIS	120 V	Included	128 MB	4.3 GB	Recommended	Recommended
PB79P-FB	DIGITAL UNIX	FIS	240 V	Recommended	128 MB	4.3 GB	Recommended	Recommended
PB79P-FC	DIGITAL UNIX	FIS	120 V	Included	256 MB	4.3 GB	Recommended	Recommended
PB79P-FD	DIGITAL UNIX	FIS	240 V	Recommended	256 MB	4.3 GB	Recommended	Recommended
PB79P-MA	OpenVMS	FIS	120 V	Included	128 MB	4.3 GB	Recommended	Recommended
PB79P-MB	OpenVMS	FIS	240 V	Recommended	128 MB	4.3 GB	Recommended	Recommended
PB79P-MC	OpenVMS	FIS	120 V	Included	256 MB	4.3 GB	Recommended	Recommended
PB79P-MD	OpenVMS	FIS	240 V	Recommended	256 MB	4.3 GB	Recommended	Recommended

\* Windows NT Server license, media (CD-ROM) kit North American English.

KEY: Mandatory items **must** be on purchase order at initial order acceptance.

Required items are essential for full system operation.

Recommended items enhance system functionality.

FIS = Factory Installed Software

## Step 1b—AlphaServer 1000A Cabinet Systems

### Cabinet Packaged Systems include

- AlphaServer 1000A Cabinet Systems ship with dual (2) H7600-xx cabinet power distribution units and the following power cords.
  - 120 V systems (H7600-AA) = 2 x 24A terminated with NEMA L5-30P (plugs) and require NEMA L6-20R (receptacles)
  - 240 V systems (H7600-DB) = 2 x 16A terminated with NEMA L6-20P (plugs) and require NEMA L6-20R (receptacles)
- H9A10 Cabinet Dimensions
  - Outside: 66.9-inches high, 23.62-inches wide, 33.8-inches deep
  - Usable internal rackmount: 59.5-inches high, 19-inches wide, 30.83-inches deep.

### 5/333 and 5/400 Cabinet Packaged Systems include

- Cabinet enclosure (H9A10 120 V or 240 V) with AlphaServer 1000A Rackmount Packaged System, **plus**
  - One BA36R-AF front-mounted StorageWorks shelf. **Note:** BA36R-AF StorageWorks wide shelf requires a Fast wide SCSI controller, SCSI disk drive, and SCSI cable, see Step 4b. Select SCSI devices for installation in BA36R-AF StorageWorks shelf from Step 4e.

#### 5/333 Cabinet Packaged Systems

PB76R-AA*	Windows NT Rackmount Packaged system (PB76P-AA)
PB76R-AC	Windows NT Rackmount Packaged system (PB76P-AB)
PB76R-FA/FC	DIGITAL UNIX Rackmount Packaged system (PB76P-FA/FB)
PB76R-MA/MC	OpenVMS Rackmount Packaged system (PB76P-MA/MB)

#### 5/400 Cabinet Packaged Systems

PB78R-AA*	Windows NT Rackmount Packaged system (PB78P-AA)
PB78R-AC	Windows NT Rackmount Packaged system (PB78P-AB)
PB78R-FA/FC	DIGITAL UNIX Rackmount Packaged system (PB78P-FA/FB)
PB78R-MA/MC	OpenVMS Rackmount Packaged system (PB78P-MA/MB)

\* Windows NT Server license, media (CD-ROM) kit North American English..

## Step 1c—PCI Option Slot Table

- Use table for options restricted to slots **0, 1 and 2 only**.

Order Number	Description	Max #	Restriction applies to
KZPSC-AA	One-port PCI-based RAID Controller	3	DIGITAL UNIX, OpenVMS, Windows NT
KZPSC-BA	Three port PCI-based RAID Controller	3	Windows NT only
DJ-ML200-BA	4 MB PCI Prestoserve option	1	DIGITAL UNIX
DE500-XA	PCI-based Fast Ethernet network interface card	3	DIGITAL UNIX, OpenVMS, Windows NT

## Step 2—Memory

- Packaged Systems include one 64 MB, 128 MB, or 256 MB memory kit.
- System supports up to four memory kits (each kit includes industry-standard SIMMs and ECC support).
- System supports maximum of 1 GB memory

PB7MA-CB	32 MB 70ns (8 MB SIMMs) memory kit
PB7MA-CC	64 MB 70ns (16 MB SIMMs) memory kit
PB7MA-CD	128 MB 70ns (32 MB SIMMs) memory kit
PB7MA-CE	256 MB 70ns ( 64 MB SIMMs) memory kit

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**Step 2a—Prestoserve Non-Volatile Random Access Memory (NVRAM)**

- Supported on DIGITAL UNIX systems **only**, maximum one Prestoserve option per system.

DJ-ML200-BA      PCI-based 4 MB PrestoServe I/O performance enhancement option

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**Step 3—Monitors**

- Windows NT systems require a graphics monitor to run **all** functions.
- EISA Configuration Utility (ECU) is accessible via the console port for DIGITAL UNIX and OpenVMS systems. Optional graphics capability is available. Select graphics adapter, monitor, and country specific keyboard for DIGITAL UNIX and OpenVMS systems if required.
- Graphics monitors other than those listed below can be used if compatible with graphics adapter included with system.

**Note:** Higher resolution available with optional EISA or PCI graphics adapters (see Step 5).

SN-VRCX5-WA/W3/W4      15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.

SN-VRTX7-WA/W3  
SN-VRT17-W4      17" (16.0" viewable image size) Professional Series auto-scan color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 @ 75Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord, SN-VRT17-W4 = Southern Hemisphere. Select country specific power cord for W3 and W4 variant.

SN-VRCX1-WA/  
W3/W4      21" (19.7" viewable image size) professional series auto-scan color monitor, Diamondtron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.

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**Step 4—Storage****Configuration rules for Pedestal Internal Storage**

- Integral Fast Wide Single Ended (FWSE) SCSI-2 controller supports maximum of seven wide and/or narrow devices in any combination of:
  - Two internal narrow 5.25-inch removable media devices
  - Six narrow or wide 3.5-inch hard disk drives in internal storage assembly
  - One external narrow storage device. Maximum external SCSI cable length cannot exceed .5 meters
- Pedestal enclosure supports ten storage devices: one dedicated diskette drive slot, two removable media slots, seven 3.5-inch internal hard disk drives.
- Pedestal system internal storage assembly is configured in single-bus mode and can be reconfigured in split bus mode.
- An additional SCSI-2 controller is required to support internal storage assembly if set for split-bus mode.

**Configuration rules for Rackmount Internal Storage**

- Integral Fast Wide Single Ended (FWSE) SCSI-2 controller supports maximum of five wide and/or narrow devices:
  - Two internal narrow 5.25-inch removable media devices.
  - Three narrow or wide 3.5-inch internal hard disk drives (each narrow drive ordered requires a wide to narrow SCSI adapter (PBXKP-BA)).
- Rackmount enclosure supports six storage devices: one dedicated diskette drive slot, two removable media slots, three 3.5-inch internal hard disk drives.

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**Step 4a—Internal Storage**

- Pedestal and Rackmount Packaged systems include:
  - 1.44 MB diskette drive in dedicated slot.
  - One CD-ROM drive
  - One 1.05 GB, 2.1 GB, or 4.3GB wide hard drive (see Step 1)

**Removable Media Devices**

PBXRD-DA	600 MB 5.25 inch half-height 12 X CD-ROM drive (RRD46)
PBXTZ-AA	2.0 GB 5.25-inch half-height SCSI QIC tape drive (TZK11)
PBXTL-DA	8.0 GB 5.25-inch x 1.6-inch SCSI 4 mm DAT drive (TLZ09)

**Pedestal System Hard Disk Drives**

RZ28D-VW	2.1 GB 16-bit wide 7200 RPM 3.5 x 1" SCSI hard disk drive
RZ29B-VW	4.3 GB 16-bit wide 7200 RPM 3.5 x 1.6" SCSI hard disk drive

**Pedestal system internal SCSI Cable Kits**

PB7HA-AA	Includes 50 conductor cable from 8-bit narrow SCSI controller to internal storage assembly, cable from internal storage assembly to external bulkhead, and external terminator.
PB7HA-BA	Includes 68 conductor cable from 16-bit wide SCSI controller to internal storage assembly, cable from internal storage assembly to wide SCSI external bulkhead, jumper cable to put internal storage assembly into single bus mode, and external single-ended wide SCSI terminator.
BC25V-1H	Includes one 68 conductor cable from 16-bit wide SCSI controller to wide SCSI external bulkhead.

**Rackmount Hard Disk Drives—factory or field installed**

PBXRW-JB	2.1 GB 16-bit wide 7200 RPM 3.5-inch, half-height disk drive
PBXRW-NA	4.3 GB 16-bit wide 7200 RPM 3.5-inch half-height disk drive

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**Step 4b—Storage Controller**

- Maximum two EISA-based KZESC-xx SCSI controllers supported per system. Maximum number of EISA-based controllers of all types is limited by the total number of available EISA slots and available IRQs.
- KZPSC-xx StorageWorks RAID Array 230 includes PCI backplane RAID controller and StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX and Windows NT.
  - KZPSC-AA one-port controller installed in Pedestal system requires a PB7HA-BA SCSI cable kit for connection to internal StorageWorks shelf, two kits required for split bus mode.
  - KZPSC-BA three-port controller installed in Pedestal system requires one PB7HA-BA SCSI cable kit for connection to internal StorageWorks shelf, split-bus mode requires two SCSI cable kits.  
**Note:** If all three ports on KZPSC-BA controller are used, third external port blocks an additional PCI bulkhead slot.
- KZESC-xx StorageWorks RAID Array 210 includes EISA backplane RAID controller and StorageWorks RAID Array 210 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX and Windows NT.
  - KZESC-AA one-port controller installed in Pedestal system requires one PB7HA-AA SCSI cable kit for connection to internal StorageWorks shelf, split-bus mode requires two SCSI cable kits.
  - KZESC-BA three-port controller installed in Pedestal system requires one PB7HA-AA SCSI cable kit for connection to internal StorageWorks shelf, split-bus mode requires two SCSI cable kits.  
**Note:** If all three ports on KZESC-BA controller are used for external storage, third external port blocks an additional PCI bulkhead slot.
- KZPSA-BB PCI-based one-port Fast Wide Differential SCSI controller supports externally connected wide disks in BA356/BA36R with DWZZB signal converter, or narrow disks in BA35R with DWZZA signal converter. Internal hard disk drives are not supported on FWD controller.
- SCSI cables are not included and must be ordered separately.
- External DSSI cables are not included and must be ordered separately.

**Step 4b—Storage Controller (continued)****SCSI Controllers**

<b>KZPAA-AA</b>	PCI-based one-port high-performance Fast Narrow Single Ended (FNSE) SCSI-2 controller
<b>BN21H-xx</b>	Connects from KZPAA-AA to narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves. Pedestal system requires PB7HA-AA SCSI cable kit for connection to internal StorageWorks shelf
<b>KZPSA-BB</b>	PCI-based one-port high-performance Fast Wide Differential (FWD) SCSI controller. Supports external disks only.
<b>BN21K-02</b>	Connects from KZPSA to DWZZA-VA in narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves, or DWZZB-VW in wide StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>KZPDA-AA</b>	PCI-based one-port Fast Wide Single Ended (FWSE) SCSI controller
<b>BN21K-02</b>	Connects from KZPDA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves.
<b>KZPSC-AA*</b>	One-port PCI backplane RAID Fast Wide Single Ended (FWSE) controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit. Pedestal system requires PB7HA-BA SCSI cable kit for connection to internal StorageWorks shelf.
<b>BN31S-1E</b>	Connects from KZPSC-AA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>BN31L-1E</b>	Connects from KZPSC-AA to narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves
<b>KZPSC-BA*</b>	Three-port PCI backplane RAID (FWSE) controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit. Pedestal system requires PB7HA-BA SCSI cable kit for connection to internal StorageWorks shelf.
<b>BN31K-0E</b>	SCSI cable/bulkhead assembly kit for KZPSC-BA; required for connection to third port; uses one PCI bulkhead slot.
<b>BN31S-1E</b>	Connects from KZPSC-BA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>BN31L-1E</b>	Connects from KZPSC-BA to narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves
<b>KZESC-AA*</b>	One-port EISA backplane RAID (FNSE) controller; includes StorageWorks RAID Array 210 Subsystem family software and documentation kit. Pedestal system requires PB7HA-AA SCSI cable kit for connection to internal StorageWorks shelf
<b>BN21H-02</b>	Connects from KZPAA-AA to narrow StorageWorks enclosures and narrow StorageWorks rackmount shelves
<b>BN21N-02</b>	Connects from KZESC-BA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>KZESC-BA*</b>	Three-port EISA backplane RAID controller; includes StorageWorks RAID Array 210 Subsystem family software and documentation kit. Pedestal system requires PB7HA-AA SCSI cable kit for connection to internal StorageWorks shelf.
<b>CK-SWXCR-AA</b>	SCSI cable/bulkhead assembly kit for KZESC-BA, required for connecting second and third ports to bulkhead slot
<b>BN21H-02</b>	Connects from KZESC-BA to narrow StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>BN21N-02</b>	Connects from KZESC-BA to wide StorageWorks enclosures and wide StorageWorks rackmount shelves
<b>KZPSM-AA</b>	PCI-based SCSI Ethernet combination controller. (FWSE) SCSI controller, 10 Mbit Ethernet.
<b>BC25V-1A</b>	SCSI cable/bulkhead assembly kit for KZPSM-AA; connects from KZPSM-AA to bulkhead for external storage; requires BN21K-xx SCSI cable
<b>BN21K-xx</b>	Connects from KZPSM-AA bulkhead assembly kit wide StorageWorks enclosures and wide StorageWorks rackmount shelves

\* See *Storage Devices* for additional information on StorageWorks RAID Array 2x0 Subsystems

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**Step 4b—Storage Controllers (continued)****DSSI Controllers**

KFP5A-AA	PCI-based single-DSSI controller (OpenVMS systems only). See Step 4f DSSI cables.
KFESB-AA	EISA-based single-DSSI controller (OpenVMS systems only). Uses one EISA slot if system is end node in OpenVMS cluster, or two slots if system is middle node in OpenVMS cluster. Maximum two (if end node in cluster) or maximum of one (if middle node in cluster). See Step 4f DSSI cables.

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**Step 4c—External Tape Expansion**

- Integral Fast Wide Single Ended SCSI-2 controller installed in Pedestal systems can be extended outside the system enclosure for narrow devices only.
  - 0.5 meters when internal narrow device is connected and StorageWorks assembly is configured in single-bus mode in Pedestal enclosure only.
  - 1.0 meters when internal narrow device is connected and StorageWorks assembly is configured in split-bus mode in Pedestal enclosure only.
- External tape drives are also supported on optional PCI-based SCSI controllers.
  - KZPAA-AA—maximum bus length including cable and tape device cannot exceed 3.0 meters.
  - KZPSA-BB—maximum bus length including cable and tape device cannot exceed 25.0 meters.
  - External tape drives supported on one- and three-port (KZPSC-xx) SCSI controllers on Windows NT systems **only**.
  - External tape drives are **not** supported on one- and three-port (KZESC-xx) Fast-SCSI-2 controllers.
  - Each tabletop tape device **requires** high density 50-pin to low density 50-pin SCSI cable (BN23G-0E).

**External Tapes supported on Windows NT Servers**

TLZ09	4.0/8.0 GB 4 mm DAT tape drive
TLZ7L <sup>1,2</sup>	32.0 GB 4 mm DAT autoloader
TZK11-DA	2.0 GB 5.25-inch tabletop QIC tape drive
TZ87 <sup>2</sup>	20 GB, DLT tape drive
TZ875 <sup>2</sup>	100 GB, DLT tape autoloader
TZ877 <sup>2</sup>	140 GB, DLT tape autoloader
BN23G-0E	3 Foot Molded SCSI Cable, required for each tabletop tape device

1 Includes four cartridge loader. Larger magazines are supported.

2 Base operating systems support sequential back-up mode only; additional software is required for random access backup. See *Storage Devices* for details.

**External Tapes supported on DIGITAL UNIX and OpenVMS servers**

TLZ09 <sup>3</sup>	4.0/8.0 GB 4 mm DAT tape drive
TLZ7L <sup>1,2,3</sup>	32.0 GB 4 mm DAT autoloader
TZK11-DA <sup>3</sup>	2.0 GB 5.25-inch tabletop QIC tape drive
TKZ60-FA/FC	400 MB IBM 3480/3490 compatible tabletop tape drive
TKZ60-EA <sup>3</sup>	400 MB IBM 3480/3490 compatible tabletop tape drive
TKZ61	400 MB IBM compatible tape autoloader
TKZ61-AC <sup>3</sup>	400 MB IBM compatible tape autoloader
TKZ62	2.4 GB IBM compatible tape autoloader
TKZ62-AC <sup>3</sup>	2.4 GB IBM compatible tape autoloader
TKZ15-TA	10 GB, 8 mm, tabletop tape drive
TKZ15-VA <sup>3,4</sup>	10 GB, 8 mm, tabletop tape drive
TSZ07-CA	40/140 MB, reel/reel, tabletop tape drive
TSZ07-AA <sup>3</sup>	40/140 MB, reel/reel, tabletop tape drive

1 Includes four cartridge loader. Larger magazines are supported.

2 Base operating systems support sequential back-up mode only; additional software is required for random access backup. See *Storage Devices* for details.

3. Variants for use in Rackmount systems

4. Windows NT require layered driver software QB-4STAA-SA

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**Step 4c—External Tape Expansion (continued)****External Tapes supported on DIGITAL UNIX and OpenVMS servers**

TZ875 <sup>2</sup>	100 GB, DLT tape autoloader
TZ877 <sup>2</sup>	140 GB, DLT tape autoloader
TZ87 <sup>2</sup>	20 GB, DLT tape drive
TZ87-VA <sup>3</sup>	20 GB, DLT tape drive
TZ88 <sup>2</sup>	20/40 GB, DLT tape drive
TZ887-NT	140/280 GB SCSI tape subsystem
TKZ9E-TA <sup>5</sup>	2/5/7/10/14 GB 8 mm helical scan tape drive, tabletop
TKZ9E-VA <sup>3</sup>	2/5/7/10/14 GB 8 mm helical scan tape drive in StorageWorks SBB carrier
BN23G-0E	3 Foot Molded SCSI Cable, required for each tabletop tape device.

2. Base operating systems support sequential back-up mode only; additional software is required for random access backup. See *Storage Devices* for details.

3. Variants for use in Rackmount systems

5. 8 mm drive requires OpenVMS MK-driver patch when connected to KZPSA controller in OpenVMS system.

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**Step 4d—External Disk Expansion for Pedestal Systems**

- BA353 expansion units are supported on wide and narrow SCSI controllers. Devices operate in narrow mode when BA353 is connected to a Fast Wide SCSI controller.
- BA362, BA364, BA356 and BA346 expansion units are supported on Fast Wide SCSI controllers.

**StorageWorks Modular Storage Options**

BA353-AA	StorageWorks 8-bit <b>Narrow</b> Desktop expansion unit includes enclosure and 120 V power cord. Supports up to three 3.5" narrow hard disk drives. Not supported with RAID controllers.
BA356-KC	StorageWorks 16-bit <b>Wide</b> Pedestal expansion unit includes BA356 basic shelf, BA35X-HA universal ac power supply, pedestal mounting kit, and 120 V power cord. Supports up to seven 3.5" wide or narrow drives; narrow drives operate in narrow mode.
BA346-KB	StorageWorks 16-bit <b>Wide</b> Pedestal expansion unit includes BA356 basic shelf, BA35X-HA universal ac power supply, pedestal mounting kit, and 120 V power cord. Supports up to nine devices, two 5.25" narrow and seven 3.5" wide or narrow drives; narrow drives operate in narrow mode.
BA362-AA/AB	StorageWorks desktop expansion unit, supports up to two 3.5" narrow/wide SCSI devices
BA364-AA/AB	StorageWorks desktop expansion unit, supports up to four 3.5" narrow/wide SCSI devices and one fixed CD-ROM
DWZZA-VA	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 bit Fast Narrow Single-Ended SCSI-2 on other end.
DWZZB-VW	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 or 16 bit Fast Wide or Fast Narrow Single-Ended SCSI-2 on other end.

See *Storage Device* for additional ordering information for StorageWorks modular storage expansion and supported devices.

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**Step 4e—External Disk Expansion for Cabinet Systems**

- External BA35R Rackmount StorageWorks shelves are supported on all Fast SCSI-2 controllers.
- External BA36R Rackmount StorageWorks shelves are supported on Fast Wide SCSI controller.
- AlphaServer 1000 Rackmount systems provide four SCSI expansion ports on rear panel of system.
- Order BN21H-02 cable to connect a single BA35R StorageWorks shelf to controllers.
- Order BN31\*-xx cable to connect a single BA36R StorageWorks shelf to controllers.

**StorageWorks BA35R/BA36R 8-bit and 16-bit Rackmount Shelves**

BA36R-AF	Front mount BA356 Rackmount StorageWorks Shelf, BA35R-MH 16-bit I/O module, BA35X-HF power supply
BA36R-AR	Rear mount BA356 Rackmount StorageWorks Shelf, BA35R-MH 16-bit I/O module, BA35X-HF power supply

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**Step 4e—External Disk Expansion for Cabinet Systems (continued)****StorageWorks BA35R/BA36R 8-bit and 16-bit Rackmount Shelves**

<b>BA35R-SF</b>	Front Mount BA356 Rackmount StorageWorks Shelf, BA35X-MG 8-bit I/O module, BA35X-HF power supply
<b>BA35R-SR</b>	Rear Mount BA356 Rackmount StorageWorks Shelf, BA35X-MG 8-bit I/O module, BA35X-HF power supply
<b>DWZZA-VA</b>	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 bit Fast Narrow Single-Ended SCSI-2 on other end. <b>Requires</b> BN21K-** cable.
<b>DWZZB-VW</b>	Bi-directional SCSI signal converter and bus extender kit. 16 bit Fast Wide Differential SCSI-2 on one end and 8 or 16 bit Fast Wide Single-Ended SCSI-2 on other end. <b>Requires</b> BN21K-** cable.

See *Storage Devices* for additional ordering information for StorageWorks modular storage expansion and supported devices.

**Hard Disk Drives for Rackmount StorageWorks Shelves (External only)**

- Wide drives require wide controller to operate in 16-bit wide mode.
- Wide drives are supported in BA36R Rackmount StorageWorks shelves
- Narrow drives are supported in BA35R Rackmount StorageWorks shelves

<b>RZ26N-VA</b>	1.05 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28M-VA</b>	2.1 GB 8-bit narrow 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28D-VA</b>	2.1 GB 8-bit narrow 7200 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ29B-VA</b>	4.3 GB 8-bit narrow 7200 RPM 3.5 x 1.6" SCSI hard disk drive
<b>DS-RZ26N-VZ</b>	1.05 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>DS-RZ28M-VZ</b>	2.1 GB 16-bit wide 5400 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ28D-VW</b>	2.1 GB 16-bit wide 7200 RPM 3.5 x 1" SCSI hard disk drive
<b>RZ29B-VW</b>	4.3 GB 16-bit wide 7200 RPM 3.5 x 1.6" SCSI hard disk drive

\* Wide drives operate in 8-bit narrow mode when connected to integral Fast Narrow Single Ended SCSI-2 controller

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**Step 4f—DSSI Cables**

- KFESB-AA EISA based DSSI controller cables:
  - KFESB to any external "Pin-Socket" DSSI connection (VAX 4000s, R400X) requires BC22Q-xx DSSI cable.
  - KFESB to any external "Micro-Ribbon" DSSI straight connection (all other DSSI systems and storage devices requiring straight connection) requires BC21Q-xx DSSI cable.
  - KFESB to any external "Micro-Ribbon" DSSI right-angle connection (all other DSSI systems and storage devices requiring right-angle connection) requires BC29S-xx DSSI cable.
- KFPSA PCI based DSSI controller cables:
  - KFPSA to any external "Pin-Socket" DSSI connection requires BC22Q-xx
  - KFPSA to any external "Micro-Ribbon" DSSI straight connection (all other DSSI systems and storage devices requiring straight connection) requires BC21Q-xx
  - KFPSA to any external "Micro-Ribbon" DSSI right-angle connection (all other DSSI systems and storage devices requiring right-angle connection) requires BC29S-xx DSSI cable
  - Order BC29S-09 DSSI cable for HSD10 in BA36R-Ax shelves
  - Order BC29U-02 DSSI cable for HSD10 in adjacent BA36R-Ax shelves
  - Order BC29V-06 DSSI cable for HSD10 in non-adjacent BA36R-Ax shelves

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## Step 5—Graphics Adapters

**Note:** Selection of graphics option is **mandatory** for Windows NT Pedestal Packaged Systems

EISA Configuration Utility (ECU) is accessible via the console port for DIGITAL UNIX and OpenVMS systems. Optional graphics capability is available. Select graphics adapter, monitor, and country specific keyboard for DIGITAL UNIX and OpenVMS systems if required.

<b>PB2GA-JC</b>	PCI based 1MB DRAM graphics adapter 1024 x 768
<b>PB2GA-JD</b>	PCI based 2MB DRAM graphics adapter 1024 x 768
<b>PBXGB-AA</b>	PCI based 8-plane 1280 x 1024 graphics adapter
<b>PBXGB-CA</b>	PCI based 24-plane 1280 x 1024 graphics adapter

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## Step 6—Networks and Communications

- Packaged systems include PCI-based Fast 100 Ethernet (Twisted Pair) controller (DE500-AA), uses one PCI slot.
- All options use one slot except DEFEA-DA which uses two slots
- Select networking cable for Ethernet controller
  - BN26K-xx for 10BaseT (twisted pair)
- Maximum number of **each** EISA-based network controllers supported per system:
  - Two DE425-AA, Two DEFEA-xA, Two DW300-AA, Two DNSES

<b>DE500-AA</b>	PCI-based Fast Ethernet network interface card (see PCI Option Slot Table)
<b>DE425-AA</b>	EISA-based Ethernet; OpenVMS and DIGITAL UNIX only
<b>DE450-CA</b>	PCI based DIGITAL Etherworks 32-bit network interface card (twisted pair, Thick wire, ThinWire)
<b>DEFFA-AB*</b>	PCI-based DEC FDDIcontroller, Single Attachment; maximum seven on OpenVMS and Windows NT, four on DIGITAL UNIX.
<b>DEFFA-DB</b>	PCI-based DEC FDDIcontroller, Dual Attachment, maximum seven on OpenVMS and Windows NT, four on DIGITAL UNIX.
<b>DEFFA-UB</b>	PCI-based DEC FDDI (UTP) controller; maximum seven on OpenVMS and Windows NT, four on DIGITAL UNIX.
<b>DGLPB-AB</b>	PCI-based ATMworks 350 adapter
<b>PBXNP-AA</b>	PCI-based Token Ring adapter, no boot support. DIGITAL UNIX and OpenVMS systems require driver floppy.

\* Supported as data device only

<b>DEFEA-AA</b>	EISA-based DEC FDDIcontroller, Single Attachment
<b>DEFEA-DA</b>	EISA-based DEC FDDIcontroller, Dual Attachment (requires two slots)
<b>DEFEA-UA</b>	EISA-based DEC FDDI (UTP) controller
<b>DW300-AA</b>	EISA-based Token-Ring adapter includes NetWare V2.15 driver, LAN Manager Driver, and documentation (Not supported by DECnet/OSI for OpenVMS)
<b>DNSES-AA</b>	EISA-based synchronous communications controller; DIGITAL UNIX and OpenVMS systems only
<b>CXI01-AA</b>	ISA Async MUX Adapter, 16 lines—expandable to 64 lines; Windows NT and DIGITAL UNIX only
<b>CXI01-AD</b>	ISA Async MUX Adapter, 16 lines—expandable to 224 lines; Windows NT and DIGITAL UNIX only
<b>PBXDI-AA</b>	ISA-based Two Port Synchronous Communications controller with interface support for EIA-232/V.24/V.28; Windows NT only
<b>PBXDI-AB</b>	ISA-based Two Port Synchronous Communications controller with interface support for V.35; Windows NT only
<b>PBXDI-AC</b>	ISA-based Two Port Synchronous Communications controller with interface support for X.21 and EIA-530; Windows NT only
<b>DIIAA-AA</b>	ISA-based ISDN terminal adapter (U.S.); Windows NT only
<b>DIIAA-AB</b>	ISA-based ISDN terminal adapter (non-U.S.); Windows NT <b>only</b>

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## Step 7—Additional Power Supply—Pedestal Systems Only

**Note:** AlphaServer 1000A Rackmount and Cabinet systems do **not** support dual power supply configurations

- Additional power supply may be added to AlphaServer 1000A Pedestal system for n+1 redundancy.
- Country specific power cord must be ordered separately, see Step 10.

**H7290-AA**            450-Watt Redundant Power Supply Option

See UPS information following System Specifications.

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## Step 8—Printers and Remote Console

The KCRCM is an EISA form-factor card that enables a remote user to gain access to the system's console terminal port, and reset, halt, and power cycle the system. It functions independently of the operating system.

**KCRCM-AA**            Remote System access for 110V North American  
**KCRCM-BA**            Remote System access for 220V Europe  
**KCRCM-CA**            Remote System access for 220V U.K.  
**KCRCM-DA**            Remote System access for 240V Australia/New Zealand

Systems include two EIA-232 asynchronous serial ports with 9-pin D-subminiature connectors.

Select serial printers as required. A 9-pin to MMJ adapter (H8571-J) is required for each connection. A cable must be ordered unless otherwise provided.

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## Step 9—Software

- North American variants of Windows NT Packaged systems include Windows NT license, media (CD-ROM) kits (see Step 1). **Note:** Selection of language specific Windows NT media kit is **mandatory** for non North American variants.
- Order documentation kit if required.

### Windows NT Server plus 10-client access license, media (CD-ROM) kits

**QB-23CAA-SB**        Windows NT Server license, media kit North American English  
**QB-23C8A-SB**        Windows NT Server license, media kit International English  
**QB-23CPA-SB**        Windows NT Server license, media kit French  
**QB-23CGA-SB**        Windows NT Server license, media kit German  
**QB-23CSA-SB**        Windows NT Server license, media kit Spanish  
**QB-23CUA-SB**        Windows NT Server license, media kit Italian  
**QB-23CJA-SB**        Windows NT Server license, media kit Japanese  
**QB-23C5A-SB**        Windows NT Server license, media kit Thai  
**QB-23CMA-SB**        Windows NT Server license, media kit Swedish  
**QB-23CTA-SB**        Windows NT Server license, media kit Hebrew  
**QB-23CQA-SB**        Windows NT Server license, media kit Arabic  
**QB-23CHA-SB**        Windows NT Server license, media kit Dutch  
**QB-23CVA-SB**        Windows NT Server license, media kit Brazilian/Portuguese  
**QB-23C4A-SB**        Windows NT Server license, media kit Korean  
**QB-23C3A-SB**        Windows NT Server license, media kit Taiwanese  
**QB-23C2A-SB**        Windows NT Server license, media kit PRC Chinese

### Windows NT Server Optional software and documentation

**QA-23CAA-GZ**        Windows NT Server documentation kit  
**QA-23C8A-GZ**        Windows NT International English Server documentation kit  
**QB-4G45A-AA**        Purveyor Web Server Software V1.1 for Process Software Corp.

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**Step 9—Software (continued)****DIGITAL UNIX****Software Processor Code = E**

- DIGITAL UNIX Packaged systems include Traditional Unlimited User license.
- DIGITAL UNIX Packaged systems **require** operating system media and documentation for **first** system on site.

**DIGITAL UNIX Media and Documentation—required for first system on site**

QA-MT4AA-H8 DIGITAL UNIX media and on-line documentation on CD-ROM  
 QA-MT4AA-GZ DIGITAL UNIX full hardcopy documentation

**DIGITAL UNIX Layered Products CD-ROM**

QA-054AA-H8 Layered products media and documentation for DIGITAL UNIX on CD-ROM

**DECnet for DIGITAL UNIX**

QL-MTJAE-AA DECnet/OSI end-system license for DIGITAL UNIX  
 QL-MTKAE-AA DECnet/OSI extended function license for DIGITAL UNIX

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**OpenVMS****Software Processor Code = E**

OpenVMS Concurrent Use Licenses are **not** specific to a single system and can be moved between systems at user discretion. OpenVMS Concurrent Use Licenses can also be shared in a mixed OpenVMS VAX and OpenVMS Alpha Cluster.

**OpenVMS Concurrent Use Licenses**

QL-MT3AA-3B OpenVMS Concurrent Use 1-user license  
 QL-MT3AA-3C OpenVMS Concurrent Use 2-user license  
 QL-MT3AA-3D OpenVMS Concurrent Use 4-user license  
 QL-MT3AA-3E OpenVMS Concurrent Use 8-user license  
 QL-MT3AA-3F OpenVMS Concurrent Use 16-user license  
 QL-MT3AA-3G OpenVMS Concurrent Use 32-user license  
 QL-MT3AA-3H OpenVMS Concurrent Use 64-user license  
 QL-MT3AA-3J OpenVMS Concurrent Use 128-user license  
 QL-MT3AA-3K OpenVMS Concurrent Use 256-user license  
 QL-MT2AE-AA OpenVMS Traditional unlimited user license

**OpenVMS Media and Documentation**

QA-MT1AA-H8 OpenVMS media and on-line documentation CD-ROM  
 QA-001AA-GZ OpenVMS hardcopy documentation

**OpenVMS Layered Products CD-ROM**

QA-03XAA-H8\* Layered products media and documentation for OpenVMS on CD-ROM

\* Includes DIGITAL Enterprise Integration Server for OpenVMS media and documentation

**DIGITAL Enterprise Integration Package**

QA-5LVAA-H8 DIGITAL Enterprise Integration Server for OpenVMS media and documentation

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**Step 9—Software (*continued*)****DECnet for OpenVMS**

- QL-MTGAE-AA    DECnet extended function license for OpenVMS  
QL-MTHAE-AA    DECnet end-system to extended function upgrade license for OpenVMS

**DSSI Information**

- EK-410AB-MG    DSSI VMScluster Installation Guide  
EK-D4AXP-TS    DSSI VMScluster Troubleshooting Guide
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**Step 10—Power Cords, Keyboards, and Documentation****Pedestal and Monitor Power Cords**

- North American variants include BN26J-1K 120 V (North American, Japan) power cord. If an other power cord is selected, both power cords ship with system.

BN26J-1K	North American, Japan, 120 V, 75-inches long
BN19H-2E	Australia, New Zealand, 2.5 meters long
BN19C-2E	Central Europe, 2.5 meters long
BN19A-2E	U.K., Ireland, 2.5 meters long
BN19E-2E	Switzerland, 2.5 meters long
BN19K-2E	Denmark, 2.5 meters long
BN19Z-2E	Italy, 2.5 meters long
BN19S-2E	Egypt, India, South Africa, 2.5 meters long
BN18L-2E	Israel, 2.5 meters long

**Rackmount Power Cords**

- 120V and 240V 15 foot power cords are included with all systems, variant designates power cord voltage (see Step 1).
- **Note:** AlphaServer 1000A Pedestal system power cords are less than 15-foot long and are **not** supported in cabinet enclosures.

**Step 10—Power Cords, Keyboards, and Documentation** (*continued*)**Keyboards**

- Some variants include a keyboard (see Step 1). For these variants, if an additional keyboard is ordered, both keyboards ship with system.

101 key PC style keyboard		Language	108 key VT style keyboard	
Windows NT	DIGITAL UNIX		OpenVMS	DIGITAL UNIX
LK471-A2	LK471-A2	U.S./English	LK461-A2	LK461-A2
LK471-AB	LK471-AB	Belgian	LK461-AB	LK461-AB
LK471-AC	LK471-AC *	Canadian/French	LK461-AC	LK461-AC
LK471-AD	LK471-AD	Danish	LK461-AD	LK461-AD
LK471-AE	LK471-AE	United Kingdom	LK461-A2	LK461-A2
LK471-AF	LK471-AF	Finnish	LK461-AF	LK461-AF
LK471-AG	LK471-AG	German	LK461-AG	LK461-AG
LK471-AH	LK471-AH	Dutch	LK461-AH	LK461-AH
LK471-AI	LK471-AI	Italian	LK461-AI	LK461-AI
		Swiss/French	LK461-AK	LK461-AK
		Swiss/German	LK461-AL	LK461-AL
LK471-AK	LK471-AK	Swiss/Generic		
LK471-AF	LK471-AF	Swedish	LK461-AM	LK461-AM
LK471-AN	LK471-AN	Norwegian	LK461-AN	LK461-AN
LK471-AP	LK471-AP	French	LK461-AP	LK461-AP
		Canadian/English		LK641-AQ *
LK471-AS	LK471-AS	Spanish	LK461-AS	LK461-AS
LK471-AV	LK471-AV	Portuguese	LK461-AV	LK461-AV

\* Requires DIGITAL UNIX V4.0 or higher

**Mouse and Extension Cable Kit**

- PBXWS-AA      3-button mouse (included with all systems, order as spare or replacement)  
 2T-450KM-AA      Extension cable kit for VGA, PC style keyboard, and mouse, for use with Rackmount systems.

**Pedestal Documentation: Customer and Service Kits**

- All variants include (QZ-00MAA-GZ) English customer kit documentation. Select other language customer kits if required. If an other customer kit is selected, both will ship.
- Select service kits for all systems if required.

Customer Kit	Service Kit	
QZ-00MAA-GZ	QA-00MAB-GZ	Customer and Service kit for AlphaServer 1000A—English
QZ-00MPA-GZ		Customer and Service kit for AlphaServer 1000A—French
QZ-00MJA-GZ		Customer and Service kit for AlphaServer 1000A—Japanese
QZ-00MUA-GZ		Customer and Service kit for AlphaServer 1000A—Italian
QZ-00MGA-GZ		Customer and Service kit for AlphaServer 1000A—German

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## Step 11—Cabinet Enclosure

Select cabinet enclosure for AlphaServer 1000A Rackmount systems, if required.

- H9A10 19-inch EIA Cabinet Enclosure
  - Outside: 66.9-inches high
  - Internal usable rackmountable space: 59.5-inches high, 19-inches wide, 30.8-inches deep
- H9A15 19-inch EIA Cabinet Enclosure
  - Outside: 78.7-inches high
  - Internal usable rackmountable space: 71.75-inches high, 19-inches wide, 29.75-inches or 37.12-inches deep
- H9A11 19-inch EIA Cabinet Enclosure
  - Outside: 43.3-inches high
  - Internal usable rackmountable space: 36.75-inches high, 19-inches wide, 29.75-inches or 37.15-inches deep

<b>H9A10-CE</b>	120V EIA Cabinet assembly, dual power controllers, RETMA rails
<b>H9A10-CJ</b>	240V EIA Cabinet assembly, dual power controllers, EIA standard rails
<b>H9A10-CG</b>	120V EIA Cabinet assembly, dual power controllers, swing front door, RETMA rails
<b>H9A10-CK</b>	240V EIA Cabinet assembly, dual power controllers, swing front door, EIA standard rails
<b>H9A10-AB</b>	EIA Cabinet assembly, no power controller, swing rear door
<b>H9A10-AD</b>	EIA Cabinet assembly, no power controller, swing front and rear doors
<b>H9A15-BA/BB</b>	120 V/240 V EIA Cabinet assembly, 29.75" deep, dual power controllers, swing rear door
<b>H9A15-BC/BD</b>	120 V/240 V EIA Cabinet assembly, 29.75" deep, dual power controllers, swing front and rear doors
<b>H9A15-CA/CB</b>	120 V/240 V EIA Cabinet assembly, 37.12" deep, dual power controllers, swing rear door
<b>H9A15-BE</b>	EIA Cabinet assembly, 29.75" deep, no power controller, swing rear door
<b>H9A11-BA/BB</b>	120V/240 V EIA Cabinet assembly 30.8" deep, one power controller, lift-off rear door
<b>H9A11-BE</b>	EIA Cabinet assembly, 30.8" deep, no power controller, lift-off rear door

### Power Distribution Units for Cabinets with no power controller

<b>H7600-AA</b>	Power Distribution Unit 100V-120V, 50-60 Hz, 24A 5 duplex 5-15R outlets, L5-30 power plug, 2 pole 15A circuit breaker, for use in 19 inch cabinets with RETMA rails. Requires two (2) AC Outlets, 120 V 60 Hz, NEMA L5-30R
<b>H7600-AB</b>	Power Distribution Unit 200V-240V, 50-60 Hz, 16A 5 duplex 6-15R outlets, L6-30 power plug, 2 pole 20A circuit breaker, for use in 19 inch cabinets with RETMA rails. Requires two (2) AC Outlets, 240V 50/60 Hz, NEMA L6-20R
<b>H7600-DB</b>	Power Distribution Unit, 200V-240V, 50-60 Hz, 16A 12 IEC 320 C13 outlets, IEC 309 power plug, 2 pole 16A circuit breaker, for use in 19 inch cabinets with EIA/ANSI (RETMA) rails

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## Step 12—Hardware and Software Supplemental Support Services

### Hardware—Americas and Asia Pacific only

- Systems include three-year hardware warranty, on-site with 5 x 9, 24-hour response time.
- Select optional Hardware Supplemental Support Services if required.

<b>FM-MK4HR-36</b>	5 x 9, 4-hour response time
<b>FM-MK512-36</b>	5 x 12, 4-hour response time
<b>FM-MK616-36</b>	6 x 16, 4-hour response time
<b>FM-MK724-36</b>	7 x 24, 4-hour response time
<b>FM-MKXHW-60</b>	Years 1-5, next day, Onsite
<b>FM-MK4HR-60</b>	Years 1-5, 5x9, 4-hour response time
<b>FM-MK512-60</b>	Years 1-5, 5x12, 4-hour response time
<b>FM-MK616-60</b>	Years 1-5, 6x16, 4-hour response time
<b>FM-MK724-60</b>	Years 1-5, 7x24, 4-hour response time

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**Step 12—Hardware and Software Supplemental Support Services (*continued*)**
**Software—Americas and Asia Pacific only**

- DIGITAL UNIX and OpenVMS Systems include 90-day Conformance to SPD and Telephone Advisory Support. Select optional Software Supplemental Support Services, if required.
- Software service upgrades for Windows NT include advisory and remedial software support for the time period indicated.
- Software service upgrades for DIGITAL UNIX include advisory and remedial software support with new version license rights for operating system for time period indicated.
- Software service upgrades for OpenVMS include advisory and remedial software support with new version license rights for operating system and Enterprise Integration Package (EIP) for time period indicated.

<b>FM-WNT03-12</b>	12-month Software Supplemental Support for <b>Windows NT</b> AlphaServer 1000A systems
<b>FM-WNT03-36</b>	36-month Software Supplemental Support for <b>Windows NT</b> AlphaServer 1000A systems
<b>FM-WNT03-60</b>	60-month Software Supplemental Support for <b>Windows NT</b> AlphaServer 1000A systems
<b>FM-MKOSF-12</b>	12-month Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 1000A systems
<b>FM-MKOSF-36</b>	36-month Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 1000A systems
<b>FM-MKOSF-60</b>	60-month Software Supplemental Support for <b>DIGITAL UNIX</b> AlphaServer 1000A systems
<b>FM-MKVMS-12</b>	12-month Software Supplemental Support for <b>OpenVMS</b> AlphaServer 1000A systems
<b>FM-MKVMS-36</b>	36-month Software Supplemental Support for <b>OpenVMS</b> AlphaServer 1000A systems
<b>FM-MKVMS-60</b>	60-month Software Supplemental Support for <b>OpenVMS</b> AlphaServer 1000A systems

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**Step 12a—Hardware and Software Supplemental Support Services (Europe only)**

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

## AlphaServer 1000A Pedestal System Specifications

<b>Shipping Dimension</b>			
Height	60 cm (23.8 in.)		
Width	43 cm (16.9 in.)		
Depth	65 cm (25.6 in.)		
Weight	43 kg (95 lb) typical 71 kg (156 lb) maximum		
<b>Installed Dimensions</b>			
Height	46 cm (18.1 in.)		
Width	35.8 cm (14.1 in.)		
Depth	58.6 cm (23.1 in.)		
Weight	39 kg (86 lb) typical 51 kg (113 lb) maximum		
<b>Clearances</b>			
	<b>Operating</b>	<b>Service</b>	
Front	75 cm (29.5 in.)	75 cm (29.5 in.)	
Rear	15 cm (6 in.)	75 cm (29.5 in.)	
Sides	None	75 cm (29.5 in.)	
<b>Environmental</b>			
Temperature	Operating*	10–40° C (50–104° F)	
	Nonoperating	Not tested	
	Storage (60 days)	-40–66° C (-40–151° F)	
	Rate of change	11° C/hr (20° F/hr)	
Relative humidity	Operating	20–80%	
	Nonoperating	20–80%	
	Storage (60 days)	10–95%	
	Rate of change	20%/hr	
Maximum wet bulb temperature	Operating	28° C (82° F)	
	Storage (60 days)	39° C (115° F)	
Minimum dew point temperature	Operating	12° C (36° F)	
	Storage (60 days)	Not tested	
Maximum heat dissipation	Current		
	Single supply	2390 Btu/hr	
	Dual supply	4097 Btu/hr	
Air flow and quality	Intake location	Front	
	Exhaust location	Rear	
	Particle size	N/A	
	Concentration	N/A	
Altitude	Operating	2000 m (6562 ft)	
	Nonoperating	3600 m (12,000 ft)	
Mechanical shock	Operating	7.5 G 10 ms	
	Nonoperating	20 G peak 30 ms	
Vibration	Operating	10-500 Hz .1 G peak	
Acoustics		Average Declared	
	Operating	6.2 L <sup>wA</sup> , B6.5 L <sup>wAd</sup> , B	
	Idle	6.0 L <sup>wA</sup> , B6.3 L <sup>wAd</sup> , B	
<b>Electrical—Power Supplies are universal 120/240 Vac</b>			
Nominal ac voltage	100-120 Vac	220-240 Vac	
Operating Voltage range	90-128 Vac	180-256 Vac	
Power source phase	Single	Single	
Nominal frequency	60 Hz	50 Hz	
Frequency range	59-61 Hz	49-51 Hz	
Maximum inrush current	50 Amps	50 Amps	
RMS current at nominal voltage (steady state)			
	Single power supply	8.0 Amps	4.0 Amps
	Dual power supply	4.6 Amps each supply	2.2 Amps each supply
Power cord	Type	IEC 320 C13	
	Length	190 cm (75 in.)	
	U.S. plug	NEMA 5-15	

\* Maximum operating temperature at Sea Level. Reduce by 1 C (1.8 F) for each 600 m (2000 ft) above Sea Level.

† Higher altitudes are possible if maximum operating temperature is reduced (see Temperature, above); other restrictions may apply, such as maximum permissible altitude for hard drives.

## AlphaServer 1000A Pedestal System Specifications (continued)

<b>Regulatory</b>	
Agency approvals	UL Listed to UL1950 (2nd edition) CSA Certified to CAN/CSA-C22.2 No. 950-M89 TUV EN 60950 VDE 0805 GS marked ZH1/618 FCC 15J Part 15 Class B Verified CE Class B Verified VCCI Class II ITE
Reviewed to	AS 3260 Australian Standard SS 436 14 50 Swedish Standard NZS 6661:1989 New Zealand Standard EN 60 950: 1992 European Norm IEC 950 (2 <sup>nd</sup> edition)

## AlphaServer 1000A Rackmount System Specifications

<b>Shipping Dimension</b>	
Height	26.7 cm (10.5 in.)
Width	48.2 cm (19.0 in)
Depth	63.5 cm (25.0 in) system chassis 73.7 cm (29.0 in) system chassis & rackmount hardware
Weight	29 kg (65 lb)
<b>Clearances</b>	
Front	124.04 cm (50.0 in)
Rear	61.0 cm (24.0 in)
Sides	None
<b>Environmental</b>	
Temperature	
Operating	10–35° C (50–95° F)
Nonoperating	Not tested
Storage (60 days)	-40–66° C (-40–151° F)
Relative humidity	20–80%
Operating	20–80%
Nonoperating	10–95%
Storage (60 days)	20%/hr
Rate of change	
Air flow and quality	
Intake location	Front
Exhaust location	Rear
<b>Electrical—Power Supplies are universal 120/240 Vac</b>	
Nominal ac voltage	100-120 Vac      220-240 Vac
Operating Voltage range	90-128 Vac      180-256 Vac
Power source phase	Single      Single
Nominal frequency	60 Hz      50 Hz
Frequency range	59-61 Hz      49-51 Hz
Maximum inrush current	50 Amps      50 Amps
RMS current at nominal voltage (steady state)	
Single power supply	8.0 Amps      4.0 Amps
Power cord	Type      IEC 320 C13
	Length      4.57 m (15 ft.)
	U.S. plug      NEMA 5-15
<b>Regulatory</b>	
Agency approvals	UL Listed to UL1950 (2nd edition) CSA Certified to CAN/CSA-C22.2 No. 950-M89 TUV EN 60950 VDE 0805 GS marked ZH1/618 EMCO-TSE (74-SEC), Summary of Nordic deviations FCC 15J Part 15 Class A verified CE Class A verified VCCI Class II ITE
Reviewed to	AD 3260 Australian Standard AS/NZS 3260:1963, Australian/New Zealand Standard EN 60 950: January 1993 European Norm IEC 950 (2 <sup>nd</sup> edition)

**Uninterruptable Power Supplies****Prestige 1250EXT**

UPS offerings include EIA232 port for local or network monitoring. For complete protection, UPS products should be used with data line surge protectors and UPS monitoring software.

4N-AEABF-AA	Prestige 1250EXT, 1250 VA/900W, 1 phase, 60 Hz, 120V 6-foot cord with 5-15P plug, (4) 5-15R receptacle, 9 minutes battery at full UPS load.
4N-AEABF-BF	Prestige 1250EXT, 1250 VA/900W, 1 phase, 50 Hz, 200-240V in/out selectable. Uses system power cord for detachable IEC320 input connection at UPS. Includes (3) IEC320 10A output receptacles, (2) output jumpers with IEC320 connectors to system.
4N-AEAEO-PA	Hot-swap Power-Pass Module for 60 Hz UPS with (7) 5-15R Surge Protected outlets.
4N-AEAEO-PB	Hot-swap Power-Pass Module for 50 Hz UPS with (6) IEC320, 10A surge protected outlets.
4N-AEWAR-G1	Prestige 5 year on-site exchange warranty upgrade (U.S. only).

**Data Surge Protection**

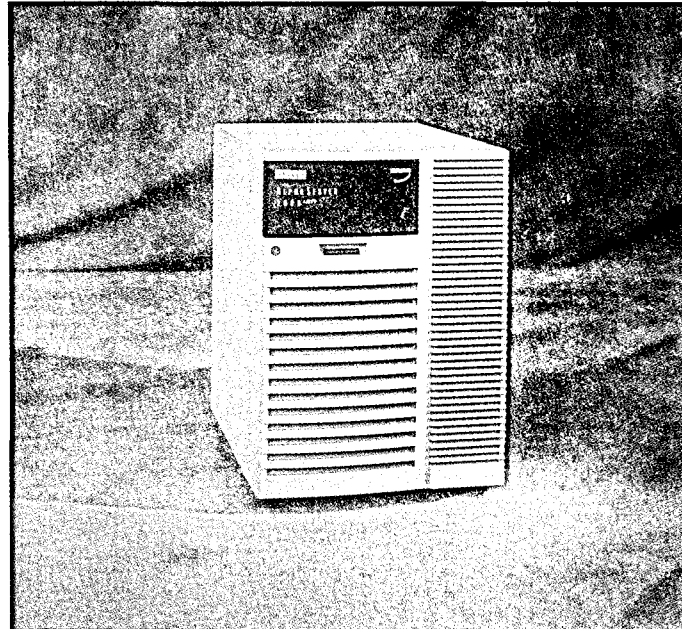
4N-GA249-AB*	Surge protector, modem connection, wall plug-in
4N-GA249-CA*	Surge protector, 10BaseT connection, wall plug-in
4N-GA510-BF	Surge Protector, ThinWire connection, device port
4N-GA245-xx	Surge Protector, multi-port connection, din rail/rackmount

\* Additional plug-in data modules (4N-GA240-xx) available.

**Monitoring and Unattended Shutdown Software for above UPS systems only (Include cables, media and documentation)**

4N-AEAES-AA	Single system shutdown for Windows NT
4N-AEAES-BA	NW management and multi system shutdown for Windows NT*
4N-AEAES-AK	Single system shutdown for DIGITAL UNIX
4N-AEAES-BK	NW management and multi system shutdown for DIGITAL UNIX*
4N-AEAES-EM	Single system shutdown for OpenVMS

\* Require network adapters: 4N-AEAEO-DA/DC for 120V 60 Hz; or 4N-AEAEO-DB/DD for 220V 50 Hz  
-DA and -DB = Twisted Pair; -DC and -DD = ThinWire



## AlphaServer 2000

### Product Description

The AlphaServer 2000 systems are low-cost Alpha symmetric multiprocessing (SMP) PCI/EISA-based servers. They offer support for OpenVMS, DIGITAL UNIX and Windows NT, and are suitable for general-purpose commercial, high-performance application and database, and PC LAN Superserver computing environments.

Advanced server management features are provided with all AlphaServer 2000 shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX, and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

The AlphaServer 2000 family consists of:

- AlphaServer 2000 5/300 (21164 microprocessor) features a 291 MHz CPU with 4 MB cache (DIGITAL UNIX, OpenVMS, Windows NT).
- AlphaServer 2000 5/375 (21164A microprocessor) features a 375 MHz CPU with 8 MB cache (DIGITAL UNIX, Windows NT).

Each can be configured with up to two processors with symmetric multiprocessing. They also support up to 1 GB of memory and 32 GB of internal disk storage. System bus bandwidth is 667 MB/second and the high-performance PCI I/O subsystem has a peak bandwidth of 132 MB/second. The 33 MB/second EISA I/O bus supports a variety of industry-standard EISA options. AlphaServer 2000 systems are offered in a compact pedestal enclosure that easily fits beneath a desk.

## Step 1—Systems

- DIGITAL UNIX and OpenVMS operating system media and documentation kit is required for first system on site; see Step 9
- Windows NT systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit
  - Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American orders, see Step 9
- Systems ordered in the Americas and Asia Pacific (AP) include 120 V power cord and U.S. keyboard unless alternate is specified. Select country specific power cord and keyboard for **all** systems ordered in Europe.
- Uninterruptable Power Supplies are available; see UPS Information in System Specifications.
- Options ordered will be factory installed unless specified as **spares**.

### AlphaServer 2000 5/300, and 5/375 Systems include

- Alpha microprocessor 21164
  - 291 MHz CPU with 4 MB onboard cache or
- Alpha microprocessor 21164A
  - 375 MHz CPU with 8 MB onboard cache
- BA720 pedestal enclosure with:
  - 11 expansion slots: Seven EISA, three PCI
  - 10 storage slots:
    - Two 5.25 inch, half-height removable media slots
    - Eight 3.5 inch 8-bit (narrow) or 16-bit (wide) RZxx hard disk drive storage assembly
  - Integral 10 MB/s Fast SCSI-2 controller (8-bit)
  - Two EIA-232 asynchronous serial ports, 9-pin D-subminiature connectors
  - One bi-directional enhanced parallel port, 25-pin D-subminiature connector
  - Keyboard port and mouse port
  - 400-Watt power supply
- 2.88 MB diskette drive in dedicated slot
- 600 MB CD-ROM (uses one removable media slot)
- 4.3 GB hard drive (uses one storage assembly slot)
- Video Graphics Adapter (uses one EISA slot)
  - 1280 x 1024 graphics resolution
- Ethernet DE435-AA Card (uses one PCI slot)
- Memory indicated below
- 3-button mouse
- Keyboard (Americas and AP orders only)
- Power cord (Americas and AP orders only)
- Customer documentation
- EISA Configuration Utility (ECU)
- Hardware Warranty: Three-year, on-site, with 5 x 9, 24-hour response\*
- Software Warranty:\*
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days

\* Service upgrades are available; see Step 11, Hardware and Software Supplemental Services.

### Windows NT systems include

Systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit, selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is mandatory for all non-North American orders, see Step 9.

Order Number	CPU's	Memory	Storage	Slots available for additional options
<b>AlphaServer 2000 5/300—291 MHz Windows NT Systems</b>				
DN-244D1-B9	1	128 MB	1 x 4.3 GB	6 EISA/2 PCI
<b>AlphaServer 2000 5/375—375 MHz Windows NT Systems</b>				
DN-245D1-S9	1	128 MB	1 x 4.3 GB	6 EISA/2 PCI
DN-245D1-D9*	2	128 MB	1 x 4.3 GB	6 EISA/2 PCI

\* Includes 2nd Power Supply

**Step 1—Systems (continued)****DIGITAL UNIX systems include**

- DIGITAL UNIX operating system base license.
- DIGITAL NAS Base Server 200 for DIGITAL UNIX license (QL-306AG-AA) includes the following layered products: (order media and documentation separately).
  - PrintServer Software (Licensed with appropriate Digital Printer)
  - DECmessageQ for DIGITAL UNIX Run-Time only
  - DIGITAL DCE Run-Time Services for DIGITAL UNIX
  - Objectbroker for DIGITAL UNIX Run-Time only
  - POLYCENTER Advanced File System utilities
  - POLYCENTER NetWorker Save and Restore for DIGITAL UNIX (Server)
  - PATHWORKS for DIGITAL UNIX LAN Manager
  - PATHWORKS for DIGITAL UNIX Netware
  - DIGITAL UNIX Server Extensions
  - Logical Storage Manager
- DIGITAL UNIX operating system is factory installed.

**AlphaServer 2000 5/300—291 MHz DIGITAL UNIX Systems**

Order Number	CPU's	Memory	Storage	EISA/PCI slots available
DA-244D1-B9	1	128 MB	1 x 4.3 GB	6 EISA/2 PCI

**AlphaServer 2000 5/375—375 MHz DIGITAL UNIX Systems**

Order Number	CPU's	Memory	Storage	EISA/PCI slots available
DA-245D1-S9	1	128 MB	1 x 4.3 GB	6 EISA/2 PCI
DA-245D1-D9*	2	128 MB	1 x 4.3 GB	6 EISA/2 PCI

\* Includes 2nd Power Supply

**OpenVMS systems include**

- OpenVMS operating system base license.
- DIGITAL NAS Base Server 200 for OpenVMS license (QL-23EAG-AA) includes the following layered products: (order media and documentation separately).
  - DECwindows Motif for OpenVMS Alpha
  - DECwindows Motif Worldwide support for OpenVMS Alpha
  - DECprint Supervisor for OpenVMS Alpha, (Base, Plus, Open)
  - PrintServer Software (Licensed with appropriate DIGITAL printer)
  - DECmessageQ for OpenVMS Alpha Run-time option only
  - Objectbroker for OpenVMS Alpha Run-time option only
  - Polycenter Software Distribution for OpenVMS Alpha (Client)
  - DECnet for OpenVMS Alpha End System
  - DECnet/OSI for OpenVMS Alpha End System
  - DEC TCP/IP services for OpenVMS Alpha
  - PATHWORKS for OpenVMS (LAN Manager)
  - PATHWORKS for OpenVMS (Macintosh)
  - PATHWORKS for OpenVMS (Netware)
- OpenVMS operating system is factory installed.

**AlphaServer 2000 5/300—291 MHz OpenVMS Systems**

Order Number	CPU's	Memory	Storage	EISA/PCI slots available
DY-244D1-B9	1	128 MB	1 x 4.3 GB	6 EISA/2 PCI

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## Step 2—Additional CPUs (Symmetrical Multiprocessing (SMP) Upgrades)

Order up to one additional CPU, for a maximum of two.

- Additional CPU **must** match the speed of CPU in system.
- Two CPU systems require additional power supply (see Step 7).

480NR-UD	Windows NT Server upgrade includes one 5/300 MHz CPU processor; SMP license is not required
490NR-AA	Windows NT Server upgrade includes one 5/375 MHz CPU processor; SMP license is not required
480AR-UD	DIGITAL UNIX SMP upgrade includes one 5/300 MHz CPU processor and DIGITAL UNIX SMP license
490AR-AA	DIGITAL UNIX SMP upgrade includes one 5/375 MHz CPU processor and DIGITAL UNIX SMP license
480YR-UD	OpenVMS SMP upgrade includes one 5/300 MHz CPU processor, OpenVMS SMP license

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## Step 3—Memory

- System include 128 MB memory (MS-452-BA); order additional memory using the following table. No other combinations are supported.

Table for system maximum of 1.0 GB

Total Memory Required	Order Quantities Shown	
	MS452-BA	MS452-UB
256 MB	0	1
384 MB	1	1
512 MB	0	3
640 MB	1	3
768 MB	1	4
1.0 GB	1	6

MS452-BA	128 MB memory board (carrier with 8 x 16 MB SIMMs)
MS452-UB	128 MB add-on memory (8 x 16 MB SIMMs) for MS452-BA

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## Step 3b—Prestoserve Non-Volatile Random Access Memory (NVRAM)

- Supported on DIGITAL UNIX systems **only**. Requires DIGITAL UNIX V3.0b or above operating system software.
- Maximum one Prestoserve option per system.

DJ-ML200-AA	2-MB PCI Prestoserve option
DJ-ML200-BA	4-MB PCI Prestoserve option
DJ-ML200-CA	8-MB PCI Prestoserve option

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## Step 4—Monitors

Graphics monitors other than those listed below can be used if compatible with graphics adapter included with system.

### Windows NT systems

- Windows NT systems require a graphics monitor to run **all** system functions.
- Video adapter included in system supports up to 1280 x 1024 resolution, 72-Hz monitors.

### DIGITAL UNIX and OpenVMS systems

- All console functions, including the EISA Configuration Utility (ECU) and the RAID Configuration Utility (RCU) can be performed using a standard video terminal (VT2xx, VT3xx, VT4xx, VT5xx) connected to one of the system's serial ports (See Step 8).
- For graphics console functionality, order a graphics monitor.
- Video adapter included in system supports up to 1280 x 1024 resolution, 72-Hz monitors.

SN-VRCX5-WA/W3/W4	15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.
SN-VRTX7-WA/W3 SN-VRT17-W4	17" (16.0" viewable image size) Professional Series auto-scan color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 @ 75Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord, SN-VRT17-W4 = Southern Hemisphere. Select country specific power cord for W3 and W4 variant.
SN-VRCX1-WA/ W3/W4	21" (19.7" viewable image size) professional series auto-scan color monitor, Diamondtron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.

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## Step 5—Storage

### Internal Disk Storage Assembly

- Included storage assembly supports eight 3.5-inch disk drives.
- Integral Fast SCSI-2 controller supports maximum of seven devices in system enclosure (two 5.25-inch removable media devices and five 3.5-inch disk drives). All disk drives connected to this controller will operate in **narrow** mode.
- Internal storage assembly is normally configured for split-bus (two buses), four drives per bus. By reversing the positions of the terminator and jumper plugs, internal storage assembly can be reconfigured for single-bus operation with a maximum of seven disk drives per storage assembly.
- Manufacturing normally configures internal storage assembly in split-bus mode. If there are not enough storage controllers to support the number of internal disk drives ordered, manufacturing will configure the internal storage assembly for single-bus mode.
- Internal storage assembly drive slots are physically interleaved with electrically contiguous drives in every other slot.
- Internal storage assembly supports 8-bit (**narrow**) and 16-bit (**wide**) modes of operation.
  - For **Wide** mode, select controllers and disks from Step 5a.
  - For **Narrow** mode, select controllers and disks from Step 5b.
- **Note:** **Wide** disk drives configured on a **narrow** bus will operate in **narrow** mode. **Narrow** disk drives configured on a **wide** bus will operate in **narrow** mode. **Wide** and **narrow** devices can be mixed on a single bus.

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**Step 5a—Controllers and Storage Devices for 16-bit (Wide) Mode**

- Wide Storage Assembly Shelf
  - 16-bit devices require (16-bit) wide shelves.
  - Internal StorageWorks shelf is electrically compatible with 16-bit drives.
- Wide Storage Controllers allow wide devices to operate in 16-bit mode.
  - PCI-based one- and three-port (KZPSC-AA/AB) controllers, and one-port Fast Wide Differential (KZPSA-BB) controller allow wide devices to operate in 16-bit mode.
  - Maximum of two KZPSC-XX controllers supported per system.
  - KZPSA-BB PCI-based one-port Fast Wide Differential SCSI controller supports externally connected wide disks in BA356 using DWZZB fast wide differential to wide single-ended converter, or narrow disks using DWZZA fast wide differential to narrow single-ended converter in BA356.
  - KZPSA-BB controller on Windows NT systems support supports up to 15 disks. DIGITAL UNIX and OpenVMS systems support 7 disks.
- Wide drives operate in narrow (8-bit) mode when connected to narrow SCSI controllers, such as Integral Internal Fast SCSI-2 controller.
  - KZPSC-xx One- and three-port StorageWorks RAID Array 230 controllers support hard drives **only**; tape drives not supported.
  - Three-port StorageWorks RAID 230 (KZPSC-BA) supports up to 21 disk drives in up to eight logical groups. RAID slots must be created to support more than eight physical disk drives.
  - Cabling information for Fast-SCSI-2 controllers
    - Internal cables are supplied as needed for factory installed configurations. BC25U-2H cable is used from KZPSC-xx controller to internal shelf.
    - External cables are **not** included and must be ordered separately.
    - KZPSA-BB External cables: BN21K-xx from KZPSA to DWZZA, DWZZB and HSZ40 (straight to right angle) BN21W-0B Y SCSI-2 cable 68-pin for KZPSA in mid-bus configurations
    - KZPSC-xx External cables: BN31S-1E from KZPSC-xx to BA356
    - If all three ports on KZPSC-BA controller are used, use SCSI cable BN31K-0E for third port external connection. **Note:** Third external port blocks one EISA slot.

**Storage Controllers for Wide Mode**

<b>KZPSC-AA</b>	One-port PCI backplane RAID controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX and Windows NT
<b>KZPSC-BA</b>	Three-port PCI backplane RAID controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX and Windows NT
<b>KZPSA-BB</b>	PCI-based Fast Wide Differential (FWD) SCSI controllers
<b>KZPSM-AA</b>	PCI-based combination Ethernet and Fast Wide Single-Ended (FWSE) SCSI controller

**Hard Drives for Wide Mode**

<b>RZ26N-VW</b>	1.05 GB, 3.5-inch half-height disk drive
<b>RZ28D-VW</b>	2.1 GB, 3.5-inch half-height disk drive
<b>RZ29B-VW</b>	4.3 GB, 3.5-inch half-height disk drive

**External Disk Expansion for Wide Mode**

- External BA356 StorageWorks modular storage pedestals are supported on all Fast Wide SCSI-2 controllers listed above.
- External BA356 is not supported on integral Fast SCSI-2 controller due to insufficient remaining external bus length.
- SCSI cable BN21K-xx for KZPSA, and BN31S-1E for KZPSC, is required to connect an external BA356 modular storage pedestal to controller.

<b>BA356-KC</b>	Modular storage pedestal includes BA356-xx basic shelf, BA35X-HA universal ac power supply, pedestal mounting kit, and 120 V power cord; requires SCSI cable (BN31S-1E) ) for KZPSC-xx controllers. Order country specific power cord for 240 V use from Step 10.
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## Step 5b—Internal Removable Media Devices

- Systems include 600 MB CD-ROM; system supports one additional 5.25-inch half-height removable media device.

### Removable Media Devices

<b>RRD46-AA</b>	600 MB, 5.25-inch half-height Quad-Speed CD-ROM
<b>TLZ09-LG</b>	8.0 GB, 5.25-inch half-height SCSI 4-mm DAT drive
<b>TZK11-LG</b>	2.0 GB, 5.25-inch half-height SCSI QIC tape drive

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## Step 5c—External Storage

### Tabletop Tape Expansion

- Integral Fast SCSI-2 controller, if not connected to internal storage assembly, can be extended outside the system enclosure via the SCSI-out port to support external SCSI devices. If not used for external expansion, SCSI-out port must be terminated with external terminator (12-37004-04) included with system.
- External tape drives are supported on optional Fast SCSI-2 8-bit narrow controller (KZPAA-AA) only. Maximum external bus length, including cable and tape device cannot exceed 3.0 meters. External tape drives not supported on KZESC-xx or KZPSC-xx controllers.
- Each tabletop tape device **requires** three-foot SCSI cable (BC09D-03).

<b>TLZ09-DB</b>	8.0 GB, 4mm DAT tabletop tape drive
<b>TLZ9L-DB<sup>1,2</sup></b>	32.0/64.0 GB 4-mm DAT autoloader
<b>TZ87-TA</b>	20.0 GB 5.25-inch tabletop tape drive
<b>SZ107-AA</b>	140.0 GB loader(DIGITAL UNIX and OpenVMS only)
<b>TSZ07-BA/CA</b>	1600/6250-bit/inch 9-track tabletop magtape drive (DIGITAL UNIX and OpenVMS only)

- Includes four cartridge loader. Twelve cartridge magazine supported (TLZ6L-12).
  - Windows NT operating system does not support unattended back-up mode without third-party software.
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## Step 5d—DSSI Storage (OpenVMS systems only)

- System supports up to two KFESA or four KFESB EISA/DSSI adapters; KFESA and KFESB adapters can be mixed on the same system.
  - Maximum of two adapters if all KFESA.
  - Maximum of two adapters if one is KFESA.
  - Maximum of four adapters if all KFESB.
  - Maximum of three KFPSA adapters.
- Maximum number of EISA-based controllers of all types in combination is governed by EISA bus IRQ address assignments; see EISA Bus IRQ Address Table.
- Each internal storage assembly in system in single/split-bus mode supports one/two HSD10 DSSI/SCSI converters.
- Disk drives installed "behind" HSD10 must be **narrow**.
- Cabling information for DSSI controllers:
  - DSSI devices supported on OpenVMS only.
  - DSSI cables must be ordered separately.
  - KFESB/KFPSA uses "Micro-Ribbon" connection.
- KFESB/KFPSA to any external "Pin-Socket" DSSI connection requires BC22Q-xx.
- KFESB/KFPSA to any external "Micro-Ribbon" DSSI straight connection requires BC21Q-xx.
- KFESB/KFPSA to any external "Micro-Ribbon" DSSI right-angle connection requires BC29S-xx DSSI cable.
- KFESB/KFPSA to HSD10 requires BC29S-xx. If HSD10 is factory installed, BC29S-06 cable is included.
- HSD10 to HSD10 (inside system) requires BC29U-02.
- BC29U-06 (KFESB to HSD10) is provided if factory installed.
- HSD10 to HSD10 (between systems) requires BC29T-09.
- HSD10 to any external "Micro-Ribbon" DSSI connection (all other DSSI systems and storage devices) requires BC29S-xx for straight connection to external device; or BC29T-09 for right-angle connection to external device.

### DSSI Adapters

<b>KFESB-AA</b>	EISA-based single-DSSI controller (OpenVMS systems <b>only</b> ); maximum four per system
<b>KFPSA-AA</b>	PCI-to-DSSI controller (OpenVMS Systems <b>only</b> ); maximum three per system.
<b>HSD10-AA</b>	StorageWorks Array Controller mounts in BA350-xx shelf; supports up to seven SCSI-2 disks, see Storage section for additional devices supported.

**Step 5e—PCI to CI Storage Host Adapter (OpenVMS Systems only)**

- Systems support one CIPCA-AA and one CIPCA-BA for maximum of two per system
- Minimum Operating System Version: OpenVMS 6.2-1H2
- Minimum Console Revision: V4.4
- Select one CI cable per adapter

**CIPCA-AA** PCI-to-CI adapter; requires one PCI slot and one EISA slot.  
Maximum two per system

**CIPCA-BA** PCI to CI Host Adapter, Requires Two PCI slots.  
Maximum one per system.

**BNCIA-10** 10-meter CI cable

**BNCIA-20** 20-meter CI cable

**BNCIA-45** 45-meter CI cable

**Step 6—Networks and Communications**

- Systems include integral Ethernet controller (AUI, ThinWire, 10BaseT selectable).
- Select networking cable:
  - BNE4G-xx for AUI
  - BN25G-xx for 10BaseT (twisted pair)
  - BC16M-xx for ThinWire (H8255-00 terminator cable required)
- Maximum of three PCI-based network controllers supported.
- See EISA Bus IRQ Address Table for maximum number of each EISA-based network controller, and total number of EISA-based controllers of all types in combination, supported per system.

Order Number	Description	Maximum # supported		
		DIGITAL UNIX	OpenVMS	Windows NT
<b>DEFEA-AA</b>	EISA-based DEC FDDIcontroller Single Attachment	2	2	2
<b>DEFEA-DA</b>	EISA-based DEC FDDIcontroller Dual Attachment (requires 2 EISA slots)	1	1	1
<b>DEFEA-UA</b>	EISA-based DEC FDDIcontroller UTP Attachment	2	2	2
<b>DW300-AA</b>	EISA-based Token-Ring adapter includes NetWare V2.15 driver, LAN Manager Driver, and documentation (Not supported by DECnet/OSI for OpenVMS)	4	4	1
<b>DNSES-AA</b>	EISA-based synchronous communications controller	3	3	0
<b>CXI01-AA/AD</b>	EISA-based asynchronous multiplexer	2	2	2
<b>DI1AA-AA</b>	Digiboard ISA Datafire-U ISDN controller (available as spare only)	0	0	1
<b>DI1AA-AB</b>	Digiboard ISA Datafire-ST ISDN controller (available as spare only)	0	0	1
<b>DE500-AA</b>	PCI-based Fast Ethernet controller	2	2	2
<b>DE435-AA</b>	PCI-based DIGITAL Etherworks 32-bit high-performance network interface card	3	3	3
<b>DE450-CA</b>	PCI 10-Mbit Ethernet controller; AUI, 10BaseT, or 10Base2	2	2	2
<b>DEFPA-AB*</b>	PCI to FDDI Adapter, SAS, MMF, SC	2	2	2
<b>DEFPA-DB*</b>	PCI to FDDI Adapter, DAS, MMF, SC	2	2	2
<b>DEFPA-MB</b>	PCI to FDDI Adapter, DAS,TP-PMD	2	2	2
<b>DEFPA-UB*</b>	PCI to FDDI Adapter, SAS, TP-PMD	2	2	2
<b>PBXNP-AA</b>	PCI Token Ring Adapter	1	1	0
<b>DGLPB-AB</b>	PCI based ATMworks 350 Interface Card	2	0	0

\* Cables: Fiber, Duplex, "SC" to "MIC" (concentrator): BN34D-xx; Fiber, Duplex, "SC" to "SC": BN34B-xx; Fiber, Duplex, "SC" to "ST": BN34A-xx; Copper STP, 8 cond, wired pin-pin: BN26M-xx; Copper STP, 8 cond, wired cross-over: BN26S-03.

**Step 6a—MEMORY CHANNEL Interconnect**

## DIGITAL UNIX Systems

- Require DIGITAL UNIX V3.2E (DIGITAL UNIX V3.2D plus TruCluster software or MEMORY CHANNEL Driver software).
- Each system node in a MEMORY CHANNEL cluster requires a software license.
- Servers in a compute-server array require a DIGITAL UNIX Driver for MEMORY CHANNEL License.
- Servers in a TruCluster high-availability environment require a license for TruCluster for DIGITAL UNIX.

## OpenVMS Systems

- Require OpenVMS V7.1 and OpenVMS Cluster license

MEMORY CHANNEL requirements for currently installed AlphaServer 2000's:

- Console firmware at revision 4.4 or higher.
- B2111-AA module at revision H or higher; if not at this level order H3095-AA option.

**Note:** Systems with MEMORY CHANNEL typically employ robust disk storage arrays that benefit from multiple high-performance controllers, customers should consider AlphaServer 2100A systems that include eight PCI slots.

Check installed AlphaServer 2000 for MEMORY CHANNEL readiness:

- P00>>> examine -b econfig:20008
  - At the console prompt, enter **examine -b econfig:20008**
- econfig: 20008 04
  - If a hexadecimal value, **04** or greater is returned, I/O module supports MEMORY CHANNEL.
  - If a hexadecimal value is less than **04** is returned, order the following:

**H3095-AA** CPU backplane, Revision H

**Note:** New AlphaServer 2000's systems shipped from the factory are MEMORY CHANNEL ready.

- For two-system nodes, order one CCMAA-BA per system and one BC12N-10 cable to connect them.
- For three or more system nodes, order CCMHA-AA (MEMORY CHANNEL Hub) one CCMAA-AA and one BC12N-10 cable per system node.
- CCMHA-AA (MEMORY CHANNEL Hub) is configured with four CCMLA-AA Line Cards and supports up to four nodes. Expansion up to eight system nodes can be achieved by adding up to four additional CCMLA-AA Line Cards.

<b>CCMAA-BA</b>	PCI to MEMORY CHANNEL controller—Maximum two supported on AlphaServer 2000
<b>CCMHA-AA</b>	MEMORY CHANNEL Hub with 4 Line Cards
<b>CCMLA-AA</b>	MEMORY CHANNEL Line Card for use with MEMORY CHANNEL Hub (CCMHA-AA)
<b>BC12N-10</b>	MEMORY CHANNEL Cable
<b>QB-3RLAG-AA</b>	TruCluster Software for DIGITAL UNIX
<b>QB-4ZCAG-AA</b>	DIGITAL UNIX Driver for MEMORY CHANNEL license
<b>QL-MUZAG-AA</b>	OpenVMS Cluster license

CCMHA-AA, MEMORY CHANNEL Hub, includes BN19P-2E line cord for Canada, Japan, US operation. For other regions, order one of the following:

<b>BN19A-2E</b>	Ireland, United Kingdom
<b>BN19S-2E</b>	Egypt, India
<b>BN19C-2E</b>	Central Europe
<b>BN18L-2E</b>	Israel
<b>BN19E-2E</b>	Switzerland
<b>BN24X-2E</b>	Italy
<b>BN19K-2E</b>	Denmark
<b>BN19H-2E</b>	Australia, New Zealand

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## Step 7—Additional Power Supply

- Additional power supply required if configured system includes two CPUs. In single CPU configurations, the additional power supply may be added for n+1 redundancy.
- **Americas and Asia Pacific orders**
  - If additional power supply is factory installed, 120 V U.S. power cord is included when alternate is not selected.
  - If additional power supply is ordered as **spare**, power cord **must** be ordered separately, see Step 10.
- **European orders**
  - If additional power supply is factory installed or ordered as **spare**, country specific power cord **must** be ordered separately, see Step 10.
- See UPS information following System Specifications

H7895-AA            400-Watt power supply

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## Step 8—Terminals and Printers

Systems include two EIA-232 asynchronous serial ports with 9-pin D-subminiature connectors.

### DIGITAL UNIX and OpenVMS systems

Console terminals can either be graphics monitor connected to the included video graphics adapter (See Step 4), or a serial video terminal. If a serial video terminal is used as the console terminal, it must be VT220, VT320, VT420, or VT520 compatible. These terminals have the graphics capability required for the EISA Configuration Utility.

Select terminals and serial printers as required. A 9-pin to MMJ adapter (H8571-J) is required for each connection. A cable must be ordered unless otherwise provided.

Select terminals and serial printers as required. A 9-pin to MMJ adapter (H8571-J) is required for each connection. A cable must be ordered unless otherwise provided.

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## Step 9—Software

### Windows NT Servers

- Windows NT systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit
  - Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American orders.

### Windows NT Server plus 10-client access license, media (CD-ROM) kits

QB-23CAA-SB	Windows NT Server license, media kit North American English
QB-23C8A-SB	Windows NT Server license, media kit International English
QB-23CPA-SB	Windows NT Server license, media kit French
QB-23CGA-SB	Windows NT Server license, media kit German
QB-23CSA-SB	Windows NT Server license, media kit Spanish
QB-23CUA-SB	Windows NT Server license, media kit Italian
QB-23CJA-SB	Windows NT Server license, media kit Japanese
QB-23CTA-SB	Windows NT Server license, media kit Hebrew
QB-23CMA-SB	Windows NT Server license, media kit Swedish
QB-23CQA-SB	Windows NT Server license, media kit Arabic
QB-23C5A-SB	Windows NT Server license, media kit Thai
QB-23CHA-SB	Windows NT Server license, media kit Dutch
QB-23CVA-SB	Windows NT Server license, media kit Brazilian/Portuguese
QB-23C4A-SB	Windows NT Server license, media kit Korean

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**Step 9—Software (continued)****Windows NT Server plus 10-client access license, media (CD-ROM) kits**

QB-23C3A-SB	Windows NT Server license, media kit Taiwanese
QB-23C2A-SB	Windows NT Server license, media kit PRC Chinese

**Windows NT Server Optional software and documentation**

QB-53V9A-SA	Windows NT Server Cluster Kit
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**DIGITAL UNIX Concurrent Use Licenses**

Select user licenses and additional software as required. Media and documentation is **required** for first system on site.

**Software Processor Code = G for all software, 1-2 processors**

- DIGITAL UNIX Concurrent Use license provide the right to interactively use the operating system by the specified number of concurrent users on a designated DIGITAL UNIX system.
- DIGITAL UNIX Concurrent Use licenses are not specific to a single system and can be moved from one system to another at user discretion.

QL-MT7AM-3B	DIGITAL UNIX Concurrent Use 1-user license
QL-MT7AM-3C	DIGITAL UNIX Concurrent Use 2-user license
QL-MT7AM-3D	DIGITAL UNIX Concurrent Use 4-user license
QL-MT7AM-3E	DIGITAL UNIX Concurrent Use 8-user license
QL-MT7AM-3F	DIGITAL UNIX Concurrent Use 16-user license
QL-MT7AG-AA	DIGITAL UNIX Traditional unlimited user license
QL-MT5AG-AA	DIGITAL UNIX developer's extension license

**DIGITAL UNIX Media and Documentation—required for first system on site**

QA-MT4AA-H8	DIGITAL UNIX media and on-line documentation on CD-ROM
QA-MT4AA-GZ	DIGITAL UNIX full hardcopy documentation

**DIGITAL UNIX Layered Products CD-ROM**

QA-054AA-H8	Layered products media and documentation for DIGITAL UNIX on CD-ROM
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**DECnet Licenses**

QL-MTJAG-AA	DECnet/OSI end-system license for DIGITAL UNIX
QL-MTKAG-AA	DECnet/OSI extended function license for DIGITAL UNIX

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**OpenVMS Concurrent Use User Licenses**

Select user licenses and additional software as required. Media and documentation is **required** for first system on site.

**Software Processor Code = G for all software, 1-2 processors**

- OpenVMS Concurrent Use license provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system.
- OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.

QL-MT3AA-3B	OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C	OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D	OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E	OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F	OpenVMS Concurrent Use 16-user license
QL-MT3AA-3G	OpenVMS Concurrent Use 32-user license

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**Step 9—Software (continued)**
**OpenVMS Concurrent Use User Licenses**

QL-MT3AA-3H	OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J	OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K	OpenVMS Concurrent Use 256-user license
QL-MT2AG-AA	OpenVMS Traditional unlimited user license

**OpenVMS Media and Documentation—required for first system on site**

QA-MT1AA-H8	OpenVMS media and documentation on CD-ROM
QA-001AA-GZ	OpenVMS hardcopy documentation

**OpenVMS Layered Products CD-ROM**

QA-03XAA-H8	Layered products media and documentation for OpenVMS on CD-ROM
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**DECnet Licenses**

QL-MTGAG-AA	DECnet extended function license for OpenVMS
QL-MTHAG-AA	DECnet end-system to extended function upgrade license for OpenVMS

**DSSI Information**

EK-410AB-MG	DSSI VMScLuster Installation Guide
EK-D4AXP-TS	DSSI VMScLuster Troubleshooting Guide

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**Step 10—Keyboards and Power Cords**

Systems ordered in the Americas and Asia Pacific include 120 V U.S. power cord and keyboard unless alternate is specified. Select country specific power cord and keyboard for **all** systems ordered in Europe.

**Keyboards****Windows NT/**

DIGITAL UNIX	OpenVMS	
LK471-A2	LK461-A2	U.S./English
LK471-AB	LK461-AB	Belgian
	LK461-AC	Canadian/French
LK471-AD	LK461-AD	Danish
LK471-AE	LK461-AE	United Kingdom
	LK461-AF	Finnish
LK471-AG	LK461-AG	German
	LK461-AH	Dutch
LK471-AI	LK461-AI	Italian
LK471-AK	LK461-AK	Swiss/Generic
	LK461-AL	Swiss/German
	LK461-AM	Swedish
LK471-AN	LK461-AN	Norwegian
LK471-AP	LK461-AP	French
	LK461-AQ	Canadian/English
LK471-AS	LK461-AS	Spanish
LK471-AV	LK461-AV	Portuguese

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## Step 10—Keyboards and Power Cords (*continued*)

**Power Cords**

BN09A-1K*	U.S., Canada, Japan, 120 V
BN19H-2E	Australia/New Zealand
BN19C-2E	Central Europe
BN19A-2E	U.K./Ireland
BN19E-2E	Switzerland
BN19K-2E	Denmark
BN19M-2E	Italy
BN19S-2E	India/South Africa
BN18L-2E	Israel

\* Orderable as 17-00083-09

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## Step 11—Hardware and Software Supplemental Support Services

System includes three-year hardware warranty, on-site with 5 x 9, 24-hour response time.

**Hardware—Americas and Asia Pacific only**

- Select optional Hardware Supplemental Support Services if required.

**AlphaServer 2000 Systems 5/300 Systems**

FM-S64HR-36	Years 1-3, 5 x 9, 4-hour response time
FM-S64HR-60	Years 1-5, 5 x 9, 4-hour response time
FM-S6512-36	Years 1-3, 5 x 12, 4-hour response time
FM-S6512-60	Years 1-5, 5 x 12, 4-hour response time
FM-S6616-36	Years 1-3, 6 x 16, 4-hour response time
FM-S6616-60	Years 1-5, 6 x 16, 4-hour response time
FM-S6724-36	Years 1-3, 7 x 24, 4-hour response time
FM-S6724-60	Years 1-5, 5 x 24, 4-hour response time

**AlphaServer 2000 Systems 5/375 Systems**

FM-S84HR-36	Years 1-3, 5 x 9, 4-hour response time
FM-S84HR-60	Years 1-5, 5 x 9, 4-hour response time
FM-S8512-36	Years 1-3, 5 x 12, 4-hour response time
FM-S8512-60	Years 1-5, 5 x 12, 4-hour response time
FM-S8616-36	Years 1-3, 6 x 16, 4-hour response time
FM-S8616-60	Years 1-5, 6 x 16, 4-hour response time
FM-S8724-36	Years 1-3, 7 x 24, 4-hour response time
FM-S8724-60	Years 1-5, 5 x 24, 4-hour response time

**Software—Americas and Asia Pacific only**

- Software Warranty:
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- Software service upgrades for DIGITAL UNIX and OpenVMS include advisory and remedial software support with new version license rights for operating system and DIGITAL NAS 200 for the time period indicated.
- Software Supplemental Support Service options upgrade 90-day service to time period indicated below.

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**Step 11—Hardware and Software Supplemental Support Services (continued)**
**AlphaServer 2000 Systems**

FM-WNTO2-12	12-month Software Supplemental Support for Windows NT AlphaServer 2000 systems
FM-WNTO2-36	36-month Software Supplemental Support for Windows NT AlphaServer 2000 systems
FM-WNTO2-60	60-month Software Supplemental Support for Windows NT AlphaServer 2000 systems
FM-DSOSF-12	12-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2000 systems
FM-DSOSF-36	36-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2000 systems
FM-DSOSF-60	60-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2000 systems
FM-DSVMS-12	12-month Software Supplemental Support for OpenVMS AlphaServer 2000 systems
FM-DSVMS-36	36-month Software Supplemental Support for OpenVMS AlphaServer 2000 systems
FM-DSVMS-60	60-month Software Supplemental Support for OpenVMS AlphaServer 2000 systems

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**Step 11a—Hardware and Software Supplemental Support Services—Europe only**

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

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**AlphaServer 2000 System EISA Bus IRQ Address Table**

Option	EISA Bus IRQ Addresses									Maximum of Each Supported		
	5	7	8	9	10	11	12	14	15	OpenVMS	DIGITAL UNIX	Windows NT
DE422	0	–	–	N	0	0	–	–	–	3	3	3
PB2GA	–	–	–	0	–	–	–	–	–	1	1	1
DEFEA	–	–	–	N	0	0	–	–	0	2	2	2
DNSES	–	–	–	N	0	0	0	0	0	5	5	0
DW300-AA	0	–	–	N	0	0	–	–	0	4	4	4
KZESC	–	–	–	–	–	0	0	0	0	2	2	2
KFESA	–	–	–	N	0	0	0	0	0	2	0	0
KFESB	–	–	–	N	0	0	0	0	0	4	0	0
PB2SX	–	–	–	–	–	–	–	–	–	0	1	0
CXI01	–	–	–	–	–	–	–	–	–	0	2	2

Table Codes:

0 = address is available for device

– = address not available for device

N in address location 9 = address is assigned, but its use is precluded due to presence of PB2GA-xx Video Graphics Adapter

**Configuration Rules and Information**

- EISA Bus IRQ address assignments are for DIGITAL UNIX and OpenVMS systems only.
- Video Graphics Adapter is included in all systems listed in Step 1. It occupies one EISA bus slot, leaving seven physical slots for all other EISA-based controllers.
- In some cases, the **maximum each [device] supported** is less than the number of EISA bus addresses available; this is due to other limitations.
- Only one device can occupy any given IRQ address; if multiples of a device are configured, each device occupies a separate address.
- Match **each** device to be configured to **one** available address. (**Note:** With the table as a worksheet, use a pencil to fill in an “0” for each device; fill in only one “0” per column.)
- The actual IRQ address assignment will be made by the EISA Configuration Utility (ECU) which is run during system manufacture, or in the installed system if the EISA bus is re-configured.
- Prestoserve option (PB2SX) does not require an IRQ address. PB2SX is supported on DIGITAL UNIX systems only.

## Specifications

<b>Shipping Dimension</b>		
Height	109 cm (43.3 in.)	
Width	102 cm (40.0 in.)	
Depth	61 cm (24.0 in.)	
Weight	79 kg (174 lb) typical 97 kg (213 lb) maximum	
<b>Installed Dimensions</b>		
Height	60.5 cm (23.8 in.)	
Width	43 cm (16.9 in.)	
Depth	65 cm (25.6 in.)	
Weight	54 kg (109 lb) typical 71 kg (156 lb) maximum	
<b>Clearances</b>	<b>Operating</b>	<b>Service</b>
Front	75 cm (29.5 in.)	75 cm (29.5 in.)
Rear	15 cm (6 in.)	75 cm (29.5 in.)
Sides	None	75 cm (29.5 in.)
<b>Environmental</b>		
Temperature	Operating <sup>2</sup>	10° - 40° C (50° - 104° F)
	Nonoperating	Not tested
	Storage (60 days)	-40° - 66° C (-40° - 151° F)
	Rate of change	11° C/hr (20° F/hr)
Relative humidity	Operating	20-80%
	Nonoperating	20-80%
	Storage (60 days)	10-95%
	Rate of change	20%/hr
Maximum wet bulb temperature	Operating	28° C (82° F)
	Storage (60 days)	46° C (115° F)
Minimum dew point temperature	Operating	2° C (36° F)
	Storage (60 days)	Not tested
Maximum heat dissipation	Current	
	Single supply	2390 Btu/hr
Dual supply	4097 Btu/hr	
Air flow and quality	Intake location	Front
	Exhaust location	Rear
	Particle size	N/A
	Concentration	N/A
Altitude	Operating <sup>3</sup>	2000 m (6562 ft)
	Nonoperating	3600 m (12,000 ft)
Mechanical shock	Operating	7.5 G 10 ms
	Nonoperating	20 G peak 30 ms
Vibration	Operating	10-500 Hz .1 G peak
Acoustics	Average/Declared	
	Operating Idle	6.2 LwA, B6.5 LwAd, B 6.0 LwA, B6.3 LwAd, B
<b>Regulatory</b>		
Agency approvals	UL Listed to UL1950 (2nd edition) CSA Certified to CAN/CSA-C22.2 No. 950-M89 TUV EN 60950 VDE 0805 GS marked ZH1/618 FCC 15J Part 15 Class B Verified CE Class B Verified VCCI Class II ITE	
Reviewed to	AS 3260 Australian Standard SS 436 14 50 Swedish Standard NZS 6661:1989 New Zealand Standard EN 60 950: 1992 European Norm IEC 950 (2nd edition)	

1 Dimensions of shipping pallet; fork-lift access is on the width dimension

2 Maximum operating temperature at Sea Level. Reduce by 1 C (1.8 F) for each 600 m (2000 ft) above Sea Level.

3 Higher altitudes are possible if maximum operating temperature is reduced (see Temperature, above); other restrictions may apply, such as maximum permissible altitude for hard drives.

**Recommended Power Protection/UPS Solutions for AlphaServer 2000 systems**

Digital's UPS offerings feature robust On-line design and include EIA232 port for local or network monitoring and plug & play battery extensions. U.S. models feature 3 year hot-swap warranty.

Note: For complete protection all UPS products should be used with data line surge protector.

**Prestige UPS - North American Model**

**4N-AEABG-AF** Prestige 2kVA (1.3kW), single phase, 60HZ, 120V with 6 ft. cord, 5-20P and (4) 5-15R and (1) 5-20R receptacle; internal 4 minute battery at full UPS load. For unit with extended battery substitute -AG (7 minutes) or -AH (14 minutes).

**4N-AEABF-BA/BB** Half/Full add-on battery pack for above UPS. Adds 7/15min per pack.

**Prestige UPS - International Model**

**4N-AEAAH-AS** Prestige 2.5kVA (1750W) single phase, 50 HZ, 200-240V in/out selectable, 2 module design. 6 ft. input cord with VDE stripped pigtail connection for attachment of country specific plug (by customer). Unit includes (1) IEC320, 20A output receptacle which can be optionally extended to choice of Schuko, French, British or Australian (4N-AEACH-DA - DD) receptacle modules; 8 minute battery at full UPS load.

**4N-AEAAH-AB** Add on battery pack for above UPS. Adds 15 minute per pack.

**4N-AEWAR-G1** Prestige five year on-site exchange warranty upgrade, U.S. only

**Companion Data Surge Protection**

**4N-GA249-AB** Modem connection (wall plug-in unit)

**4N-GA249-CA** 10BaseT connection (wall plug-in unit)

**4N-GA510-BF** ThinWire connection (device port)

**4N-GA245-xx** Multi-port connection (din rail/rackmount)

**4N-GA240-xx** Additional plug-in data modules for 4N-GA249 series devices. All devices include 5 year hot-swap warranty.

**UPS Monitoring and Unattended Shutdown Software (for above UPS systems only)**

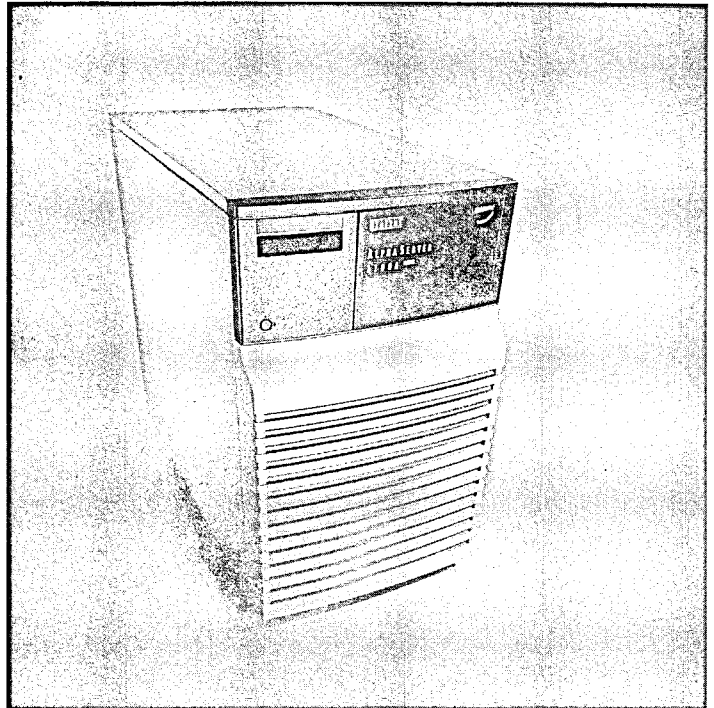
Includes cable, media and documentation

Monitoring Software	Windows NT	DIGITAL UNIX	OpenVMS
Single system shutdown	4N-AEAES-AA	4N-AEAES-AK	4N-AEAES-EM
Network Management and multiple system shutdown*	4N-AEAES-BA	4N-AEAES-BK	Call for information

\* Connect-UPS Adapter required: DA/DB=twisted pair, DC/DD=ThinWire

**4N-AEAE0-DA/DC** Connect UPS Adapter 120V (North American)

**4N-AEAE0-DB/DD** Connect UPS Adapter 220V (International)



## AlphaServer 2100A

### Product Description

AlphaServer 2100A systems are low-cost Alpha symmetric multiprocessing (SMP) PCI/EISA-based servers. They offer support for OpenVMS, DIGITAL UNIX and Windows NT, and are suitable for general-purpose commercial, high-performance application and database, and PC LAN Superserver computing environments.

Advanced server management features are provided with all AlphaServer 2100A shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX, and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

AlphaServer 2100A 4/275 (Alpha 21064A microprocessor) features a 275-MHz CPU with 4 MB cache; AlphaServer 2100A 5/250 (Alpha 21164 microprocessor) features a 250-MHz CPU with 4 MB cache; AlphaServer 2100A 5/300 (Alpha 21164 microprocessor) features a 291-MHz CPU with 4 MB cache. Each can be configured with up to four processors of the same speed for symmetric multiprocessing and systems support up to 2 GB of memory and 64 GB of internal disk storage.

Systems are configured with 8 PCI slots and 3 EISA slots and support StorageWorks storage devices. High-availability features, including optional internal RAID and hot swap of disks, offer data security in mission-critical environments. AlphaServer 2100A systems are also offered in a rackmountable enclosure.

## Step 1—Systems

- See System Bus Slot Table and PCI Option Slot Chart for slot configuration rules.
- DIGITAL UNIX and OpenVMS systems require operating system media and documentation kit for first system on site; see Step 9.
- Windows NT systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit.
  - Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American orders, see Step 9.
- Systems ordered in the Americas and Asia Pacific (AP) include 120 V U.S. power cord and keyboard unless alternate is specified. Select country specific power cord and keyboard for **all** systems ordered in Europe.
- Uninterruptable Power Supplies are available; see UPS Information following System Specifications.
- Options ordered will be factory installed unless specified as **spares**.

### AlphaServer 2100A 4/275, 5/250, and 5/300 Systems include

- Alpha microprocessor 21064
    - 275-MHz CPU with 4 MB onboard cache or
  - Alpha microprocessor 21164
    - 250 MHz CPU with 4 MB onboard cache or
    - 291 MHz CPU with 4 MB onboard cache
  - BA740 large pedestal enclosure with
    - 11 expansion slots: Eight PCI, Three EISA
    - 11 storage slots:
      - Three 5.25 inch, half-height removable media slots
      - Eight 3.5 inch 8-bit (narrow) or 16-bit (wide) RZxx hard disk drive storage assembly
    - Integral 10 MB/s Fast SCSI-2 controller, 8-bit
    - Two EIA-232 asynchronous serial ports, 9-pin D-subminiature connectors
    - One parallel port, 25-pin D-subminiature connectors
    - Keyboard port and mouse port
    - 602-Watt power supply
  - 1.44 MB diskette drive in dedicated slot
  - 600 MB Quad-Speed CD-ROM (uses one removable media slot)
  - 2.1 GB 7200 RPM disk drive (uses one storage assembly slot)
  - Video Graphics Adapter (uses 1 PCI slot)
  - Ethernet Card (uses 1 PCI slot)
  - Memory (indicated below)
  - 3-button mouse
  - Keyboard (Americas and AP only)
  - Power cord (Americas and AP only)
  - Customer documentation
  - EISA Configuration Utility
  - Hardware Warranty: Three-year, on-site, with 5 x 9, 24-hour response time\*
  - Software Warranty: \*
    - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
    - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- \* Service upgrades are available; see Step 11, Hardware and Software Supplemental Services.

### Windows NT Systems include

Systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit, selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is mandatory for all non-North American orders, see Step 9.

Order Number	Memory	Hard Drive	PCI/EISA slots available for additional options
<b>AlphaServer 2100A 4/275—275 MHz Windows NT Systems</b>			
DN-252S1-J9	128 MB	1 x 2.1 GB	6 PCI / 3 EISA
DN-252S1-K9	512 MB	1 x 2.1 GB	6 PCI / 3 EISA
<b>AlphaServer 2100A 5/250—250 MHz Windows NT Systems</b>			
DN-253S1-J9	128 MB	1 x 2.1 GB	6 PCI / 3 EISA
DN-253S1-K9	512 MB	1 x 2.1 GB	6 PCI / 3 EISA
<b>AlphaServer 2100A 5/300—291 MHz Windows NT Systems</b>			
DN-254S1-J9	128 MB	1 x 2.1 GB	6 PCI / 3 EISA
DN-254S1-K9	512 MB	1 x 2.1 GB	6 PCI / 3 EISA

**Step 1—Systems (continued)****DIGITAL UNIX Systems include**

- DIGITAL UNIX operating system base license (V3.2D-2)
- DIGITAL NAS Base Server 200 for DIGITAL UNIX license (QL-306AG-AA) includes the following layered products (order media and documentation separately).
  - PrintServer Software (Licensed with appropriate DIGITAL Printer)
  - DECmessageQ for DIGITAL UNIX Run-Time only
  - DIGITAL DCE Run-Time Services for DIGITAL UNIX
  - Objectbroker for DIGITAL UNIX Run-Time only
  - POLYCENTER Advanced File System utilities
  - POLYCENTER NetWorker Save and Restore for DIGITAL UNIX (Server)
  - PATHWORKS for DIGITAL UNIX LAN Manager
  - PATHWORKS for DIGITAL UNIX Netware
  - DIGITAL UNIX Server Extensions
  - Logical Storage Manager
- DIGITAL UNIX operating system is factory installed.

Order Number	Memory	Hard Drive	PCI/EISA slots available for additional options
<b>AlphaServer 2100A 4/275—275 MHz DIGITAL UNIX systems</b>			
DA-252S1-J9	128 MB	1 x 2.1 GB	6 PCI / 3 EISA
DA-252S1-K9	512 MB	1 x 2.1 GB	6 PCI / 3 EISA
<b>AlphaServer 2100A 5/250—250 MHz DIGITAL UNIX systems</b>			
DA-253S1-J9	128 MB	1 x 2.1 GB	6 PCI / 3 EISA
DA-253S1-K9	512 MB	1 x 2.1 GB	6 PCI / 3 EISA
<b>AlphaServer 2100A 5/300—291 MHz DIGITAL UNIX systems</b>			
DA-254S1-J9	128 MB	1 x 2.1 GB	6 PCI / 3 EISA
DA-254S1-K9	512 MB	1 x 2.1 GB	6 PCI / 3 EISA

**OpenVMS Systems include**

- OpenVMS operating system base license (V6.2-1H1)
- NAS 200 for OpenVMS license (QL-23EAG-AA), includes the following layered products (order media and documentation separately).
  - DECwindows Motif for OpenVMS Alpha
  - DECwindows Motif Worldwide support for OpenVMS Alpha
  - DECprint Supervisor for OpenVMS Alpha, (Base, Plus, Open)
  - PrintServer Software (Licensed with appropriate DIGITAL printer)
  - DECmessageQ for OpenVMS Alpha Run-time option only
  - Objectbroker for OpenVMS Alpha Run-time option only
  - Polycenter Software Distribution for OpenVMS Alpha (Client)
  - DECnet for OpenVMS Alpha End System
  - DECnet/OSI for OpenVMS Alpha End System
  - DEC TCP/IP services for OpenVMS Alpha
  - PATHWORKS for OpenVMS (LAN Manager)
  - PATHWORKS for OpenVMS (Macintosh)
  - PATHWORKS for OpenVMS (Netware)
- OpenVMS operating system is factory installed.

Order Number	Memory	Hard Drive	PCI/EISA slots available for additional options
<b>AlphaServer 2100A 4/275—275 MHz OpenVMS systems</b>			
DY-252S1-J9	128 MB	1 x 2.1 GB	6 PCI / 3 EISA
DY-252S1-K9	512 MB	1 x 2.1 GB	6 PCI / 3 EISA
<b>AlphaServer 2100A 5/250—250 MHz OpenVMS systems</b>			
DY-253S1-J9	128 MB	1 x 2.1 GB	6 PCI / 3 EISA
DY-253S1-K9	512 MB	1 x 2.1 GB	6 PCI / 3 EISA
<b>AlphaServer 2100A 5/300—291 MHz OpenVMS systems</b>			
DY-254S1-J9	128 MB	1 x 2.1 GB	6 PCI / 3 EISA
DY-254S1-K9	512 MB	1 x 2.1 GB	6 PCI / 3 EISA

**Step 1—Systems (continued)**

- Use System Bus Slot Table for slot configuration rules when adding additional CPUs and memory.
- See PCI Option Slot Table for options supported in specific PCI slots.

**System Bus Slot Table**

Recommended Slots	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	Slot 7
1 CPU system	—	CPU 0	—	Memory 0	Memory 1	Memory 2	Memory 3
2 CPUs system	—	CPU 0	CPU 1	Memory 0	Memory 1	Memory 2	Memory 3
3 CPUs system	CPU 2	CPU 0	CPU 1	Memory 0	Memory 1	Memory 2	Memory 4
4 CPUs system	CPU 3	CPU 0	CPU 1	Not available	CPU 2	Memory 0	Memory 1

**PCI Option Slot Table**

- Some PCI options are **not** supported behind a PCI-PCI bridge on specific operating systems. Use the following table for options restricted to slots **4, 5, 6 and 7 only**. All other options supported on the AlphaServer 2100A not listed here are supported in any PCI slot (0, 1, 2, 3, 4, 5, 6, 7).

Order Number	Description	Max #	Supported in PCI slots only	Operating System
KZPSA-BB	One-port Fast Wide Differential SCSI controller	3	4, 5, 6, 7	Windows NT
PB2GA-JB <sup>1</sup>	S3-Trio64 Graphics option 1MB	1	4, 5, 6, 7	Windows NT
CCMAA-BA	PCI to MEMORY CHANNEL controller	2	4, 5, 6, 7	DIGITAL UNIX

<sup>1</sup> Graphics option standard in all systems

**Step 2—Additional CPUs (Symmetrical Multiprocessing (SMP) Upgrades)**

Order up to three additional CPUs, for a maximum of four—See System Bus Slot Table for configuration rules.

- Additional CPUs **must** match the speed of CPU in system.
- Four-CPU systems are restricted to two memory slots.

**Note:** Adding CPUs may require an additional power supply (see Step 7).

460NR-AA	Windows NT SMP upgrade, includes one 4/275 MHz CPU processor; SMP license is not required.
470NR-UD	Windows NT SMP upgrade, includes one 5/250 MHz CPU processor; SMP license is not required.
480NR-UD	Windows NT SMP upgrade, includes one 5/300 MHz CPU processor; SMP license is not required.
460AR-AA	DIGITAL UNIX SMP upgrade includes one 4/275 MHz CPU processor and DIGITAL UNIX SMP license.
470AR-UD	DIGITAL UNIX SMP upgrade includes one 5/250 MHz CPU processor and DIGITAL UNIX SMP license.
480AR-UD	DIGITAL UNIX SMP upgrade includes one 5/300 MHz CPU processor and DIGITAL UNIX SMP license.
460YR-AA	OpenVMS SMP upgrade includes one 4/275 MHz CPU processor and OpenVMS SMP license.
470YR-UD	OpenVMS SMP upgrade includes one 5/250 MHz CPU processor and OpenVMS SMP license.
480YR-UD	OpenVMS SMP upgrade includes one 5/300 MHz CPU processor and OpenVMS SMP license.

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### Step 3—Memory

See System Bus Slot Table for slot configuration rules.

- One, two, and three CPU systems support a total of four memory boards in any combination.
- Four CPU systems support total of two memory boards in any combination.
- Windows NT Server 4.0 supports up to 2 GB of memory.
- DIGITAL UNIX V3.2D-2 supports up to 2 GB of memory.
- OpenVMS V6.2 1-1H1 supports up to 2 GB of memory.

<b>MS450-BA</b>	64 MB memory module (AlphaServer 2100A 4/275 systems only)
<b>MS451-DA</b>	128 MB memory module
<b>MS451-FA</b>	512 MB memory module

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#### Step 3a—Prestoserve Nonvolatile Random Access Memory (NVRAM)

- Supported on DIGITAL UNIX systems only
- Maximum one Prestoserve option per system

<b>DJ-ML200-AA</b>	2 MB PCI Prestoserve option
<b>DJ-ML200-BA</b>	4 MB PCI Prestoserve option
<b>DJ-ML200-CA</b>	8 MB PCI Prestoserve option

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### Step 4—Monitors

Graphics monitors other than those listed below can be used if compatible with graphics adapter included with system.

#### Windows NT systems

- Windows NT systems **require** a graphics monitor to run **all** system functions.
- Video adapter included in system supports 1024 x 768 resolution, 72-Hz monitors.

#### DIGITAL UNIX and OpenVMS systems

- All console functions, including the EISA Configuration Utility (ECU) and the Standalone Configuration Utility can be performed using a standard video terminal (VT2xx, VT3xx, VT4xx, VT5xx) connected to one of the system's serial ports (See Step 8).
- For graphics console functionality, order a graphics monitor.
- Video adapter included in system supports 1024 x 768 resolution, 72-Hz monitors.

<b>SN-VRCX5-WA/W3/W4</b>	15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.
<b>SN-VRTX7-WA/W3 SN-VRT17-W4</b>	17" (16.0" viewable image size) Professional Series auto-scan color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 @ 75Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord, SN-VRT17-W4 = Southern Hemisphere. Select country specific power cord for W3 and W4 variant.
<b>SN-VRCX1-WA/ W3/W4</b>	21" (19.7" viewable image size) professional series auto-scan color monitor, Diamondtron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.

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## Step 5—Storage

### Internal Disk Storage Assembly

- Included storage assembly supports eight 3.5-inch disk drives.
- Integral Fast SCSI-2 controller supports maximum of seven devices in system enclosure (three 5.25-inch removable media devices and four 3.5-inch disk drives). All disk drives connected to this controller operate in **narrow** mode.
- Internal storage assemblies are normally configured for split-bus (two buses), four drives per bus. By reversing the positions of the terminator and jumper plugs, internal storage assemblies can be reconfigured for single-bus operation with a maximum of seven disk drives per storage assembly.
- Manufacturing normally configures internal storage assemblies in split-bus mode. If there are not enough storage controllers to support the number of internal disk drives ordered, manufacturing will configure the internal storage assemblies for single-bus mode.
- Internal storage assembly drive slots are physically interleaved with electrically contiguous drives in every other slot.
- One additional storage assembly in system enclosure supports eight additional 3.5-inch disk drives. Additional storage assembly requires an additional power supply (see Step 7).
- **Note:** **Wide** disk drives configured on a **narrow** bus will operate in **narrow** mode. **Narrow** disk drives configured on a **wide** bus will operate in **narrow** mode. **Wide** and **narrow** devices can be mixed on a single bus.

### Additional Storage Assembly for Internal Disk Storage

- Storage assembly supports 16-bit (wide) and/or 8-bit (narrow) modes.
- Requires an additional power supply (see Step 7).
- Includes SCSI cables for factory integration and for field installation if ordered as spare.

**BA35E-SA** Storage assembly supports eight 3.5-inch, half-height hard drives

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## Step 5a—Controllers and Storage Devices for 16-bit (Wide) Mode

- Internal StorageWorks 16-bit Wide Shelves:
  - 16-bit devices require 16-bit (wide) shelves.
  - Internal StorageWorks shelf is electrically compatible with 16-bit drives.
- Wide Storage Controllers allow wide devices to operate in 16-bit mode.
  - PCI-based one- and three-port (KZPSC-AA/AB) controllers, and one-port Fast Wide Differential (KZPSA-BB) controller allow wide devices to operate in 16-bit mode.
  - Maximum of four KZPSC-xx controllers supported per system.
  - KZPSA-BB PCI-based one-port Fast Wide Differential SCSI controller supports externally connected wide disks in BA356 using DWZZB fast wide differential to wide single-ended converter, or narrow disks using DWZZA fast wide differential to narrow single-ended converter in BA356.
  - KZPSA-BB controller on Windows NT systems support supports up to 15 disks. DIGITAL UNIX and OpenVMS systems support 7 disks.
- Maximum of four PCI- or EISA-based RAID controllers supported per system.
  - Wide drives operate in narrow (8-bit) mode when connected to narrow SCSI controllers, such as Integral Fast SCSI-2 controller.
  - Cabling information for Fast SCSI-2/3 controllers
    - Internal cables are supplied as needed for factory installed configurations. BC25T-3L cable is used from KZPSC-xx or KZPSM-AA controllers to internal shelf.
    - External cables are **not** included and must be ordered separately.
    - KZPSA-BB External cables: BN21K-xx from KZPSA to DWZZA, DWZZB and HSZ40 (straight to right angle) BN21W-0B Y SCSI-3 cable 68-pin for KZPSA in mid-bus configurations
    - KZPSC-xx External cables: BN31S-1E from KZPSC-xx to BA356
    - If all three ports on KZPSC-BA controller are used, use SCSI cable BN31K-0E for third port external connection. **Note:** Third external port blocks one PCI or EISA bulkhead.

### Storage Controllers for Wide Mode

**KZPSC-AA** One-port PCI backplane RAID controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX and Windows NT

**KZPSC-BA** Three-port PCI backplane RAID controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX and Windows NT

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## Step 5a—Controllers and Storage Devices for 16-bit (Wide) Mode (*continued*)

### Storage Controllers for Wide Mode

KZPSA-BB	One-port PCI-based Fast Wide Differential (FWD) SCSI controller
KZPSM-AA	PCI-based Combination Ethernet and Fast Wide SCSI controller

### Hard Drives for Wide Mode

RZ26N-VW	1.05 GB, 3.5-inch half-height disk drive
RZ28D-VW	2.1 GB, 3.5-inch 7200 RPM half-height disk drive
RZ29B-VW	4.3 GB, 3.5-inch 7200 RPM half-height disk drive

### External Disk Expansion for Wide Mode

- External BA356 StorageWorks modular storage pedestals are supported on all Fast Wide SCSI-2/3 controllers listed in Step 5a.
- External BA356 is not supported on integral Fast SCSI-2.
- SCSI cable BN21K-xx for KZPSA, and BN31S-1E for KZPSC, is required to connect an external BA356 modular storage pedestal to controller.

BA356-KC	Modular storage pedestal includes BA356-xx basic shelf, BA35X-HF universal ac power supply, pedestal mounting kit, and 120 V power cord; requires SCSI cable (BN31S-1E) for KZPSC-xx controllers. Order country specific power cord for 240 V use from Step 10.
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## Step 5b—Internal Removable Media Devices

Systems include 600 MB CD-ROM; system supports two additional 5.25-inch half-height removable media devices, or one 5.25-inch, full-height removable media device.

### Removable Media Devices

RRD46-AA	600 MB 5.25-inch half-height 12X speed CD-ROM
TLZ09-LG	8.0 GB 5.25-inch half-height SCSI 4-mm DAT
TZK11-LG	2.0 GB 5.25-inch half-height SCSI QIC tape

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## Step 5c—External Storage

### Tabletop Tape Expansion

- The integral Fast SCSI-2 controller **cannot** be extended outside the system enclosure to support external SCSI devices.
- External tape drives are supported on optional Fast SCSI-2 8-bit narrow controller (KZPAA-AA) only.
- Each tabletop tape device **requires** three-foot SCSI cable (BC09D-03).

### Storage Controller for Narrow Mode (required for external tape expansion)

KZPAA-AA	PCI-based one-port high performance Fast SCSI-2 controller
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### Tape Drives for Narrow Mode

TLZ09-DB	8.0 GB, 4mm DAT tabletop tape drive
TLZ9L-DB <sup>1,2</sup>	32.0/64.0 GB 4-mm DAT autoloader
TZ87-TA	20.0 GB DLT 5.25-inch tabletop tape drive
SZ107-AA	140.0 GB DLT loader (DIGITAL UNIX and OpenVMS only)
TSZ07-BA/CA	1600/6250-bit/inch 9-track tabletop magtape drive (DIGITAL UNIX and OpenVMS only)

1. Includes four cartridge loader. Twelve cartridge magazine supported (TLZ6L-12).
2. Windows NT operating system does not support unattended back-up mode without third-party Arcada software.

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**Step 5d—DSSI Storage (OpenVMS systems only)**

- System supports up to two KFESA or KFESB EISA/DSSI adapters; KFESA and KFESB adapters can be mixed on the same system.
- System supports four KFPSA PCI DSSI adapters.
- Each internal storage assembly in system in single/split-bus mode supports one/two HSD10 DSSI/SCSI converters.
- Disk drives installed "behind" HSD10 must be 8-bit (narrow).
- Cabling information for DSSI controllers:
- DSSI cables must be ordered separately.
  - KFESB/KFPSA uses "Micro-Ribbon" connection.
  - KFESB/KFPSA to any external "Pin-Socket" DSSI connection requires BC22Q-xx.
  - KFESB/KFPSA to any external "Micro-Ribbon" DSSI straight connection requires BC21Q-xx.
- KFESB/KFPSA to any external "Micro-Ribbon" DSSI right-angle connection requires BC29S-xx DSSI cable.
- KFESB/KFPSA to HSD10 requires BC29S-xx. If HSD10 is factory installed, BC29S-06 cable is included.
- HSD10 to HSD10 (inside system) requires BC29U-02.
- BC29U-06 (KFESB to HSD10) is provided if factory installed.
- HSD10 to HSD10 (between systems) requires BC29T-09.
- HSD10 to any external "Micro-Ribbon" DSSI connection (all other DSSI systems and storage devices) requires BC29S-xx for straight connection to external device; or BC29T-09 for right-angle connection to external device.

**DSSI Adapters**

<b>KFPSA-AA</b>	PCI-to-DSSI controller (OpenVMS systems <b>only</b> ); maximum four per system.
<b>KFESB-AA</b>	EISA-based single-DSSI controller (OpenVMS systems <b>only</b> ); maximum two per system
<b>HSD10-AA</b>	StorageWorks Array controller; supports seven SCSI-2 disks, tape, and optical devices. (See Storage section for supported devices.)

**DSSI Option Pack**

- OpenVMS DSSI starter option pack includes:
  - Two KFESB-AA EISA-based DSSI adapters
  - Two HSD10-AA DSSI/SCSI converter
  - Three RZ28 2-GB disk drives
  - Two BC29S-06 DSSI cables\*
  - VMSccluster license (QL-MUZAG-AA)

**SD002-AA**            OpenVMS DSSI Starter Option Pack

\* Additional cables are required to connect to external DSSI storage devices or systems

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**Step 5e—PCI to CI Storage Host Adapter (OpenVMS Systems only)**

- Systems support mixing CIPCA-AA and CIPCA-BA for maximum of three per system
- Minimum Operating System Version: OpenVMS 6.2-1H2
- Minimum Console Revision: V4.4
- Select one CI cable per adapter

<b>CIPCA-AA</b>	PCI-to-CI adapter, requires one PCI slot and one EISA slot. Maximum two per system
<b>CIPCA-BA</b>	PCI-to-CI adapter, requires two PCI slots. Maximum three per system
<b>BNCIA-10</b>	10-meter CI cable
<b>BNCIA-20</b>	20-meter CI cable
<b>BNCIA-45</b>	45-meter CI cable

## Step 6—Networks and Communications

- See PCI Option Slot Chart for slot configuration rules.
  - Systems include Ethernet controller (AUI, 10BaseT, or ThinWire selectable)
  - Select networking cable
- BNE4C-xx for AUI
  - BN25G-xx for 10BaseT
  - BC16M-xx for ThinWire, and H8225-00 Terminator
  - Maximum of 4 PCI-based network controllers supported.

Order Number	Description	Maximum # supported		
		DIGITAL UNIX	OpenVMS	Windows NT
DEFEA-AA	EISA-based DEC FDDIcontroller Single Attachment	2	2	2
DEFEA-DA	EISA-based DEC FDDIcontroller Dual Attachment (requires 2 EISA slots)	1	1	1
DEFEA-UA	EISA-based DEC FDDIcontroller UTP Attachment	2	2	2
DNSES-AA	EISA-based synchronous communications controller	3	3	0
CXI01-AA/AD	ISA-based asynchronous multiplexer	2	2	2
DIIAA-AA	Digiboard ISA datafire-U ISDN Controller (Available as <b>spare Only</b> )	0	0	1
DIIAA-AB	Digiboard ISA datafire-ST ISDN Controller (Available as <b>spare Only</b> )	0	0	1
DEFPA-AB*	PCI to FDDI Adapter, SAS, MMF, SC	4	6	4
DEFPA-DB*	PCI to FDDI Adapter, DAS, MMF, SC	4	6	4
DEFPA-UB*	PCI to FDDI Adapter, SAS, TP-PMD	4	6	4
DEFPA-MB	PCI to FDDI Adapter, DAS, TP-PMD	4	6	4
DE450-CA	PCI 10-Mbit Ethernet controller; AUI, 10BaseT, or 10Base2	4	4	4
DE500-AA	PCI-based Fast Ethernet controller	2	2	2
PBXNP-AA	PCI Token Ring Adapter	1	1	0
DGLPB-AB	PCI based ATMworks 350 Interface Card	2	0	0

\* Cables: Fiber, Duplex, "SC" to "MIC" (concentrator): BN34D-xx; Fiber, Duplex, "SC" to "SC": BN34B-xx; Fiber, Duplex, "SC" to "ST": BN34A-xx; Copper STP, 8 cond, wired pin-pin: BN26M-xx; Copper STP, 8 cond, wired cross-over: BN26S-03.

### Step 6a—MEMORY CHANNEL Interconnect

#### DIGITAL UNIX Systems

- Require DIGITAL UNIX V3.2E (DIGITAL UNIX V3.2D plus TruCluster software or MEMORY CHANNEL Driver software).
- Each system node in a MEMORY CHANNEL cluster requires a software license.
- Servers in a compute-server array require a DIGITAL UNIX Driver for MEMORY CHANNEL License.
- Servers in a TruCluster high-availability environment require a license for TruCluster for DIGITAL UNIX.

#### OpenVMS Systems

- Require OpenVMS V7.1 and OpenVMS Cluster license

#### Configuring information:

- For two-system nodes, order one CCMAA-BA per system and one BC12N-10 cable to connect them.
- For three or more system nodes, order CCMHA-AA (MEMORY CHANNEL Hub) one CCMAA-BA and one BC12N-10 cable per system node.
- CCMHA-AA (MEMORY CHANNEL Hub) is configured with four CCMLA-AA Line Cards and supports up to four nodes. Expansion up to eight system nodes can be achieved by adding up to four additional CCMLA-AA Line Cards.

**Note:** CCMAA-BA (PCI to MEMORY CHANNEL controller) must be installed in PCI slots 4-7

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**Step 6a—MEMORY CHANNEL Interconnect (continued)**

CCMAA-BA	PCI to MEMORY CHANNEL controller—Maximum two supported on AlphaServer 2100A
CCMHA-AA	MEMORY CHANNEL Hub with 4 Line Cards
CCMLA-AA	MEMORY CHANNEL Line Card for use with MEMORY CHANNEL Hub (CCMHA-AA)
BC12N-10	MEMORY CHANNEL Cable
QB-3RLAG-AA	TruCluster Software for DIGITAL UNIX
QB-4ZCAG-AA	DIGITAL UNIX Driver for MEMORY CHANNEL license
QL-MUZAG-AA	OpenVMS Cluster license for Alpha systems

CCMHA-AA, MEMORY CHANNEL Hub, includes BN19P-2E line cord for Canada, Japan, US operation. For other regions, order one of the following:

BN19A-2E	Ireland, United Kingdom
BN19S-2E	Egypt, India
BN19C-2E	Central Europe
BN18L-2E	Israel
BN19E-2E	Switzerland
BN24X-2E	Italy
BN19K-2E	Denmark
BN19H-2E	Australia, New Zealand

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**Step 7—Additional Power Supply**

- Additional power supply is **required** if configured system includes second storage assembly, **or**
  - More than two CPUs are installed, or
  - Two CPUs and more than one memory board is installed
- In lesser configurations, the additional power supply may be ordered for n+1 redundancy.
- Americas and Asia Pacific orders:
  - If additional power supply is factory installed, 120 V U.S. power cord is included when alternate is not selected.
  - If additional power supply is ordered as **spare**, power cord **must** be ordered separately, see Step 10.
- European orders:
  - If additional power supply is factory installed **or** ordered as **spare**, country specific power cord **must** be ordered separately, see Step 10.

H7893-AA            602-watt power supply

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**Step 8—Terminals and Printers**

Systems include two EIA-232 asynchronous serial ports with 9-pin D-subminiature connectors.

**DIGITAL UNIX and OpenVMS systems**

Console terminals can either be graphics monitor connected to the included video graphics adapter (See Step 4), or a serial video terminal. If a serial video terminal is used as the console terminal, it must be VT320, VT420, or VT520 compatible. These terminals have the graphics capability required for the EISA Configuration Utility.

Select terminals and serial printers as required. A 9-pin to MMJ adapter (H8571-J) is required for each connection. A cable must be ordered unless otherwise provided.

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## Step 9—Software

### Windows NT Servers

- Windows NT systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit
  - Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American orders.

### Windows NT Server plus 10-client access license, media (CD-ROM) kits

QB-23CAA-SB	Windows NT Server license, media kit North American English
QB-23C8A-SB	Windows NT Server license, media kit International English
QB-23CPA-SB	Windows NT Server license, media kit French
QB-23CGA-SB	Windows NT Server license, media kit German
QB-23CSA-SB	Windows NT Server license, media kit Spanish
QB-23CUA-SB	Windows NT Server license, media kit Italian
QB-23CJA-SB	Windows NT Server license, media kit Japanese
QB-23CTA-SB	Windows NT Server license, media kit Hebrew
QB-23CMA-SB	Windows NT Server license, media kit Swedish
QB-23CQA-SB	Windows NT Server license, media kit Arabic
QB-23C5A-SB	Windows NT Server license, media kit Thai
QB-23CHA-SB	Windows NT Server license, media kit Dutch
QB-23CVA-SB	Windows NT Server license, media kit Brazilian/Portuguese
QB-23C4A-SB	Windows NT Server license, media kit Korean
QB-23C3A-SB	Windows NT Server license, media kit Taiwanese
QB-23C2A-SB	Windows NT Server license, media kit PRC Chinese

### Windows NT Server Optional software and documentation

QB-53V9A-SA	Windows NT Server Cluster Kit
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### DIGITAL UNIX systems

Select user licenses and additional software as required. Media and documentation is **required** for first system on site.

### Software Processor Code = G for all software, 1-4 processors

- DIGITAL UNIX Concurrent Use license provides the right to interactively use the operating system by the specified number of concurrent users on a designed DIGITAL UNIX system.
- DIGITAL UNIX Concurrent Use licenses are **not** specific to a single system and can be moved from one system to another at user discretion

QL-MT7AM-3B	DIGITAL UNIX Concurrent Use 1-user license
QL-MT7AM-3C	DIGITAL UNIX Concurrent Use 2-user license
QL-MT7AM-3D	DIGITAL UNIX Concurrent Use 4-user license
QL-MT7AM-3E	DIGITAL UNIX Concurrent Use 8-user license
QL-MT7AM-3F	DIGITAL UNIX Concurrent Use 16-user license
QL-MT7AM-3G	DIGITAL UNIX Concurrent Use 32-user license
QL-MT7AM-3H	DIGITAL UNIX Concurrent Use 64-user license
QL-MT7AG-AA	DIGITAL UNIX Traditional unlimited user license
QL-MT5AG-AA	DIGITAL UNIX developer's extension license

### DIGITAL UNIX Media and Documentation—required for first system on site

QA-MT4AA-H8	DIGITAL UNIX media and on-line documentation on CD-ROM
QA-MT4AA-GZ	DIGITAL UNIX full hardcopy documentation

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**Step 9—Software (continued)****DIGITAL UNIX Layered Products CD-ROM**

QA-054AA-H8 Layered products media and documentation for DIGITAL UNIX on CD-ROM

**DECnet Licenses**

QL-MTJAG-AA DECnet/OSI end-system license for DIGITAL UNIX

QL-MTKAG-AA DECnet/OSI extended function license for DIGITAL UNIX

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**OpenVMS systems**Select user licenses and additional software as required. Media and documentation is **required** for first system on site.**Software Processor Code = G for all software, 1-4 processors**

- OpenVMS Concurrent Use license provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system.
- OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.

QL-MT3AA-3B OpenVMS Concurrent Use 1-user license

QL-MT3AA-3C OpenVMS Concurrent Use 2-user license

QL-MT3AA-3D OpenVMS Concurrent Use 4-user license

QL-MT3AA-3E OpenVMS Concurrent Use 8-user license

QL-MT3AA-3F OpenVMS Concurrent Use 16-user license

QL-MT3AA-3G OpenVMS Concurrent Use 32-user license

QL-MT3AA-3H OpenVMS Concurrent Use 64-user license

QL-MT3AA-3J OpenVMS Concurrent Use 128-user license

QL-MT3AA-3K OpenVMS Concurrent Use 256-user license

QL-MT2AG-AA OpenVMS Traditional unlimited user license

**OpenVMS Media and Documentation—required for first system on site**

QA-MT1AA-H8 OpenVMS media and documentation on CD-ROM

QA-001AA-GZ OpenVMS hardcopy documentation

**OpenVMS Layered Products CD-ROM**

QA-03XAA-H8 Layered products media and documentation for OpenVMS on CD-ROM

**DECnet Licenses**

QL-MTGAG-AA DECnet extended function license for OpenVMS

QL-MTHAG-AA DECnet end-system to extended function upgrade license for OpenVMS

**DSSI Information**

EK-410AB-MG DSSI VMScluster Installation Guide

EK-D4AXP-TS DSSI VMScluster Troubleshooting Guide

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## Step 10—Keyboards and Power Cords

Systems ordered in the Americas and Asia Pacific include 120 V U.S. power cord and keyboard unless alternate is specified. Select country specific power cord and keyboard for **all** systems ordered in Europe.

### Keyboards

Windows NT and DIGITAL UNIX	OpenVMS	
LK471-A2	LK461-A2	U.S./English
LK471-AB	LK461-AB	Belgian
	LK461-AC	Canadian/French
LK471-AD	LK461-AD	Danish
LK471-AE	LK461-AE	United Kingdom
	LK461-AF	Finnish
LK471-AG	LK461-AG	German
	LK461-AH	Dutch
LK471-AI	LK461-AI	Italian
LK471-AK	LK461-AK	Swiss/Generic
	LK461-AL	Swiss/German
	LK461-AM	Swedish
LK471-AN	LK461-AN	Norwegian
LK471-AP	LK461-AP	French
	LK461-AQ	Canadian/English
LK471-AS	LK461-AS	Spanish
LK471-AV	LK461-AV	Portuguese

### Power Cords

BN27Y-1J*	U.S., Canada, Japan, 120 V
BN19H-2E	Australia/New Zealand
BN19C-2E	Central Europe
BN19A-2E	UK/Ireland
BN19E-2E	Switzerland
BN19K-2E	Denmark
BN19M-2E	Italy
BN19S-2E	India/South Africa
BN18L-2E	Israel

\* Orderable as 17-00083-15

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## Step 11—Hardware and Software Supplemental Support Services

Systems include three-year warranty, on-site with 5 x 9, 24-hour response time.

### Hardware—Americas and Asia Pacific only

- Select optional Hardware Supplemental Support Services if required.

### AlphaServer 2100 4/275 Systems

FM-454HR-36	Years 1-3, 5 x 9, 4-hour response time
FM-454HR-60	Years 1-5, 5 x 9, 4-hour response time
FM-45512-36	Years 1-3, 5 x 12, 4-hour response time
FM-45512-60	Years 1-5, 5 x 12, 4-hour response time

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**Step 11—Hardware and Software Supplemental Support Services (*continued*)**
**AlphaServer 2100 4/275 Systems**

FM-45616-36	Years 1-3, 6 x 16, 4-hour response time
FM-45616-60	Years 1-5, 6 x 16, 4-hour response time
FM-45724-36	Years 1-3, 7 x 24, 4-hour response time
FM-45724-60	Years 1-5, 7 x 24, 4-hour response time

**AlphaServer 2100 5/250 and 5/300 Systems**

FM-S54HR-36	Years 1 - 3, 5 x 9, 4-hour response time
FM-S54HR-60	Years 1 - 5, 5 x 9, 4-hour response time
FM-S5512-36	Years 1 - 3, 5 x 12, 4-hour response time
FM-S5512-60	Years 1 - 5, 5 x 12, 4-hour response time
FM-S5616-36	Years 1 - 3, 6 x 16, 4-hour response time
FM-S5616-60	Years 1 - 5, 6 x 16, 4-hour response time
FM-S5724-36	Years 1 - 3, 7 x 24, 4-hour response time
FM-S5724-60	Years 1 - 5, 7 x 24, 4-hour response time

**Software—Americas and Asia Pacific only**

- Software Warranty:
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- Software service upgrades for DIGITAL UNIX and OpenVMS include advisory and remedial software support with new version license rights for operating system and DIGITAL NAS 200 for the time period indicated.
- Software Supplemental Support Service options upgrade 90-day service to time period indicated below.

**AlphaServer 2100A 4/275, 5/250, and 5/300 Systems**

FM-WNTO2-12	12-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-WNTO2-36	36-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-WNTO2-60	60-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-SEOSF-12	12-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEOSF-36	36-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEOSF-60	60-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEVMS-12	12-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems
FM-SEVMS-36	36-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems
FM-SEVMS-60	60-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems

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**Step 11b—Hardware and Software Supplemental Support Services—Europe only**

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

## Specifications

<b>Shipping Dimension</b>			
Height	119 cm (46.9 in.)		
Width*	102 cm (40.0 in.)		
Depth*	61 cm (24.0 in.)		
Weight	85 kg (187 lb) typical 114 kg (250 lb) maximum		
<b>Installed Dimensions</b>			
Height	70 cm (27.6 in.)		
Width	43 cm (16.9 in.)		
Depth	81 cm (31.9 in.)		
Weight	75 kg (165 lb) typical 100 kg (220 lb) maximum		
<b>Clearances</b>	<b>Operating</b>	<b>Service</b>	
Front	75 cm (29.5 in.)	75 cm (29.5 in.)	
Rear	15.2 cm (6 in.)	76.2 cm (30 in.)	
Sides	None	76.2 cm (30 in.)	
<b>Environmental</b>			
Temperature	Operating**	10°-35° C (50°-95° F)	
	Nonoperating		
	Storage (60 days)	-40°-66° C (-40°-151° F)	
	Rate of change	11° C/hr (20° F/hr)	
Relative humidity	Operating	20-80%	
	Nonoperating	20-80%	
	Storage (60 days)	10-95%	
	Rate of change	20%/hr	
Maximum wet bulb temperature	Operating Storage (60 days)	28° C (82° F) 46° C (115° F)	
Minimum dew point temperature	Operating	2° C (36° F)	
	Storage (60 days)	Not tested	
Maximum heat dissipation	Current	Theoretical	
	Single supply	800 Watt, 3005 Btu/hr	920 Watt, 3142 Btu/hr
	Dual supply	1280 Watt, 4371 Btu/hr	1675 Watt, 5720 Btu/hr
Air flow and quality	Intake location	Front	
	Exhaust location	Rear	
Altitude	Operating <sup>†</sup>	2000 m (6562 ft)	
	Nonoperating	3600 m (12,000 ft)	
Mechanical shock	Operating	7.5 G 10 ms	
	Nonoperating	20 G peak 30 ms	
Vibration	Operating	10-500 Hz .1 G peak	
Acoustics	Operating	LNPEc (Bels) 6.6 maximum per ISO 7779	
<b>Electrical</b>			
Nominal ac voltage	100-120 Vac	220-240 Vac	
Voltage range (Vac)	88-132 Vac	180-264 Vac	
Power source phase	Single	Single	
Nominal frequency (Hz)	60 Hz	50 Hz	
Frequency range (Hz)	47-63 Hz	47-63 Hz	
Maximum inrush current	50 Amps	50 Amps	
RMS current at nominal voltage (steady state)	8.5 Amps	4.0 Amps	
Power cord	Type	IEC 320 C16	
	Length	240 cm (113 in.)	
	U.S. plug	NEMA 5-15, Socket EIC 320 Sheet, C-15	

\* Dimensions of shipping pallet; fork-lift access is on the width dimension.

\*\* Maximum operating temperature at Sea Level. Reduce by 1° C (1.8° F) for each 600 m (2000 ft) above Sea Level.

† Higher altitudes are possible if maximum operating temperature is reduced (see Temperature, above); other restrictions may apply, such as maximum permissible altitude for hard drives.

## Specifications (continued)

Regulatory	
Agency approvals	UL Listed to UL1950 CSA Certified to CAN/ C22.2 No. 950-M89 TUV EN 60950 GS VDE 0805 Gsmarke ZH1/61 IEC 950 FCC 15J Part 15 (Class A) CE
Reviewed to	AS 3260 Australian Standard SS 436 14 50 Swedish Standard NZS 6661:1989 New Zealand Standard EN 60 950: 1992 European Norm

**Recommended Power Protection/UPS Solutions for AlphaServer 2100A Systems**

UPS offerings feature on-line design and include EIA232 port for local or network monitoring. Prestige units feature a three piece modular design that allows users to safely swap out components without disconnecting the critical load and “plug and play” battery and receptacle extensions. Units include 7 minute battery at full UPS rated output (14 minutes for fully configured system). U.S. models include a three-year, 24-hour hot swap warranty.

**Prestige UPS - North American Model**

4N-AEAAH-AM	UPS, 3.0kVA/2.0KW Rating, 208V in, 120/208V out, L6-30P Input Plug, (1) L5-30R, (4) 5-15R Output Receptacles—call for information on 120V input models
4N-AEACH-xx	Optional Receptacle Extension, -AA - AE available
4N-AEAAH-AB	Add-on Battery

**Prestige UPS - International Model**

4N-AEAAH-AS	UPS, 3.0kVA/2.1KW Rating, 200-240V selectable in/out, IEC 309 Input Plug, (3) IEC 320 10A, (1) IEC 320 20A
4N-AEACH-xx	Optional Receptacle Extension, -DA - DD available (Shuko, French, British, Australian)
4N-AEAAH-AB	Add-on Battery
4N-AEWAR-G2	Prestige 5-year on-site exchange warranty upgrade for models sold and serviced in the U.S.
4N-AEACH-HA	Optional mobile module stacker standard unit for above UPS HB/HC/HD=1/2/3 added battery modules

**Companion Data Surge Protection**

4N-GA249-AB	Modem connection (wall plug-in unit)
4N-GA249-CA	10BaseT connection (wall plug-in unit)
4N-GA510-BF	ThinWire connection (device port)
4N-GA245-xx	Multi-port connection (din rail/rackmount)
4N-GA240-xx	Additional plug-in data modules for 4N-GA249 series devices. AC panel protection also available. All devices include 5 year hot-swap warranty.

**UPS Monitoring and Unattended Shutdown Software (for above UPS systems only)**

Includes cable, media and documentation.

Monitoring Software	Windows NT	Digital UNIX	OpenVMS
Single system shutdown	4N-AEAES-AA	4N-AEAES-AK	4N-AEAES-EM
Network Management and multiple system shutdown*	4N-AEAES-BA	4N-AEAES-BK	Call for information
* Connect-UPS Adapter required DA/DB=twisted pair, DC/DD=ThinWire			
4N-AEAEO-DA/DC	Connect UPS Adapter 120V (North American)		
4N-AEAEO-DB/DD	Connect UPS Adapter 220V (International)		

## AlphaServer 2100A Rackmount and Cabinet

### Product Description

**AlphaServer 2100A 4/275, 5/250, and 5/300 Rackmount Systems** are rackmountable versions of the respective AlphaServer 2100A systems having the same features and functionality but with minimal internal storage capacity: most data is stored in StorageWorks modular shelves. The AlphaServer 2100A family is configured with eight PCI slots and three EISA slots.

The AlphaServer 2100A Rackmount system unit is designed to be installed in a 30-inch deep cabinet equipment with standard EIA or METRIC rails using only 14-inches of vertical space. It is an ideal system building block.

**AlphaServer 2100A, 4/275, 5/250, and 5/300 Cabinet Systems** include AlphaServer 2100A Rackmount system and two StorageWorks Shelves configured into industry standard H9A10 cabinets.

AlphaServer 2100A Rackmount and Cabinet systems are designed for those installations where floor space is at a premium, where large disk storage arrays and/or other expansion is required, or when high availability systems are required.

Advanced server management features are provided with all AlphaServer 2100A shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX, and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

## AlphaServer 2100A Rackmount and Cabinet

### Product Description (continued)

Points to consider when selecting a Packaged Cabinet System:

- Rackmount unit installed in cabinet systems supports two removable media devices and two hard disk drives. Rackmount unit includes one quad-speed CD-ROM drive and one 7200 RPM 2 GB hard disk drive. Additional disk, controllers, and cables **must** be ordered separately.
- Power cords are included for AlphaServer Rackmount unit and other rackmountable options on same purchase order as AlphaServer Cabinet.
- Each Rackmount BA36R-AF/AR 16-bit wide SCSI StorageWorks shelf requires seven inches of vertical space; an -AF front mounted and -AR rear mounted shelf can be placed back to back in the same seven-inch space.
- Power controller as well as voltage and total current requirements.

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### Step 1—Systems

- AlphaServer 2100A Cabinet systems ship with two each of the following power cords (power controller to cabinet).
  - 120 VAC systems: NEMA Locking, 4.57 m (15 feet), NEMA L5-30P, Socket NEMA L5-30R
  - 240V VAC systems: IEC 309, 4.5 m (15 feet), pin and sleeve plug
- AlphaServer 2100A Rackmount systems include 120V or 240V Cabinet system compatible power cords. Select country-specific power cord for other 240V use.
- All systems include keyboard. Select country-specific keyboard for 240 V use. Selected keyboard ships in lieu of U.S. variants.
- All systems ship with extender cables for use with mouse and keyboard.
- AlphaServer 2100A Rackmount unit and rackmountable options ordered on same purchase order as AlphaServer 2100A Cabinet system ship with correct power cords for that configuration.
- Options ordered will be factory installed unless specified as **spares**.
- Uninterruptable Power Supplies are available; see UPS information following Specifications, or call for specific Rackmount configuration support.

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### AlphaServer 2100A Cabinet Units include

- One H9A10-Cx cabinet enclosure
- One AlphaServer 2100A 4/275, 5/250 or 5/300 rackmountable unit.
- Two 16-bit Wide StorageWorks shelves; one BA36R-AF (front mounted) and one BA36R-AR (rear mounted). 35 inches of H9A10-Cx cabinet rack space remains available.

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### AlphaServer 2100A Rackmount Units include

- Alpha microprocessor 21064 275-Mhz CPU with 4 MB onboard cache, **or**
- Alpha microprocessor 21164 250-Mhz CPU with 4 MB onboard cache, **or**
- Alpha microprocessor 21164 291-Mhz CPU with 4 MB onboard cache
- BA744 Rackmountable enclosure which includes:
  - Integral 10 MB/s 8-bit narrow Fast SCSI controller
  - Two EIA-232 asynchronous serial ports, 9-pin D-subminiature connectors
  - One parallel port, 25-pin D-subminiature connectors
  - Two RZxx hard disk drives slots
  - Two 5.25-inch, half-height removable media slots
  - Eight PCI slots
  - Three EISA slots
  - 840-Watt power supply
- Ethernet AUI, 10BaseT (twisted pair), or ThinWire selectable (uses one PCI slot),
- 1.44-MB diskette drive in dedicated slot
- 2.0 GB 7200 rpm hard disk drive (uses one RZxx disk slot)
- 600 MB Quad Speed CD-ROM (uses one removable media slot)
- Video Graphics Adapter (uses one PCI slot)
- Three-button mouse
- Keyboard (Americas and AP orders only)
- Memory indicated below
- Customer documentation
- EISA configuration utility
- Hardware Warranty Three-year, on-site with 5 x 9, 24-hour response time\*
- Software Warranty:\*
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days

\* Service upgrades are available; see Step 12, Hardware and Software Supplemental Services.

**Step 1—Systems (continued)****Windows NT Rackmount and Cabinet Systems include**

- Windows NT systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit.
  - Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American orders, see Step 9.

**Windows NT Rackmount Systems—Requires cabinet**

Order Number	Model	Memory	PCI/EISA slots available
DN-252Y1-B9	4/275	128 MB	6 PCI / 3 EISA
DN-252Y1-C9	4/275	512 MB	6 PCI / 3 EISA
DN-253Y1-B9	5/250	128 MB	6 PCI / 3 EISA
DN-253Y1-C9	5/250	512 MB	6 PCI / 3 EISA
DN-254Y1-B9	5/300	128 MB	6 PCI / 3 EISA
DN-254Y1-C9	5/300	512 MB	6 PCI / 3 EISA

**Windows NT Cabinet Systems—Includes cabinet**

Order Number	Model	Memory	PCI/EISA slots available	Cabinet Power Required
DN-262F1-B2/B3	4/275	128 MB	6 PCI / 3 EISA	120 V / 240 V
DN-262F1-C2/C3	4/275	512 MB	6 PCI / 3 EISA	120 V / 240 V
DN-263F1-B2/B3	5/250	128 MB	6 PCI / 3 EISA	120 V / 240 V
DN-263F1-C2/C3	5/250	512 MB	6 PCI / 3 EISA	120 V / 240 V
DN-264F1-B2/B3	5/300	128 MB	6 PCI / 3 EISA	120 V / 240 V
DN-264F1-C2/C3	5/300	512 MB	6 PCI / 3 EISA	120 V / 240 V

**DIGITAL UNIX Rackmount and Cabinet Systems include**

- DIGITAL UNIX 4.0A operating system base license
- NAS Base Server 200 for DIGITAL UNIX license QL-306AG-AA; includes the following layered products (order media and documentation separately):
  - PATHWORKS for DIGITAL UNIX (kit only, no license)
  - Polycenter Advanced File System utilities
  - Objectbroker for DIGITAL UNIX Runtime
  - DECmessageQ for DIGITAL UNIX Runtime
  - DCE Runtime
  - DIGITAL UNIX Server Extensions
  - PrintServer software (kit only, licensed with printer)
- Base operating system is factory installed

**Note:** Operating system media and documentation is **required** for first system on site; see Step 9.

**DIGITAL UNIX Rackmount Systems—Requires cabinet**

Order Number	Model	Memory	PCI/EISA slots available
DA-252Y1-B9	4/275	128 MB	6 PCI / 3 EISA
DA-252Y1-C9	4/275	512 MB	6 PCI / 3 EISA
DA-253Y1-B9	5/250	128 MB	6 PCI / 3 EISA
DA-253Y1-C9	5/250	512 MB	6 PCI / 3 EISA
DA-254Y1-B9	5/300	128 MB	6 PCI / 3 EISA
DA-254Y1-C9	5/300	512 MB	6 PCI / 3 EISA

**DIGITAL UNIX Cabinet Systems—Includes cabinet**

Order Number	Model	Memory	PCI/EISA slots available	Cabinet Power Required
DA-262F1-B2/B3	4/275	128 MB	6 PCI / 3 EISA	120 V / 240 V
DA-262F1-C2/C3	4/275	512 MB	6 PCI / 3 EISA	120 V / 240 V
DA-263F1-B2/B3	5/250	128 MB	6 PCI / 3 EISA	120 V / 240 V
DA-263F1-C2/C3	5/250	512 MB	6 PCI / 3 EISA	120 V / 240 V
DA-264F1-B2/B3	5/300	128 MB	6 PCI / 3 EISA	120 V / 240 V
DA-264F1-C2/C3	5/300	512 MB	6 PCI / 3 EISA	120 V / 240 V

**Step 1—Systems (continued)****OpenVMS Rackmount and Cabinet Systems include**

- OpenVMS V7.1 operating system base license
- NAS Base Server 200 for OpenVMS license (QL-23EAG-AA), includes the following layered products (order media and documentation separately):
  - DECnet for OpenVMS End System
  - DECnet/OSI for OpenVMS End Node
  - PATHWORKS for OpenVMS (LAN Manager); kit only, no license
  - DEC TCP/IP services for OpenVMS
  - Polycenter Software Distribution (Client)
- DECwindows Motif for OpenVMS
- Objectbroker for OpenVMS (ACA Services)
- DECmessageQ for OpenVMS Runtime
- DECprint Supervisor for OpenVMS , Base
- DECprint Supervisor for OpenVMS , Plus
- DECprint Supervisor for OpenVMS , Open
- PrintServer software (kit only, licensed with printer)
- OpenVMS operating system is factory installed.

**OpenVMS Rackmount Systems—Requires cabinet**

Order Number	Model	Memory	PCI/EISA slots available
DY-252Y1-B9	4/275	128 MB	6 PCI / 3 EISA
DY-252Y1-C9	4/275	512 MB	6 PCI / 3 EISA
DY-253Y1-B9	5/250	128 MB	6 PCI / 3 EISA
DY-253Y1-C9	5/250	512 MB	6 PCI / 3 EISA
DY-254Y1-B9	5/300	128 MB	6 PCI / 3 EISA
DY-254Y1-C9	5/300	512 MB	6 PCI / 3 EISA

**OpenVMS Cabinet Systems—Includes cabinet**

Order Number	Model	Memory	PCI/EISA slots available	Cabinet Power Required
DY-262F1-B2/B3	4/275	128 MB	6 PCI / 3 EISA	120 V / 240 V
DY-262F1-C2/C3	4/275	512 MB	6 PCI / 3 EISA	120 V / 240 V
DY-263F1-B2/B3	5/250	128 MB	6 PCI / 3 EISA	120 V / 240 V
DY-263F1-C2/C3	5/250	512 MB	6 PCI / 3 EISA	120 V / 240 V
DY-264F1-B2/B3	5/300	128 MB	6 PCI / 3 EISA	120 V / 240 V
DY-264F1-C2/C3	5/300	512 MB	6 PCI / 3 EISA	120 V / 240 V

**System Bus and PCI Bus Configuration Rules**

- Use System Bus Slot Table for slot configuration rules when adding additional CPUs and memory.
- See PCI Option Slot Table for options supported in specific PCI slots.

**System Bus Slot Table**

Recommended Slots	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	Slot 7
1 CPU system	—	CPU 0	—	Memory 0	Memory 1	Memory 2	Memory 3
2 CPUs system	—	CPU 0	CPU 1	Memory 0	Memory 1	Memory 2	Memory 3
3 CPUs system	CPU 2	CPU 0	CPU 1	Memory 0	Memory 1	Memory 2	Memory 3
4 CPUs system	CPU 3	CPU 0	CPU 1	Memory 0	CPU 2	Not available	Memory 1

**PCI Option Slot Table**

- Some PCI options are **not** supported behind a PCI-PCI bridge on specific operating systems. Use the following table for options restricted to slots **4, 5, 6 and 7 only**. All other options supported on the AlphaServer 2100A not listed here are supported in any PCI slot (0, 1, 2, 3, 4, 5, 6, 7).

Order Number	Description	Max #	Supported in PCI slots only	Operating System
KZPSA-BB	One-port Fast Wide Differential SCSI controller	3	4, 5, 6, 7	Windows NT
PB2GA-JB <sup>1</sup>	S3-Trio64 Graphics option 1 MB	1	4, 5, 6, 7	Windows NT
CCMAA-AA	PCI to MEMORY CHANNEL controller	2	4, 5, 6, 7	DIGITAL UNIX

<sup>1</sup> Graphics option standard in all systems.

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## Step 2—CPU Symmetrical Multiprocessing (SMP) Upgrade

### CPU Upgrades

- Order up to three additional CPUs, for a maximum of four; see System Bus Slot Table.
- Additional CPUs must match the speed of CPU in system.
- Four-CPU systems are restricted to two memory slots.

460NR-AA	Windows NT SMP upgrade includes one 4/275 MHz CPU processor; SMP license is not required.
470NR-UD	Windows NT SMP upgrade includes one 5/250 MHz CPU processor; SMP license is not required.
480NR-UD	Windows NT SMP upgrade includes one 5/300 MHz CPU processor; SMP license is not required.
460AR-AA	DIGITAL UNIX SMP upgrade includes one 4/275 MHz CPU processor and DIGITAL UNIX SMP license.
470AR-UD	DIGITAL UNIX SMP upgrade includes one 5/250 MHz CPU processor and DIGITAL UNIX SMP license.
480AR-UD	DIGITAL UNIX SMP upgrade includes one 5/300 MHz CPU processor and DIGITAL UNIX SMP license.
460YR-AA	OpenVMS SMP upgrade includes one 4/275 MHz CPU processor and OpenVMS SMP license.
470YR-UD	OpenVMS SMP upgrade includes one 5/250 MHz CPU processor and OpenVMS SMP license.
480YR-UD	OpenVMS SMP upgrade includes one 5/300 MHz CPU processor and OpenVMS SMP license.

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## Step 3—Memory

See System Bus Slot Table for slot configuration rules.

- One- to three- CPU systems support a total of four memory boards in any combination.
- Four CPU systems support total of two memory boards in any combination.
- Windows NT Server 4.0, DIGITAL UNIX V3.2, and OpenVMS V6.2 supports up to 2 GB memory

MS450-BA	64 MB memory module (supported on 4/275 systems only)
MS451-DA	128 MB memory module
MS451-FA	512 MB memory module

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### Step 3a—Prestoserve Nonvolatile Random Access Memory (NVRAM)

- Supported on DIGITAL UNIX systems only
- Maximum one Prestoserve option per system

DJ-ML200-AA	2 MB PCI Prestoserve option
DJ-ML200-BA	4 MB PCI Prestoserve option
DJ-ML200-CA	8 MB PCI Prestoserve option

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## Step 4—Monitors

Graphics monitors other than those listed below can be used if compatible with graphics adapter included with system.

### Windows NT systems

- Windows NT systems require a graphics monitor to run all system functions.
- Video adapter included in system supports 1024 x 768 resolution, 72-Hz monitors.

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## Step 4—Monitors (*continued*)

**DIGITAL UNIX and OpenVMS systems**

- All console functions, including the EISA Configuration Utility (ECU) and the RAID Configuration Utility (RCU) can be performed using a standard video terminal (VT2xx, VT3xx, VT4xx, VT5xx) connected to one of the system's serial ports (See Step 8).
- For graphics console functionality, order a graphics monitor.
- Video adapter included in system supports 1024 x 768 resolution, 72-Hz monitors.

**SN-VRCX5-WA/W3/W4** 15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.

**SN-VRTX7-WA/W3** 17" (16.0" viewable image size) Professional Series auto-scan color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 @ 75Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord, **SN-VRT17-W4** = Southern Hemisphere. Select country specific power cord for W3 and W4 variant.

**SN-VRCX1-WA/W3/W4** 21" (19.7" viewable image size) professional series auto-scan color monitor, Diamondtron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.

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## Step 5—Storage

- Integral Fast SCSI-2 controller supports maximum of seven devices (CD-ROM, one additional 5.25-inch half-height removable media device and two hard disk drives inside base chassis), All disk drives connected to this controller operate in **Narrow** (8-bit) mode.
- Select **Wide** (16-bit) mode controllers, disks and StorageWorks shelves from Step 5b for external expansion.

**Note:** **Wide** disk drives configured on a **Narrow** bus operate in **narrow** mode. **Narrow** disk drives configured on a **wide** bus operate in **narrow** mode. **Wide** and **narrow** devices can be mixed on a single bus.

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### Step 5a—Internal Storage

Systems include one internal RZ28 disk drive, and one CD-ROM drive.

**Removable Media Devices (select one additional device)**

<b>RRD46-AA</b>	600 MB 5.25-inch 12X speed half-height CD-ROM
<b>TZK11-LG</b>	2.0 GB 5.25-inch half-height SCSI QIC tape drive
<b>TLZ09-LG</b>	8.0 GB 5.25-inch half-height SCSI 4 mm DAT drive

**Hard Disk Drives (select one additional hard disk drive)**

<b>RZ26N-EJ</b>	1.05 GB 3.5-inch 5400 RPM half-height disk drive
<b>RZ28D-EJ</b>	2.0 GB 3.5-inch 7200 RPM half-height disk drive
<b>RZ29B-EJ</b>	4.3 GB 3.5-inch 7200 RPM half-height disk drive

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**Step 5b—External Storage for 16-bit (Wide) Mode**

- Additional storage is supported outside AlphaServer 2100A Rackmount system unit. BA36R-AF/-AR rackmountable 16-bit StorageWorks shelves are recommended.
- AlphaServer 2100A Cabinet systems include one BA36R-AF (front mounted) and one BA36R-AR (rear mounted) 16-bit wide StorageWorks shelves. A controller is required to support installed StorageWorks shelves in Cabinet systems.

**Configuration Rules**

- 16-bit Wide devices require Wide StorageWorks Shelves (BA36R) to operate in wide mode.
- PCI-based one- and three-port (KZPSC-AA/BA) RAID controllers, and one-port Fast Wide Differential (KZPSA-BB) controller allow wide devices to operate in 16-bit mode.
- Maximum of four PCI-based one- and three-port (KZPSC-xx) RAID controllers supported per system.
  - One- and three-port StorageWorks RAID 230 controllers (KZPSC-xx) support hard disk drives **only**; tape drives are not supported.
  - Three-port StorageWorks RAID 230 (KZPSC-BA) supports up to 21 disk drives in up to eight logical groups. RAID slots must be created to support more than eight physical disk drives.
- Maximum of four PCI or EISA RAID controllers supported per system.
- PCI-based Fast Wide Differential (FWD) SCSI controller (KZPSA-BB) supports externally connected wide disks in BA36R using DWZZB wide differential to wide single-ended converter, or narrow disks using DWZZA wide differential to narrow single-ended converter in BA35R.
- KZPSA-BB controller on Windows NT systems supports up to 15 disks. DIGITAL UNIX and OpenVMS systems support 7 disks.
- SCSI cables are **not** included and must be ordered separately.
- KZPSA-BB Cables
  - BN21K-xx from KZPSA to DWZZA, DWZZB, and HSZ40 (straight to right angle)
  - BN21W-0B Y SCSI-2 cable 68-pin for KZPSA in mid-bus or DECsafe configurations.
- KZPSC-xx Cables
  - BN31L-1E from KZPSC-xx to BA35R
  - BN31S-1E from KZPSC-xx to BA36R
- If all three ports on KZPSC-BA are used, use 2T-KZPSC-KT cable kit for third port connection. Does **not** block EISA slot.
- KZPSM-AA Cables
  - BC25V-1H from KZPSM to external 68-pin bulkhead
  - BN21K-02 from bulkhead to external BA36R wide storage.
- KZPDA-AA Cables
  - BN21K-02 from KZPDA to BA36R wide storage

**Storage Controllers for Wide Mode**

<b>KZPSC-AA</b>	One-port PCI-based controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX, and Windows NT
<b>KZPSC-BA</b>	Three-port PCI-based controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX, and Windows NT
<b>MS100-AA</b>	16 MB Cache memory option for KZPSC-AA/BA, maximum one per controller
<b>MS100-AB</b>	32 MB Cache memory option for KZPSC-AA/BA, maximum one per controller
<b>KZPSC-UB</b>	Battery back-up for Cache memory option
<b>KZPSA-BB</b>	PCI-based Fast Wide Differential (FWD) SCSI controller
<b>KZPSM-AA</b>	PCI-based combination Ethernet and Fast Wide SCSI controller
<b>KZPDA-AA</b>	PCI based Fast Wide Single Ended (FWSE) SCSI-2 controller

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**Step 5b—External Storage for 16-bit (Wide) Mode**
**Hard Disk Drives for Wide Mode**

<b>RZ26N-VW</b>	1.05 GB 3.5-inch half-height disk drive
<b>RZ28D-VW</b>	2.1 GB 3.5-inch half-height disk drive
<b>RZ29B-VW</b>	4.3 GB 3.5-inch half-height disk drive

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**Step 5b—External Storage for 16-bit (Wide) Mode (continued)****Rackmountable StorageWorks Shelves for Wide Mode**

- BA36R StorageWorks shelves are supported on all Fast Wide SCSI-2 controllers listed in Step 5b.
- External BA36R is not supported on integral Fast SCSI-2 controller due to insufficient remaining external bus length.
- SCSI cable BN21K-xx for KZPSA, and BN31S-1E for KZPSC, is required to connect BA36R to controller.
- See Step 10 for additional power cords.

<b>BA36R-AF</b>	Front mount BA356 Rackmount StorageWorks Shelf, BA35R-MH 16-bit I/O module, BA35X-HF power supply
<b>BA36R-AR</b>	Rear mount BA356 Rackmount StorageWorks Shelf, BA35R-MH 16-bit I/O module, BA35X-HF power supply

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**Step 5c—DSSI Storage (OpenVMS systems only)**

- System supports up to two KFESA or two KFESB EISA/DSSI adapters. KFESA and KFESB adapters can be mixed on same system.
- Each BA35R StorageWorks shelf in single/split-bus mode supports one/two HSD10 DSSI/SCSI converters.
- Wide disks installed "behind" HSD10 will run in **narrow** mode.
- Cabling information for DSSI controllers:
  - DSSI devices supported on OpenVMS only
  - DSSI cables must be ordered separately
  - KFESB uses "Micro-Ribbon" connection
  - KFESB to any external "Pin-Socket" DSSI connection requires BC22Q-xx
  - KFESB to any external "Micro-Ribbon" DSSI straight connection (all other DSSI systems and storage devices requiring straight connection) requires BC21Q-xx
  - KFESB to any external "Micro-Ribbon" DSSI right-angle connection (all other DSSI systems and storage devices requiring right-angle connection) requires BC29S-xx DSSI cable
  - Order BC29S-09 DSSI cable for HSD10 in BA36R-Ax shelves (see 'A' on DSSI-based Storage Diagram)
  - Order BC29U-02 DSSI cable for HSD10 in adjacent BA36R-Ax shelves (see 'B' DSSI-based on Storage Diagram)
  - Order BC29V-06 DSSI cable for HSD10 in non-adjacent BA36R-Ax shelves (see 'C' DSSI-based on Storage Diagram)

**DSSI Adapters**

<b>KFPSA-AA</b>	PCI-to-DSSI controller (OpenVMS systems <b>only</b> ); maximum four per system.
<b>KFESB-AA</b>	EISA-based single-DSSI controller (OpenVMS systems <b>only</b> ); maximum two per system.
<b>HSD10-AA</b>	StorageWorks Array controller; supports seven SCSI-2 disks, tape, and optical devices. (See Storage section for supported devices.)

**DSSI Option Pack**

- OpenVMS DSSI starter option pack includes:
  - Two KFESB-AA EISA-based DSSI adapters
  - Two HSD10-AA DSSI/SCSI converters
  - Three RZ28 2 GB disk drives
  - Two BC29S-06 DSSI cables (KFESB to HSD10)\*
  - VMScluster license (QL-MUZAG-AA)

<b>SD002-AA</b>	OpenVMS DSSI Starter Option Pack
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**Step 5d—StorageWorks Controller Shelf**

- Requires seven inches of vertical space, although a front and rear shelf can be mounted back-to-back in the same seven inch space.
- See Step 10 for additional power cords.

<b>BA35R-MF</b>	Rackmountable BA350-MA controller shelf; front access
<b>BA35R-MR</b>	Rackmountable BA350-MA controller shelf; rear access

**Step 5e—PCI to CI Storage Host Adapter (OpenVMS Systems only)**

- Systems support mixing CIPCA-AA and CIPCA-BA for maximum of three per system
- Minimum Operating System Version: OpenVMS 6.2-1H2
- Minimum Console Revision: V4.4
- Select one CI cable per adapter

CIPCA-AA	PCI-to-CI adapter, requires one PCI slot and one EISA slot. Maximum three per system
CIPCA-BA	PCI-to-CI adapter, requires two PCI slots. Maximum three per system
BNCIA-10	10-meter CI cable
BNCIA-20	20-meter CI cable
BNCIA-45	45-meter CI cable

**Step 6—Networks and Communications**

- See PCI Option Slot Chart for slot configuration rules.
- Systems include Ethernet controller (AUI, 10BaseT, or ThinWire selectable)
- Select networking cable
  - BNE4C-xx for AUI
  - BN25G-xx for 10BaseT
  - BC16M-xx for ThinWire, and H8225-00 Terminator
- Maximum of 4 PCI-based network controllers supported.

Order Number	Description	Maximum # supported		
		DIGITAL UNIX	OpenVMS	Windows NT
DE450-CA	PCI 10-Mbit Ethernet controller; AUI, 10BaseT, or 10Base2	4	4	4
DE500-AA	PCI-based Fast Ethernet controller	2	2	2
DEFPA-AB*	PCI to FDDI Adapter, SAS, MMF, SC	4	6	4
DEFPA-DB*	PCI to FDDI Adapter, DAS, MMF, SC	4	6	4
DEFPA-UB*	PCI to FDDI Adapter, SAS, TP-PMD	4	6	4
DEFPA-MB	PCI to FDDI Adapter, DAS, TP-PMD	4	6	4
PBXNP-AA	PCI Token Ring Adapter	1	1	0
DGLPB-AB	PCI based ATMworks 350 Interface Card	2	0	0
DEFEA-AA	EISA-based DEC FDDIcontroller Single Attachment	2	2	2
DEFEA-DA	EISA-based DEC FDDIcontroller Dual Attachment (requires 2 EISA slots)	1	1	1
DEFEA-UA	EISA-based DEC FDDIcontroller UTP Attachment	2	2	2
DNSES-AA	EISA-based synchronous communications controller	3	3	0
CXI01-AA/AD	ISA-based asynchronous multiplexer	2	2	2
DI1AA-AA	Digiboard ISA datafire-U ISDN Controller (Available as a SPARE Only)	0	0	1
DI1AA-AB	Digiboard ISA datafire-ST ISDN Controller (Available as a SPARE Only)	0	0	1

\* Cables: Fiber, Duplex, "SC" to "MIC" (concentrator): BN34D-xx; Fiber, Duplex, "SC" to "SC": BN34B-xx; Fiber, Duplex, "SC" to "ST": BN34A-xx; Copper STP, 8 cond, wired pin-pin: BN26M-xx; Copper STP, 8 cond, wired cross-over: BN26S-03.

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**Step 6a—MEMORY CHANNEL Interconnect****DIGITAL UNIX Systems**

- Requires DIGITAL UNIX V3.2E (DIGITAL UNIX V3.2D plus TruCluster software or MEMORY CHANNEL Driver software).
- Each system node in a MEMORY CHANNEL cluster requires a software license.
- Servers in a compute-server array require a DIGITAL UNIX Driver for MEMORY CHANNEL License.
- Servers in a TruCluster high-availability environment require a license for TruCluster for DIGITAL UNIX.

**OpenVMS Systems**

- Require OpenVMS V7.1 and OpenVMS Cluster license

**Configuring information:**

- For two-system nodes, order one CCMAA-BA per system and one BC12N-10 cable to connect them.
- For three or more system nodes, order CCMHA-AA (MEMORY CHANNEL Hub) one CCMAA-BA and one BC12N-10 cable per system node.
- CCMHA-AA (MEMORY CHANNEL Hub) is configured with four CCMLA-AA Line Cards and supports up to four nodes. Expansion up to eight system nodes can be achieved by adding up to four additional CCMLA-AA Line Cards.
- CCMRA-AA Rackmount Kit for Hub; takes 8.75-in rail space.

**Note:** CCMAA-BA (PCI to MEMORY CHANNEL controller) must be installed in PCI slots 4-7.

CCMAA-BA	PCI to MEMORY CHANNEL controller—Maximum two supported .
CCMHA-AA	MEMORY CHANNEL Hub with 4 Line Cards
CCMRA-AA	MEMORY CHANNEL Hub Rackmount Kit (8.75-in)
CCMLA-AA	MEMORY CHANNEL Line Card for use with MEMORY CHANNEL Hub (CCMHA-AA)
BC12N-10	MEMORY CHANNEL Cable
QB-3RLAG-AA	TruCluster Software for DIGITAL UNIX, includes DIGITAL UNIX driver
QB-4ZCAG-AA	DIGITAL UNIX Driver for MEMORY CHANNEL license
QL-MUZAG-AA	OpenVMS Cluster license for Alpha systems

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**Step 7—Additional Power Supply**

- Dual power distribution is provided to internal, mounted equipment. There are no power supplies in H9A10 Cabinet.
- Standard 840-Watt power supply in AlphaServer 2100A Rackmount system is sufficient for a fully configured system.
- An additional power supply for n+1 redundancy may be ordered

H7804-AA	Additional power supply with 120 VAC cord
H7804-AB	Additional power supply with 240 VAC cord
H7804-AC	Additional power supply with 240 VAC IEC cord

**Note:** The H7893-AA power supply for AlphaServer 2100A pedestal is **not** compatible with, and will not mount in the Rackmount system.

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**Step 8—Terminals and Printers**

System includes two EIA-232 asynchronous serial ports with 9-pin D-subminiature connectors.

**DIGITAL UNIX and OpenVMS systems**

Console terminals can either be graphics monitor connected to the included video graphics adapter (See Step 4), or a serial video terminal. If a serial video terminal is used as the console terminal, it must be VT220, VT320, VT420, or VT520 compatible. These terminals have the graphics capability required for the EISA Configuration Utility.

Select terminals and serial printers as required. A 9-pin to MMJ adapter (H8571-J) is required (one included with system) for each connection. A cable must be ordered unless otherwise provided.

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## Step 9—Software

### Windows NT Servers

- Windows NT systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit
  - Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American orders.

### Windows NT Server plus 10-client access license, media (CD-ROM) kits

QB-23CAA-SB	Windows NT Server license, media kit North American English
QB-23C8A-SB	Windows NT Server license, media kit International English
QB-23CPA-SB	Windows NT Server license, media kit French
QB-23CGA-SB	Windows NT Server license, media kit German
QB-23CSA-SB	Windows NT Server license, media kit Spanish
QB-23CUA-SB	Windows NT Server license, media kit Italian
QB-23CJA-SB	Windows NT Server license, media kit Japanese
QB-23CTA-SB	Windows NT Server license, media kit Hebrew
QB-23CMA-SB	Windows NT Server license, media kit Swedish
QB-23CQA-SB	Windows NT Server license, media kit Arabic
QB-23C5A-SB	Windows NT Server license, media kit Thai
QB-23CHA-SB	Windows NT Server license, media kit Dutch
QB-23CVA-SB	Windows NT Server license, media kit Brazilian/Portuguese
QB-23C4A-SB	Windows NT Server license, media kit Korean
QB-23C3A-SB	Windows NT Server license, media kit Taiwanese
QB-23C2A-SB	Windows NT Server license, media kit PRC Chinese

### Windows NT Server Optional software and documentation

QB-53V9A-SA	Windows NT Server Cluster Kit
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## DIGITAL UNIX Systems

Select user licenses and additional software as required. Media and documentation is **required** for first system on site.

**Software Processor Code = G for all software, 1-4 processors**

### DIGITAL UNIX Concurrent Use Licenses

- DIGITAL UNIX Concurrent Use license provides the right to interactively use the operating system by the specified number of concurrent users on a designed DIGITAL UNIX system.
- DIGITAL UNIX Concurrent Use licenses are **not** specific to a single system and can be moved from one system to another at user discretion

QL-MT7AM-3B	DIGITAL UNIX Concurrent Use 1-user license
QL-MT7AM-3C	DIGITAL UNIX Concurrent Use 2-user license
QL-MT7AM-3D	DIGITAL UNIX Concurrent Use 4-user license
QL-MT7AM-3E	DIGITAL UNIX Concurrent Use 8-user license
QL-MT7AM-3F	DIGITAL UNIX Concurrent Use 16-user license
QL-MT7AG-AA	DIGITAL UNIX Traditional unlimited user license
QL-MT5AG-AA	DIGITAL UNIX developer's extension license

### DIGITAL UNIX Media and Documentation—required for first system on site

QA-MT4AA-H8	DIGITAL UNIX media and on-line documentation on CD-ROM
QA-MT4AA-GZ	DIGITAL UNIX full hardcopy documentation

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**Step 9—Software (continued)****DIGITAL UNIX Layered Products CD-ROM**

QA-054AA-H8 Layered products media and documentation for DIGITAL UNIX on CD-ROM

**DECnet Licenses**

QL-MTJAG-AA DECnet/OSI end-system license for DIGITAL UNIX

QL-MTKAG-AA DECnet/OSI extended function license for DIGITAL UNIX

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**OpenVMS Systems**Select user licenses and additional software as required. Media and documentation is **required** for first system on site.**Software Processor Code = G for all software, 1-4 processors****OpenVMS Concurrent Use Licenses**

- OpenVMS Concurrent Use license provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system.
- OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.

QL-MT3AA-3B OpenVMS Concurrent Use 1-user license

QL-MT3AA-3C OpenVMS Concurrent Use 2-user license

QL-MT3AA-3D OpenVMS Concurrent Use 4-user license

QL-MT3AA-3E OpenVMS Concurrent Use 8-user license

QL-MT3AA-3F OpenVMS Concurrent Use 16-user license

QL-MT3AA-3G OpenVMS Concurrent Use 32-user license

**OpenVMS Concurrent Use Licenses**

QL-MT3AA-3H OpenVMS Concurrent Use 64-user license

QL-MT3AA-3J OpenVMS Concurrent Use 128-user license

QL-MT3AA-3K OpenVMS Concurrent Use 256-user license

QL-MT2AG-AA OpenVMS Traditional unlimited user license

**OpenVMS Media and Documentation—required for first system on site**

QA-MT1AA-H8 OpenVMS media and documentation on CD-ROM

QA-MT1AH-GZ OpenVMS hardcopy documentation

**OpenVMS Layered Products CD-ROM**

QA-03XAA-H8 Layered products media and documentation for OpenVMS on CD-ROM

**DECnet Licenses**

QL-MTGAG-AA DECnet extended function license for OpenVMS

QL-MTHAG-AA DECnet end-system to extended function upgrade license for OpenVMS

**DSSI Information (OpenVMS systems only)**

EK-410AB-MG DSSI VMScluster Installation Guide

EK-D4AXP-TS DSSI VMScluster Troubleshooting Guide

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## Step 10—Power Cords and Keyboards

### Cabinet System Power Cords

- Power connection to H9A10-xx Cabinet is site specific.
- AlphaServer 2100A Cabinet systems ship with two each of the following power cords for power to the cabinet
  - 120 VAC systems: NEMA locking, 4.57 m (15 feet), NEMA L5-30P, Socket NEMA L5-30R
  - 240 VAC systems: IEC 309, 4.5m (15 feet), pin and sleeve 316P6 plug

### Rackmount System Power Cords

- Systems ordered include U.S. power cord or 240V cabinet system compatible power cord. Select other 240V country-specific power cord.
- Select power cord for each power supply installed in AlphaServer Rackmount system.

<b>Included*</b>	U.S., Canada, Japan, 120 V
<b>BN19J-2E</b>	Australia, New Zealand
<b>BN19D-2E</b>	Central Europe
<b>BN19B-2E</b>	U.K., Ireland
<b>BN04B-2E</b>	Switzerland
<b>BN19L-2E</b>	Denmark
<b>BN19N-2E</b>	Italy
<b>BN19T-2E</b>	Egypt, India, South Africa
<b>BN19Y-2E</b>	Israel

\* Orderable as 17-00083-51

### Monitor Power Cords

Select country-specific power cord for 240 V use.

<b>BN27S-03</b>	U.S., Canada, Japan, 120 V
<b>BN19H-2E</b>	Australia, New Zealand
<b>BN19C-2E</b>	Central Europe
<b>BN19A-2E</b>	U.K., Ireland
<b>BN19E-2E</b>	Switzerland
<b>BN19K-2E</b>	Denmark
<b>BN19M-2E</b>	Italy
<b>BN19S-2E</b>	Egypt, India, South Africa
<b>BN18L-2E</b>	Israel

### StorageWorks Power Cords

Select additional power cords for N+1 power use.

<b>BN27S-03</b>	U.S., Canada, Japan
<b>BN27Z-03</b>	240V Cabinet Systems

### Keyboards

Systems ordered in the Americas and Asia Pacific include U.S. English keyboard unless alternate is specified. Select country-specific keyboard for all systems ordered in Europe.

<b>Windows NT/ DIGITAL UNIX</b>	<b>OpenVMS</b>	
<b>LK471-A2</b>	<b>LK461-A2</b>	U.S./English
<b>LK471-AB</b>	<b>LK461-AB</b>	Belgian
	<b>LK461-AC</b>	Canadian/French
<b>LK471-AD</b>	<b>LK461-AD</b>	Danish

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**Step 10—Power Cords and Keyboards (*continued*)**
**Keyboards**

Windows NT/ DIGITAL UNIX	OpenVMS	
LK471-AE	LK461-AE	United Kingdom
	LK461-AF	Finnish
LK471-AG	LK461-AG	German
	LK461-AH	Dutch
LK471-AI	LK461-AI	Italian
LK471-AK	LK461-AK	Swiss/Generic
	LK461-AL	Swiss/German
	LK461-AM	Swedish
LK471-AN	LK461-AN	Norwegian
LK471-AP	LK461-AP	French
	LK461-AQ	Canadian/English
LK471-AS	LK461-AS	Spanish
LK471-AV	LK461-AV	Portuguese

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**Step 11—Cabinet Enclosure**

Select cabinet enclosure for AlphaServer 2100A rackmount systems, if required.

- H9A10 19-inch EIA Cabinet Enclosure Dimensions
  - Outside 66.9-inches high, 23.62-inches wide, 33.8-inches deep
  - Internal useable rackmountable space: 56-inches high, 19-inches wide, 30.8 inches deep.
- H9A15 19-inch EIA Cabinet Enclosure Dimensions
  - Outside 78.7-inches high, 23.62-inches wide, 33.4-inches deep
  - Internal useable rackmountable space: 68.25-inches high, 19-inches wide, 29.8 inches deep.
- H9A11 19-inch EIA Cabinet Enclosure Dimensions
  - Outside 43.3-inches high, 23.62-inches wide, 33.8-inches deep
  - Internal useable rackmountable space: 35-inches high, 19-inches wide, 30.8 inches deep.

**Cabinet Power Plugs**

- 120 VAC systems include one or two NEMA locking, 4.5 m (15 feet), NEMA L5-30P, Socket NEMA L5-30R
- 240 VAC systems include one or two IEC 309, 4.5 meter (15 feet), with pin and sleeve 316P6 plug

H9A10-CE	Retma Cabinet, 56" x 30.83", No front door, Dual Power controller, 120V
H9A10-CJ	Retma Cabinet, 56" x 30.83", No front door, Dual Power controller, 240V
H9A10-CG	Retma Cabinet, 56" x 30.83", Front door, Dual Power controller, 120V
H9A10-CK	Retma Cabinet, 56" x 30.83", Front door, Dual Power controller, 240V
H9A15-BA	Retma Cabinet, 68.25" x 29.75", No front door, Dual Power controller, 120V
H9A15-BG	Retma Cabinet, 68.25" x 29.75", No front door, Dual Power controller, 240V
H9A11-BA	Retma Cabinet, 35" x 30.83", No front door, 120V
H9A11-BG	Retma Cabinet, 35" x 30.83", No front door, 240V

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## Step 12—Hardware and Software Supplemental Support Services

Systems include three-year hardware warranty, on-site with 5 x 9, 24-hour response time.

### Hardware—Americas and Asia Pacific only

- Select optional Hardware Supplemental Support Services if required.

#### AlphaServer 2100A 4/275 Systems

FM-454HR-36	3 year 5 x 9 4-hour response time
FM-454HR-60	5 year 5 x 9 4-hour response time
FM-45724-36	3 year 7 x 24 4-hour response time
FM-45724-60	5 year 7 x 24 4-hour response time

#### AlphaServer 2100A 5/250 and 5/300 Systems

FM-S54HR-36	3 year 5 x 9 4-hour response time
FM-S54HR-60	5 year 5 x 9 4-hour response time
FM-S5724-36	3 year 7 x 24 4-hour response time
FM-S5724-60	5 year 7 x 24 4-hour response time

### Software—Americas and Asia Pacific only

- Software Warranty:
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- Software service upgrades for DIGITAL UNIX and OpenVMS include advisory and remedial software support with new version license rights for operating system and DIGITAL NAS 200 for the time period indicated.
- Software Supplemental Support Service options upgrade 90-day service to time period indicated below.

#### AlphaServer 2100A 4/275, 5/250, and 5/300 Systems

FM-WNTO2-12	12-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-WNTO2-36	36-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-WNTO2-60	60-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-SEOSF-12	12-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEOSF-36	36-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEOSF-60	60-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEVMS-12	12-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems
FM-SEVMS-36	36-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems
FM-SEVMS-60	60-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems

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## Step 12a—Hardware and Software Supplemental Support Services—Europe only

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

# AlphaServer 2100A Rackmount and Cabinet

## Specifications

Installed Dimensions		Rackmount	Cabinet
Height		35 cm (14 in.)	170 cm (66.9 in.)
Width		45 cm (19 in.)	60 cm (23.6 in.)
Depth		70.5 cm (27.75 in.)	85 cm (34 in.)
Weight		45.5kg (100 lb)	286 kg (630 lb)
Clearances		Operating	Service
Front		20.3 cm (8 in.)	142 cm (56 in.)
Rear		20.3 cm (8 in.)	61 cm (24 in.)
Sides		None	61 cm (24 in.)
Environmental			
Temperature			
Operating*		10°-40° C (50°-104° F)	10°-35° C (50°-95° F)
Nonoperating			
Storage (60 days)		-40°-66° C (-40°-151° F)	-40°-66° C (-40°-151° F)
Rate of change		11° C/hr (20° F/hr)	11° C/hr (20° F/hr)
Relative humidity			
Operating		10-90% noncondensing	10-90% noncondensing
Nonoperating		10-90% noncondensing	10-90% noncondensing
Storage (60 days)		10-95% noncondensing	10-95% noncondensing
Rate of change		20% / hr	20% / hr
Maximum heat dissipation		1200 Watt AC, 4,080 BTU/hr	3450 Watt AC, 11,730 BTU/hr
Air flow and quality			
Operating		200 CFM	400 CFM
Intake location		Front	Front
Exhaust location		Rear	Top and Rear
Altitude			
Operating		2000 m (6562 ft)	2000 m (6562 ft)
Nonoperating		3600 m (12,000 ft)	3600 m (12,000 ft)
Mechanical shock			
Operating		10 g pk for 10 ± 3 ms	5 g pk for 10 ± 3 ms
Nonoperating		20 g pk for 10 ± 3 ms	20 g pk for 10 ± 3 ms
Vibration			
Operating		16-200 Hz @0.25g max 200- 500 Hz @0.1g peak	10-500 Hz @ 0.1 g peak
Acoustics			
Operating LNPEc (Bels)		6.5 max per ISO 7779	6.4 max per ISO 7779
Electrical			
Voltage range (AVS)		100-120/220-240 Vac	100-120/ 20-240 Vac
Power source phase		Single	Single
Nominal frequency (Hz)		50 - 60 Hz	50 - 60 Hz
Frequency range (Hz)		49 - 61 Hz	49 - 61 Hz
Maximum rated current		10 a / 5 a	16 a / 8 a
Maximum power consumption (Watts)		1,200 W (PFC = 0.99, 10A @ 120 V)	3,450 W
Power cord	Type	IEC 320 C16	NEMA locking
	Length	450 cm (178 in.)	4.5 m (15 feet)
	U.S. plug	NEMA 5-15, Socket IEC 320 Sheet C-15	NEMA L5-30P, Socket NEMA L5-30R
	240 V	IEC 320 Sheet C-13, Socket IEC 320 C-15	IEC 309 pin and sleeve 316P6 plug
Agency approvals			
		UL Listed to UL1950 CSA Certified to CAN/C22.2 No. 950-M89 TUV EN 60950GS VDE 0805 IEC 950 FCC 15J Part 15 (Class A) CE	
Reviewed to			
		AS3260 Australian Standard NZS 6661:1989 New Zealand Standard EN 60 950:1992 European Norm	

\* Maximum operating temperature at Sea Level. Reduced by 1°C(1.8°F) for each 600 m (2000 feet) above Sea Level.

† Higher altitudes are possible if maximum operating temperature is reduced (see Temperature above); other restrictions may apply, such as maximum permissible altitude for hard disk drives.

**6kVA Prestige Modular “On Line” UPS**

For complete protection, UPS products should be used with data line surge protectors.

Maximum stacked dimension: 33.6 H x 9.9 W x 15.9 D.

4N-AEAAJ-CM	Prestige 6kVA (4kW), 1 phase, 60Hz, 208V-120V/208V. Includes 6-foot input power cord with L6-30P, 2 L5-30R and 8 5-15R receptacles. Modular hot-swap design with 7 minute battery at full load, plug and play batteries and receptacle provisions. 3-Year hot-swap warranty Select 4N-AEAAJ-CP for 240V-240/120V operation
4N-AEAAJ-CU	Same as above with 50Hz 240V hardwired input and output
4N-GA249-AB	Surge Protectors for 2 wire modem
4N-GA249-CA	Surge Protectors for 10BaseT
4N-GA510-BF	Surge Protectors for ThinWire

**PUPS Plus for Storage Arrays**

PUPS Plus models are 200-240V selectable output, hardwired input/output with optional plug-in output receptacle modules.

4N-AEAAAL-BA	PUPS Plus 10 kVA (7kW), 1 phase, 50/60 Hz, 173-276V in, 9 minutes battery at full load.
4N-BEAAN-BA	PUPS Plus 15 kVA (7kW), 3 phase, 50/60 Hz, 173-276V in, 10 minutes battery at full load. Select 4N-AEACM-BP and 4N-AEACM-BJ for plug in connection to 120 V to AlphaServer 2100A and auxiliary SW800 Cabinet.
4N-AEACM-BP	PUPS Plus 15kVA Receptacle module 4 L5-30R, 1 L21-30R
4N-AEACM-BJ	PUPS plus 15kVA Receptacle module 1 L21-30R, 1 5-15R

**UPS Monitoring and Unattended Shutdown Software (for above UPS systems only)**

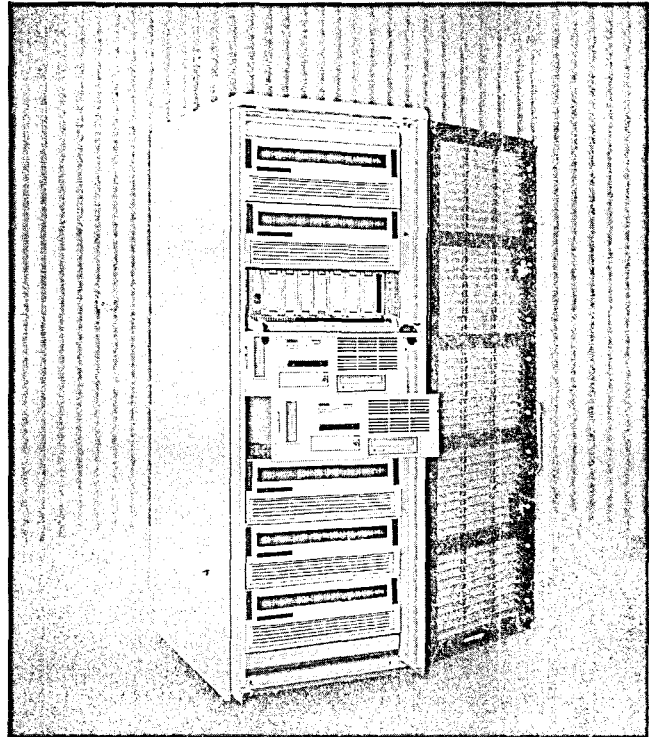
- Include cables, media and documentation.
- SNMP Network connectivity adapters (4N-AEAE0-DA/DC) Twisted Pair/ThinWire are available.

**6kVA Prestige Modular UPS**

4N-AEAES-AA	Windows NT for Alpha and Intel x86
4N-AEAES-AK	DIGITAL UNIX
4N-AEAES-EM	OpenVMS

**PUPS Plus UPS**

4N-AEAES-AA	Windows NT for Alpha and Intel x86
4N-AEAES-AK	DIGITAL UNIX
4N-AEAES-FM	OpenVMS



### AlphaServer 2100A LP Rackmount

#### Product Description

AlphaServer 2100A LP 5/250, 5/300 and 5/375 Rackmount Systems are compact versions of the AlphaServer 2100A Rackmount family. They have the same C-bus architecture, use the same CPUs and memory, support the same options, and run the same operating systems as the AlphaServer 2100A System. But they occupy only seven inches of vertical rack space. This makes the AlphaServer 2100A LP the ideal building block for densely-packed rackmounted systems and single-cabinet clusters.

Advanced server management features are provided with all AlphaServer 2100A shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX, and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

AlphaServer 2100A LP rackmount systems have two PCI buses with four PCI slots per bus. The high performance PCI I/O subsystem has a peak bandwidth of 264 MB per second. This feature makes the AlphaServer 2100A LP a superior I/O system for environments in which the I/O throughput/bandwidth of a single PCI bus would be functionally challenged.

AlphaServer 2100A LP rackmount systems support up to two CPUs. Packaged Systems that include two 5/300 or 5/375 CPU boards are now available.

**Step 1—Systems**

- AlphaServer 2100A LP Rackmount systems include 120V or 240V Cabinet compatible power cord. Select country-specific power cord for other 240V use.
- Select AlphaServer 2100A LP Rackmount systems with one CPU or two CPUs installed.
- Systems **do not** include video graphics adapter, CD-ROM, keyboard or mouse, options can be ordered separately.
- Options ordered will be factory installed unless specified as **spares**.
- Uninterruptable Power Supplies are available; call for specific Rackmount configuration support.

**AlphaServer 2100A LP Rackmount Systems include**

- One Alpha microprocessor 21164 250-MHz CPU, with 4 MB onboard cache, **or**
- One or two Alpha microprocessor 21164 291-MHz CPU(s), each include 4 MB onboard cache, **or**
- One or two Alpha microprocessor 21164 375-MHz CPU(s), each include 8 MB onboard cache
- BA743 Rackmountable enclosure with:
  - Integral 10 MB/s 8-bit narrow Fast SCSI controller
  - Two EIA-232 asynchronous serial ports, 9-pin D-subminiature connectors
  - One parallel port, 25-pin D-subminiature connector
  - One RZxx hard disk slot (includes drive)
  - One 5.25-inch, half-height removable media slot
  - Nine expansion slots: Seven PCI slots, one EISA slot, one PCI/EISA combination slot
    - Note:** PCI slots are split between two PCI buses with four slots each
  - 570-Watt power supply
- Integral Ethernet AUI or 10BaseT (twisted pair)
- 1.44 MB diskette drive in dedicated slot
- One 7200 RPM hard disk drive indicated below (installed in only internal hard disk slot)
- Memory indicated below
- Customer documentation
- EISA configuration utility
- Chassis rackmount slide kit
- Video/keyboard/mouse extension cables
- Hardware Warranty Three-year, on-site with 5 x 9 24-hour response time\*
- Software Warranty:\*
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days

\* Service upgrades are available; see Step 11, Hardware and Software Supplemental Services.

**DIGITAL UNIX Systems include**

- DIGITAL UNIX V 4.0A operating system base license
- NAS Base Server 200 for DIGITAL UNIX license QL-306AG-AA); includes the following layered products (order media and documentation separately)
  - PATHWORKS for DIGITAL UNIX (kit only, no license)
  - Polycenter Advanced File System utilities
- Objectbroker for DIGITAL UNIX Runtime
- DECmessageQ for DIGITAL UNIX Runtime
- DCE Runtime
- DIGITAL UNIX Server Extensions
- PrintServer software (kit only, licensed with printer)
- Base operating system is factory installed

**Note:** Operating system media and documentation is **required** for first system on site; see Step 8.

**DIGITAL UNIX Rackmount Systems—Requires cabinet**

Single-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-A253V-B9	5/250	128 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A253V-C9	5/250	512 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A254V-B9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A254V-C9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A255V-B9	5/375	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A255V-C9	5/375	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
Two-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-A254V-D9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A254V-E9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A255V-D9	5/375	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-A255V-E9	5/375	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA

**Step 1—Systems (continued)****OpenVMS Systems include**

- OpenVMS V7.1 operating system base license.
- NAS Base Server 200 for OpenVMS license (QL-23EAG-AA), includes the following layered products (order media and documentation separately)
  - DECnet for OpenVMS End System
  - DECnet/OSI for OpenVMS End Node
  - PATHWORKS for OpenVMS (LAN Manager); kit only, no license
  - DEC TCP/IP services for OpenVMS
  - Polycenter Software Distribution (Client)
- DECwindows Motif for OpenVMS
- Objectbroker for OpenVMS (ACA Services)
- DECmessageQ for OpenVMS Runtime
- DECprint Supervisor for OpenVMS , Base
- DECprint Supervisor for OpenVMS , Plus
- DECprint Supervisor for OpenVMS , Open
- PrintServer software (kit only, licensed with printer)
- OpenVMS operating system is factory installed.

**Note:** Operating system media and documentation is required for first system on site; see Step 8

**OpenVMS Rackmount Systems—Requires cabinet**

Single-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-Y253V-B9	5/250	128 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-Y253V-C9	5/250	512 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-Y254V-B9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-Y254V-C9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
Two-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-Y254V-D9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-Y254V-E9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA

**Windows NT Rackmount Systems include**

- Windows NT systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit.
  - Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American orders, see Step 8.
- Windows NT systems require a graphics option, see Step 4.

**Windows NT Rackmount Systems—Requires cabinet**

Single-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-N253V-B9	5/250	128 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N253V-C9	5/250	512 MB	2.1 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N254V-B9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N254V-C9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N255V-B9	5/375	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N255V-C9	5/375	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
Two-CPU Systems	Model	Memory	Hard Disk Drive	PCI/EISA slots available
CT-N254V-D9	5/300	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N254V-E9	5/300	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N255V-D9	5/375	128 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA
CT-N255V-E9	5/375	512 MB	4.3 GB 7200 RPM	7 PCI , 1 EISA, 1 PCI/EISA

**PCI Option Slot Table**

Order Number	Description	Max #	Supported in PCI Hose 0 slots only	Restrictions apply to
PB2GA-JB	S3-Trio64 Graphics option 1MB	1	6, 7, 8, 9	DIGITAL UNIX, Windows NT, OpenVMS
CCMAA-BA	PCI to MEMORY CHANNEL controller	2	6, 7, 8, 9	DIGITAL UNIX

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## Step 2—CPU Symmetrical Multiprocessing (SMP) Upgrade

### System Bus Slot Table

Slot Assignments	Slot 1	Slot 2	Slot 3	Slot 4
1 CPU system	Memory	Memory	CPU	Memory
2 CPUs system	Memory	Memory	CPU	CPU

### CPU Upgrades

- Order up to one additional CPU for a maximum of two.
- Additional CPUs must match the speed of CPU in system.
- Two-CPU systems are restricted to two memory slots.

**Note:** Two-CPU Packaged systems include two CPUs and are restricted to two memory options

470NR-UD	Windows NT SMP upgrade includes one 5/250 MHz CPU processor; SMP license is not required
480NR-UD	Windows NT SMP upgrade includes one 5/300 MHz CPU processor; SMP license is not required
490NR-AA	Windows NT Server upgrade includes one 5/375 MHz CPU processor; SMP license is not required
470AR-UD	DIGITAL UNIX SMP upgrade includes one 5/250 MHz CPU processor and DIGITAL UNIX SMP license
480AR-UD	DIGITAL UNIX SMP upgrade includes one 5/300 MHz CPU processor and DIGITAL UNIX SMP license
490AR-AA	DIGITAL UNIX SMP upgrade includes one 5/375 MHz CPU processor and DIGITAL UNIX SMP license
470YR-UD	OpenVMS SMP upgrade includes one 5/250 MHz CPU processor and OpenVMS SMP license
480YR-UD	OpenVMS SMP upgrade includes one 5/300 MHz CPU processor and OpenVMS SMP license

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## Step 3—Memory

- One-CPU systems support a total of three memory boards in any combination.
- Two-CPU systems support total of two memory boards in any combination.
- Windows NT 4.0 supports up to 1.5 GB memory.
- DIGITAL UNIX V3.2 supports up to 1.5 GB memory.
- OpenVMS V6.2 supports up to 1.5 GB memory.

MS451-DA	128 MB memory module
MS451-FA	512 MB memory module

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### Step 3a—Prestoserve Nonvolatile Random Access Memory (NVRAM)

- Supported on DIGITAL UNIX systems only.
- Maximum one Prestoserve option per system.

DJ-ML200-AA	2 MB PCI Prestoserve option
DJ-ML200-BA	4 MB PCI Prestoserve option
DJ-ML200-CA	8 MB PCI Prestoserve option

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## Step 4—Graphics Option and Monitors

### Windows NT systems

- Windows NT systems require a graphics option to run **all** system functions.

### DIGITAL UNIX and OpenVMS systems

- All console functions, including the EISA Configuration Utility (ECU) and the RAID Configuration Utility (RCU) can be performed using a standard video terminal (VT2xx, VT3xx, VT4xx, VT5xx) connected to one of the system's serial ports (See Step 7).
- For graphics console functionality, select graphics option, mouse, keyboard and monitor.

### Video Graphics Adapter (VGA)

**PB2GA-JB** S3-Trio64 Graphics option, supports 1024x768 resolution, 72-Hz monitors, uses one PCI slot

### Mouse

**PBXWS-AA** 3-button mouse

### Keyboard

Select keyboard from Step 9.

### Monitor

Graphics monitors other than those listed below can be used if compatible with graphics adapter ordered with system.

**SN-VRCX5-WA/W3/W4** 15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.

**SN-VRTX7-WA/W3** 17" (16.0" viewable image size) Professional Series auto-scan color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 @ 75Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord, **SN-VRT17-W4** = Southern Hemisphere. Select country specific power cord for W3 and W4 variant.

**SN-VRCX1-WA/W3/W4** 21" (19.7" viewable image size) professional series auto-scan color monitor, Diamondtron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.

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## Step 5—Storage

- Integral Fast SCSI-2 controller supports internal devices only (CD-ROM or tape, and hard disk drive inside base chassis). Disk drive connected to this controller operates in **Narrow** (8-bit) mode.
- Select **Wide** (16-bit) mode controllers, disks and StorageWorks shelves from Step 5b for external expansion.

**Note:** **Wide** disk drives configured on a **Narrow** bus operate in **narrow** mode. **Narrow** disk drives configured on a **wide** bus operate in **narrow** mode. **Wide** and **narrow** devices can be mixed on a single bus.

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**Step 5a—Internal Storage**

- Systems include one internal RZ29B disk drive and one internal RX23L floppy drive.

**Removable Media Devices (select one device)**

RRD46-AA	600 MB 5.25-inch 12X speed half-height CD-ROM
TZK11-LG	2.0 GB 5.25-inch half-height SCSI QIC tape drive
TLZ09-LG	8.0 GB 4 mm DAT 93 Mb/minute 5.25" half-height SCSI tape drive (DIGITAL UNIX, OpenVMS)

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**Step 5b—External Storage for 16-bit (Wide) Mode**

- Additional storage is supported outside AlphaServer 2100A LP Rackmount system unit. BA36R-AF/-AR rackmountable 16-bit StorageWorks shelves are recommended.

**Configuration Rules**

- 16-bit Wide devices require Wide StorageWorks Shelves (BA36R) to operate in wide mode.
- PCI-based one- and three-port (KZPSC-AA/BA) RAID controllers, and one-port Fast Wide Differential (KZPSA-BB) controller allow wide devices to operate in 16-bit mode.
- Maximum of four PCI-based one- and three-port (KZPSC-xx) RAID controllers supported per system.
  - One- and three-port StorageWorks RAID 230 controllers (KZPSC-xx) support hard disk drives **only**; tape drives are not supported.
- Three-port StorageWorks RAID 230 (KZPSC-BA) supports up to 21 disk drives in up to eight logical groups. RAID slots must be created to support more than eight physical disk drives.
- PCI-based Fast Wide Differential (FWD) SCSI controller (KZPSA-BB) supports externally connected wide disks in BA36R using DWZZB wide differential to wide single-ended converter, or narrow disks using DWZZA wide differential to narrow single-ended converter in BA35R.
  - KZPSA-BB controller on Windows NT systems supports up to 15 disks. DIGITAL UNIX and OpenVMS systems support 7 disks.
  - SCSI cables are **not** included and must be ordered separately.
  - KZPSA-BB Cables
    - BN21K-xx from KZPSA to DWZZA, DWZZB, and HSZ40 (straight to right angle)
    - BN21W-0B Y SCSI-2 cable 68-pin for KZPSA in mid-bus or DECSafe configurations.
  - KZPSC-xx Cables
    - BN31L-1E from KZPSC-xx to BA35R
    - BN31S-1E from KZPSC-xx to BA36R
    - If all three ports on KZPSC-BA are used, select 2T-KZPSC-KT cable kit for third port connection.
  - KZPSM-AA Cables
    - BC25V-1H from KZPSM to external 68-pin bulkhead
    - BN21K-02 from bulkhead to external BA36R wide storage.
  - KZPDA-AA Cables
    - BN21K-02 from KZPDA to BA36R wide storage

**Storage Controllers for Wide Mode**

KZPSC-AA	One-port PCI-based controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX, and Windows NT
KZPSC-BA	Three-port PCI-based controller; includes StorageWorks RAID Array 230 Subsystem family software and documentation kit for OpenVMS, DIGITAL UNIX, and Windows NT
MS100-AA	16 MB Cache memory option for KZPSC-AA/BA, maximum one per controller
MS100-AB	32 MB Cache memory option for KZPSC-AA/BA, maximum one per controller
KZPSC-UB	Battery back-up for Cache memory option
KZPSA-BB	PCI-based Fast Wide Differential (FWD) SCSI controller
KZPSM-AA	PCI-based combination Ethernet and Fast Wide SCSI controller
KZPDA-AA	PCI based Fast Wide Single Ended (FWSE) SCSI controller

**Hard Disk Drives for Wide Mode**

RZ26N-VW	1.05 GB 3.5-inch half-height disk drive
RZ28D-VW	2.1 GB 3.5-inch half-height disk drive
RZ29B-VW	4.3 GB 3.5-inch half-height disk drive

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**Step 5b—External Storage for 16-bit (Wide) Mode** *(continued)***Rackmountable StorageWorks Shelves for Wide Mode**

- BA36R StorageWorks shelves are supported on all Fast Wide SCSI-2 controllers listed in Step 5b.
- SCSI cable BN21K-xx for KZPSA, and BN31S-1E for KZPSC, is required to connect BA36R to controller.
- See Step 9 for additional power cords.

<b>BA36R-AF</b>	Front mount BA356 Rackmount StorageWorks Shelf, BA35R-MH 16-bit I/O module, BA35X-HF power supply
<b>BA36R-AR</b>	Rear mount BA356 Rackmount StorageWorks Shelf, BA35R-MH 16-bit I/O module, BA35X-HF power supply

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**Step 5c—DSSI Storage (OpenVMS systems only)**

- System supports up to four KFPSA PCI/DSSI adapters.
- Each BA35R StorageWorks shelf in single/split-bus mode supports one/two HSD10 DSSI/SCSI converters.
- Wide disks installed "behind" HSD10 will run in **narrow** mode.
- Cabling information for DSSI controllers:
  - DSSI devices supported on OpenVMS only
  - DSSI cables must be ordered separately
  - KFPSA uses "Micro-Ribbon" connection
  - KFPSA to any external "Pin-Socket" DSSI connection requires BC22Q-xx
  - KFPSA to any external "Micro-Ribbon" DSSI straight connection (all other DSSI systems and storage devices requiring straight connection) requires BC21Q-xx
  - KFPSA to any external "Micro-Ribbon" DSSI right-angle connection (all other DSSI systems and storage devices requiring right-angle connection) requires BC29S-xx DSSI cable
  - Order BC29S-09 DSSI cable for HSD10 in BA36R-Ax shelves
  - Order BC29U-02 DSSI cable for HSD10 in adjacent BA36R-Ax shelves
  - Order BC29V-06 DSSI cable for HSD10 in non-adjacent BA36R-Ax shelves

**DSSI Adapter**

<b>KFPSA-AA</b>	PCI-based single-DSSI controller, maximum four per system (OpenVMS systems only)
<b>HSD10-AA</b>	StorageWorks Array controller; supports seven SCSI-2 disks, tape, and optical devices. (See Storage section for supported devices)

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**Step 5d—External Storage for Storage Controllers**

Rackmount BA350-xx controller shelves requires seven inches of vertical space; a front and rear shelf can be mounted back-to-back in the same seven inch space. See Step 9 for additional power cords

<b>BA35R-MF</b>	Rackmountable BA350-MA controller shelf; front access
<b>BA35R-MR</b>	Rackmountable BA350-MA controller shelf; rear access

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**Step 5e—PCI to CI Storage Host Adapter (OpenVMS Systems only)**

- Systems support mixing CIPCA-AA and CIPCA-BA for maximum of three per system
- Minimum Operating System Version: OpenVMS 6.2-1H2
- Minimum Console Revision: V4.4
- Select one CI cable per adapter

<b>CIPCA-AA</b>	PCI-to-CI adapter, requires one PCI slot and one EISA slot. Maximum three per system
<b>CIPCA-BA</b>	PCI-to-CI adapter, requires two PCI slots. Maximum three per system
<b>BNCIA-10</b>	10-meter CI cable
<b>BNCIA-20</b>	20-meter CI cable
<b>BNCIA-45</b>	45-meter CI cable

## Step 6—Networks and Communications

- See PCI Option Slot Chart for slot configuration rules.
- Systems include integral Ethernet adapter (AUI or 10BaseT selectable)
- Select networking cable
  - BNE4G-xx for AUI
  - BN25G-xx for 10BaseT
- Maximum of 4 PCI-based network controllers supported.

Order Number	Description	Maximum # supported		
		DIGITAL UNIX	OpenVMS	Windows NT
DNSES-AA	EISA-based synchronous communications controller	2	2	0
CXI01-AA/AD	ISA-based asynchronous multiplexer	2	2	2
DI1AA-AA	Digiboard ISA datafire-U ISDN Controller (available as <b>spare</b> only)	0	0	1
DI1AA-AB	Digiboard ISA datafire-ST ISDN Controller (available as <b>spare</b> only)	0	0	1
DEFPA-AB*	PCI to FDDI Adapter, SAS, MMF, SC	4	6	4
DEFPA-DB*	PCI to FDDI Adapter, DAS, MMF, SC	4	6	4
DEFPA-UB*	PCI to FDDI Adapter, SAS, TP-PMD	4	6	4
DEFPA-MB	PCI to FDDI Adapter, DAS, TP-PMD	4	6	4
DE450-CA	PCI 10-Mbit Ethernet controller; AUI, 10BaseT, or 10Base2	4	6	4
DE435-AA	PCI-based DIGITAL Etherworks 32-bit High Performance Network Interface Card	4	4	4
DE500-AA	Fast EtherWORKS PCI 10/100 network interface card	2	2	2
PBXNP-AA	PCI-based Token ring network adapter	1	1	0
DGLPB-AB	PCI based ATMworks 350 Interface Card	2	0	0

\* OpenVMS does not have boot support. Cables: Fiber, Duplex, "SC" to "MIC" (concentrator): BN34D-xx; Fiber, Duplex, "SC" to "SC": BN34B-xx; Fiber, Duplex, "SC" to "ST": BN34A-xx; Copper STP, 8 cond, wired pin-pin: BN26M-xx; Copper STP, 8 cond, wired cross-over: BN26S-03.

## Step 6a—MEMORY CHANNEL Interconnect

### DIGITAL UNIX Systems

- Require DIGITAL UNIX V3.2E (DIGITAL UNIX V3.2D plus TruCluster software or MEMORY CHANNEL Driver software).
- Each system node in a MEMORY CHANNEL cluster requires a software license.
- Servers in a compute-server array require a DIGITAL UNIX Driver for MEMORY CHANNEL License.
- Servers in a TruCluster high-availability environment require a license for TruCluster for DIGITAL UNIX.

### OpenVMS Systems

- Require OpenVMS V7.1 and OpenVMS Cluster license

#### Configuring information:

- For two-system nodes, order one CCMAA-BA per system and one BC12N-10 cable to connect them.
- For three or more system nodes, order CCMHA-AA (MEMORY CHANNEL Hub) one CCMAA-BA and one BC12N-10 cable per system node.
- CCMHA-AA (MEMORY CHANNEL Hub) is configured with four CCMLA-AA Line Cards and supports up to four nodes. Expansion up to eight system nodes can be achieved by adding up to four additional CCMLA-AA Line Cards.
- CCMRA-AA Rackmount Kit for Hub; takes 8.75-in rail space.

**Note:** CCMAA-BA (PCI to MEMORY CHANNEL controller) must be installed in PCI Hose 0 slots 6-9, and in redundant mode both CCMAA-BAs must be installed in PCI Hose 0 slots 6-9.

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**Step 6a—MEMORY CHANNEL Interconnect (continued)**

CCMAA-BA	PCI to MEMORY CHANNEL controller—Maximum two supported
CCMHA-AA	MEMORY CHANNEL Hub with 4 Line Cards
CCMRA-AA	MEMORY CHANNEL Hub Rackmount Kit (8.75-in)
CCMLA-AA	MEMORY CHANNEL Line Card for use with MEMORY CHANNEL Hub (CCMHA-AA)
BC12N-10	MEMORY CHANNEL Cable
QB-3RLAG-AA	TruCluster Software for DIGITAL UNIX, includes DIGITAL UNIX driver
QB-4ZCAG-AA	DIGITAL UNIX Driver for MEMORY CHANNEL license
QL-MUZAG-AA	OpenVMS Cluster license for Alpha systems

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**Step 7—Terminals and Printers**

System includes two EIA-232 asynchronous serial ports with 9-pin D-subminiature connectors.

**DIGITAL UNIX and OpenVMS systems**

Console terminals can either be graphics monitor connected to the ordered video graphics adapter (See Step 4), or a serial video terminal. If a serial video terminal is used as the console terminal, it must be VT220, VT320, VT420, or VT520 compatible. These terminals have the graphics capability required for the EISA Configuration Utility.

Select terminals and serial printers as required. A 9-pin to MMJ adapter (H8571-J) is required (one included with system) for each connection. A cable must be ordered unless otherwise provided.

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**Step 8—Software****Windows NT Servers**

- Windows NT systems ordered in North America include Windows NT Server 4.0, plus 10-client access license, North American English media (CD-ROM) kit
  - Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American orders.

**Windows NT Server plus 10-client access license, media (CD-ROM) kits**

QB-23CAA-SB	Windows NT Server license, media kit North American English
QB-23C8A-SB	Windows NT Server license, media kit International English
QB-23CPA-SB	Windows NT Server license, media kit French
QB-23CGA-SB	Windows NT Server license, media kit German
QB-23CSA-SB	Windows NT Server license, media kit Spanish
QB-23CUA-SB	Windows NT Server license, media kit Italian
QB-23CJA-SB	Windows NT Server license, media kit Japanese
QB-23CTA-SB	Windows NT Server license, media kit Hebrew
QB-23CMA-SB	Windows NT Server license, media kit Swedish
QB-23CQA-SB	Windows NT Server license, media kit Arabic
QB-23C5A-SB	Windows NT Server license, media kit Thai
QB-23CHA-SB	Windows NT Server license, media kit Dutch
QB-23CVA-SB	Windows NT Server license, media kit Brazilian/Portuguese
QB-23C4A-SB	Windows NT Server license, media kit Korean
QB-23C3A-SB	Windows NT Server license, media kit Taiwanese
QB-23C2A-SB	Windows NT Server license, media kit PRC Chinese

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**Step 8—Software (continued)****Windows NT Server Optional software and documentation**QB-53V9A-SA Windows NT Server Cluster Kit

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**DIGITAL UNIX Systems**Select user licenses as required. Media and documentation is **required** for first system on site.**Software Processor Code = G for all software, 1-4 processors****DIGITAL UNIX Concurrent Use Licenses**

- DIGITAL UNIX Concurrent Use license provides the right to interactively use the operating system by the specified number of concurrent users on a designed DIGITAL UNIX system.
- DIGITAL UNIX Concurrent Use licenses are **not** specific to a single system and can be moved from one system to another at user discretion.

QL-MT7AM-3B DIGITAL UNIX Concurrent Use 1-user license  
 QL-MT7AM-3C DIGITAL UNIX Concurrent Use 2-user license  
 QL-MT7AM-3D DIGITAL UNIX Concurrent Use 4-user license  
 QL-MT7AM-3E DIGITAL UNIX Concurrent Use 8-user license  
 QL-MT7AM-3F DIGITAL UNIX Concurrent Use 16-user license  
 QL-MT7AG-AA DIGITAL UNIX Traditional unlimited user license  
 QL-MT5AG-AA DIGITAL UNIX developer's extension license

**DIGITAL UNIX Media and Documentation—required for first system on site**

QA-MT4AA-H8 DIGITAL UNIX media and on-line documentation on CD-ROM  
 QA-MT4AA-GZ DIGITAL UNIX full hardcopy documentation

**DIGITAL UNIX Layered Products CD-ROM**

QA-054AA-H8 Layered products media and documentation for DIGITAL UNIX on CD-ROM

**DECnet Licenses**

QL-MTJAG-AA DECnet/OSI end-system license for DIGITAL UNIX  
 QL-MTKAG-AA DECnet/OSI extended function license for DIGITAL UNIX

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**OpenVMS Systems**Select user licensees as required. Media and documentation is **required** for first system on site.**Software Processor Code = G for all software, 1-4 processors****OpenVMS Concurrent Use Licenses**

- OpenVMS Concurrent Use license provides the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system.
- OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.

QL-MT3AA-3B OpenVMS Concurrent Use 1-user license  
 QL-MT3AA-3C OpenVMS Concurrent Use 2-user license  
 QL-MT3AA-3D OpenVMS Concurrent Use 4-user license  
 QL-MT3AA-3E OpenVMS Concurrent Use 8-user license  
 QL-MT3AA-3F OpenVMS Concurrent Use 16-user license  
 QL-MT3AA-3G OpenVMS Concurrent Use 32-user license

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**Step 8—Software (*continued*)****OpenVMS Concurrent Use Licenses**

QL-MT3AA-3H	OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J	OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K	OpenVMS Concurrent Use 256-user license
QL-MT2AG-AA	OpenVMS Traditional unlimited user license

**OpenVMS Media and Documentation—required for first system on site**

QA-MT1AA-H8	OpenVMS media and documentation on CD-ROM
QA-MT1AH-GZ	OpenVMS hardcopy documentation

**OpenVMS Layered Products CD-ROM**

QA-03XAA-H8	Layered products media and documentation for OpenVMS on CD-ROM
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**DECnet Licenses**

QL-MTGAG-AA	DECnet extended function license for OpenVMS
QL-MTHAG-AA	DECnet end-system to extended function upgrade license for OpenVMS

**DSSI Information (OpenVMS systems only)**

EK-410AB-MG	DSSI VMScluster Installation Guide
EK-D4AXP-TS	DSSI VMScluster Troubleshooting Guide

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**Step 9—Power Cords and Keyboards**

**System Power Cords**—Systems include 120V or 240V cabinet compatible power cord. Select country-specific power cord for other 240V use

<b>Included*</b>	U.S., Canada, Japan, 120 V
BN19J-2E	Australia, New Zealand
BN19D-2E	Central Europe
BN19B-2E	U.K., Ireland
BN04B-2E	Switzerland
BN19L-2E	Denmark
BN19N-2E	Italy
BN19T-2E	Egypt, India, South Africa
BN19Y-2E	Israel

\* Orderable as 17-00083-51

**Monitor Power Cords**—Select country-specific power cord for 240V use.

BN27S-03	U.S., Canada, Japan, 120V
BN19H-2E	Australia, New Zealand
BN19C-2E	Central Europe
BN19A-2E	U.K., Ireland
BN19E-2E	Switzerland
BN19K-2E	Denmark
BN19M-2E	Italy
BN19S-2E	Egypt, India, South Africa
BN18L-2E	Israel

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## Step 9—Power Cords and Keyboards (*continued*)

**StorageWorks Power Cords**—Select additional power cords for N+1 power use

BN27S-03	U.S., Canada, Japan
BN27Z-03	240V Cabinet Systems

**Keyboards**—Order keyboard if graphics monitor was ordered in Step 4

Windows NT/ DIGITAL UNIX	OpenVMS	
LK471-A2	LK461-A2	U.S./English
LK471-AB	LK461-AB	Belgian
	LK461-AC	Canadian/French
LK471-AD	LK461-AD	Danish
LK471-AE	LK461-AE	United Kingdom
	LK461-AF	Finnish
LK471-AG	LK461-AG	German
	LK461-AH	Dutch
LK471-AI	LK461-AI	Italian
LK471-AK	LK461-AK	Swiss/Generic
	LK461-AL	Swiss/German
	LK461-AM	Swedish
LK471-AN	LK461-AN	Norwegian
LK471-AP	LK461-AP	French
	LK461-AQ	Canadian/English
LK471-AS	LK461-AS	Spanish
LK471-AV	LK461-AV	Portuguese

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## Step 10—Cabinet Enclosure

Select cabinet enclosure for AlphaServer 2100A LP rackmount systems, if required.

- H9A10 19-inch EIA Cabinet Enclosure Dimensions
  - Outside 66.9-inches high, 23.62-inches wide, 33.8-inches deep
  - Internal useable rackmountable space: 56-inches high, 19-inches wide, 30.8 inches deep
- H9A15 19-inch EIA Cabinet Enclosure Dimensions
  - Outside 78.7-inches high, 23.62-inches wide, 33.4-inches deep
  - Internal useable rackmountable space: 68.25-inches high, 19-inches wide, 29.8 inches deep
- H9A11 19-inch EIA Cabinet Enclosure Dimensions
  - Outside 43.3-inches high, 23.62-inches wide, 33.8-inches deep
  - Internal useable rackmountable space: 35-inches high, 19-inches wide, 30.8 inches deep

### Cabinet Power Plugs

- 120V Cabinets have one or two L5-30P Plugs
- 240V Cabinets have one or two IEC 309 pin and sleeve 316P6 plugs

H9A10-CE	Retma Cabinet, 56" x 30.83", No front door, Dual Power controller, 120V
H9A10-CJ	Retma Cabinet, 56" x 30.83", No front door, Dual Power controller, 240V
H9A10-CG	Retma Cabinet, 56" x 30.83", Front door, Dual Power controller, 120V
H9A10-CK	Retma Cabinet, 56" x 30.83", Front door, Dual Power controller, 240V
H9A15-BA	Retma Cabinet, 68.25" x 29.75", No front door, Dual Power controller, 120V
H9A15-BG	Retma Cabinet, 68.25" x 29.75", No front door, Dual Power controller, 240V
H9A11-BA	Retma Cabinet, 35" x 30.83", No front door, 120V
H9A11-BG	Retma Cabinet, 35" x 30.83", No front door, 120V

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## Step 11—Hardware and Software Supplemental Support Services

Systems include three-year hardware warranty, on-site with 5 x 9, 24-hour response time.

### Hardware—Americas and Asia Pacific only

- Select optional Hardware Supplemental Support Services if required.

#### AlphaServer 2100A LP 5/250 and 5/300 DIGITAL UNIX, OpenVMS, and Windows NT Systems

FM-S54HR-36	3 year 5 x 9 4-hour response time
FM-S54HR-60	5 year 5 x 9 4-hour response time
FM-S5724-36	3 year 7 x 24 4-hour response time
FM-S5724-60	5 year 7 x 24 4-hour response time

#### AlphaServer 2100A LP 5/375 DIGITAL UNIX and Windows NT Systems

FM-S94HR-36	3 year 5 x 9 4-hour response time
FM-S94HR-60	5 year 5 x 9 4-hour response time
FM-S9724-36	3 year 7 x 24 4-hour response time
FM-S9724-60	5 year 7 x 24 4-hour response time

### Software—Americas and Asia Pacific only

- Software Warranty:
  - 90-day SPD conformance with advisory telephone support for DIGITAL UNIX and OpenVMS
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- Software service upgrades for DIGITAL UNIX and OpenVMS include advisory and remedial software support with new version license rights for operating system and DIGITAL NAS 200 for the time period indicated.
- Software Supplemental Support Service options upgrade 90-day service to time period indicated below.

#### AlphaServer 2100A LP systems

FM-WNT02-12	12-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-WNT02-36	36-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-WNT02-60	60-month Software Supplemental Support for Windows NT AlphaServer 2100A systems
FM-SEOSF-12	12-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEOSF-36	36-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEOSF-60	60-month Software Supplemental Support for DIGITAL UNIX AlphaServer 2100A systems
FM-SEVMS-12	12-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems
FM-SEVMS-36	36-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems
FM-SEVMS-60	60-month Software Supplemental Support for OpenVMS AlphaServer 2100A systems

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## Step 11a—Hardware and Software Supplemental Support Services (Europe only)

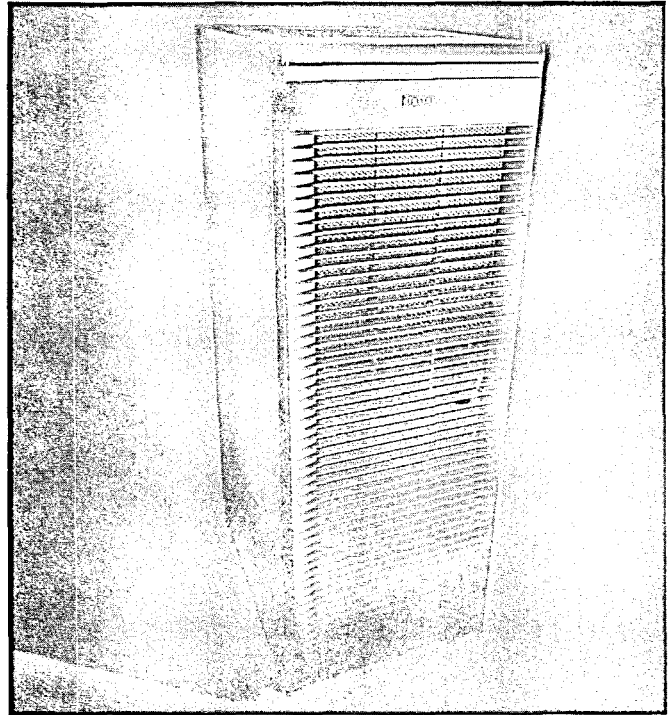
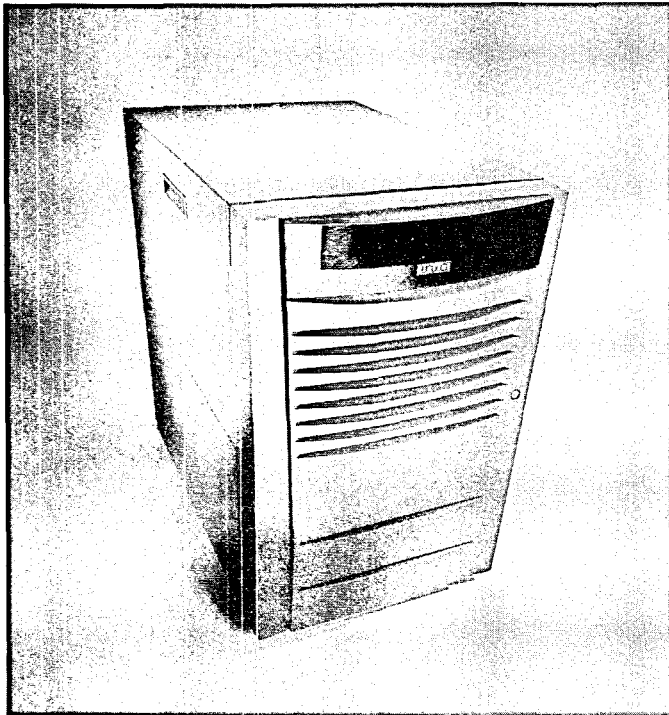
Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Excelerator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

## Specifications

<b>Installed Dimensions</b>	
Height	17 cm (7 in.)
Width	45 cm (19 in.)
Depth	67.3 cm (26.5 in.)
Weight	34.1 kg (75 lb)
<b>Environmental</b>	
Temperature	
Operating*	10-35° C (50°-95° F)
Nonoperating	-40°-66° C (-40°-151° F)
Rate of change	11° C/hr (20° F/hr)
Relative humidity	
Operating	10-90% noncondensing
Maximum wet bulb temp	
Nonoperating	28° C (82° F) 10-95% noncondensing
Maximum wet bulb temp	
Rate of change	46° C (115° F) 20% / hr
Maximum heat dissipation	
Air flow	800 Watt (2,766 BTU/hr)
Intake location	100 CFM Front
Exhaust location	Rear
Altitude	
Operating **	3048 m (10,000 ft)
Nonoperating	12,192 m (40,000 ft)
Mechanical shock	
Operating	20 g pk for 10 ± 3 ms
Nonoperating	20 g pk for 10 ± 3 ms
Vibration	
Operating	5-15.65 Hz @0.020" DA 15.65-200 Hz @0.25g peak 200-500 Hz @0.10g peak
Non-operating	5-300 Hz @1.034g rms
Acoustics	
Operating LNPEc (Bels)	6.5 max per ISO 7779
<b>Electrical</b>	
Voltage range (AVS)	100-120/220-240 Vac
power source phase	Single
Nominal frequency (Hz)	50 - 60 Hz
Frequency range (Hz)	47 - 63 Hz
Maximum rated current	8.2 a / 4.1 a
Maximum power consumption (Watts)	810 W (PFC = 0.99, 8.2A @ 100 V)
Agency approvals	
	UL Listed to UL1950 CSA Certified to CAN/CSA 22.2 No. 950-M93 TUV EN 60950GS VDE 0805 IEC 950 FCC 15J Part 15 (Class A) CE
Power cord	Type IEC 320 C13 Length 300 cm (118 in.) U.S. plug NEMA 5-15, Socket IEC 320 Sheet, C-15
Reviewed to	
	AS3260 Australian Standard NZS 6661:1989 New Zealand Standard EN 60 950:1992 European Norm

\* Maximum operating temperature at Sea Level. Reduced by 1°C (1.8°F) for each 600 m (2000 feet) above Sea Level.

\*\* Higher altitudes are possible if maximum operating temperature is reduced (see Temperature above); other restrictions may apply, such as maximum permissible altitude for hard disk drives.



## AlphaServer 4100/4000

### Product Description

Designed with growth in mind, the AlphaServer 4000, DIGITAL's low-entry price performer and very attractive entry-point into the AlphaServer 4100 family of server systems, can now be expanded via an enhanced AlphaServer 4000 system drawer and a new PCI I/O expansion option. Here's what's new:

The new AlphaServer 4000 System Drawer comes standard with 8 active PCI slots. 8 additional PCI slots that can be activated by ordering the PCI I/O expansion option. This option provides AlphaServer 4000 users with the ability to **double** the I/O capacity and bandwidth. Essentially, the PCI I/O option upgrades the AlphaServer 4000 to four active independent 64-bit PCI I/O channels with sixteen slots, thereby increasing the I/O bandwidth from 500 MB/sec to 1GB/per second—enough power to drive large media server applications or complex cluster configurations. Users can upgrade existing AlphaServer 4000 systems from 8 PCI slots to 16 PCI slots via a field installable System Drawer upgrade. The new AlphaServer 4000 System Drawer continues to support up to 2 CPUs and up to 4 GB of memory.

AlphaServer 4100 users who want 16 PCI I/O slots can "upgrade" their existing AlphaServer 4100 to an AlphaServer 4000 with 16 PCI slots via a field installable PCI I/O System Drawer upgrade. The upgrade includes the H7150-AA and requires customers to swap out CPU and memory to a new AlphaServer 4000 drawer which is limited to a maximum of 2 CPUs and 4 GB of memory. Upgrade requires the return of the existing AlphaServer 4100 drawer.

New software across all three operating systems enriches the content of the entire product line of AlphaServer 4000/4100 systems. OpenVMS System Drawers now include a robust Enterprise Integration Package of various software components, while Digital UNIX System Drawers include an unlimited user license, easing the cost of growth. And finally, Windows NT 4.0 is now available for Windows NT servers from Digital. In addition, advanced server management features are provided with all AlphaServer 4000/4100 systems via the ServerWorks Manager kit.

An enhanced AlphaServer 4000/4100 cabinet enclosure with StorageWorks shelf and 4.3 GB SCSI disk, features a chassis interlock system that prevents extension of more than one unit at a time. A new slide tray option allows System Drawer to be mounted in a standard 19" RETMA cabinet. A top mounted fan assembly provides additional forced airflow for improved cooling.

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## Step 1—AlphaServer 4100/4000 Systems

- Configuration menus require the selection of:
    - Two part numbers for Pedestal systems (Drawer and Enclosure)
    - Three part numbers for Cabinet systems (Drawer, Enclosure, and Mounting Kit)
- 

### Step 1a—AlphaServer System Drawer

- Selection of **one** System Drawer for installation in a Pedestal or Cabinet Enclosure selected from Step 1b is required.
    - **AlphaServer 4100 System Drawer** supports up to **four** CPUs and up to **four** memory options.
    - **AlphaServer 4000 System Drawer** supports up to **two** CPUs and up to **two** memory options.
  - A System Drawer Mounting Kit is **mandatory** for each System Drawer ordered for mounting in a Cabinet enclosure.
- 

#### System Drawer includes

- **AlphaServer 4100 System Drawer** with
  - Alpha microprocessor 21164 5/300 MHz CPU, 2 MB secondary cache, **or**
  - Alpha microprocessor 21164 5/400 MHz CPU, 4 MB secondary cache, **or**
  - Alpha microprocessor 21164 5/466 MHz CPU, 4 MB secondary cache
  - Eight PCI slots (five available)
- **AlphaServer 4000 System Drawer** with
  - Alpha microprocessor 21164 5/300 MHz CPU, 2 MB secondary cache, **or**
  - Alpha microprocessor 21164 5/400 MHz CPU, 4 MB secondary cache, **or**
  - Alpha microprocessor 21164 5/466 MHz CPU, 4 MB secondary cache
  - Eight PCI slots (five available), or 13 PCI slots available with PCI slot expansion option installed
- Integral FNSE (internal-only SCSI bus) to support removable media (CD-ROMs and tapes)
- Integral CD-ROM drive (standard)
- 1.44 MB Diskette Drive (standard)
- Two EIA-232 asynchronous serial ports, 9-pin D-subminiature connectors
- One parallel port, 25-pin D-subminiature connectors
- Keyboard and mouse ports
- 450 Watt auto sensing power supply
- Memory (included memory uses one memory slot)
- Ethernet (10/100 Mbit) Controller (uses one PCI slot)
- One-port Fast Wide Single-Ended (FWSE) SCSI Controller (uses one PCI slot)
- S3 TRIO 1 MB RAM Graphics Adapter (uses one PCI slot)
- 3-button Mouse
- Keyboard (Americas and AP orders only). Select country specific keyboard for all systems ordered in Europe.
- Integral Remote System Console
- Operating System license
- Customer documentation
- Hardware Warranty\*
- Software Warranty\*

Selection of one System Drawer is required for each Pedestal or Cabinet Enclosure ordered from Step 1b

\* For Warranty description and available service upgrades; see Step 12, Hardware and Software Warranty and Supplemental Services

## AlphaServer 4100 5/466, 5/400 and 5/300 Systems

### AlphaServer 4100 Windows NT System Drawer—Selection of one System Drawer required

- DIGITAL's OEM license agreement for Windows NT mandates compliance with specific configuration rules:
- **Windows NT Language Configuration:**
  - North American variants include pre-installed Windows NT Server 4.0, plus 10-client access license/North American English media (CD-ROM) kit.
  - For all non-North American variants, selection of language-specific Windows NT Server 4.0 license/media (CD-ROM) kit is **mandatory**, see Step 11.
- **Windows NT Disk Configuration:**
  - For factory-installed Cabinet systems, Windows NT must be pre-installed for each System Drawer added to a Cabinet system. **Mandatory** options are: a disk drive, System Drawer Mounting Kit, and StorageWorks shelf for each add-on System Drawer. **Note:** StorageWorks shelf is **not** required if split-bus mode is configured, requires BA35X-ME split-bus mode active terminator, see Step 5c.
  - For field-installed Cabinet systems, a disk and System Drawer Mounting Kit are mandatory.
- Video monitor is **required** for system management; order separately if not available at customer site.

### Windows NT North American Variants

Order Number	O/S Media	CPU	Cache	Memory	Available Slots
DN-51JAA-EB	Included	5/466	4 MB	512 MB	5 PCI
DN-51JAA-FB	Included	5/466	4 MB	1 GB	5 PCI
DN-51JAA-GB	Included	5/466	4 MB	2 GB	5 PCI
DN-51HAA-EB	Included	5/400	4 MB	512 MB	5 PCI
DN-51HAA-FB	Included	5/400	4 MB	1 GB	5 PCI
DN-51HAA-GB	Included	5/400	4 MB	2 GB	5 PCI
DN-51FAA-ED	Included	5/300	2 MB	512 MB	5 PCI
DN-51FAA-FD	Included	5/300	2 MB	1 GB	5 PCI
DN-51FAA-GB	Included	5/300	2 MB	2 GB	5 PCI

### Windows NT Non North American Variants

DN-51JAA-EC	Mandatory	5/466	4 MB	512 MB	5 PCI
DN-51JAA-FC	Mandatory	5/466	4 MB	1 GB	5 PCI
DN-51JAA-GC	Mandatory	5/466	4 MB	2 GB	5 PCI
DN-51HAA-EC	Mandatory	5/400	4 MB	512 MB	5 PCI
DN-51HAA-FC	Mandatory	5/400	4 MB	1 GB	5 PCI
DN-51HAA-GC	Mandatory	5/400	4 MB	2 GB	5 PCI
DN-51FAA-EE	Mandatory	5/300	2 MB	512 MB	5 PCI
DN-51FAA-FE	Mandatory	5/300	2 MB	1 GB	5 PCI
DN-51FAA-GC	Mandatory	5/300	2 MB	2 GB	5 PCI

<b>AlphaServer 4100 5/466, 5/400 and 5/300 Systems (continued)</b>
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**AlphaServer 4100 DIGITAL UNIX System Drawer—Selection of one System Drawer required**

- Systems include pre-installed DIGITAL UNIX, Base license, Unlimited User license, Server Extension license, and Internet Access Software license. Order media and documentation separately.

Order Number	CPU	Cache	Memory	Available Slots
DA-51JAB-EB	5/466	4 MB	512 MB	5 PCI
DA-51JAB-FB	5/466	4 MB	1 GB	5 PCI
DA-51JAB-GB	5/466	4 MB	2 GB	5 PCI
DA-51HAB-EB	5/400	4 MB	512 MB	5 PCI
DA-51HAB-FB	5/400	4 MB	1 GB	5 PCI
DA-51HAB-GB	5/400	4 MB	2 GB	5 PCI
DA-51FAB-ED	5/300	2 MB	512 MB	5 PCI
DA-51FAB-FD	5/300	2 MB	1 GB	5 PCI
DA-51FAB-GB	5/300	2 MB	2 GB	5 PCI

**AlphaServer 4100 OpenVMS System Drawer—Selection of one System Drawer required**

- Systems include pre-installed OpenVMS, Base license, and DIGITAL Enterprise Integration Package (EIP). EIP includes: OpenVMS Management Station, DECams, Archive Backup System for OMT, Archive Backup Agent for NT, Datametrics ViewPoint Data Collector, Datametrics ViewPoint Management Console, eXcursion, ISG/Navigator ODBC & OLE DB Server, ISG/Navigator ODBC & OLE DB Client, Internet Product Suite, Pathworks V5.0 Lan Manager, Pathworks32, Team Links Mail Windows, MAPI Driver for All-In-1, DECwindows Motif, DECprint Supervisor, DEC TCP/IP.
- Order media and documentation separately.

Order Number	CPU	Cache	Memory	Available Slots
DY-51JAB-EB	5/466	4 MB	512 MB	5 PCI
DY-51JAB-FB	5/466	4 MB	1 GB	5 PCI
DY-51JAB-GB	5/466	4 MB	2 GB	5 PCI
DY-51HAB-EB	5/400	4 MB	512 MB	5 PCI
DY-51HAB-FB	5/400	4 MB	1 GB	5 PCI
DY-51HAB-GB	5/400	4 MB	2 GB	5 PCI
DY-51FAB-ED	5/300	2 MB	512 MB	5 PCI
DY-51FAB-FD	5/300	2 MB	1 GB	5 PCI
DY-51FAB-GB	5/300	2 MB	2 GB	5 PCI

## AlphaServer 4000 5/466, 5/400 and 5/300 Systems

### AlphaServer 4000 Windows NT System Drawer—Selection of one System Drawer is required

- DIGITAL's OEM license agreement for Windows NT mandates compliance with specific configuration rules:
- **Windows NT Language Configuration:**
  - North American variants include pre-installed Windows NT Server 4.0, plus 10-client access license/North American English media (CD-ROM) kit.
  - For all non-North American variants, selection of language-specific Windows NT Server 4.0 license/media (CD-ROM) kit is **mandatory**, see Step 11.
- **Windows NT Disk Configuration:**
  - For factory-installed Cabinet systems, Windows NT must be pre-installed for each System Drawer added to a Cabinet system. **Mandatory** options are: a disk drive, System Drawer Mounting Kit, and StorageWorks shelf for each add-on System Drawer. **Note:** StorageWorks shelf is **not** required if split-bus mode is configured, requires BA35X-ME split-bus mode active terminator, see Step 5c.
  - For field-installed Cabinet systems, a disk and System Drawer Mounting Kit are mandatory.
- Video monitor is **required** for system management; order separately if not available at customer site.

### Windows NT North American Variants

Order Number	O/S Media	CPU	Cache	Memory	Available Slots
DN-53JEA-EA	Included	5/466	4 MB	512 MB	5 PCI
DN-53JEA-FA	Included	5/466	4 MB	1 GB	5 PCI
DN-53JEA-GA	Included	5/466	4 MB	2 GB	5 PCI
DN-53HEA-EA	Included	5/400	4 MB	512 MB	5 PCI
DN-53HEA-FA	Included	5/400	4 MB	1 GB	5 PCI
DN-53HEA-GA	Included	5/400	4 MB	2 GB	5 PCI
DN-53GEA-CA	Included	5/300	2 MB	128 MB	5 PCI
DN-53GEA-EA	Included	5/300	2 MB	512 MB	5 PCI
DN-53GEA-FA	Included	5/300	2 MB	1 GB	5 PCI
DN-53GEA-GA	Included	5/300	2 MB	2 GB	5 PCI

### Windows NT Non North American Variants

DN-53JEA-EB	Mandatory	5/466	4 MB	512 MB	5 PCI
DN-53JEA-FB	Mandatory	5/466	4 MB	1 GB	5 PCI
DN-53JEA-GB	Mandatory	5/466	4 MB	2 GB	5 PCI
DN-53HEA-EB	Mandatory	5/400	4 MB	512 MB	5 PCI
DN-53HEA-FB	Mandatory	5/400	4 MB	1 GB	5 PCI
DN-53HEA-GB	Mandatory	5/400	4 MB	2 GB	5 PCI
DN-53GEA-CB	Mandatory	5/300	2 MB	128 MB	5 PCI
DN-53GEA-EB	Mandatory	5/300	2 MB	512 MB	5 PCI
DN-53GEA-FB	Mandatory	5/300	2 MB	1 GB	5 PCI
DN-53GEA-GB	Mandatory	5/300	2 MB	2 GB	5 PCI

**AlphaServer 4000 5/466, 5/400 and 5/300 Systems (continued)**
**AlphaServer 4000 DIGITAL UNIX System Drawer—Selection of one System Drawer is required**

- Systems include pre-installed DIGITAL UNIX, Base license, Unlimited User license, Server Extension license, and Internet Access Software license. Order media and documentation separately.

Order Number	CPU	Cache	Memory	Available Slots
DA-53JEB-EA	5/466	4 MB	512 MB	5 PCI
DA-53JEB-FA	5/466	4 MB	1 GB	5 PCI
DA-53JEB-GA	5/466	4 MB	2 GB	5 PCI
DA-53HEB-EA	5/400	4 MB	512 MB	5 PCI
DA-53HEB-FA	5/400	4 MB	1 GB	5 PCI
DA-53HEB-GA	5/400	4 MB	2 GB	5 PCI
DA-53GEB-CA	5/300	2 MB	128 MB	5 PCI
DA-53GEB-EA	5/300	2 MB	512 MB	5 PCI
DA-53GEB-FA	5/300	2 MB	1 GB	5 PCI
DA-53GEB-GA	5/300	2 MB	2 GB	5 PCI

**AlphaServer 4000 OpenVMS System Drawer—Selection of one System Drawer is required**

- Systems include pre-installed OpenVMS, Base license, and DIGITAL Enterprise Integration Package (EIP). EIP includes: OpenVMS Management Station, DECams, Archive Backup System for OMT, Archive Backup Agent for NT, Datametrics ViewPoint Data Collector, Datametrics ViewPoint Management Console, eXcursion, ISG/Navigator ODBC & OLE DB Server, ISG/Navigator ODBC & OLE DB Client, Internet Product Suite, Pathworks V5.0 Lan Manager, Pathworks32, Team Links Mail Windows, MAPI Driver for All-In-1, DECwindows Motif, DECprint Supervisor, DEC TCP/IP.
- Order media and documentation separately.

Order Number	CPU	Cache	Memory	Available Slots
DY-53JEB-EA	5/466	4 MB	512 MB	5 PCI
DY-53JEB-FA	5/466	4 MB	1 GB	5 PCI
DY-53JEB-GA	5/466	4 MB	2 GB	5 PCI
DY-53HEB-EA	5/400	4 MB	512 MB	5 PCI
DY-53HEB-FA	5/400	4 MB	1 GB	5 PCI
DY-53HEB-GA	5/400	4 MB	2 GB	5 PCI
DY-53GEB-CA	5/300	2 MB	128 MB	5 PCI
DY-53GEB-EA	5/300	2 MB	512 MB	5 PCI
DY-53GEB-FA	5/300	2 MB	1 GB	5 PCI
DY-53GEB-GA	5/300	2 MB	2 GB	5 PCI

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## Step 1b—Enclosures and Cabinet Accessories

### Pedestal Enclosure

- Pedestal Enclosure supports **one** System Drawer and up to three StorageWorks shelves.
- Pedestal Enclosure includes StorageWorks Shelf and one 4.3 GB hard disk drive.

**BA30P-AB** 120 V Americas, AP

**BA30P-BB** 220 V Europe; order two country-specific power cords from Step 8.

### Cabinet Enclosure

- Cabinet enclosure supports up to 3 System Drawers and up to 8 StorageWorks shelves.
- RETMA Cabinet includes StorageWorks Shelf and one 4.3 GB hard disk drive.

**H9A10-EL** 120 V dual 24 AMP controller, each with 10 NEMA 5-15R outlets, Americas, AP

**H9A10-EM** 220 V dual 16 AMP controller, each with 12 IEC C13 outlets, Europe

### System Drawer Mounting Kit

- System Drawer Mounting Kit is **mandatory** for each System Drawer ordered for a Cabinet Enclosure.

**Note:** Mounting Kit for each System Drawer installed in a Cabinet Enclosure must be the same type; see Cabinet Configuration Chart below.

**CK-BA30A-BA\*** Full extension, ball-bearing slide rail, provides front access, Americas, AP

**CK-BA30A-BB\*** Full extension, ball-bearing slide rail, provides front access, Europe

- \* System Drawer Mounting kit includes two 6 ft. extender cables for mouse and keyboard, one 10 ft. video cable, and appropriate power cords.

### Cabinet Configuration Chart

Cabinet	Mounting Kit	Access	Vertical Drawer Space		Drawers	Shelves
<b>H9A10-EL</b>	<b>CK-BA30A-BA</b>	Front	14"	8U	1	8
					2	6
					3	2
<b>H9A10-EM</b>	<b>CK-BA30A-BB</b>	Front	14"	8U	1	8
					2	6
					3	2

**Note:** To configure a Cabinet System with 4 System Drawers, contact Computer Special Systems (CSS) 1-800-DIGITAL for configuration assistance.

### Step 1c—AlphaServer 4000 System Drawer 16 PCI Slot Expansion Option

- All new AlphaServer 4000 System Drawers include 16 PCI knockouts on PCI bulkhead with 8 active PCI slots (see Figure 1).
- To activate the additional 8 PCI slots, order a PCI Slot Expansion Option (H7150-AA).

**H7150-AA** 8 PCI slot expansion option for AlphaServer 4000 System Drawer, includes one H7291-AA power supply

**Note:** AlphaServer 4100 and 4000 systems with 8 PCI knockouts on PCI bulkhead (Figure 2), can be upgraded to an AlphaServer 4000 with 16 PCI slots. See System Upgrades, Step 10

Figure 1

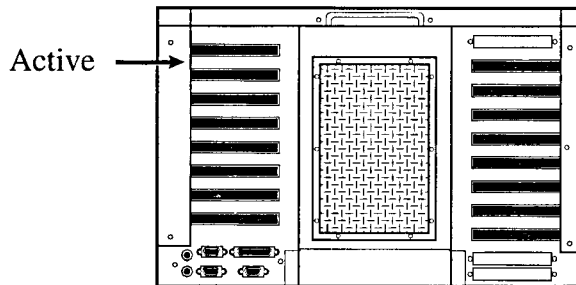
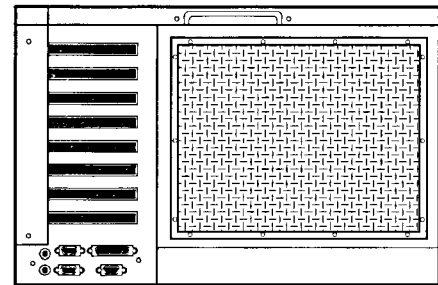


Figure 2



### Step 2—Additional CPU Modules (SMP Upgrades)

- AlphaServer 4100 System Drawer supports **three** additional CPUs
- AlphaServer 4000 System Drawer supports **one** additional CPU
- CPUs (i.e., 5/300 2 MB) and operating system must be of the same type in each System Drawer.

<b>KN304-FB</b>	<b>DIGITAL UNIX SMP</b> upgrade includes one 5/300 (2 MB) CPU and DIGITAL UNIX SMP license
<b>KN304-BA</b>	<b>DIGITAL UNIX SMP</b> upgrade includes one 5/400 (4 MB) CPU and DIGITAL UNIX SMP license
<b>KN304-DB</b>	<b>DIGITAL UNIX SMP</b> upgrade includes one 5/466 (4 MB) CPU and DIGITAL UNIX SMP license
<b>KN304-FC</b>	<b>OpenVMS SMP</b> upgrade includes one 5/300 (2 MB) CPU and OpenVMS SMP license
<b>KN304-BB</b>	<b>OpenVMS SMP</b> upgrade includes one 5/400 (4 MB) CPU and OpenVMS SMP license
<b>KN304-DC</b>	<b>OpenVMS SMP</b> upgrade includes one 5/466 (4 MB) CPU and OpenVMS SMP license
<b>KN304-FD</b>	<b>Windows NT SMP</b> upgrade includes one 5/300 (2 MB) CPU; SMP license not required
<b>KN304-BC</b>	<b>Windows NT SMP</b> upgrade includes one 5/400 (4 MB) CPU; SMP license not required
<b>KN304-DD</b>	<b>Windows NT SMP</b> upgrade includes one 5/466 (4 MB) CPU; SMP license not required

### Step 3—Additional Power Supply

- Power supply included with System Drawer provides support for two processors, memory, and I/O adapters.

**H7291-AA** 450 watt power supply

	AlphaServer 4100	AlphaServer 4000 with 8 PCI slots	AlphaServer 4000 with 16 PCI slots
1st 450 Watt Power supply (included)	Supports up to 2 CPUs	Supports up to 2 CPUs	Supports up to 2 CPUs
2nd 450 Watt Power supply	Supports 3rd or 4th CPU or Provides N+1 for up to 2 CPUs	Provides N+1 for 2 CPUs	See Note
3rd 450 Watt Power supply	Provides N+1 for up to 4 CPUs	N/A	See Note

**Note:** 1st Power Supply supports 2 CPUs and 8 active PCI slots.  
 2nd Power Supply provides N+1 for 2 CPUs and 8 active PCI slots.  
 H7150-AA 8 PCI slot expansion option includes a Power Supply. Supports 2 CPUs and 16 active PCI slots  
 3rd Power Supply provides N+1 support for 2 CPU systems and 16 active PCI slots.

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## Step 4—Memory

- All System Drawers include one memory option.
- AlphaServer 4100 System Drawer supports up to **three** additional memory options:
  - DIGITAL UNIX and OpenVMS maximum memory 8 GB
  - Windows NT 3.51 maximum memory 2 GB. Windows NT 4.0 maximum memory 4 GB. **Note:** Windows NT is a 32-bit operating system that limits memory to a maximum of 4 GB on Windows NT 4.0
- AlphaServer 4000 System Drawer supports **one** additional memory option slot for maximum of 4 GB total.

**Note:** Field installation of memory requires largest memory option to be placed in Memory Slot 0.

MS320-CA	128 MB memory option
MS330-EA	512 MB memory option
MS330-FA	1 GB memory option
MS330-GA	2 GB memory option

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## Step 5—Storage

- System Drawer includes one 16-bit Fast Wide Single-Ended (FWSE) SCSI controller with SCSI cable.
- Pedestal and Cabinet enclosure includes:
  - One BA356 16-bit Wide StorageWorks shelf kit (BA36R-xx), and one 4.3 GB 7200 RPM 16-bit wide disk drive

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### Step 5a—Disk Drives

RZ28D-VA	2.1 GB 7200 RPM 8-bit <b>Narrow</b> SCSI disk drive
RZ29B-VA	4.3 GB 7200 RPM 8-bit <b>Narrow</b> SCSI disk drive
RZ28D-VW	2.1 GB 7200 RPM 16-bit <b>Wide</b> SCSI disk drive
RZ29B-VW	4.3 GB 7200 RPM 16-bit <b>Wide</b> SCSI disk drive

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### Step 5b—Removable Media

- All System Drawers include CD-ROM drive in integral 5.25" drive slot connected to integral FNSE SCSI-2 controller.
- System Drawer installed in Pedestal Enclosure supports one additional removable media device. Optional 5.25" half-height removable media slot in Pedestal systems is connected to integral FNSE SCSI-2 controller.

#### Tape Drive and additional CD-ROM for Pedestal systems only

TLZ09-LK	8 GB 4 mm DAT 93 MB/min (compressed) 5.25-inch SCSI tape drive, frost white
RRD46-AB	600 MB 12X speed CD-ROM 5.25-inch drive, frost white

#### Tape Drives and additional CD-ROM for StorageWorks shelves in Pedestal and Cabinet systems

TLZ09-VA	8 GB 4 mm DAT 93 MB/min (compressed) 5.25-inch SCSI tape drive in StorageWorks carrier
TKZ9E-VA <sup>1</sup>	2/5/7/10/14 GB 8 mm Helical Scan 5.25-inch SCSI tape drive in StorageWorks carrier
TLZ9L-VA	32-64 GB 4 mm DAT 5.25-inch SCSI tape drive loader in StorageWorks carrier
TZ89N-TA	35/70 GB 5.25 inch single-ended SCSI DLT tabletop
TZ89N-VW	35/70 GB 5.25 inch single-ended SCSI DLT in StorageWorks carrier
TZ88N-VA	20/40 GB DLT 3 MB/s SCSI cartridge tape drive in 5.25-inch StorageWorks carrier
TZK11-VA	2 GB QIC tape drive in StorageWorks carrier
RRD46-VA	600 MB 12X CD-ROM drive in StorageWorks carrier

<sup>1</sup> Supported on DIGITAL UNIX and OpenVMS systems only.

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**Step 5b—Removable Media (continued)****DLT Tape Loaders for Cabinet systems**

<b>TZ885-NE</b>	100/200 GB five cartridge rackmount SCSI tape subsystem for SW500, SW800, and H9A10-EL/EM, cabinets; requires SCSI cable BN21H-02. One loader supported per cabinet.
<b>TZ887-NE</b>	140/280 GB seven cartridge rackmount SCSI tape subsystem for SW500, SW800, and H9A10-EL/EM cabinets, requires SCSI cable BN21H-02. Two loaders supported per cabinet
<b>SWRAK-A1</b>	Mandatory Mounting Kit for five cartridge tape subsystem (TZ885) installed in RETMA cabinet
<b>SWRAK-AA</b>	Mandatory Mounting Kit for seven cartridge tape subsystem (TZ887) installed in RETMA cabinet
<b>2T-TZ887-NE</b>	140 GB native/280 GB compressed, seven cartridge rackmount SCSI tape subsystem for SW500/W800 and H9A10-EL/EM cabinets, includes mounting kit for RETMA cabinet. Two loaders supported per cabinet

**Tabletop Tape Drives**

<b>DS-TZ89N-TA</b>	35/70 GB DLT tabletop tape drive, 68-pin HD female SCSI connector
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**Step 5c—StorageWorks Shelves**

Pedestal and Cabinet enclosures include one BA36R StorageWorks Shelf Kit.

- **Pedestal** Enclosure supports maximum of **three** BA36R-SB StorageWorks Shelves.
- **Cabinet** Enclosure supports maximum of **eight** BA36R-RA StorageWorks Shelves.
- Maximum of two BA35R-MR controller shelves supported in RETMA cabinet.
- Additional StorageWorks shelves **require** controller(s) and cables.

**Split-bus Configuration Rules**

- StorageWorks shelves are configured by default in single bus mode (seven SCSI devices/shelf). If split-bus mode is required, the following components must be on the order and specified as **configured**.
  - Split-bus mode active terminator (BA35X-ME) for BA36R-xx shelf
  - SCSI controller for each active SCSI port
  - Cables to connect each active SCSI port to BA36R-xx shelf
  - Include the devices to be configured for each active SCSI port
  - Shelves will be split in the sequence installed, unless specified otherwise.

**BA36R StorageWorks Shelf Kits**

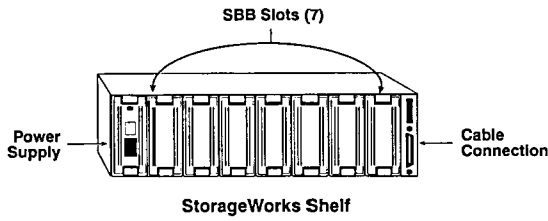
BA36R StorageWorks Shelf Kits include BA356 16-bit Wide StorageWorks shelf, and 16-bit personality module with power supply in system building block (SBB), mounting hardware and power cord.

- Each BA356 shelf supports:
  - seven 3.5-inch hard disk drives or
  - one 5.25-inch device and four 3.5-inch hard disk drives or
  - two 5.25-inch devices and one 3.5-inch hard disk drive
- Installation of redundant power supply reduces number of 3.5-inch devices by one.

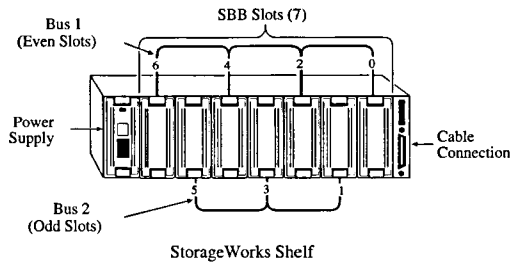
<b>BA36R-SB</b>	Pedestal StorageWorks shelf kit (Worldwide)
<b>BA36R-RA</b>	RETMA Cabinet StorageWorks shelf kit (Worldwide)
<b>CK-BA35X-HF</b>	Optional 150-Watt universal ac input redundant power supply, includes power cord
<b>BA35X-ME</b>	Split-bus mode active terminator for BA36R shelf

**Step 5c—StorageWorks Shelves (continued)**

**Single Bus StorageWorks Shelf**



**Split Bus StorageWorks Shelf**

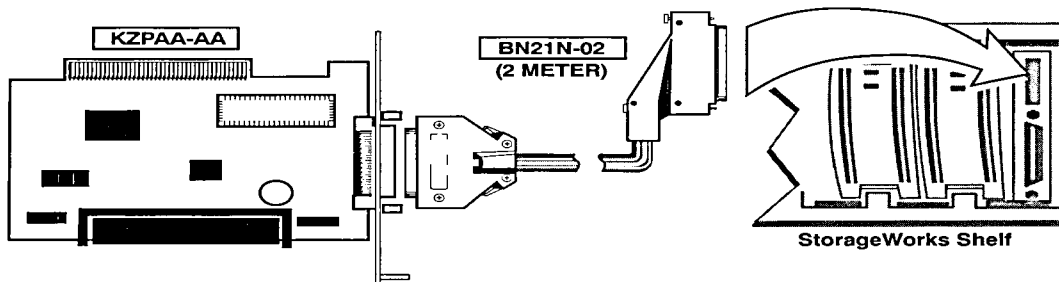


**Step 5d—Backplane Storage Controllers**

- Systems include KZPDA-AA PCI one-port Fast Wide Single Ended (FWSE) SCSI controller, and BN21K-02 cable.
- The following controllers can be configured in AlphaServer 4100/4000 System Drawers.
- Charts indicate minimum level of operating system support. Note: Minimum operating system level support for DIGITAL UNIX with MEMORY CHANNEL is V3.2G.

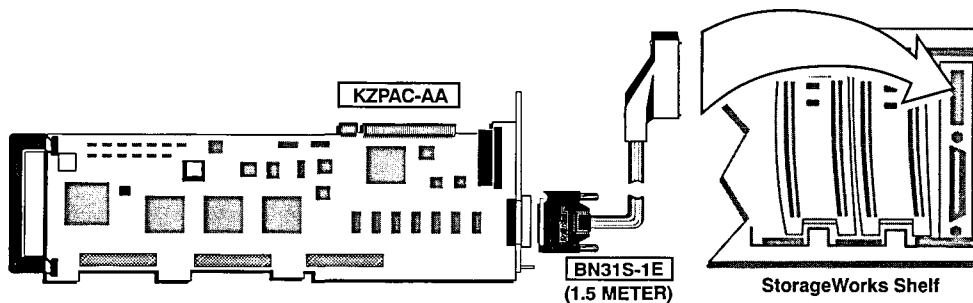
Order Number	Description	Maximum # Supported		
		Windows NT 3.51	DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
KZPDA-AA	PCI one port FWSE SCSI controller	2	2	2
BN21K-02	2-meter SCSI cable, required for each StorageWorks shelf SCSI port attached to KZPDA controller. Note: 1 KZPDA per PCI bus.			

Order Number	Description	Maximum # Supported		
		Windows NT 3.51	DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
KZPAA-AA	PCI one port FNSE SCSI controller	2	2	2
BN21N-02	2-meter 8-bit to 16-bit SCSI cable			



Step 5d—Backplane Storage Controllers (continued)

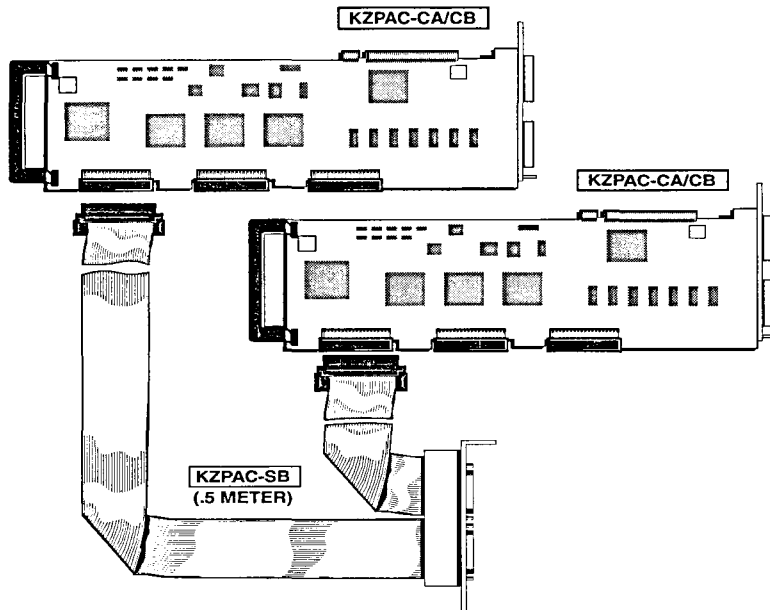
Order Number	Description	Maximum # Supported		
		Windows NT 3.51	DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
KZPAC-AA	PCI one-port FWSE SCSI RAID controller with 4 MB cache memory; includes RAID Array 230/plus Subsystem software and documentation kit; tape drives not supported	4	4	4
KZPSC-UB	Cache battery-backup for KZPAC controller			
BN31S-1E	1.5-meter SCSI cable, required for each StorageWorks shelf attached to KZPAC controller			
BN31S-02	02-meter SCSI cable— <b>Note:</b> Manufacturing may substitute this cable for certain cabinet configurations.			



Order Number	Description	Maximum # Supported		
		Windows NT 3.51	DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
KZPAC-CA	PCI three-port RAID controller with 4 MB cache memory; includes RAID Array 230/plus Subsystem Software and documentation kit; tape drives not supported; must order BN31S-1E cable for each active port. Order BN31K-0E or KZPAC-SB for third port connection.	4	4	4
KZPAC-CB	Same as above with 8 MB cache memory	4	4	4
KZPSC-UB	Cache battery-backup for KZPAC controller			
BN31S-1E	1.5-meter SCSI cable, required for each StorageWorks shelf attached to KZPAC controller. <b>Note:</b> Manufacturing may substitute the BN31S-02 cable for certain cabinet configurations.			
BN31S-02	02-meter SCSI cable			
BN31K-0E	SCSI cable/bulkhead assembly kit for KZPAC-CA/CB; required for connection to third port; uses one PCI bulkhead slot.			
KZPAC-SB	SCSI cable/bulkhead assembly kit with two ports for KZPAC-CA/CB, allows connection of 2 third-port outputs using one PCI bulkhead slot			

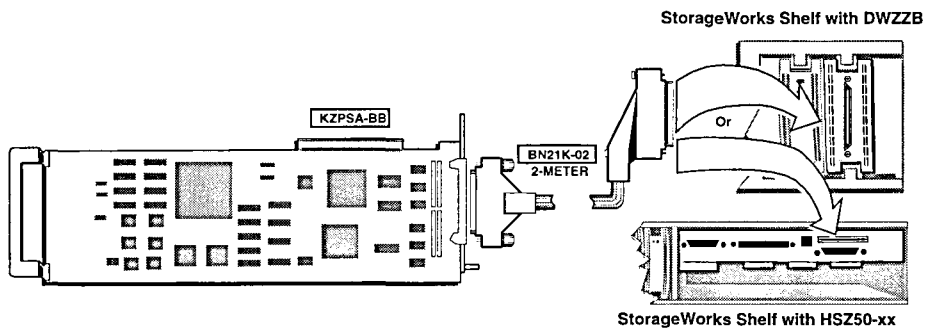
\* KZPAC-SB two port SCSI cable/bulkhead assembly kit is required for third-port connection.

Step 5d—Backplane Storage Controllers (*continued*)



Order Number	Description	Maximum # Supported		
		Windows NT 3.51	DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
KZPSA-BB	PCI one-port FWD SCSI controller; requires DWZZB-VW signal converter if connecting directly to StorageWorks shelf.	5*	5*	5*
BN21K-02	02-meter 16-bit SCSI cable (internal)			
BN21K-03	03-meter 16-bit SCSI cable (external)			
BN21K-05	05-meter 16-bit SCSI cable (external)			
BN21K-10	10-meter 16-bit SCSI cable (external)			
BN21K-15	15-meter 16-bit SCSI cable (external)			
BN21K-20	20-meter 16-bit SCSI cable (external)			

\* Refer to Supported Options list



**Step 5d—Backplane Storage Controllers (continued)**

		Maximum # Supported	
Order Number	Description		OpenVMS V6.2-1H3
KFPSA-AA	PCI-DSSI controller. Connecting to StorageWorks shelf directly, requires HSDxx controller.		4
BC29S-06	Connection to HSD10 installed in BA36R Pedestal shelf		
BC29S-09	Connection to HSD10 installed in BA36R Cabinet shelf		

		Maximum # Supported	
Order Number	Description		OpenVMS V6.2-1H3
CIPCA-BA	PCI-to-CI adapter Requires two PCI slots. Requires one of the following CI cables per adapter.		2
BNCIA-10	10-meter CI cable		
BNCIA-20	20-meter CI cable		
BNCIA-45	45-meter CI cable		

**Step 5e—Non-Backplane External Storage Controllers**

- Maximum of two BA35R-MR controller shelves are supported in the H9A10-EL/EM cabinets.
- The following controllers are supported for mounting in AlphaServer 4000/4100 systems.

**SCSI controllers**

- Minimum operating system support: DIGITAL UNIX V3.2G, OpenVMS V6.2-1H3, Windows NT 3.51/4.0 or later.
- Controllers require KZPSA-BB Fast Wide Differential SCSI controller.
- HSZ50-Ax requires one QB-5CJAA-SA kit  
HSZ52-Ax requires two QB-5CJAA-SA kits  
HSZ52-AJ requires four QB-5CJAA-SA kits

<b>HSZ50-AF</b>	StorageWorks RAID Array 450/HSZ50 32 MB SCSI controller, 6 SCSI channels, 36 SCSI-2 device connections, 32 LUN max, 32 MB cache module, single external cache battery system building block
<b>HSZ50-AH</b>	StorageWorks RAID Array 450/HSZ50 64 MB SCSI controller, 6 SCSI channels, 36 SCSI-2 device connections, 32 LUN max, 64 MB cache module, single external cache battery system building block
<b>HSZ50-AJ</b>	StorageWorks RAID Array 450/HSZ50 128 MB SCSI controller, 6 SCSI channels, 36 dual, 42 single SCSI-2 device connections, 32 LUN max, 128 MB cache module, single external cache battery system building block
<b>HSZ52-AF</b>	StorageWorks RAID Array 450/HSZ50 64 MB dual-SCSI controllers, 12 SCSI channels, 36 SCSI-2 device connections, 32 LUN max, two cache modules, one dual external cache battery system building block, two external cache batteries, two 2-meter cables
<b>HSZ52-AH</b>	StorageWorks RAID Array 450/HSZ50 128 MB dual-SCSI controllers, 12 SCSI channels, 36 SCSI-2 device connections, 32 LUN max, two cache modules, one dual external cache battery system building block, two external cache batteries, two 2-meter cables
<b>HSZ52-AJ</b>	StorageWorks RAID Array 450/HSZ50 256 MB dual-SCSI controllers, 12 SCSI channels, 36 SCSI-2 device connections, 32 LUN max, two cache modules, one dual external cache battery system building block, two external cache batteries, two 2-meter cables
<b>HSZ54-AJ</b>	StorageWorks RAID Array 450/HSZ50 512 MB quad-SCSI controllers, 12 SCSI channels, 72 SCSI-2 device connections, 64 LUN max, four cache modules, two dual external cache battery system building blocks, four external cache batteries, four 2-meter cables

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**Step 5e—Non-Backplane External Storage Controllers** (*continued*)**DSSI controllers**

- Supported on OpenVMS systems only.
- HSD10-Bx mounts in BA36R-xx StorageWorks shelf.
- HSD10-Bx requires BC29S-06/09 for connection from KFPSA to BA36R shelf.
- HSD30-Cx requires BA35R-MR StorageWorks Controller shelf.
- HSD30-Cx requires BN21N-02 for connection from HSD30-Cx to BA36R StorageWorks shelf.

<b>HSD10-BA</b>	StorageWorks DSSI Array controller, supports 7 SCSI-2 disks, tapes, optical devices
<b>HSD10-BD</b>	StorageWorks DSSI Array controller with 16 MB cache, supports 7 SCSI-2 disks, tapes, optical disks
<b>HSD10-BF</b>	StorageWorks DSSI Array controller with 32 MB cache, supports 7 SCSI-2 disks, tapes, optical disks
<b>HSD30-CA</b>	StorageWorks DSSI Array controller; supports 18 SCSI-2 disks, tapes, optical devices, RAID 0, and includes base firmware and license
<b>HSD30-CD</b>	StorageWorks DSSI Array controller with 16 MB cache; supports 18 SCSI-2 disks, tapes, optical disks, RAID 0; includes base firmware and license
<b>HSD30-CF</b>	StorageWorks DSSI Array controller with 32 MB cache; supports 18 SCSI-2 disks, tape, optical disks, RAID 0; includes base firmware and license

**CI Controllers**

- Supported on OpenVMS systems only.
- Requires CIPCA-AA Storage controller and cables (Step 5d).
- Requires BA35R-MR StorageWorks Controller shelf.
- HSJ40-Cx requires BN21N-02 for connection from HSJ40-Cx to BA36R StorageWorks shelf.

<b>HSJ40-CD</b>	CI Array controller 16 MB cache
<b>HSJ40-CF</b>	CI Array controller 32 MB cache

**Controller Accessories**

<b>H879-AA</b>	External SCSI 68-pin, male 8-bit or 16-bit differential terminator
<b>H885-AA</b>	SCSI Tri-link connector, 68-pin, two female and one male connector
<b>BN21W-0B</b>	SCSI Y cable, 68-pin, two female and one male
<b>BN30B-02</b>	IEC to IEC power cord, gray for H9A10-EM Cabinet (Europe)
<b>BN35S-02</b>	IEC to IEC power cord, black for H9A10-EM Cabinet (Europe)
<b>BA35R-MR</b>	Rackmount StorageWorks controller shelf with RETMA mounting kit, and NEMA power for H9A10-EL Cabinet, Americas, AP. Order BN30B-02 for mounting in H9A10-EM cabinet (Europe)
<b>CK-BA35X-HF</b>	Power supply for n+1 redundant support in BA35R-MR StorageWorks controller shelf
<b>SC008-AC/AD</b>	Star Coupler Passive Hub device, supports eight CI ports

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**Step 5f—I/O Expansion Options****AlphaServer 4100/4000 Cabinet Expansion**

- To expand AlphaServer 4100/4000 Cabinet systems, order Expansion Cabinet of your choice, plus Cabinet joiner kit H9C10-JC

<b>H9A10-EF</b>	Expansion Cabinet with fan, Americas, AP
<b>H9A10-EH</b>	Same as above for Europe
<b>H9A10-EJ</b>	Expansion Cabinet without fan, Americas, AP
<b>H9A10-EK</b>	Same as above for Europe
<b>H9C10-JC</b>	Joiner Kit with brackets and trim (Top Gun Blue)

**Step 5f—I/O Expansion Options (continued)****AlphaServer 4100/4000 System Management Station Kit**

To efficiently manage multiple System Drawers in a cabinet system, the AlphaServer 4100/4000 supports a System Management Station Kit that allows multiple System Drawers to be controlled from a single terminal, keyboard and mouse housed inside an AlphaServer 4100/4000 cabinet.

- System Management Station Kit requires a cabinet and 19" of space. Station kit includes:
  - 15" color monitor, keyboard and mouse
  - Console switch box and mounting shelf
  - Cables for first two System Drawers (up to 8 System Drawers can be supported with additional cables)
  - Door with console monitor access (factory installation only)

**H4020-AA** System Management Station Kit for AlphaServer 4100/4000 systems

**2T-H7085-10** System Management Station Kit dual cable, 10-feet in length; each cable kit supports up to two additional System Drawers

**StorageWorks Cabinets**

**SW800-GA** SW800 Data Center Cabinet, 60Hz, Top Gun Blue, 1700 mm high, 800 mm wide

**SW800-GB** SW800 Data Center Cabinet, 50Hz, Top Gun Blue, 1700 mm high, 800 mm wide

**SW500-GC** SW500 Departmental Cabinet, 60Hz, Top Gun Blue, 1100 mm high, 600 mm wide

**SW500-GD** SW500 Departmental Cabinet, 50Hz, Top Gun Blue, 1100 mm high, 600 mm wide

**SW300-GA** SW300 Departmental Cabinet, 60Hz, Top Gun Blue, 1100 mm high, 600 mm wide

**StorageWorks Accessories**

**DWZZB-VW** FWD SCSI-2 signal converter on one end and FWSE on other end; requires BN21K-xx cables.

**BN21K-02** 02-meter 16-bit SCSI cable

**BN21K-03** 03-meter 16-bit SCSI cable

**BN21K-05** 05-meter 16-bit SCSI cable

**BN21K-10** 10-meter 16-bit SCSI cable

**BN21K-15** 15-meter 16-bit SCSI cable

**BN21K-20** 20-meter 16-bit SCSI cable

**Step 6—Networks and Communications**

- Systems include DE500-AA PCI 10/100-Mbit Ethernet controller (uses one PCI slot).

Order Number	Description	Windows NT 3.51	DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
DE500-AA	PCI 10/100-Mbit Fast Ethernet controller (Twisted Pair)	4	4	4
BN25G-03	3-meter (9.8 ft.) cable for 10BaseT Twisted Pair connection			
BN25G-04	4-meter (13.1 ft.) cable for 10BaseT Twisted Pair connection			
BN25G-07	7-meter (22.3 ft.) cable for 10BaseT Twisted Pair connection			
Order Number	Description	Windows NT 3.51	DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
DE450-CA	PCI 10-Mbit Ethernet controller; AUI, 10BaseT, or 10Base2	4	4	4
BNE4C-02	2-meter cable for AUI connection, Ethernet/IEEE 802.3 devices			
BNE4C-05	5-meter cable for AUI connection			
BN25G-03	3-meter cable for 10BaseT Twisted Pair connection			
BN25G-04	4-meter cable for 10BaseT Twisted Pair connection			
BN25G-07	7-meter cable for 10BaseT Twisted Pair connection			
BC16M-06	6-ft cable for 10Base2 ThinWire connection			
BC16M-15	15-ft cable for 10Base2 ThinWire connection			
BC16M-30	30-ft cable for 10Base2 ThinWire connection			

**Step 6—Networks and Communications** *(continued)*

Order Number	Description	Windows NT 3.51	DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
DEFPA-AB	PCI to FDDI Adapter, single attachment station (SAS), multi-mode fiber (MMF), SC connector	4	4	4
DEFPA-DB	PCI to FDDI Adapter, DAS, MMF, SC connector	4	4	4
BN34D-03	3-meter MIC-SC dual fiber optic cable			
BN34D-10	10-meter MIC-SC dual fiber optic cable			
BN34B-03	3-meter SC to SC dual fiber optic cable			
BN34B-10	10-meter SC to SC dual fiber optic cable			
BN34B-20	20-meter SC to SC dual fiber optic cable			
BN34B-30	30-meter SC to SC dual fiber optic cable			
Order Number	Description	Windows NT 3.51	DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
DEFPA-UB	PCI to FDDI Adapter, SAS, TP-PMD, requires BN25H-03	4	4	4
DEFPA-MB	PCI to FDDI Dual Adapter, DAS, TP-PMD, requires BN25H-03	4	4	4
BN25H-03	3-meter FDDI crossover cable			
Order Number	Description		DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
PBXNP-AA	PCI Token Ring adapter		1	1
BN25G-03	3-meter (9.8 ft.) cable			
BN25G-04	4-meter (13.1 ft.) cable			
BN25G-07	7-meter (22.3 ft.) cable			
Order Number	Description		DIGITAL UNIX V4.0A	
DGLPB-AB	PCI ATMworks 350 bus adapter		4	
Order Number	Description		DIGITAL UNIX V3.2F / V3.2G	OpenVMS V6.2-1H3
DNSES-AA	EISA-based synchronous communications controller		2	2
Order Number	Description	Windows NT 4.0	DIGITAL UNIX V3.2F / V3.2G	
CXI01-AA	ISA-based asynchronous multiport MUX 16 port XEM	2	1	
CXI01-AD	ISA-based asynchronous multiport MUX 16 port EPC	2	1	
CXI01-AB	ISA-based asynchronous multiport MUX expander XEM			
CXI01-AC	ISA-based asynchronous MUX cable converter (RJ45-DB25)			
CXI01-AE	ISA-based asynchronous multiport MUX expander EPC			
CXI01-AF	ISA-based asynchronous MUX adapter (RJ45-MJ11), 8 pack			

**Step 6a—MEMORY CHANNEL Controller****DIGITAL UNIX Systems**

- Require DIGITAL UNIX V3.2G and System Console Firmware Revision 2.0.
- Each system node in a MEMORY CHANNEL cluster requires a software license.
- Servers in a compute-server array require a DIGITAL UNIX Driver for MEMORY CHANNEL License.
- Servers in a TruCluster high-availability environment require a license for TruCluster for DIGITAL UNIX.

**OpenVMS Systems**

- Require OpenVMS V7.1 and OpenVMS Cluster license

**Step 6a—MEMORY CHANNEL Controller (continued)****Configuring information:**

- Two PCI to MEMORY CHANNEL Controllers (CCMAA-BA) supported for redundancy/failover.
- For two-system nodes, order one CCMAA-BA per system and one BC12N-10 cable to directly connect adapters.  
For three or four system nodes order one CCMHA-AA (MEMORY CHANNEL Hub), and one CCMAA-BA and one BC12N-10 cable per system node.
- CCMHA-AA (MEMORY CHANNEL Hub) is configured with four CCMLA-AA Line Cards and supports up to four nodes. Expansion up to eight system nodes can be achieved by adding up to four additional CCMLA-AA Line Cards.
- Maximum two CCMAA-BA supported per System Drawer.

Nodes	MEMORY CHANNELs	MEMORY CHANNEL Hubs	Line Cards
2	2 CCMAA-BA		
3-4	3-4 CCMAA-BA	1 CCMHA-AA	
5-8	5-8 CCMAA-BA	1 CCMHA-AA	1-4 CCMLA-AA

CCMAA-BA	PCI to MEMORY CHANNEL Controller—Single port MEMORY CHANNEL option
CCMHA-AA	100 MB MEMORY CHANNEL Hub with 4 Line Cards
CCMLA-AA	MEMORY CHANNEL Line Card for use with MEMORY CHANNEL Hub (CCMHA-AA)
CCMRA-AA	Rackmount kit for mounting MEMORY CHANNEL hub
BC12N-10	MEMORY CHANNEL cable
QB-3RLAG-AA	TruCluster Software for DIGITAL UNIX
QB-4ZCAG-AA	DIGITAL UNIX Driver for MEMORY CHANNEL license
QL-MUZAG-AA	OpenVMS Cluster license for Alpha systems

**Note:** For stand alone configurations, CCMHA-AA MEMORY CHANNEL Hub, includes BN19P-2E power cord for Canada, Japan, US operation. For other regions, order power cords from Step 8.

**Step 7—Monitors**

Systems include PCI-based graphics option, uses one PCI slot.

- Windows NT systems: a monitor is **required** unless available on site.
- DIGITAL UNIX and OpenVMS systems: all console functions, including RAID Configuration Utility (RCU) can be performed using a standard video terminal (VT2xx, VT3xx, VT4xx, VT5xx) connected to one of system serial ports.

SN-VRCX5-WA/W3/W4	15" (13.9" viewable image size) Corporate Series auto-scan color monitor, flat square invar CRT, 0.28 mm dot pitch, VGA to 1024 x 768 @ 85 Hz, TCO 92, MPRII, Energy Star, attached video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord. Select country specific power cords for -W3 Northern Hemisphere, and -W4 Southern Hemisphere variants.
SN-VRTX7-WA/W3 SN-VRT17-W4	17" (16.0" viewable image size) Professional Series auto-scan color monitor, Trinitron CRT, 0.25 mm aperture grill pitch, VGA to 1280 x 1024 @ 75Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord, -W3 = Northern Hemisphere without power cord, SN-VRT17-W4 = Southern Hemisphere. Select country specific power cord for W3 and W4 variant.
SN-VRCX1-WA/ W3/W4	21" (19.7" viewable image size) professional series auto-scan color monitor, Diamondtron CRT, 0.28 mm aperture grill pitch, VGA to 1600 x 1200 @ 75 Hz, TCO 92, MPRII, Energy Star, HD15 male to male video cable. -WA = Northern Hemisphere with 120 V power cord. -W3 = Northern Hemisphere without power cord. W4 = Southern Hemisphere without power cord. Select country specific power cord for W3 and W4 variants.

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## Step 8—Keyboards and Power Cords

System Drawers ordered in the Americas and AP include keyboard, mouse and power cords. Select country-specific keyboard for all Pedestal and Cabinet systems in Europe.

Windows NT/ DIGITAL UNIX keyboard	OpenVMS keyboard	Frost White
LK47W-A2	LK46W-A2	U.S./English
LK47W-AB	LK46W-AB	Belgian
	LK46W-AC	Canadian/French
LK47W-AD	LK46W-AD	Danish
LK47W-AE	LK46W-AE	United Kingdom
	LK46W-AF	Finnish
LK47W-AG	LK46W-AG	German
	LK46W-AH	Dutch
LK47W-AI	LK46W-AI	Italian
LK47W-AK	LK46W-AK	Swiss/Generic
	LK46W-AL	Swiss/German
	LK46W-AM	Swedish
LK47W-AN	LK46W-AN	Norwegian
LK47W-AP	LK46W-AP	French
	LK46W-AQ	Canadian/English
LK47W-AS	LK46W-AS	Spanish
LK47W-AV	LK46W-AV	Portuguese

**Power Cords (Note: Quantity of two required for Pedestals)**

BN19A-2E	U.K./Ireland
BN19C-2E	Central Europe
BN19E-2E	Switzerland
BN19H-2E	Australia/New Zealand
BN19K-2E	Denmark
BN18L-2E	Israel
BN19M-2E	Italy
BN19S-2E	India/South Africa

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## Step 9—Terminals and Printers

Systems include two EIA-232 asynchronous serial ports with 9-pin D-subminiature connectors, and two 9-pin to MMJ adapters (H8571-J).

### DIGITAL UNIX and OpenVMS systems

Console terminals can either be a graphics monitor connected to the included video graphics adapter or a serial video terminal. If a serial video terminal is used as the console terminal, it must be VT220, VT320, VT420, or VT520 compatible.

Select terminals, printers, and cables as required.

## Step 10—CPU and System Upgrades

### CPU Upgrades

302XR-AW	Upgrades 5/300E MHz CPU to 5/300 MHz CPU; requires mandatory return of 300E MHz CPU
304XR-AW	Upgrades 5/300E MHz CPU to 5/400 MHz CPU; requires mandatory return of 300E MHz CPU
304XR-DW	Upgrades 5/300E MHz CPU to 5/466 MHz CPU; requires mandatory return of 300E MHz CPU
304XR-BW	Upgrades 5/300 MHz CPU to 5/400 MHz CPU; requires mandatory return of 300 MHz CPU
304XR-EW	Upgrades 5/300 MHz CPU to 5/466 MHz CPU; requires mandatory return of 300 MHz CPU
304XR-CW	Upgrades 5/400 MHz CPU to 5/466 MHz CPU; requires mandatory return of 400 MHz CPU

### System Upgrades

AlphaServer 4000—AlphaServer 4100			
Order Number	From	To	Includes
DN-51Z1L-AA	AlphaServer 4000	AlphaServer 4100	AlphaServer 4100 System Drawer for Windows NT. Requires mandatory return of AlphaServer 4000 System Drawer.
DA-51Z1J-AA	AlphaServer 4000	AlphaServer 4100	AlphaServer 4100 System Drawer and DIGITAL UNIX base system license. Requires mandatory return of AlphaServer 4000 System Drawer and DIGITAL UNIX license.
DY-51Z1K-AA	AlphaServer 4000	AlphaServer 4100	AlphaServer 4100 System Drawer and OpenVMS base system license. Requires mandatory return of AlphaServer 4000 System Drawer and OpenVMS license.

AlphaServer 4000 with 8 PCI slots—AlphaServer 4000 with 16 PCI slots			
Order Number	From	To	Includes
DH-53Z2A-AA	AlphaServer 4000 with 8 I/O Slots	AlphaServer 4000 * with 16 I/O Slots	AlphaServer 4000 System Drawer with I/O Expansion option. Requires mandatory return of existing AlphaServer 4000 System Drawer.

AlphaServer 4100 with 8 PCI slots —AlphaServer 4000 with 16 PCI slots			
Order Number	From	To	Includes
DN-53ZEB-AA	AlphaServer 4100	AlphaServer 4000 * with 16 I/O Slots (Windows NT 4.0)	AlphaServer 4000 System Drawer Upgrade for Windows NT with I/O Expansion Option. Requires mandatory return of existing AlphaServer 4100 System Drawer.
DA-53ZEB-AA	AlphaServer 4100	AlphaServer 4000 * with 16 I/O Slots (DIGITAL UNIX)	AlphaServer 4000 System Drawer Upgrade with DIGITAL UNIX base system license and I/O Expansion Option. Requires mandatory return of existing AlphaServer 4100 System Drawer.
DY-53ZEB-AA	AlphaServer 4100	AlphaServer 4000 * with 16 I/O Slots (OpenVMS)	AlphaServer 4000 System Drawer Upgrade with OpenVMS base system license and I/O Expansion Option. Requires mandatory return of existing AlphaServer 4100 System Drawer.

**Note:** 5/300 MHz CPUs numbered B3001-AA and B3002-AA are not supported in the new AlphaServer 4000 8/16 PCI slot System Drawers. B3002-AA CPUs will be upgraded to B3004-BA CPUs before installation in new AlphaServer 4000 System Drawer.

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## Step 11—Software

### Windows NT systems

Selection of language specific Windows NT Server 4.0 license, media (CD-ROM) kit is **mandatory** for all non-North American variants

### Windows NT Server 4.0 plus 10-client access license, media (CD-ROM) kits

QB-23C8A-SB	Windows NT Server license, media kit—International English
QB-23CPA-SB	Windows NT Server license, media kit—French
QB-23CGA-SB	Windows NT Server license, media kit—German
QB-23CSA-SB	Windows NT Server license, media kit—Spanish
QB-23CUA-SB	Windows NT Server license, media kit—Italian
QB-23CJA-SB	Windows NT Server license, media kit—Japanese
QB-23CMA-SB	Windows NT Server license, media kit—Swedish
QB-23CHA-SB	Windows NT Server license, media kit—Dutch
QB-23CVA-SB	Windows NT Server license, media kit—Portuguese
QB-23C4A-SB	Windows NT Server license, media kit—Korean
QB-23C3A-SB	Windows NT Server license, media kit—Taiwanese
QB-23C2A-SB	Windows NT Server license, media kit—PRC Chinese
QB-23CTA-SB	Windows NT Server license, media kit—Hebrew
QB-23CQA-SB	Windows NT Server license, media kit—Arabic
QB-23C5A-SB	Windows NT Server license, media kit—Thai

### Windows NT Server Optional Software

QB-4G45A-AA	Purveyor Web Server Software V1.1 for Process Software Corp.
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## DIGITAL UNIX

### Software Processor Code = G for all software, 1-4 processors

- DIGITAL UNIX systems include Traditional unlimited user license
- DIGITAL UNIX Packaged and Base systems **require** operating system media and documentation for **first** system on site.

QL-MT5AG-AA	DIGITAL UNIX developer's extension license
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### DIGITAL UNIX Media and Documentation

QA-MT4AA-H8	DIGITAL UNIX media and on-line documentation on CD-ROM
QA-MT4AA-GZ	DIGITAL UNIX full hardcopy documentation

### DIGITAL UNIX Layered Products CD-ROM

QA-054AA-H8	Layered products media and documentation for DIGITAL UNIX on CD-ROM
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### DECnet Licenses

QL-MTJAG-AA	DECnet/OSI end-system license for DIGITAL UNIX
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## Step 11—Software (*continued*)

### OpenVMS Concurrent Use Licenses

#### Software Processor Code = G for all software, 1-4 processors

- OpenVMS Concurrent Use license provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system.
- OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.

QL-MT3AA-3B	OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C	OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D	OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E	OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F	OpenVMS Concurrent Use 16-user license
QL-MT3AA-3G	OpenVMS Concurrent Use 32-user license
QL-MT3AA-3H	OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J	OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K	OpenVMS Concurrent Use 256-user license
QL-MT2AG-AA	OpenVMS Traditional unlimited user license

### OpenVMS Media and Documentation

QA-MT1AA-H8	OpenVMS media and documentation on CD-ROM
QA-09SAA-GZ	OpenVMS base hardcopy documentation

### OpenVMS Layered Products CD-ROM

QA-03XAA-H8*	Layered products media and documentation for OpenVMS on CD-ROM
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\* Includes DIGITAL Enterprise Integration Server for OpenVMS media and documentation

### DIGITAL Enterprise Integration Package

QA-5LVAA-H8	DIGITAL Enterprise Integration Server for OpenVMS media and documentation
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### DECnet Licenses

QL-MTGAG-AA	DECnet extended function license for OpenVMS
QL-MTHAG-AA	DECnet end-system to extended function upgrade license for OpenVMS

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## Step 12—Hardware and Software Warranty and Supplemental Services

### Hardware Warranty

The AlphaServer 4100/4000 System Drawer and components installed in the System Drawer (such as CPU, memory, PCI controllers, power supplies) have a 3-year onsite, 5-day per week, 9-hour per day hardware warranty, with next day response time.

StorageWorks components contained in the Pedestal or Cabinet Systems are supported by the comprehensive StorageWorks Warranty: 5-years for disks, 3-years for controllers, 2-years for tape devices, and 1-year for other components. The first year includes onsite next day response time.

Network products in the Pedestal or Cabinet Systems carry the Network Products Warranty.

Users can upgrade to higher levels of service through a variety of hardware supplemental services.

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## Step 12—Hardware and Software Warranty and Supplemental Services (*continued*)

### Software Warranty

- Software Warranty:
  - Warranty on DIGITAL UNIX and OpenVMS is conformance to SPD with advisory telephone support for a period of ninety days
  - Warranty on Microsoft's Windows NT Server 4.0 is conformance to the written material accompanying the software for a period of ninety days
- Software service upgrades for DIGITAL UNIX include advisory and remedial software support with new version license rights for operating system for the time period indicated.
- Software service upgrades for OpenVMS include advisory and remedial software support with new version license rights for operating system and Enterprise Integration Package (EIP) for the time period indicated.
- Software Supplemental Support Service options upgrade 90-day service to time period indicated below.

### Value Added Services

The AlphaServer Support Plan is designed to accommodate critical system availability needs. The comprehensive suite of recommended services will maximize uptime and satisfaction, by enabling customers to select, at the time of their system purchase, the right level of support for their information technology (IT) and business environment.

The AlphaServer Support Plan builds on the foundation of Installation and Supplemental Services to include Startup Services, Silver/Gold Support, System Healthcheck, and Availability Review/Partnership.

### Installation

It is recommended that onsite installation service be included as a separate entry on any quotation.

FM-4XPCI-IN	PCI I/O expansion option installation
FM-51CPU-IN	Add-on SMP Installation
FM-51MEM-IN	Add-on Memory Installation
FM-51DWR-IN	AlphaServer 4100/4000 Drawer Installation
FM-51PED-IN	AlphaServer 4100/4000 Pedestal Installation
FM-51CAB-IN	AlphaServer 4100/4000 Cabinet Installation
FM-TRAVL-IN	One time travel charge per installation

### AlphaServer 4100/4000 Software Support Supplemental Services

#### Windows NT

FM-WNTO2-12	1-year, Software Support Supplemental Service
FM-WNTO2-36	3-year, Software Support Supplemental Service
FM-WNTO2-60	5-year, Software Support Supplemental Service

#### AlphaServer 4000 DIGITAL UNIX

FM-40UNS-12	1-year, Full Software Support Supplemental Service
FM-40UNS-36	3-year, Full Software Support Supplemental Service
FM-40UNS-60	5-year, Full Software Support Supplemental Service
FM-40UNN-12	1-year, Node Software Support Supplemental Service
FM-40UNN-36	3-year, Node Software Support Supplemental Service
FM-40UNN-60	5-year, Node Software Support Supplemental Service

#### AlphaServer 4100 DIGITAL UNIX

FM-41UNS-12	1-year, Full Software Support Supplemental Service
FM-41UNS-36	3-year, Full Software Support Supplemental Service
FM-41UNS-60	5-year, Full Software Support Supplemental Service
FM-41UNN-12	1-year, Node Software Support Supplemental Service
FM-41UNN-36	3-year, Node Software Support Supplemental Service
FM-41UNN-60	5-year, Node Software Support Supplemental Service

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**Step 12—Hardware and Software Support Supplemental Services (continued)**
**AlphaServer 4000 OpenVMS**

FM-40VMS-12	1-year, Full Software Support Supplemental Service
FM-40VMS-36	3-year, Full Software Support Supplemental Service
FM-40VMS-60	5-year, Full Software Support Supplemental Service
FM-40VNS-12	1-year, Node Software Support Supplemental Service
FM-40VNS-36	3-year, Node Software Support Supplemental Service
FM-40VNS-60	5-year, Node Software Support Supplemental Service

**AlphaServer 4100 OpenVMS**

FM-41VMS-12	1-year, Full Software Support Supplemental Service
FM-41VMS-36	3-year, Full Software Support Supplemental Service
FM-41VMS-60	5-year, Full Software Support Supplemental Service
FM-41VNS-12	1-year, Node Software Support Supplemental Service
FM-41VNS-36	3-year, Node Software Support Supplemental Service
FM-41VNS-60	5-year, Node Software Support Supplemental Service

**DIGITAL UNIX or OpenVMS SMP Upgrade**

FM-51VMP-12	1-year, DIGITAL UNIX or OpenVMS SMP Upgrade
FM-51VMP-36	3-year, DIGITAL UNIX or OpenVMS SMP Upgrade
FM-51VMP-60	5-year, DIGITAL UNIX or OpenVMS SMP Upgrade

**AlphaServer 4100/4000 Pedestal or Cabinet Enclosure with first System Drawer**

FM-5BXHW-60	5-year 5 x 9, next day, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B4HR-36	3-year 5 x 9, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B4HR-60	5-year 5 x 9, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B512-36	3-year 5 x 12, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B512-60	5-year 5 x 12, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B616-36	3-year 6 x 16, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B616-60	5-year 6 x 16, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B724-36	3-year 7 x 24, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5B724-60	5-year 7 x 24, four hour, 128 / 512 MB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5HXHW-60	5-year 5 x 9, next day, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H4HR-36	3-year 5 x 9, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H4HR-60	5-year 5 x 9, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H512-36	3-year 5 x 12, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H512-60	5-year 5 x 12, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H616-36	3-year 6 x 16, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H616-60	5-year 6 x 16, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H724-36	3-year 7 x 24, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5H724-60	5-year 7 x 24, four hour, 1 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5VXHW-60	5-year 5 x 9, next day, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V4HR-36	3-year 5 x 9, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V4HR-60	5-year 5 x 9, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V512-36	3-year 5 x 12, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V512-60	5-year 5 x 12, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V616-36	3-year 6 x 16, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V616-60	5-year 6 x 16, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet

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**Step 12—Hardware and Software Support Supplemental Services (*continued*)**
**AlphaServer 4100/4000 Pedestal or Cabinet Enclosure with first System Drawer**

FM-5V724-36	3-year 7 x 24, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet
FM-5V724-60	5-year 7 x 24, four hour, 2 GB AlphaServer 4100/4000 Pedestal/Cabinet

**AlphaServer 4100/4000 Memory**

FM-5LXHW-60	5-year 5 x 9, next day, 128 / 512 MB Memory option
FM-5L4HR-36	3-year, 5 x 9, four hour, 128 / 512 MB Memory option
FM-5L4HR-60	5-year, 5 x 9, four hour, 128 / 512 MB Memory option
FM-5L512-36	3-year 5 x 12, four hour, 128 / 512 MB Memory option
FM-5L512-60	5-year 5 x 12, four hour, 128 / 512 MB Memory option
FM-5L616-36	3-year 6 x 16, four hour, 128 / 512 MB Memory option
FM-5L616-60	5-year 6 x 16, four hour, 128 / 512 MB Memory option
FM-5L724-36	3-year 7 x 24, four hour, 128 / 512 MB Memory option
FM-5L724-60	5-year 7 x 24, four hour, 128 / 512 MB Memory option

FM-5QXHW-60	5-year 5 x 9, next day, 1 GB Memory option
FM-5Q4HR-36	3-year, 5 x 9, four hour, 1 GB Memory option
FM-5Q4HR-60	5-year, 5 x 9, four hour, 1 GB Memory option
FM-5Q512-36	3-year 5 x 12, four hour, 1 GB Memory option
FM-5Q512-60	5-year 5 x 12, four hour, 1 GB Memory option
FM-5Q616-36	3-year 6 x 16, four hour, 1 GB Memory option
FM-5Q616-60	5-year 6 x 16, four hour, 1 GB Memory option
FM-5Q724-36	3-year 7 x 24, four hour, 1 GB Memory option
FM-5Q724-60	5-year 7 x 24, four hour, 1 GB Memory option

FM-5TXHW-60	5-year 5 x 9, next day, 2 GB Memory option
FM-5T4HR-36	3-year, 5 x 9, four hour, 2 GB Memory option
FM-5T4HR-60	5-year, 5 x 9, four hour, 2 GB Memory option
FM-5T512-36	3-year 5 x 12, four hour, 2 GB Memory option
FM-5T512-60	5-year 5 x 12, four hour, 2 GB Memory option
FM-5T616-36	3-year 6 x 16, four hour, 2 GB Memory option
FM-5T616-60	5-year 6 x 16, four hour, 2 GB Memory option
FM-5T724-36	3-year 7 x 24, four hour, 2 GB Memory option
FM-5T724-60	5-year 7 x 24, four hour, 2 GB Memory option

**AlphaServer 4100/4000 CPU Add-on Options**

FM-5JXHW-60	5-year 5 x 9, next day, CPU SMP Add-on option
FM-5J4HR-36	3-year, 5 x 9, four hour, CPU SMP Add-on option
FM-5J4HR-60	5-year, 5 x 9, four hour, CPU SMP Add-on option
FM-5J512-36	3-year 5 x 12, four hour, CPU SMP Add-on option
FM-5J512-60	5-year 5 x 12, four hour, CPU SMP Add-on option
FM-5J616-36	3-year 6 x 16, four hour, CPU SMP Add-on option
FM-5J616-60	5-year 6 x 16, four hour, CPU SMP Add-on option
FM-5J724-36	3-year 7 x 24, four hour, CPU SMP Add-on option
FM-5J724-60	5-year 7 x 24, four hour, CPU SMP Add-on option

## Specifications

Specifications	Pedestal System		Cabinet System		System Drawer	
<b>External Dimensions</b>						
Height	75 cm (29.5 in)		170 cm (67.0 in)		30 cm (11.8 in)	
Width	49 cm (19.3 in)		60 cm (23.6 in) Rack		45 cm (17.7 in)	
Depth	90 cm (35.4 in)		90 cm (35.4 in)		69 cm (27.2 in)	
Weight	113.6 kg (250 lb)		350.9 kg (772 lb)		45.5 kg (100 lb)	
<b>Clearances</b>						
	<b>Operating/</b>	<b>Service</b>	<b>Operating/</b>	<b>Service</b>	<b>Operating/</b>	<b>Service</b>
Front	20 cm (7.9 in)	61 cm (24.1 in)	60 cm (23.6 in)	100 cm (39.4 in)	20 cm (7.9 in)	20 cm (7.9 in)
Rear	20 cm (7.9 in)	61 cm (24.1 in)	60 cm (23.6 in)	100 cm (39.4 in)	20 cm (7.9 in)	20 cm (7.9 in)
Sides	20 cm (7.9 in)	61 cm (24.1 in)	20 cm (7.9 in)	61 cm (24.0 in)	0	0
<b>Environmental</b>						
<b>Temperature (min/max)</b>						
Operating <sup>1</sup>	10°- 35°C (50°- 95°F)		10°- 35°C (50°- 95°F)		10°- 35°C (50°- 95°F)	
Nonoperating	-40°- 66°C (-40°- 150.8°F)		-40°- 66°C (-40°- 150.8°F)		-40°- 66°C (-40°- 150.8°F)	
Storage (60 days)	-40°- 66°C (-40°- 150.8°F)		-40°- 66°C (-40°- 150.8°F)		-40°- 66°C (-40°- 150.8°F)	
Rate of Change	11°- 19.8°C/hr (20°- 36°F/hr)		11°- 19.8°C/hr (20°- 36°F/hr)		11°- 19.8°C/hr (20°- 36°F/hr)	
<b>Relative Humidity</b>						
Operating	20-90% noncondensing		20-90% noncondensing		20-90% noncondensing	
Nonoperating	10-95%		10-95%		10-95%	
Storage (60 days)	10-95%		10-95%		10-95%	
4100 Max Heat Dissipation	1800 <sup>2</sup> Watts, 6143 Btu/hr		2700 Watts, 16382 Btu/hr		1100 Watts, 3754 Btu/hr	
4000 Max Heat Dissipation	1450 <sup>2</sup> Watts, 6143 Btu/hr		2700 Watts, 16382 Btu/hr		700 Watts, 3754 Btu/hr	
<b>Airflow</b>						
Quantity	200 cubic ft./min		300 cubic ft./min <sup>3</sup>		200 cubic ft./min	
Intake	Rear		Rear		Rear	
Exhaust	Front		Front and Top		Front	
<b>Altitude</b>						
Operating	3,050 m (10,000 ft)		3,050 m (10,000 ft)		3,050 m (10,000 ft)	
Nonoperating	12,200 m (40,000 ft)		12,200 m (40,000 ft)		12,200 m (40,000 ft)	
<b>Mechanical Shock</b>						
Operating	1.5 G, 10+/-3 ms		5 G, 10+/-3 ms		10 G, 10+/-3 ms	
<b>Vibration (min/max)</b>						
Operating	5-10 Hz	0.02in-da	5-10 Hz	0.02in-da	5-10 Hz	0.02in-da
Operating	10-500 Hz	0.1 G	10-500 Hz	0.1 G	10-500 Hz	0.1 G
Acoustics	6.2 LNPEc (Bels)		6.7 LNPEc (Bels)		5.8 LNPEc (Bels)	
<b>Electrical (min/max)</b>						
	<b>U.S.</b>	<b>Europe</b>	<b>U.S.</b>	<b>Europe</b>		
Voltage	100-120 VAC	200-240 VAC	100-120 VAC	220-240 VAC	100-120/200-240 VAC	
Phase	Single	Single	Single	Single	Single	
Nominal Frequency (Hz)	50-60	50-60	50-60	50-60	50-60	
Maximum rated current	12 Amps (multiple cord set)	10 Amps (multiple cord set)	14 + 14 Amps dual controllers	7 + 7 Amps dual controllers	8.4 Amps/4.2 Amps (single cord set) 8 Amps/4 Amps (multiple cord set)	
AlphaServer 4100 typical power	720 watts	920 watts	config-specific	config-specific	650 watts	
AlphaServer 4000 typical power	550 watts	550 watts	config-specific	config-specific	430 watts	
<b>Power Cord</b>						
Length	450 cm (177")	200-250 cm	450 cm (177")	450 cm	250 cm (98.4 in)	
Plug	NEMA 5-15P	Country specific	NEMA L5-30P	IEC309, 32A	IEC 320	
<b>Agency Approvals</b>						
	CAN/CSA-C22.2 No. 950-M95		CAN/CSA-C22.2 No. 950-M95		CAN/CSA-C22.2 No. 950-M95	
	UL 1950, Ed.3		UL 1950, Ed.3		UL 1950, Ed.3	
	EN 60 950, Ed.2, A3		EN 60 950, Ed.2, A3		EN 60 950, Ed.2, A3	

1 Maximum operating temperature at sea level. Reduce by 1C (1.8F) for every 600 m (2000 ft) above sea level.

2 Maximum power consumption for two line cords.

3 Cabinet fans only.

## Recommended Power Protection/UPS Solutions for AlphaServer 4100/4000 Systems

DIGITAL's UPS offerings feature robust on-line design and include EIA232 port for local or network monitoring. Prestige units feature a three-piece modular design which allows users to safely swap out components without disconnecting the critical load and "plug and play" battery and receptacle extensions. Prestige models include a three-year, 24-48 hour hot-swap warranty. All units include maintenance bypass.

Note: For complete protection all UPS products should be used with data line surge protectors—4N-GA249-AB\* (2 wire modem), 4N-GA249-CA\* (10BaseT), 4N-GA510-BF (ThinWire), 4N-GA245-xx (din rail, up to 32 ports).

\* Wall plug in type: additional plug-in data modules available (4N-GA240-xx).

### Solutions for Pedestal Systems

4N-AEAAH-AM	Prestige 3 kVA (2 kW), single phase, 60Hz, 208V-120/208V, 6 ft. cord with L6-30P and (1) L5-30R, (4) 5-15R receptacles. and 7 minute battery at full UPS load, 240V-240/120V operation also available. 4N-AEACH-AA - AE receptacle extensions available.
4N-AEAAH-AS	Prestige 3 kVA (2.1 kW), single phase, 50Hz, 200-240V in/out selectable, 6 ft. input cord with VDE stripped pigtail connection for attachment of country specific plug (by customer). Unit includes (3) IEC320, 10A and (1) IEC320 20A output receptacle which can be optionally extended to choice of Schuko, French, British, or Australian (4N-AEACH-DA - DD) receptacle extensions, 7 minute battery at full UPS load.
4N-AEWAR-G2	Prestige 5 year on-site exchange warranty upgrade for 4N-AEAAH-AM, U.S. only.
4N-AEACH-HA	Optional mobile module stacker with seismic mount provisions for above UPS.

### Solutions for Cabinet Systems

Number of Systems	UPS Model		Type	Receptacle Module	
	60Hz	50Hz		60 Hz	50 Hz
1-2 systems	4N-AEAAH-FA	4N-AEAAH-FB	3 kVA Custom RM <sup>1</sup>	Included <sup>2</sup>	Included <sup>2</sup>
3 systems	4N-AEAAJ-CL <sup>3</sup>	4N-AEAAJ-CU	6 kVA Prestige <sup>4</sup>	Included	Hardwired
4 systems	4N-AEAAL-BA	4N-AEAAL-BA	10 kVA PUPS Plus	4N-AEACK-BN	Hardwired

1. Factory installation of Rackmount UPS must be specified at initial order. Recommended UPS distribution option combines multiple UPS input plugs into a single L6-30P plug-in connection and simplifies future UPS add-on. Order 4NAEAAH-FF 60 Hz; 4N-AEAAH-FG 50 Hz).
2. Includes six IEC receptacle strips for connection to IEC plugs in cabinet
3. 208-120/208V shown; substitute -CT for 240-120/240V models.
4. Two optional mobile module stacker with seismic mounting provisions for 6 kVA Prestige—4N-AEACH-HD.

4N-AEAAH-FA	Customized Prestige 3 kVA (2.1 kW), single phase, 50/60 Hz, 200-240 V in/out. 6' power cord with L6-30P for 60 Hz applications. User replaceable front slide out batteries with 7 mins at full load (10-15 min typical).
RN-AEAAH-FB	Same as above with 6' power cord with IEC 309 plug for 50 Hz international applications.
4N-AEAAJ-CL	Prestige 6 kVA (4 kW), single phase, 60Hz, 208-120/208V, 6 ft. cord with L6-30P and (2) L6-30R, (8) 5-15R receptacle. Modular hot-swap design with 7 minute battery at full UPS load, extendible plug and play batteries and receptacle provisions. Substitute -CT for 240V 240/120V operation.
4N-AEAAJ-CU	Prestige 6 kVA (4 kW) 50Hz package, single phase, 50Hz, 200-240V in/out selectable, hardwired input/output.
4N-AEAAL-BA	PUPS plus 10 kVA (7 kW), single-phase, 50/60Hz, 173-276V in, 9 minute battery at full UPS load. 200-240V selectable output, hardwired input/output with optional plug-in output receptacle modules.
4N-AEACK-BN	PUPS plus 10 kVA receptacle module (3)L6-30R, (3)5-20R, (2)L5-20R.
4N-AEWAR-G3/G4	Prestige 5 year on-site exchange warranty upgrade for 4N-AEAAH-CM/CT. G4 provides on-site remedial and start-up service.

UPS Monitoring and Unattended Shutdown Software (for above UPS systems only) is included in ServerWorks Manager Kits shipping with all Alphaservers. Order Cable Kit separately.

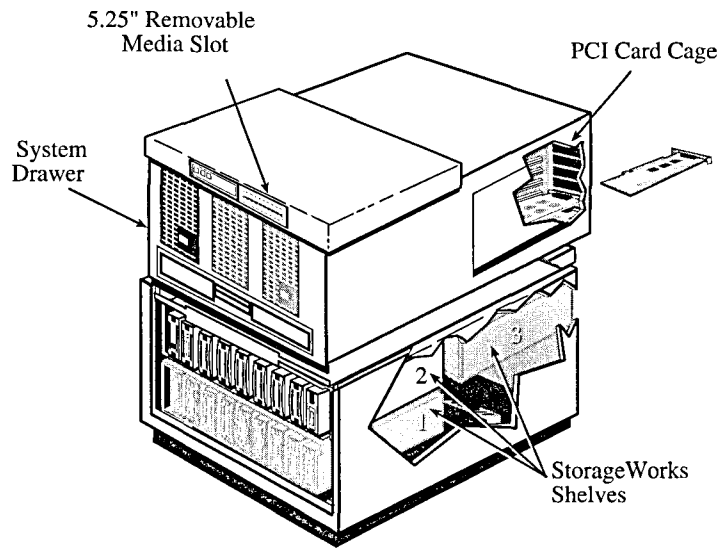
4N-ONLIN-NT	Cable Kit for Windows NT and DIGITAL UNIX
4N-ONLIS-FE	Cable Kit for OpenVMS

Network Management or multi system shutdown (via SNMP or ServerWORKS Manager) for DIGITAL UNIX and OpenVMS requires Network Adapter option.

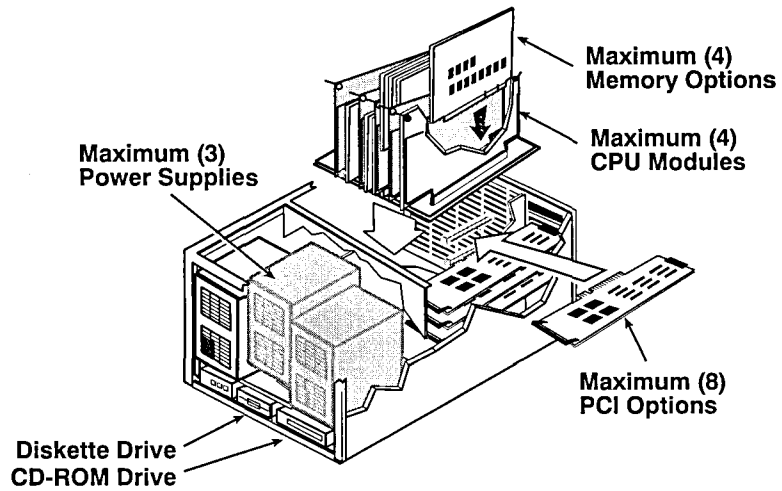
60 Hz Applications	50 Hz Application	Network Adapter Option
4N-AEAEAO-DB/DD	4N-AEAEAO-DB/DD	Prestige 3 kVA RM, DB=Twisted pair; DD=ThinWire
4N-AEAEAO-DA/DC	4N-AEAEAO-DB/DD	Prestige 6 kVA and PUPS Plus UPS, DA/DB=Twisted pair; DC=ThinWire

Note: Multiple system shutdown via OpenVMS requires multi-port hardware option (RN-JMIU4-AB). Ports can be daisy chained in increments of four.


# AlphaServer 4100/4000



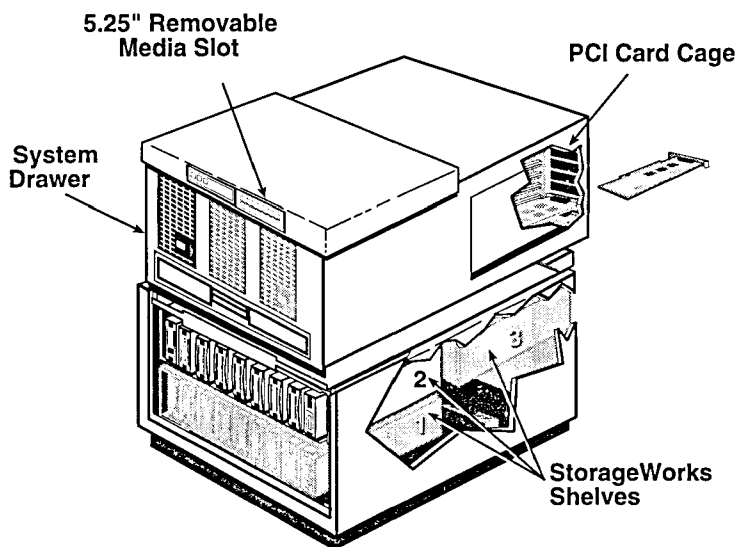
AlphaServer 4100 Pedestal System



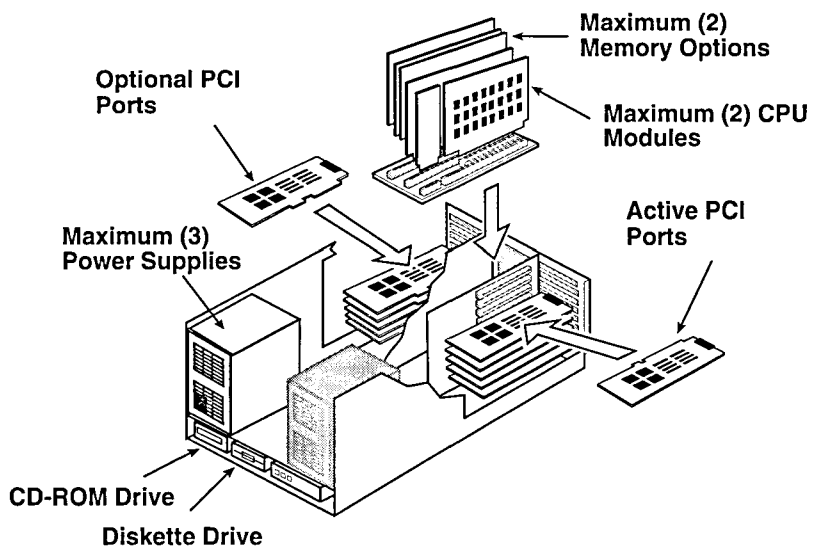
AlphaServer 4100 System Drawer

 = Optional

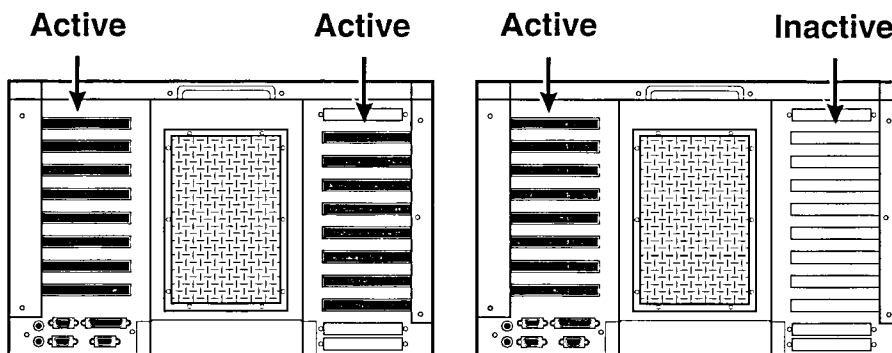
AlphaServer 4100/4000



AlphaServer 4000 Pedestal System



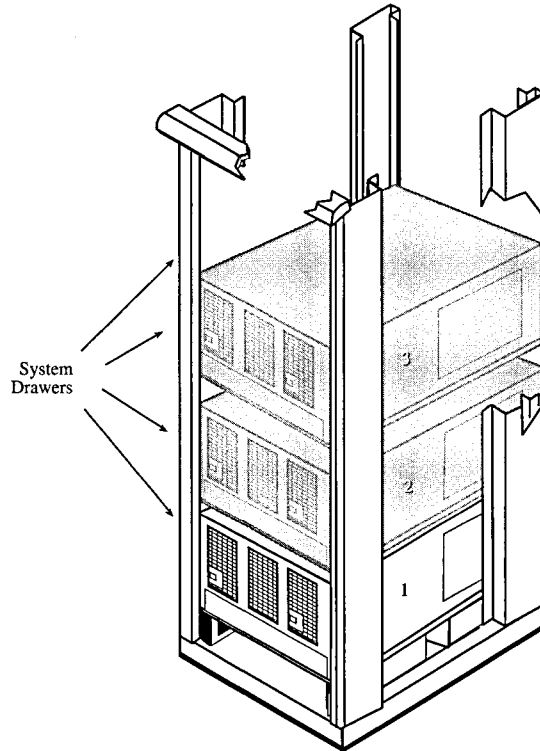
AlphaServer 4000 System Drawer



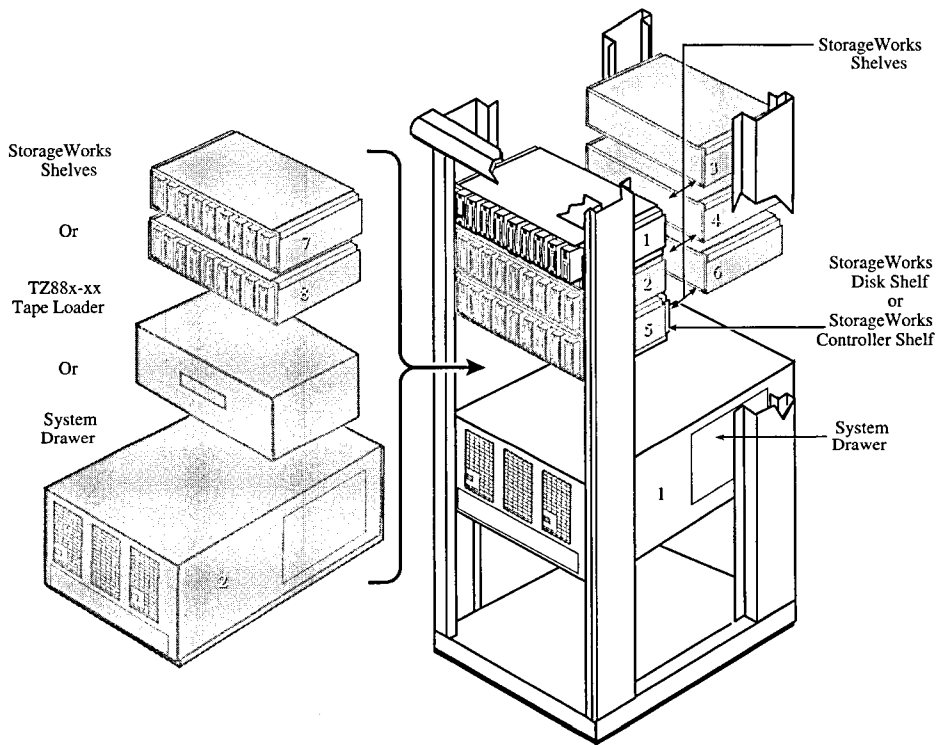
AlphaServer 4000 with 16 Active PCI Slots, includes H7150-AA

AlphaServer 4000 with 8 Active PCI Slots, supports H7150-AA


# AlphaServer 4100/4000



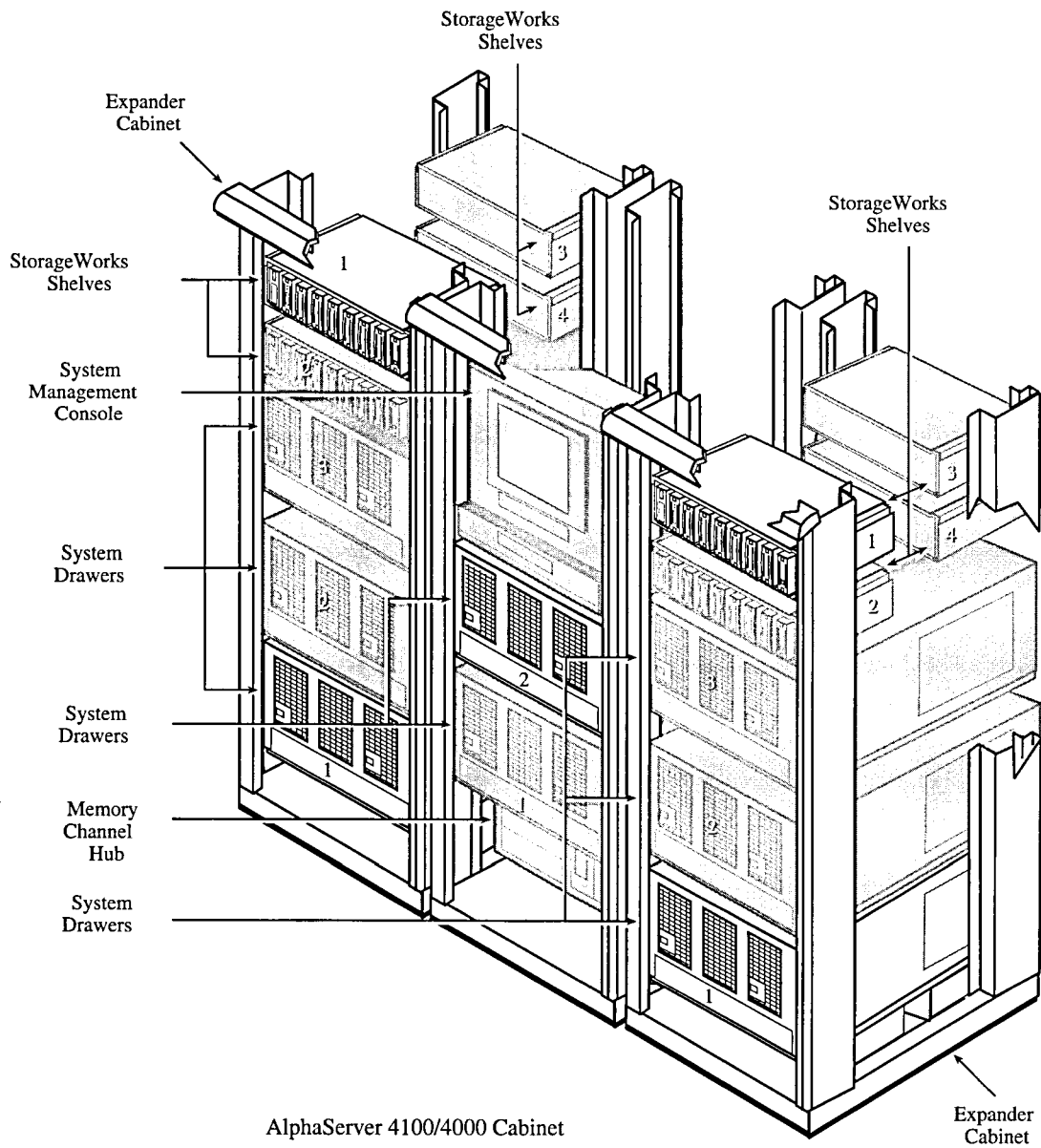
AlphaServer 4100/4000 Cabinet




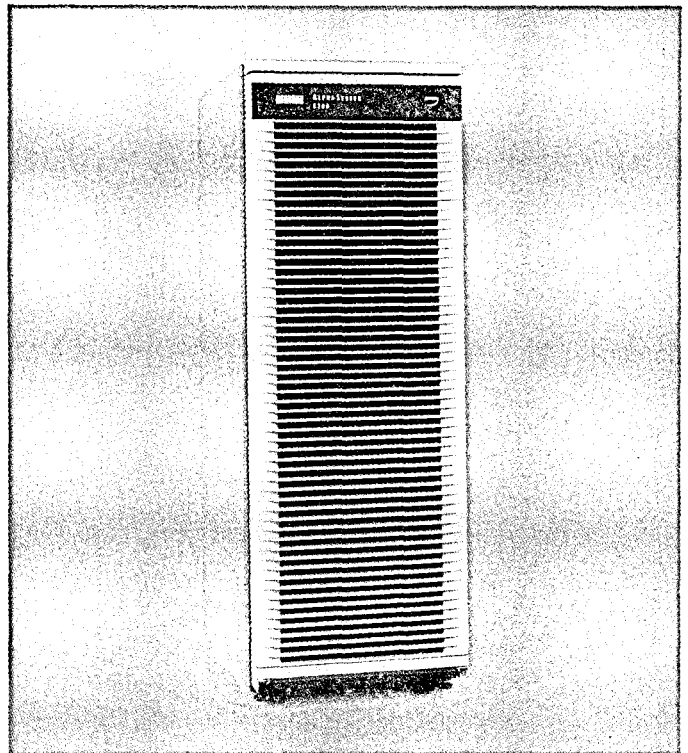
AlphaServer 4100/4000 Cabinet

 = Optional

# AlphaServer 4100/4000



 = Optional



## AlphaServer 8200

### Product Description

AlphaServer 8200 is the highest performance office system in the industry. It can be configured with up to six of the world's fastest microprocessors (Alpha microprocessor 21164) with 5/300 MHz or 5/440 MHz CPUs. With the enormous capacity of the Alpha 64-bit architecture—up to 12 GB of memory, and PCI I/O of up to 108 slots—this server offers room for growth for the largest and most complex applications.

Advanced server management features are provided with all AlphaServer 8200 shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

AlphaServer 8200 runs DIGITAL UNIX or OpenVMS operating systems and offers the reliability and availability features customers require for bet-your-business environments. Clusters, hot swap disks, RAID, redundant power, ECC memory and data paths, fault management, and uninterruptible power system are all available.

Small enterprises and large departments can have an office server with unprecedented performance, capacity, and reliability for those applications previously available on enterprise systems. Large databases, complex simulations, data warehousing, and decision support are examples of the kinds of applications the AlphaServer 8200 can support with ease. And, with up to 12 GB of memory, this office server can provide all the benefits that Very Large Memory/Very Large Database (VLM/VLDB) systems have provided in the past.

**Product Description (continued)**

For technical/scientific users, the AlphaServer 8200 provides supercomputer performance in the office. The AlphaServer 8200 has single processor floating-point performance that dominates the competition in the generic benchmarks and wins at the application level as well.

The AlphaServer 8200 includes a one year hardware warranty, onsite 4 hour response, 5 days per week. System installation is included with the AlphaServer 8200 5/440 system.

**Step 1—Base systems**

- AlphaServer 8200 5/300 Systems require
  - DIGITAL UNIX V3.2B or later, and OpenVMS V6.2 or later
- AlphaServer 8200 5/440 Systems require
  - DIGITAL UNIX V3.2G or DIGITAL UNIX V4.0a, or OpenVMS V6.2-1H3 or V7.1.
- Software media and documentation required for first system on site. See Step 13 for ordering information.
- Console terminal required to install system. See Step 10 unless terminal is available on site.
- Base Servers include 5 slot backplane—three slots are used by CPU module, memory module, and system I/O module (KFTIA-AA).
  - Two slots available for additional CPU, memory, or system I/O module(s).
- CD-ROM drive and SCSI system disk drive (2.1 GB or 4.3 GB) included in BA656 Internal Storage Drawer are connected via single-ended SCSI-2 port on KFTIA-AA system I/O module.
  - Four additional narrow 3.5" StorageWorks devices can be added in BA656 Internal Storage Drawer.
- Universal Single-Phase power supply supplies necessary power for system; requires selection of power cord from Step 2.
- Redundant power supply (N+1) can be added if required.
- For recommended power protection see section after system specifications. UPS Power Management Software is included in ServerWORKS Manager kit. Software communicates with recommended UPS.

**AlphaServer 8200 Base Servers include**

- Processor module with
  - One or two Alpha microprocessor 21164 5/300 MHz CPU(s), each CPU includes 4 MB Backup cache, or
  - Two Alpha microprocessor 21164 5/440 MHz CPUs, each CPU includes 4 MB Backup cache
- System I/O module (KFTIA-AA) includes
  - I/O channel
  - Two twisted-pair 802.3/Ethernet
  - Single-ended SCSI-2 port
  - Three Fast Wide Differential (FWD) SCSI-2 ports
- Three CK-KFTIA-AA Cabinet Kits
- 128, 256, 512 MB, 1 GB, or 2 GB of memory
- BA656 Internal Storage Drawer
- 2 GB 3.5" SCSI disk drive (5/300 systems) or 4.3 GB 3.5" SCSI disk drive (5/440 systems)
- 600 MB CD-ROM drive
- Universal single phase power
- 48 VDC power supply
- Shielded console cable included for connection to console terminal (BC16E-25)
- Factory Installed Software
- 5/300 Operating System Software
  - DIGITAL UNIX base license, DIGITAL NAS Base Server 200 software, **or**
  - OpenVMS base license, DIGITAL NAS Base Server 200 software
- 5/440 Operating System Software
  - DIGITAL UNIX, base license, Unlimited User license, Server Extension license, Internet Access Software license, **or**
  - OpenVMS base license, DIGITAL Enterprise Integration Package (EIP).
- One year hardware product warranty
- 90-day software product warranty
- System installation included with AlphaServer 8200 5/440 Base Servers

5/300 Single-CPU systems	Operating System	Memory	SCSI Disk
DA-281AB-A9	DIGITAL UNIX	128 MB	2.1 GB
DA-281AD-A9	DIGITAL UNIX	512 MB	2.1 GB
DY-281AB-A9	OpenVMS	128 MB	2.1 GB
DY-281AD-A9	OpenVMS	512 MB	2.1 GB
5/300 Dual-CPU systems	Operating System	Memory	SCSI Disk
DA-281BB-A9	DIGITAL UNIX	128 MB	2.1 GB
DA-281BC-A9	DIGITAL UNIX	256 MB	2.1 GB
DA-281BD-A9	DIGITAL UNIX	512 MB	2.1 GB
DA-281BF-A9	DIGITAL UNIX	2 GB	2.1 GB

**Step 1—Base Systems (continued)****AlphaServer 8200 Base Servers**

5/300 Dual-CPU systems	Operating System	Memory	SCSI Disk
DY-281BB-A9	OpenVMS	128 MB	2.1 GB
DY-281BC-A9	OpenVMS	256 MB	2.1 GB
DY-281BD-A9	OpenVMS	512 MB	2.1 GB
DY-281BF-A9	OpenVMS	2 GB	2.1 GB

5/440 Dual-CPU systems	Operating System	Memory	SCSI Disk
DA-282FE-C9	DIGITAL UNIX	1 GB	4.3 GB
DA-282FF-C9	DIGITAL UNIX	2 GB	4.3 GB
DY-282FE-C9	OpenVMS	1 GB	4.3 GB
DY-282FF-C9	OpenVMS	2 GB	4.3 GB

**AlphaServer 8200 Expanded Base Server includes**

- Processor module with
  - Two Alpha microprocessor 21164 5/440 MHz CPUs, each CPU includes 4 MB Backup cache
- System I/O module with four I/O channels (KFTHA-AA)
- 1 GB or 2 GB of memory
- PCI Shelf Mount Box (DWLPB-CA)
- PCI Fast Wide Differential (FWD) SCSI controller (KZPSA-BB)
- DIGITAL Fast Ethernet Network Interface Card
- BA656 Internal Storage Drawer
- SCSI-2 16-bit wide StorageWorks shelf (BA356-JB)
- StorageWorks SCSI Signal Converter (DWZZB-VW)
- BN21K-01 Fast Wide Differential cable
- 4.3 GB 3.5" SCSI disk drive (located in BA356-JB)
- 600 MB CD-ROM drive
- PCI single-ended SCSI controller (KZPAA-AA) and BN21H-02 SCSI cable (connects to CD-ROM)
- Universal single phase power
- 48 VDC power supply
- Shielded console cable included for connection to console terminal
- Factory Installed Software
- 5/440 Operating System Software
  - DIGITAL UNIX base license, Unlimited User license, Server Extension license, Internet Access Software license, **or**
  - OpenVMS base license, DIGITAL Enterprise Integration Package (EIP).
- One year hardware product warranty
- 90 day software product warranty
- System installation included with AlphaServer 8200 5/440 Expanded Base Servers

5/440 Dual-CPU systems	Operating System	Memory	SCSI Disk
DA-282FE-D9	DIGITAL UNIX	1 GB	4.3 GB
DA-282FF-D9	DIGITAL UNIX	2 GB	4.3 GB
DY-282FE-D9	OpenVMS	1 GB	4.3 GB
DY-282FF-D9	OpenVMS	2 GB	4.3 GB

## Step 1a—5/300 System Building Blocks

System Building Blocks are an alternative to standard Base Servers or Expanded Base Servers. They provide flexibility in configuring the AlphaServer 8200 with a choice of memory and I/O options.

### System Building Block Requirements

- Minimum of one memory module
- Minimum of one system I/O module
- SCSI controller
- Systems require DIGITAL UNIX V3.2B or later, and OpenVMS V6.2 or V7.1
- Console terminal required unless available on site
- System includes 5 slot backplane—three slots are used by CPU, memory and system I/O modules
  - Two slots available for additional CPU, memory, or system I/O module(s)
- CD-ROM drive included in BA656 Internal Storage Drawer—SCSI controller **must** be ordered separately
  - BA656 Internal Storage Drawer is restricted to CD-ROM drive only when KZPAA is selected
  - If KFTHA-AA I/O module is selected, the following items must be ordered to provide interface to CD-ROM in BA656 internal storage drawer. If KFTIA-AA I/O module is selected these items are **not** required

**DWLPB-CA** PCI shelf mount box; AlphaServer 8200 system cabinet only, maximum three per cabinet.

**KZPAA-AA** PCI single-ended SCSI controller for CD-ROM connection only—no other SCSI options can be installed in BA656 internal storage drawer if KZPAA is used as CD-ROM interface. KZPAA is restricted as CD-ROM connection only, no other disk or tape connections supported—maximum one per system. Requires BN21H-02 SCSI cable

- If Factory Installed Software is required, BA356-JB and appropriate disk drive and controller **must** be ordered separately.
- Universal single phase power supply will supply necessary power for system. Redundant power supply (N+1) can be added if required.

### AlphaServer 8200 5/300 System Building Blocks include

- Processor module with
  - One or two Alpha microprocessor 21164 300 MHz CPU(s), each CPU includes 4 MB Backup cache
- BA656 Internal Storage Drawer
- 600 MB CD-ROM drive
- Universal single phase power
- 48 VDC power supply
- DIGITAL UNIX base license, **or**
- OpenVMS base license
- DIGITAL NAS Base Server 200 software
- One year hardware product warranty
- 90 day software product warranty

5/300 Single-CPU systems	Operating System	Memory	I/O Module
DA-281AY-A9	DIGITAL UNIX	Required	Required
5/300 Dual-CPU systems	Operating System	Memory	I/O Module
DA-281BY-A9	DIGITAL UNIX	Required	Required
DY-281BY-A9	OpenVMS	Required	Required

**Step 1b—AlphaServer Expansion Packages—DIGITAL UNIX systems only**

DECsafe packages contain all necessary hardware (excluding console terminal) and software to provide a complete and operational system in a DECsafe high availability environment. **Note:** This package is only orderable with a DIGITAL UNIX system configuration. It is **not** orderable as a stand alone, upgrade, or spared on the order.

**8YFEB-EX****DECsafe High Availability SCSI Package includes:**

Six RZ28D-VW 2.1 GB, 3.5" disk drives in BA356-JB shelf  
 TZ87 20 GB, 5.25" SCSI tape drive in second BA356-JB shelf  
 Two DWZZB-VWs to convert Fast Wide Differential (FWD) SCSI signals  
 from KFTIA-AA and KZPSA-BB for use in BA356-JB shelf  
 PCI Plug-in unit (DWLPB-CA), with KZPSA-BB Fast Wide Differential (FWD) SCSI controller  
 BN21K cables and CK-KFTIA-AA cable kit  
 DECsafe Available Server software license kit

**Step 2—Power Cord****BN23H-4E**      **60 Hz**—AC line cord for Single Phase Power, one per cabinet (4.5 meters in length)**BN20P-4E**      **50 Hz**—AC line cord for Single Phase Power, one per cabinet (4.5 meters in length)

**Note:** See Specifications for information on appropriate power cord to order. If redundant supply (H7266-AD/AE) is ordered, power cord is included and does not have to be ordered separately.

**Step 3—Additional CPU Modules (SMP Upgrades)**

- Up to two additional CPU modules can be added to Base Servers, Expanded Base Servers and System Building Blocks—system maximum of three CPU modules.
- Combining 5/300 MHz, 5/350 MHz, and 5/440 MHz CPU modules in the same system is **not** supported.
- For more than two processor modules in a system, a minimum of two memory modules are recommended for optimal system performance.
- All SMP upgrades include processor module with Alpha microprocessor(s), SMP extension license, and end-user product warranty.

5/300 Servers	5/350 Servers	5/440 Servers	Operating System	CPU Module Type
751P2-AX	753P2-AX		DIGITAL UNIX	Single-CPU
752P2-AX	754P2-AX	756P2-AX	DIGITAL UNIX	Dual-CPU
751P1-AX			OpenVMS	Single-CPU
752P1-AX	754P1-AX	756P1-AX	OpenVMS	Dual-CPU

**Step 4—Memory**

- Maximum of 12 GB of memory supported on 5/300 MHz CPUs Rev H07, H08, H09, P08, P09, P10, and all 5/350 and 5/440 MHz CPUs
- For Base Servers two additional memory modules can be added for a system maximum of three.
- System Building Blocks require the selection of one memory module—system maximum of three.
- Maximum of three memory modules is reduced by one for each additional CPU module selected from Step 3 and each system I/O module added from Step 6.
- Memory modules
  - 128 MB through 2 GB memory modules have built in two-way interleaving; additional interleaving is accomplished by adding more memory modules
  - 4 GB memory modules have built in four-way interleaving. Best performance is achieved when two 2 GB modules are paired with one 4 GB module. This set (2 x 2 GB and 1 x 4 GB) can be paired with another 8 GB memory set for a maximum of 16-way memory interleaving.

**MS7CC-BA**      128 MB memory module**MS7CC-CA**      256 MB memory module**MS7CC-DA**      512 MB memory module

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**Step 4—Memory (continued)**

MS7CC-EA	1073 MB memory module
MS7CC-FA	2147 MB memory module
MS7CC-GA <sup>1</sup>	4294 MB memory module

1. Supported on 5/300 MHz CPUs Rev H07, H08, H09, P08, P09, P10, and all 5/350 and 5/440 MHz CPUs.

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**Step 4a—Memory Upgrades**

Memory upgrades are field installed only (not configured in Manufacturing).

MS7CC-UA	128 MB memory upgrade (8 MB SIMMs); upgrades 128 MB (-BA) module to 256 MB (-CA) module
MS7CC-UB	512 MB memory upgrade (32 MB SIMMs); upgrades 512 MB (-DA) module to 1 GB (-EA) module

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**Step 4b—Prestoserve Nonvolatile Random Access Memory (NVRAM)**

- Supported on DIGITAL UNIX systems only.
- Maximum one Prestoserve I/O performance enhancement option per system.
- Includes Prestoserve license and documentation kit.

DJ-ML200-BA	4 MB Prestoserve, PCI option—requires DWLPB-CA/CB
DJ-ML200-CA	8 MB Prestoserve, PCI option—requires DWLPB-CA/CB
DJ-ML300-BA	4 MB Prestoserve, KFTIA-AA daughter card mounting—requires KFTIA-AA

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**Step 5—I/O Expansion Buses**

PCI I/O bus is available on AlphaServer 8200. Application and system configuration determine maximum configuration. Configuration limits exist at I/O bus level and controller level. Verify maximum number of allowable controllers listed in Controller Configuration Table.

- Each DWLPB-CA/CB (PCI shelf mount box) includes 12 PCI slots and required cable for connection to I/O channel.
- Each PCI shelf mount box requires one I/O channel connection to KFTHA-AA or KFTIA-AA, see Step 6.
- Maximum of nine I/O channels available (KFTIA plus two KFTHAs)

DWLPB-CA	PCI shelf mount box for AlphaServer 8200 system cabinet only—maximum three per cabinet.
DWLPB-CB	PCI shelf mount box for AlphaServer 8200 expansion cabinet only—maximum four per cabinet.
KFE70-BA	EISA Bridge option; PCI to EISA bridge module set—must reside in first DWLPB-CA in system cabinet only. Converts 12-slot PCI bus to 2 EISA, 6 PCI/EISA, and 2 PCI slots. Includes RX26 diskette drive, mounting hardware, and cables to mount RX26 in processor system unit. Maximum one EISA Bridge option supported per system. This option is required to support KZPSC SCSI RAID controllers. It includes diskette drive required to run the RAID Configuration Utility (RCU).

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## Step 6—System I/O Modules

- KFTIA-AA system I/O module included with Base Server; KFTHA-AA included with Expanded Base Server—any combination of KFTIA or KFTHA modules can be added for a system maximum of three.
  - Maximum nine I/O channels available on AlphaServer 8200 (two KFTHA-AA modules, one KFTIA-AA module).
- System Building Block requires the selection of one I/O module.

<b>KFTHA-AA</b>	<b>System I/O module with four I/O channels</b> for DWLPB-CA/CB boxes.
<b>KFTIA-AA</b>	<b>System I/O module with one I/O channel</b> for DWLPB-CA/CB shelf mount box, includes <ul style="list-style-type: none"> <li>- two 802.3 twisted-pair Ethernet ports—requires BN26M cable per port</li> <li>- one single-ended SCSI-2 port—requires BN21H cable</li> <li>- three FWD (Fast Wide Differential) SCSI-2 ports—requires CK-KFTIA-AA and BN21K cable per port (<b>Note:</b> Base Servers include KFTIA-AA with three CK-KFTIA-AA cabinet kits.)</li> </ul> One of the following optional FDDI daughter cards can be added to KFTIA-AA—see Step 9 for cables. <ul style="list-style-type: none"> <li>- Single attachment station multi-mode fiber card (DEFPZ-AA) <b>or</b></li> <li>- Twisted-pair copper card (DEFPZ-UA)</li> </ul> Prestoserve (DJ-ML300-BA) can be added to KFTIA-AA
<b>BN26M-xx</b>	Ethernet twisted-pair cable; 8-pin MP to 8-pin MP, screened, EIA/TIA Category 5 cable
<b>BN21H-xx</b>	SCSI-2 single-ended cable; 50-pin male straight to 50-pin male straight. Connects KFTIA-AA single-ended SCSI-2 port to StorageWorks shelf.
<b>CK-KFTIA-AA</b>	<b>Cabinet kit for Fast Wide Differential (FWD) SCSI-2 port.</b> One kit required for each used port on KFTIA-AA—maximum three per KFTIA-AA. Cabinet kit includes Y-cable and FWD terminator.
<b>BN21K-xx</b>	SCSI-2 Fast Wide Differential cables; 68-pin male straight to 68-pin male right-angle. Connects KFTIA-AA FWD SCSI-2 ports to DWZZA-VA or DWZZB-VW (cable lengths in meters).
<b>BN21K-02*</b>	Connects from KFTIA FWD port to DWZZB-VW in BA356-JB in system cabinet (front)
<b>BN21K-03*</b>	Connects from KFTIA FWD port to DWZZB-VW in BA356-JB in system cabinet (rear)
<b>BN21K-05/10</b>	Connects from KFTIA FWD port to DWZZB-VW in BA356-JB in expansion cabinet (front or rear) Connects from KFTIA FWD port to DWZZB-VW in BA356-SB in SW500 and SW800 Cabinets

\* Manufacturing may substitute correct cable length depending on configuration.

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## Step 7—Storage Controllers

- KFTIA-AA I/O module included with Base Server; KFTHA-AA I/O module included with Expanded Base Server; System Building Blocks require I/O module.
- DWZZA-AA requires minimum revision E02 for connecting any Fast Wide Differential SCSI-2 port from KFTIA-AA or KZPSA-BB to externally mounted TZ8xx tape loaders.
- DWZZB-VW Fast Wide Differential Single-ended SCSI Converter requires minimum revision A01 for connecting FWD SCSI-2 signals from KFTIA-AA or KZPSA-BB to BA356-JB StorageWorks Shelf.
- System maximum of two KZPSC-AA/BA SCSI RAID controllers.
- Tape and optical devices are not supported on KZPSC SCSI RAID controllers.

### PCI-based Storage Controllers

<b>KZPSA-BB</b>	<b>PCI Fast Wide Differential SCSI Adapter.</b> OpenVMS supports eight per PCI, maximum 26 with OpenVMS V6.2-1H3 per system. DIGITAL UNIX supports eight per PCI, maximum 32 per system (uses one PCI slot). Provides one SCSI-2 bus. The KZPSA supports DECsafe Available Server.
<b>BN21K-xx</b>	SCSI-2 Fast Wide Differential cables—68-pin male straight to 68-pin male right-angle. Connects KZPSA-BB Fast Wide Differential SCSI-2 port to DWZZA-VA or DWZZB-VW.
<b>BN21K-01*</b>	Connects from KZPSA to DWZZB-VW in BA356-JB in system cabinet (front)
<b>BN21K-02*</b>	Connects from KZPSA to DWZZB-VW in BA356-JB in system cabinet (rear)
<b>BN21K-03*</b>	Connects from KZPSA to DWZZB-VW in BA356-JB in expansion cabinet (front or rear)
<b>BN21K-05/10</b>	Connects from KZPSA to DWZZB-VW in BA356-SB in SW500 and SW800 cabinets

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**Step 7—Storage Controllers (continued)**

<b>KZPSC-AA</b>	<b>PCI SCSI RAID Controller with 1 port</b> —OpenVMS and DIGITAL UNIX support two per PCI, maximum two per system (uses one PCI slot). KFE70-BA—EISA Bridge option required. Provides one Fast/wide/single-ended connection. Allows RAID levels 0,1, and 5. Tape drives not supported.
<b>BN31S-1E</b>	1.5 meter wide single-ended SCSI cable. For connections from PCI RAID controller to BA356-JB Wide SCSI StorageWorks Shelf located in same cabinet.
<b>BN31S-02</b>	2.0 meter wide single-ended SCSI cable. For connections from PCI RAID controller to BA356-JB Wide SCSI StorageWorks Shelf.
<b>KZPSC-BA</b>	<b>PCI SCSI RAID Controller with 3 ports</b> —OpenVMS and DIGITAL UNIX support two per PCI, maximum two per system (uses two PCI slots). KFE70-BA—EISA Bridge option required. Provides three Fast/wide/single-ended connections. Allows RAID levels 0,1, and 5. Tape drives not supported.
<b>BN31K-0E</b>	Required for KZPSC-BA to use third port on module. Connects internally from KZPSC-BA module to second PCI slot/bulkhead.
<b>BN31S-1E</b>	1.5 meter single-ended wide SCSI cable. For connections from PCI RAID controller to BA356-JB Wide SCSI StorageWorks Shelf located in same cabinet. One required for each used port on KZPSC-BA module.
<b>BN31S-02</b>	2.0 meter wide single-ended SCSI cable. For connections from PCI RAID controller to BA356-JB Wide SCSI StorageWorks Shelf.
<b>MS100-AA†</b>	16 MB Cache memory option for KZPSC-AA/BA, maximum one per controller, field installable only
<b>MS100-AB†</b>	32 MB Cache memory option for KZPSC-AA/BA, maximum one per controller, field installable only
<b>KZPSC-UB</b>	Battery back-up for Cache memory option
<b>KFPSA-AA</b>	<b>PCI DSSI Adapter (OpenVMS only)</b> —Requires OpenVMS V6.2-1H2 or later; minimum System Console Firmware Revision 3.09. Maximum twelve per PCI, twenty-four per system with OpenVMS V6.2-1H3. (End node only). <b>Note:</b> KFPSA and KFMSB are not supported on same DSSI bus.
<b>BC21Q-xx</b>	External shielded cable (MR/MR connectors) Select required length—09, 16, 25, 50 ft.
<b>BC22Q-xx</b>	External shielded cable (MR/PS connectors) Select required length—16, 25, 50 ft.
<b>CIPCA-AA</b>	<b>PCI-to-CI Adapter (OpenVMS only)</b> —Requires OpenVMS V6.2-1H3 or V7.1, minimum System Console Firmware Revision 4.0-4. Maximum four per PCI, ten per system running OpenVMS V6.2-1H3; maximum four per PCI, 26 per system running OpenVMS V7.1 and System Console Firmware Revision 4.1-6. Uses one PCI slot for adapter and one EISA slot for power only. <b>Note:</b> KFE70 option is <b>not</b> required.
<b>CIPCA-BA</b>	Same as above except uses two PCI slots
<b>BNCIA-xx</b>	Computer interconnect cable sets—Connects CIPCA to Star Coupler. Select required length—10, 20, or 45 m (10 m = 32.8 ft, 20 m = 65.6 ft, 45 m = 147.6 ft)

\* Manufacturing may substitute correct cable length depending on configuration.

† Requires AlphaServer 8200 minimum System Console Firmware Revision 3.2.2, OpenVMS V6.2-1H2 and DIGITAL UNIX V3.2D or later operating system software.

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**Step 8—Storage**

**Note:** When multiple storage devices are configured with the system, specify which devices should be installed inside the system cabinet, inside the system expansion cabinet, or installed in the external StorageWorks cabinet. Line item sequencing will allow Manufacturing to configure storage options in the appropriate cabinet.

- List storage options to be integrated in system cabinet immediately following system part number.
- List storage options to be integrated in StorageWorks cabinet immediately following StorageWorks cabinet part number.
- Order appropriate BN21x-xx SCSI cables for connecting controllers and storage options.

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## Step 8a—Internal Storage (System Cabinet)

Wide SCSI devices are supported in BA356-JB Wide SCSI StorageWorks shelves inside the System cabinet. They are also supported in external StorageWorks cabinets via BA356-SB rackmount options for the SW500 and SW800 cabinets. The BA356-JB includes BA35X-HG 48V/150W DC power supply and BA35X-RD metric mounting hardware.

System cabinet provides space for up to six BA356 StorageWorks shelves; each shelf holds a maximum of two 5.25" devices and one 3.5" device or seven 3.5" devices. Typical configurations require a signal converter, i.e., DWZZB-VW which counts as one 3.5" device.

- DWZZB-VW is a Fast Wide Differential to Fast Wide Single-Ended Converter.
- BA656 Internal Storage Drawer included in base systems; provides space for four additional narrow 5400 RPM and 7200 RPM SCSI 3.5" devices.
- BA356-JB StorageWorks shelves support narrow and wide SCSI 5400 RPM and 7200 RPM disk drives.

### Wide SCSI Options

- StorageWorks shelves (BA356-xx) are normally configured in single bus mode (seven SCSI devices per shelf). To configure BA356-xx shelf in split-bus mode the following options are required
  - Split-bus terminator (BA35X-ME)
  - SCSI controller for each active SCSI port
  - SCSI cables to connect each controller to BA356-xx shelf

<b>BA356-JB</b>	<b>Wide SCSI-2 StorageWorks Shelf</b> —includes 16-bit I/O personality module, 48V/150W DC power supply, DC fans, and rackmounting hardware. Supports 16-bit wide SCSI devices and some 8-bit narrow SCSI devices depending on compliance with minimum revision levels.
<b>DWZZB-VW</b>	<b>Wide SCSI-2 StorageWorks Signal Converter</b> —required to convert FWD signals from KFTIA-AA and KZPSA-BB for use in the BA356-JB StorageWorks shelves.
<b>BA35X-MG</b>	<b>8-bit I/O Personality Module</b> —can be used in place of 16-bit I/O personality module for direct connection to narrow single-ended controllers, field installable only.

### 16-bit Wide Drives

<b>DS-RZ26N-VZ</b>	1.05 GB 16-bit 5400 RPM SCSI-2 disk drive in 3.5" carrier (OpenVMS V6.2-1H3,DIGITAL UNIX V3.2G)
<b>DS-RZ28M-VZ</b>	2.1 GB 16-bit 5400 RPM SCSI-2 disk drive in 3.5" carrier (OpenVMS V6.2-1H3,DIGITAL UNIX V3.2G)
<b>RZ28D-VW</b>	2.1 GB 16-bit 7200 RPM SCSI-2 disk drive in 3.5" carrier
<b>RZ29B-VW</b>	4.3 GB 16-bit 7200 RPM SCSI-2 disk drive in 3.5" carrier

### 8-bit Narrow Drives

<b>RZ26N-VA</b>	1.05 GB 8-bit 5400 RPM SCSI-2 disk drive in 3.5" carrier
<b>RZ28M-VA</b>	2.1 GB 8-bit 5400 RPM SCSI-2 disk drive in 3.5" carrier
<b>RZ28D-VA</b>	2.1 GB 8-bit 7200 RPM SCSI-2 disk drive in 3.5" carrier
<b>RZ29B-VA</b>	4.3 GB 8-bit 7200 RPM SCSI-2 disk drive in 3.5" carrier

**Note:** To ensure 16-bit wide SCSI operation, use wide SCSI drives with wide SCSI controllers in wide SCSI StorageWorks shelves with wide SCSI cables. See *Storage Devices*—StorageWorks Supported Devices for 8-bit and 16-bit Expansion Table for minimum hardware revision levels.

### Tape Devices

**Note:** Tape and Optical Devices not supported on KZPSC SCSI RAID controller

<b>TLZ09-VA</b>	8.0 GB DAT 3.5" SCSI tape drive in StorageWorks carrier. OpenVMS V6.2-1H3 and DIGITAL UNIX V3.2C required along with System Console Firmware Revision 3.0-9.
<b>TLZ9L -VA</b>	32/64 GB DAT tape loader in StorageWorks carrier
<b>TKZ9E -VA</b>	2/5/7/10/14 GB 8 mm helical scan tape drive in 5.25" StorageWorks carrier
<b>TZ87-VA</b>	20.0 GB DLT 5.25" SCSI tape drive in StorageWorks carrier
<b>TZ88N-VA</b>	20/40 GB DLT 5.25" SCSI tape drive in StorageWorks carrier
<b>TZ89N-VA</b>	35/70 GB DLT 5.25" SCSI tape drive in StorageWorks carrier

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**Step 8a—Internal Storage (System Cabinet) (continued)**
**Solid State Disks**

Supported with KZPSC, KZPSA, KFTIA—cannot be combined with RZxx disks/tapes on same SCSI bus

<b>EZ31-VW</b>	134 MB Solid State Disk; requires OpenVMS V6.2 or later and DIGITAL UNIX V3.2C or later
<b>EZ32-VW</b>	268 MB Solid State Disk; requires OpenVMS V6.2 or later and DIGITAL UNIX V3.2C or later
<b>EZ64-VA/VW</b>	475 MB Solid State Disk; requires OpenVMS V6.2 or later and DIGITAL UNIX V3.2C or later
<b>EZ69-VA/VW</b>	950 MB Solid State Disk; requires OpenVMS V6.2 or later and DIGITAL UNIX V3.2C or later

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**Step 8b—External Storage (I/O Expansion Cabinet)**

I/O expansion cabinet (H9B10-EA) provides space for a maximum of 16 BA356-JB SCSI StorageWorks shelves and a maximum of four DWLPB-CB PCI shelf mount boxes. Disk and tape drives supported are the same as Step 8a Internal Storage. See configuration limitations in Step 11b.

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**Step 8c—External Storage**

The following list describes available disk storage devices, capacities, and shelf type, and available tape drives. These supported options can be added as required.

<b>Storage Cabinets</b>	<b>Capacity</b>	
<b>SW5XX, SW8XX</b>	6–227 GB	
<b>SCSI Disk Drives</b>		
<b>RZ26N-VA</b>	1.05 GB	Narrow
<b>RZ28M-VA, RZ28D-VA</b>	2.1 GB	Narrow
<b>RZ29B-VA</b>	4.3 GB	Narrow
<b>RZ26N-VW</b>	1.05 GB	Wide
<b>RZ28M-VW, RZ28D-VW</b>	2.1 GB	Wide
<b>RZ29B-VW</b>	4.3 GB	Wide
<b>Tape Drives</b>		
<b>TZ87, TZ857*, TZ877, TZ88, TZ885, TZ887, TSZ07, TLZ09, TKZ9E, TLZ9L, TKZ60, TKZ61, TKZ62, TL810, TL812, TL820, TL822, TL826, DS-TL893-BA, DS-TL894-BA, DS-TL896-BA</b>	See <i>Storage Devices</i> for ordering information.	
<b>Optical Libraries</b>		
<b>RW546-ZA</b>	36 GB Optical Library, 2 drives	
<b>RW551-ZC</b>	73 GB Optical Library, 2 drives	
<b>RW552-ZF</b>	147 GB Optical Library, 4 drives	
<b>RW555-ZF</b>	294 GB Optical Library, 4 drives	
<b>RW557-ZF</b>	547 GB Optical Library, 6 drives	

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\* Loader support for DIGITAL UNIX is available via DECnsr.

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## Step 9—Networks and Communications

Two twisted-pair 802.3/Ethernet controllers on KFTIA-AA system I/O module are included with each Base Server; DE500 network interface card included with Expanded Base Server. See Step 6 for twisted-pair Ethernet cable part number. Optional DEFPZ-AA/UA (FDDI) daughter card can be installed on KFTIA-AA system I/O module. Select additional devices if required. **Note:** Connection of system to Ethernet requires twisted-pair cable. *See Network Products Guide* for details.

### LAN Communications Controllers—KFTIA-AA daughter cards

- Maximum one FDDI controller daughter card per KFTIA-AA I/O module
- System maximum of three FDDI controller daughter cards.

<b>DEFPZ-AA</b>	<b>FDDI controller Fiber—Single attachment station</b> —daughter card for mounting on KFTIA-AA. Requires BN24x cable.
<b>BN24E-xx</b>	Fiber-Optic Cable, Dual 2.5 mm Bayonet “ST” type connectors
<b>BN24D-xx</b>	Fiber-Optic Cable, Dual 2.5 mm Bayonet “ST” type connector to FDDI “MIC” connector
<b>DEFPZ-UA</b>	<b>FDDI controller Fiber—Twisted-pair copper</b> —daughter card for mounting on KFTIA-AA. Requires BN26x cable.
<b>BN26M-xx</b>	8-pin MP to 8-pin MP, screened, EIA/TIA Category 5 cable
<b>BN26S-xx</b>	8-pin MP to 8-pin MP, screened, crossover, EIA/TIA Category 5 cable

### LAN Communications Controllers—PCI based

- Requires DWLPB-CA/CB, PCI shelf mount box.
- System maximum of six DEFPZ-AA/DB/UB/MB FDDI controllers.

<b>DE450-CA</b>	<b>PCI-to-Ethernet 3-port Adapter</b> (uses one PCI slot). OpenVMS (V6.2) and DIGITAL UNIX (V3.2C) support eight per PCI, maximum eight per system. Two patch kits required to support DE450 with OpenVMS V6.2.
<b>DE450-TA</b>	<b>PCI-to-Ethernet 1-port Adapter</b> (uses one PCI slot). OpenVMS (V6.2) and DIGITAL UNIX (V3.2C) support eight per PCI, maximum eight per system. Two patch kits required to support DE450 with OpenVMS V6.2.
<b>DE500-AA</b>	<b>Fast Ethernet (100 Mbit) PCI Adapter</b> (uses one PCI slot). OpenVMS (V6.2 and V7.1) and DIGITAL UNIX (V3.2C) support eight per PCI, maximum eight per system.
<b>DE500-XA</b>	<b>Fast Ethernet (100 Mbit) PCI Adapter</b> (uses one PCI slot). OpenVMS (V6.2 and V7.1) and DIGITAL UNIX (V3.2C) support eight per PCI, maximum eight per system.
<b>DEFPZ-AA</b>	<b>FDDI controller Fiber—Single attachment station MultiMode Fiber</b> (uses one PCI slot). OpenVMS and DIGITAL UNIX support six per DWLPB, maximum six per system with DIGITAL UNIX V3.2G and OpenVMS V6.2-1H3 operating system releases. Requires BN34x “SC” type connecting cable.
<b>DEFPZ-DB</b>	<b>FDDI controller Fiber—Dual attachment station MultiMode Fiber</b> (uses one PCI slot). OpenVMS and DIGITAL UNIX support six per DWLPB, maximum six per system with DIGITAL UNIX V3.2G and OpenVMS V6.2-1H3 operating system releases. Requires BN34x “SC” type connecting cable.
<b>BN34A-xx</b>	MultiMode Fiber Optic Duplex cable—“SC” connector to “ST” connector
<b>BN34B-xx</b>	MultiMode Fiber Optic Duplex cable—“SC” connector to “SC” connector
<b>BN34D-xx</b>	MultiMode Fiber Optic Duplex cable—“SC” connector to “MIC” connector
<b>DEFPZ-MB</b>	<b>FDDI controller Copper—Dual attachment station UTP</b> (uses one PCI slot). OpenVMS and DIGITAL UNIX support six per DWLPB, maximum six per system with DIGITAL UNIX V3.2G and OpenVMS V6.2-1H3 operating system releases. Requires BN26x or BN25H connecting cables.

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**Step 9—Networks and Communications (*continued*)**
**LAN Communications Controllers—PCI based**

<b>DEFPA-UB</b>	<b>FDDI controller Copper—Single attachment station UTP</b> (uses one PCI slot). OpenVMS and DIGITAL UNIX support six per DWLPB, maximum six per system with DIGITAL UNIX V3.2G and OpenVMS V6.2-1H3 operating system releases. Requires BN26x or BN25H connecting cables.
<b>BN26M-xx</b>	8-pin MP to 8-pin MP, screened, EIA/TIA Category 5 cable
<b>BN26S-xx</b>	8-pin MP to 8-pin MP, screened, crossover, EIA/TIA Category 5 cable
<b>BN25H-03</b>	3-meter Unshielded twisted pair RJ45 connectors
<b>DGLPB-AB</b>	<b>ATMworks 350 ATM PCI bus adapter</b> (uses one PCI slot). DIGITAL UNIX V4.0a supports four per PCI, maximum four per system.

**LAN Communications Controllers—EISA based**

- Requires DWLPB-CA and KFE70-BA, EISA bridge module set.
- See EISA Bus IRQ Address Table.

<b>DNSES-AA</b>	<b>Synchronous Communications Controller</b> (uses one EISA slot). DIGITAL UNIX supports two per EISA, maximum two per system. Requires BC19x cable.
<b>BC19B-02</b>	EIA-422-A/V.11 adapter cable; can be extended with BC55D-33
<b>BC19D-02</b>	EIA-232-D/V.24 adapter cable; can be extended with BC22F-xx
<b>BC19E-02</b>	EIA-423-A/V.10 adapter cable; can be extended with BC55D-33
<b>BC19F-02</b>	V.35 adapter cable; can be extended with BC19L-25
<b>DW300-AA</b>	<b>Token Ring Adapter</b> (uses one EISA slot) DIGITAL UNIX supports one per EISA, maximum one per system. Requires BN26M cable.
<b>BN26M-xx</b>	802.5/Token Ring twisted-pair cable; 8-pin MP to 8-pin MP, screened, EIA/TIA Category 5 cable
<b>CXI01-AA</b>	<b>Digiboard Asynchronous Xem/ISA Multiport Serial Card with 16 RJ45 PORTS/Xem Port</b> (uses one EISA slot) supports one per EISA, maximum one CXI01-AA/AD per system. Supported on DIGITAL UNIX systems only.
<b>CXI01-AB</b>	<b>Digiboard PORTS/Xem, 16 RJ45 Port Concentrator</b> mounts separately from PCI bus. Maximum of three CXI01-AB can be attached to CXI01-AA; provides up to 48 additional ports. Supported on DIGITAL UNIX systems only.
<b>CXI01-AD</b>	<b>Digiboard Asynchronous EPC/X Multiport Serial Card with 16 RJ45 Port EPC/CON-16 Concentrator</b> —(uses one EISA slot) supports one per EISA, maximum one CXI01-AA/AD per system. Supported on DIGITAL UNIX systems only.
<b>CXI01-AE</b>	<b>Digiboard EPC/CON-16 Concentrator</b> mounts separately from PCI bus. Maximum of three CXI01-AE can be attached to CXI01-AD; provides up to 48 additional ports. Supported on DIGITAL UNIX systems only.
<b>CXI01-AC</b>	Digiboard RJ45 to DB25 Male Converter
<b>CXI01-AF</b>	Digiboard RJ45 to DECMJ11 Adapter—Eight per package

**Local and Wide Area Communications Servers**

Each communications server requires 802.3/Ethernet connection. Depending on server selected, either ThinWire BNC-type connection (e.g., BC16M cable) or thick wire 15-pin AUI transceiver cable (e.g., BNE3x) is required. Additional items also required—see the *Network Products Guide*.

**Network Connectivity Products**

See *Network Products Guide* for details.

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**Step 9a—MEMORY CHANNEL Controller**
**DIGITAL UNIX Systems**

- Requires DIGITAL UNIX V3.2E (DIGITAL UNIX V3.2D plus TruCluster software or MEMORY CHANNEL Driver software).
- Each system node in a MEMORY CHANNEL cluster requires a software license.
- Servers in a compute-server array require a DIGITAL UNIX Driver for MEMORY CHANNEL License.
- Servers in a TruCluster high-availability environment require a license for TruCluster for DIGITAL UNIX.
- The following options are not currently supported with MEMORY CHANNEL: DJ-ML200, DNSSES-AA, CIPCA, CIXCD

**OpenVMS Systems**

- Requires OpenVMS V7.1 and OpenVMS Cluster license
- On systems with DWLPA-CA/CB and no other PCI option(s) and/or KFE70-BA, a maximum of **two** CCMAA-AA modules are supported.
- On systems with DWLPA-CA/CB and any PCI option(s) and/or KFE70-BA, a maximum of **one** CCMAA-AA module are supported.
- DWLPB-CA/CB option **does not** have the restrictions of the DWLPA-CA/CB
- DNSSES-AA is not currently supported with MEMORY CHANNEL.

**MEMORY CHANNEL requirements for AlphaServer 8200 systems:**

- Console firmware at revision V2.3 or higher.
- CCMAA-BA Adapter must be installed in slots 0-7 of a DWLPA-CA PCI; no restriction for DWLPB-CA PCI bus.
- For two-system nodes, order one CCMAA-BA per system and one BC12N-10 cable to connect them.
- For three or more system nodes, order CCMHA-AA (MEMORY CHANNEL Hub) one CCMAA-BA and one BC12N-10 cable per system node.
- CCMHA-AA (MEMORY CHANNEL Hub) is configured with four CCMLA-AA Line Cards and supports up to four nodes. Expansion up to eight system nodes can be achieved by adding up to four additional CCMLA-AA Line Cards, except Trucluster Production Server configurations.

CCMAA-BA	PCI to MEMORY CHANNEL controller—Maximum two supported
CCMHA-AA	MEMORY CHANNEL Hub with 4 Line Cards
CCMLA-AA	MEMORY CHANNEL Line Card for use with MEMORY CHANNEL Hub (CCMHA-AA)
BC12N-10	MEMORY CHANNEL Cable
QB-3RLAQ-AA	TruCluster Software for DIGITAL UNIX
QB-4ZCAQ-AA	DIGITAL UNIX Driver for MEMORY CHANNEL license
QL-MUZAQ-AA	OpenVMS Cluster license for Alpha systems

CCMHA-AA, MEMORY CHANNEL Hub, includes BN19P-2E line cord for Canada, Japan, US operation. For other regions, order one of the following:

BN19A-2E	Ireland, United Kingdom
BN19S-2E	Egypt, India
BN19C-2E	Central Europe
BN18L-2E	Israel
BN19E-2E	Switzerland
BN24X-2E	Italy
BN19K-2E	Denmark
BN19H-2E	Australia, New Zealand

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## Step 10—Console Terminal

- Console terminal with EIA-232 25-pin DSUB connector and printer required unless otherwise available.
- Shielded console cable is included for connection to the console terminal.

VT510-xx	VT510 terminal
LA30N-xx	LA30 printer
LK411-xx	Keyboard

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## Step 11—Expansion—System Cabinet and I/O Expansion Cabinet

### Step 11a—System Cabinet

- System Cabinet includes one single-phase power supply.
  - provides space for additional redundant (N+1) power supply.
- BA656 Internal Storage Drawer included in system cabinet; provides space to accommodate four additional 3.5" narrow SCSI devices including one tape device.
- Provides space for six BA356-JB SCSI StorageWorks Shelves, three DWLPB-CA (PCI shelf mount boxes) or combination of StorageWorks and PCI shelves.
  - For each DWLPB-CA placed in system cabinet, subtract two BA356-JB shelves from maximum available. Example: One DWLPB-CA in system cabinet allows for a maximum of four BA356-JB shelves.

Shelf Mount Boxes	Quantity
StorageWorks shelves (BA356-JB)	6 maximum (see limits above)
PCI shelf mount box (DWLPB-CA)	3 maximum

### Step 11b—I/O Expansion Cabinet

- I/O expansion cabinet includes one single-phase power supply.
  - provides space for additional redundant (N+1) power supply.
- Maximum four I/O channels supported in each I/O expansion cabinet.
- Space for 16 BA356-JB SCSI StorageWorks Shelves, four DWLPB-CB (PCI Rack mount boxes) or combination StorageWorks and PCI shelves.
  - For each DWLPB-CB placed in expansion cabinet, subtract two BA356-JB shelves from maximum available. Example: Three DWLPB-CB in expansion cabinet allows for a maximum of ten BA356-JB shelves.

Shelf Mount Boxes	Quantity
StorageWorks shelf (BA356-JB)	16 maximum (see limits above)
PCI shelf mount box (DWLPB-CB)	4 maximum

**H9B10-EA** I/O Expansion Cabinet—Single Phase power, maximum two per system

**Note:** See Step 2 for selection of appropriate power cord—one per I/O expansion cabinet. If redundant supply (H7266-AD/AE) is ordered, power cord is not required.

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## Step 12—Power Options

- Power options are available for AlphaServer 8200 system and expansion cabinets.
- System cabinet and expansion cabinet includes one power supply (H7266-AA)—200-240 VAC input voltage, 48VDC, 2400 watt, output supply.
- Power system supports N+1 power redundancy and battery backup capability.
- If redundant power supply is ordered, power cord in Step 2 no longer required.

<b>H7266-AD</b>	Single Phase 48V DC redundant power supply—60 Hz power connector, maximum one per cabinet
<b>H7266-AE</b>	Single Phase 48V DC redundant power supply—50 Hz power connector, maximum one per cabinet

**Note:** See Specifications for information on appropriate power supply to order.

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### Step 12a—Battery Backup Options

- Optional battery backup requires addition of H7267-AA to each power supply in system cabinet and expansion cabinets.
- Battery backup provides up to 5 minutes of capacity to power contents of system and expansion cabinets.

**H7267-AA** Battery Backup Option Kit—Includes batteries, charger board, installation manual for adding battery backup operation to one power supply (H7266-AA, H7266-AD, H7266-AE). Can be field installed.

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### Step 12b—Power Option for BA356 StorageWorks Shelves

- Provides N+1 power for BA356-JB StorageWorks shelves.
- Occupies one slot in StorageWorks shelf.

**BA35X-HG** 48V DC 150W Redundant Power Supply for StorageWorks shelf; includes 48VDC jumper cable for connecting to first power supply in StorageWorks shelf.

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### Step 13—Software

Select user licenses and additional software as required. **Note:** Media and documentation required for first system on site.

#### Software Processor Code = Q

#### DIGITAL UNIX Concurrent Use Licenses

DIGITAL UNIX Concurrent Use licenses are not specific to a single system and can be moved from one system to another at user discretion.

**Note:** DIGITAL UNIX 8200 5/440 Mhz CPU Base Servers and Expanded Base Servers include Traditional Unlimited user license.

<b>QL-MT7AM-3B</b>	DIGITAL UNIX Concurrent Use 1-user license
<b>QL-MT7AM-3C</b>	DIGITAL UNIX Concurrent Use 2-user license
<b>QL-MT7AM-3D</b>	DIGITAL UNIX Concurrent Use 4-user license
<b>QL-MT7AM-3E</b>	DIGITAL UNIX Concurrent Use 8-user license
<b>QL-MT7AM-3F</b>	DIGITAL UNIX Concurrent Use 16-user license
<b>QL-MT7AM-3G</b>	DIGITAL UNIX Concurrent Use 32-user license
<b>QL-MT7AM-3H</b>	DIGITAL UNIX Concurrent Use 64-user license
<b>QL-MT7AQ-AA*</b>	DIGITAL UNIX Traditional unlimited user license
<b>QL-MT5AQ-AA</b>	DIGITAL UNIX developer's extension license
<b>QL-MT6AQ-AA*</b>	DIGITAL UNIX server extension license
<b>QL-MTJAQ-AA</b>	DECnet/OSI end-system license
<b>QL-MTKAQ-AA</b>	DECnet/OSI extended function license
<b>QB-05SAQ-AA</b>	DECsafe Available Server license and documentation (DIGITAL UNIX only). Media available on layered product CD-ROM. KZMSA or KZPSA adapter required.

\* Included in 5/440 DIGITAL UNIX Base and Expanded Base Servers.

#### DIGITAL UNIX Media and Documentation

<b>QA-MT4AA-H8</b>	DIGITAL UNIX media and on-line documentation (base system, complementary products) on CD-ROM
<b>QA-MT4AA-GZ</b>	DIGITAL UNIX full hardcopy documentation
<b>QA-MT4AB-GZ</b>	DIGITAL UNIX end user hardcopy documentation subkit
<b>QA-MT5AA-GZ</b>	DIGITAL UNIX developer's extension hardcopy documentation subkit
<b>QA-MT6AA-GZ</b>	DIGITAL UNIX server extension hardcopy documentation subkit

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**Step 13—Software (*continued*)**
**OpenVMS Concurrent Use Licenses**

OpenVMS Concurrent Use license provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system. OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.

QL-MT3AA-3B	OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C	OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D	OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E	OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F	OpenVMS Concurrent Use 16-user license
QL-MT3AA-3G	OpenVMS Concurrent Use 32-user license
QL-MT3AA-3H	OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J	OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K	OpenVMS Concurrent Use 256-user license
QL-MT2AQ-AA	OpenVMS Traditional unlimited user license
QL-MTFAQ-AA	DECnet/OSI end-system license
QL-MTHAQ-AA	DECnet/OSI extended function license

**OpenVMS Media and Documentation**

QA-MT1AA-H8	OpenVMS media and documentation on CD-ROM
QA-09SAA-GZ	OpenVMS base hardcopy documentation
QA-001AA-GZ	OpenVMS full hardcopy documentation

**Layered Products CD-ROM**

QA-054AA-H8	Layered products media and documentation for DIGITAL UNIX
QA-03XAA-H8 *	Layered products media and documentation for OpenVMS

\* Includes DIGITAL Enterprise Integration Server for OpenVMS media and documentation

**DIGITAL Enterprise Integration Package—included in 5/440 Base Servers and Expanded Base Servers**

QA-5LVAA-H8	DIGITAL Enterprise Integration Server for OpenVMS media and documentation
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**DIGITAL NAS Base Server 200 Software**

DIGITAL NAS Base Server 200 software included in AlphaServer 8200 5/300 MHz CPU Base Servers and Expanded Base Servers. Media available on layered product CD-ROM.

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**Step 14—Hardware and Software Supplemental Support Services**
**Hardware—Americas and Asia Pacific only**

- Systems include one-year hardware warranty, on-site, same day, 4-hour response time.
- Select optional Hardware Supplemental Support Services if required.

**AlphaServer 8200**

One CPU less than 2 GB memory	Two CPUs less than 2 GB memory	Two CPUs 2 GB memory	
FM-8U4HR-36	FM-8D4HR-36	FM-8G4HR-36	Years 1-3, 5 x 9, 4-hour response time
FM-8U512-36	FM-8D512-36	FM-8G512-36	Years 1-3, 5 x 12, 4-hour response time
FM-8U616-36	FM-8D616-36	FM-8G616-36	Years 1-3, 6 x 16, 4-hour response time
FM-8U724-36	FM-8D724-36	FM-8G724-36	Years 1-3, 7 x 24, 4-hour response time
FM-8U4HR-60	FM-8D4HR-60	FM-8G4HR-60	Years 1-5, 5 x 9, 4-hour response time
FM-8U512-60	FM-8D512-60	FM-8G512-60	Years 1-5, 5 x 12, 4-hour response time
FM-8U616-60	FM-8D616-60	FM-8G616-60	Years 1-5, 6 x 16, 4-hour response time
FM-8U724-60	FM-8D724-60	FM-8G724-60	Years 1-5, 7 x 24, 4-hour response time

**Software—Americas and Asia Pacific only**

- Systems include 90-day Conformance to SPD and Telephone Advisory Support. Select optional Software Supplemental Support Services, if required.
- Software service upgrades for DIGITAL UNIX and OpenVMS include advisory and remedial software support with new version license rights for operating system and DIGITAL NAS Base Server 200 for the time period indicated.

**AlphaServer 8200 One CPU Systems**

FM-82UOS-12	12-month Software Supplemental Support for DIGITAL UNIX one CPU systems
FM-82UOS-36	36-month Software Supplemental Support for DIGITAL UNIX one CPU systems
FM-82UOS-60	60-month Software Supplemental Support for DIGITAL UNIX one CPU systems

**AlphaServer 8200 One CPU Systems**

FM-82UVM-12	12-month Software Supplemental Support for OpenVMS one CPU systems
FM-82UVM-36	36-month Software Supplemental Support for OpenVMS one CPU systems
FM-82UVM-60	60-month Software Supplemental Support for OpenVMS one CPU systems

**AlphaServer 8200 Two CPU Systems**

FM-82DOS-12	12-month Software Supplemental Support for DIGITAL UNIX two CPU systems
FM-82DOS-36	36-month Software Supplemental Support for DIGITAL UNIX two CPU systems
FM-82DOS-60	60-month Software Supplemental Support for DIGITAL UNIX two CPU systems
FM-82DVM-12	12-month Software Supplemental Support for OpenVMS two CPU systems
FM-82DVM-36	36-month Software Supplemental Support for OpenVMS two CPU systems
FM-82DVM-60	60-month Software Supplemental Support for OpenVMS two CPU systems

**Step 14a—Hardware and Software Supplemental Support Services (Europe only) (continued)**

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Exceleator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

**Optional Controller Configuration Table**

With multiple adapters that provide the same interface available on different I/O buses it is possible to exceed operating system limit on the number of ports supported for that interface. Follow these guidelines for maximum number of ports that each operating system supports. Fill in this table under the relevant area, add up number of controllers/ports available, and verify that operating system limits will not be exceeded. **Do not exceed these values.**

Option Name	A Number of Ports/Buses	B Number of Options	C Total Ports (A * B)	DIGITAL UNIX Limit	OpenVMS Limit
<b>SCSI Options</b>					
Included <b>KFTIA-AA</b> I/O module, one single-ended and three FWD SCSI ports*	4	1	4		
Additional <b>KFTIA-AA</b> I/O module, one single-ended and three FWD SCSI ports	4				
<b>KZPSA-BB</b> PCI fast wide differential SCSI adapter	1				
Add column "C"—must be less than or equal to value listed under operating system to be used.				32	26
<b>802.3/Ethernet Options</b>					
Included <b>KFTIA-AA</b> I/O module, two 802.3/Ethernet ports*	2	1	2		
Additional <b>KFTIA-AA</b> I/O module, two 802.3/Ethernet ports	2				
<b>DE435-AA</b> PCI 802.3/Ethernet controller, DE450 and DE500	1				
Add column "C"—must be less than or equal to value listed under operating system to be used.				8	8
<b>FDDI Options</b>					
Included <b>KFTIA-AA</b> I/O module, optional FDDI daughter card installed ( <b>DEFPZ-AA/UA</b> )*	1				
Additional <b>KFTIA-AA</b> I/O module, optional FDDI daughter card installed ( <b>DEFPZ-AA/UA</b> )	1				
<b>DEFPA-AB/DB/UB/MB</b> PCI FDDI controller, one port each	1				
Add column "C"—must be less than or equal to value listed under operating system to be used.				8	8

\*Applies to Base Servers only.

**Step 14a—Hardware and Software Supplemental Support Services (Europe only)****EISA Bus IRQ Address Table****Configuration Rules and Information**

- EISA Bus IRQ address assignments are for DIGITAL UNIX and OpenVMS systems only.
- In some cases, the maximum number of each supported device is less than number of EISA bus addresses available; this is due to other limitations.
- Only one device can occupy any given IRQ address; if multiples of a device are configured, each device occupies a separate address.
- Match each device to one available address. (Note: With the table as a worksheet, fill in “0” for each device; fill in only one “0” per column).
- Actual IRQ address assignment will be made by EISA Configuration Utility (ECU), which is run during system manufacture, or in the installed system if EISA bus is reconfigured.

Option	EISA Bus IRQ Addresses									Maximum of Each Supported	
	5	7	8	9	10	11	12	14	15	OpenVMS	DIGITAL UNIX
DNSES-AA	–	–	0	0	0	0	0	0	0	0	2
DW300-AA	0	–	–	0	0	0	–	–	0	0	1
CXI01-AA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	1
CXI01-AD	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	1

## Table Codes:

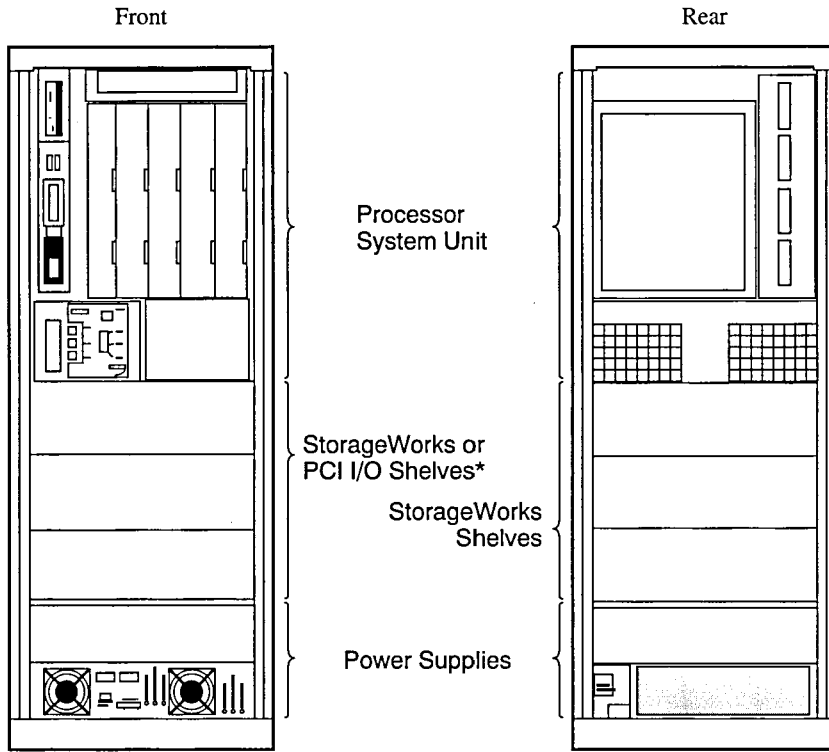
0 = address is available for device

– = address not available for device

NA = Not Applicable

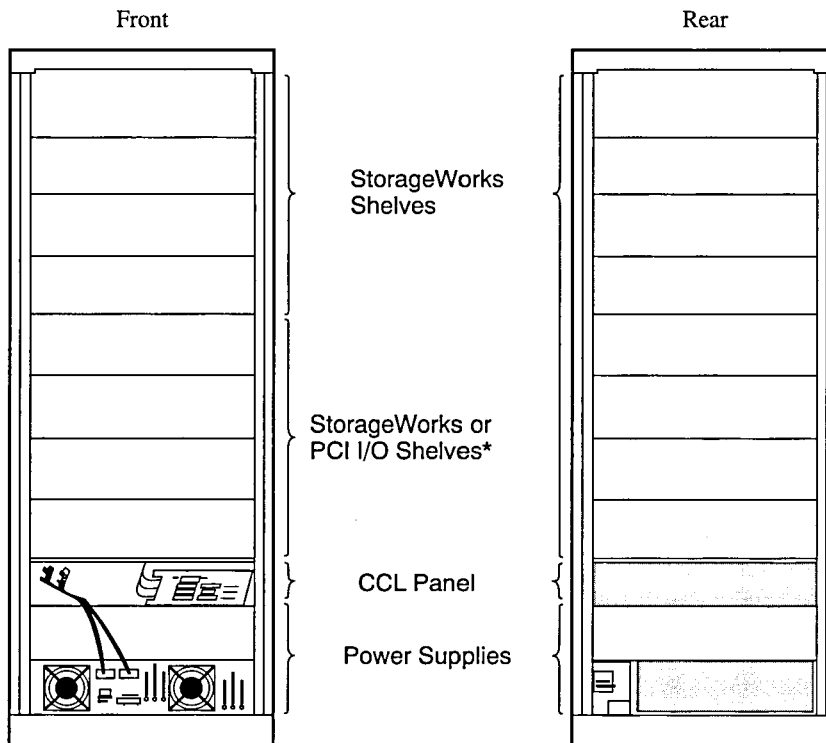
# AlphaServer 8200

## System Cabinet



BU-3480

## Expansion Cabinet



\* A PCI I/O shelf extends into the rear of the cabinet.  
A StorageWorks shelf cannot be located behind a PCI shelf.

BU-3481

# AlphaServer 8200

## Specifications

Physical Characteristics	Operating	Shipping
Height	170.0 cm (67.0 in.)	194.0 cm (76.25 in.)
Width	60.0 cm (23.6 in.)	91.5 cm (36.0 in.)
Depth	92.5 cm (36.4 in.)	121.5 cm (47.9 in.)
Weight		
Minimum configuration	318 kg (700 lb.)	363 kg (800 lb)
Maximum configuration	591 kg ((1300 lb.)	636 kg (1400 lb.)
Clearances	Operating	Service
Front	1.0 m (40 in.)	1.5 m (59 in.)
Rear	.75 m (29.5 in.)	1.0 m (40 in.)
Sides	0	0
Environmental	Operating	Non-Operating
Temperature	10° to 35°C (50° to 95°F)	-40° to 66°C (-40° to 151°F)
Humidity	10% to 90%	10% to 95%
Altitude	0-2.4 km (0-8200 ft)	9,100 m (30,000 ft)
Vibration	2-22 Hz @ 0.01"da minimum	22-500 Hz @ 0.25g max.
Heat dissipation <sup>1</sup>	<b>Minimally configured system<sup>1</sup></b> (system cabinet) 3200 Btu/hr, 930 W  <b>Fully configured system<sup>2</sup></b> (system cabinet) 9100 Btu/hr, 2647 W  <b>Fully configured system<sup>3</sup></b> (system cabinet with two I/O expansion cabinets) 21,300 Btu/hr, 6234 W	
Regulatory		
Agency approvals	UL Listed to UL1950 CSA Certified to CAN/C22.2 No. 950-M89 FCC Part 15 (Class A) CE Declaration #1259	
Reviewed to	EN 60950/A1, Jan. 1993, European Norm AS/NZS 3260:1993, Australian/New Zealand Standard EMKO-TSE{74-SEC} Summary of Nordic Deviations IEC950, 2nd Ed., 2nd Amend.	
Power Requirements <sup>4</sup>	US/Canada/Japan	Europe/AP
Nominal AC input line voltage	202-240 (208) V Japan (202) V	202-240 (240) V
Frequency range	50-60 Hz	50-60 Hz
Phases	Single-phase line-to-line or line-to-neutral	Single-phase line-to-line or line-to-neutral
Maximum input current	16 A rms	16 A rms
Surge current	80 A peak	80 A peak
Rating	16 A	16 A
Power cord part number	BN23H-4E	BN20P-4E
Power cord length	4.5 meters (15 feet)	4.5 meters (15 feet)
Power cap (system)	DEC 12-16886-00 NEMA L6-30P	DEC 12-30333-03
Receptacle	NEMA L6-30R	IEC 309 (32A) <sup>5</sup> 2 Pole/3-Wire (220-240V)
PCS/PDS/PDU/UPS cable	BC26E	

1 Minimally configured system contains one power supply, one CPU module, one memory module, one System I/O module, one CD-ROM, and one RZ28 disk drive.

2 Fully configured system contains two power supplies, one CPU module, two memory modules, two System I/O modules, one CD-ROM, 16 RZ28 drives, two PCI shelves, and two StorageWorks shelves.

3 Fully configured system and two expansion cabinets consists of the above "fully configured system" and two expansion cabinets which each contain one PCI shelf , 14 StorageWorks shelves, and 84 RZ28 disk drives.

4 Power system provides unity power factor which allows full utilization of the input line current (Watts = VA).

5 Receptacle type is Hubbell 332R6 or equivalent.

**Recommended On-Line Power Protection/UPS Solutions for AlphaServer 8200 systems**

For complete protection, UPS products should be used with data line surge protectors. See TVSS section of Environmental Products Chapter.

4N-GA249-AB	2 wire modem	wall plug in (additional plug in data modules available RN-GA240-xx)
4N-GA249-CA	10BaseT	wall plug in (additional plug in data modules available RN-GA240-xx)
4N-GA510-BF	ThinWire	device port
4N-GA245-xx	Din rail and modules	up to 32 ports

UPS Model	Receptacle Module for Plug-in Connection		AlphaServer 8200	External Storage
	60 HZ	50 HZ		
4N-AEAAJ-CL (60 Hz) 4N-AEAAJ-CU (50 Hz)	Included	Hardwired	Single phase	None
4N-AEAAL-BA	4N-AEACK-BN	Hardwired		SW500 or Expansion Cabinet
4N-AEAAN-BA (60 Hz) 4N-AEAAN-BE (50 Hz)	4N-AEACM-BN	Hardwired		SW800

**UPS Models**

4N-AEAAJ-CL	Prestige 6kVA (4kW), single phase, 60 Hz, 208V-120/208V, 6 ft. cord with L6-30P and (2) L6-30R, (8) 5-15R receptacles. Modular hot-swap design with 7 minutes battery at full load, extendible plug and play batteries and receptacle provisions. Unit includes 3 year hot swap warranty. Substitute -CT for 240V-240/120V operation.
4N-AEAAJ-CU	Prestige 6kVA (4kW) 50 Hz package, single phase, 50/60 Hz, 200-240V in and out, selectable; hardwired input/output.
4N-AEAAL-BA	PUPS plus 10kVA (7kW), single-phase, 50/60Hz, 176-276V in, 200-240V out, 9 minutes battery at full load; hardwired with optional plug-in output receptacle modules.
4N-AEAAN-BA	PUPS plus 15kVA (10kW), three-phase, 50/60Hz, 176-256V in, 200-240V out, 10 minutes battery at full load; hardwired with optional plug-in output receptacle modules.
4N-AEAAN-BE	PUPS plus 15kVA (10kW), three-phase, 50/60Hz, International model rated 380/415V in, 380/415/220V out; hardwired input/output.

**Hardware Options**

4N-AEACK-BN	PUPS plus 15kVA receptacle module (3) L6-30R, (3) 5-20R, (2) L5-20R
4N-AEACM-BN	PUPS plus 15kVA receptacle module (2) L21-30R, (1) 5-20R2, (2) L6-30R
4N-AEACH-HD	Mobile module stacker for Prestige 6kVA models (includes seismic supports)

**UPS Monitoring and Unattended Shutdown Software (for above UPS systems only)**

Note: Power Management software is included in ServerWORKS Manager kits shipping with all AlphaServers. Cable kit required, select UPS Communications Cable Kit

DIGITAL UNIX	OpenVMS	UPS System
4N-AEAES-AK	4N-AEAES-EM	Prestige UPS
4N-AEAES-AK	4N-AEAES-FM	PUPS plus UPS
4N-AEAES-BK	Call for information	Network Management or multi shutdown*

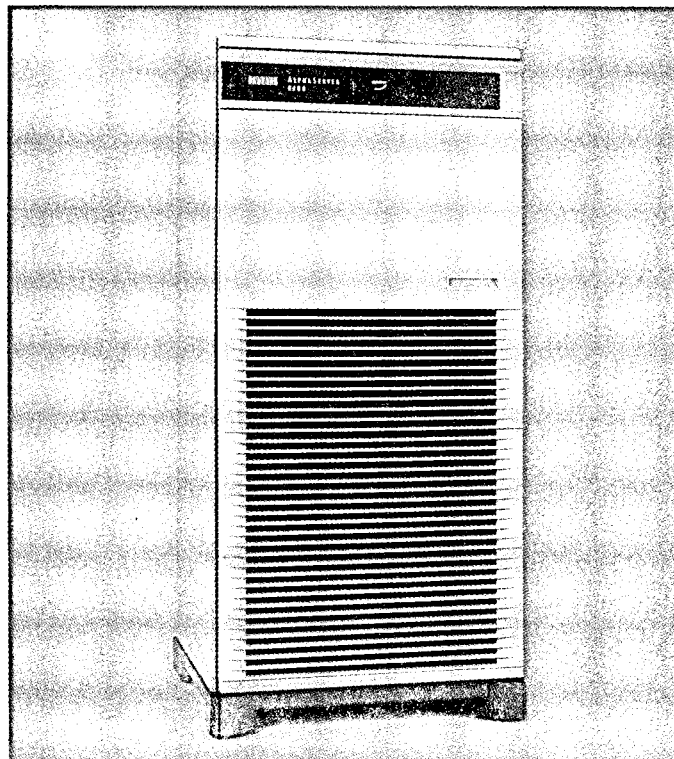
\* Requires Connect-UPS Network Adapter (SNMP compatible) - for DIGITAL UNIX systems, suffixes denote twisted pair/ThinWire  
4N-AEAEO-DA/DC for 60Hz applications  
4N-AEAEO-DE/DD for 50Hz applications

DIGITAL UNIX	OpenVMS	
4N-ONLIN-NT <sup>1</sup>	4N-ONLIS-FE	UPS Communications Cable Kit
4N-AEAEO-D*	4N-JMIU4-AB <sup>3</sup>	4 port Option for multi-systems on one UPS
4N-AEAEO-D* <sup>2</sup>	4N-AEAEO-D* <sup>2</sup>	Option for SNMP/ServerWORKS Manager interface

1. Connect-UPS Network Adapter, required for AlphaServer 8200 DIGITAL UNIX Platform
2. Suffix \* denotes Twisted pair / ThinWire = DA/DC (60Hz); DB/DD (50Hz)
3. Four port multi-interface kit with splitter cable to interface with network adapter and local shutdown signal from UPS. Kits may be daisy chained, kits include software.

**Ala Carte Software kits available for existing installations**

DIGITAL UNIX <sup>1</sup>	OpenVMS	
4N-AEAES-AK	4N-AEAES-EM	Prestige (single system)
4N-AEAES-AK	4N-AEAES-FM	PUPS Plus (single system)
4N-AEAES-BK	See options above	Multi-systems on one UPS or Network Management



## AlphaServer 8400

### Product Description

The AlphaServer 8400—using the world's fastest microprocessors, the Alpha 21164 300 MHz or 440 MHz CPUs—is the world's fastest and highest capacity enterprise server. It is the solution for the most demanding business problems.

Advanced server management features are provided with all AlphaServer 8400 shipments via the bundled ServerWORKS Manager kit. The kit provides remote management capability through Simple Network Management Protocol agents (SNMP) for Windows NT, DIGITAL UNIX and OpenVMS. The management console software runs on any Windows NT or Windows 95 PC. The SNMP agents required to manage the server ship with the TCP/IP services of the operating system (with the exception of Windows NT which ships with the ServerWORKS kit). The SNMP agents collect critical server information including system status, I/O information, storage and disk information and network status information. Thresholds can be set to monitor key server events and alarms are forwarded to the ServerWORKS console. ServerWORKS Manager V2.0 includes remote pager support for alarm notification. In addition to ServerWORKS, DIGITAL includes key third party software applications including DIGITAL Power Management Software for Alpha provided by EXIDE, and application / database management software through BMC software's PATROL family of products.

The AlphaServer 8400 5/300 supports up to 12 processors with 8 GB memory, two processors with 28 GB of memory, and any combination between these maximums, with 1.2 GB/sec (peak) of I/O.

The AlphaServer 8400 5/440 supports up to 14 processors with 4 GB memory, two processors with 28 GB of memory, and any combination between these maximums, with 1.2 GB/sec (peak) of I/O.

The AlphaServer 8400 supports the DIGITAL UNIX and OpenVMS operating systems. For investment protection, DEC and VAX 7000 products can be upgraded to the AlphaServer 8400 in a few hours. The AlphaServer 8400 platform is designed to take full advantage of future generations of Alpha microprocessors.

The AlphaServer 8400 enterprise servers join the AlphaServer line, with high performance PCI I/O, providing up to 144 PCI slots on 12 different physical PCI buses.

**Product Description (continued)**

The AlphaServer 8400 includes a one year hardware warranty, on-site, 4 hour response, five days per week. System installation is included with the AlphaServer 8400 5/440 system.

**Step 1—Base Systems**

- AlphaServer 8400 5/300 Systems require
  - DIGITAL UNIX V3.2B or later, and OpenVMS V6.2 or later
- AlphaServer 8400 5/440 Systems require
  - DIGITAL UNIX V3.2G or DIGITAL UNIX V4.0A, or OpenVMS V6.2-1H3 or V7.1
- Software media and documentation required for first system on site. See Step 13 for ordering information.
- Console terminal required to install system. See Step 11 unless terminal is available on site.
- System includes 9 slot centerplane—three slots used by the CPU module, memory module, and system I/O module (KFTIA-AA).
  - Six slots available for additional CPU, memory, or system I/O module(s).
  - CD-ROM connected via single-ended SCSI-2 port on KFTIA-AA system I/O module.
  - 2 GB or 4.3 GB SCSI system disk drive and DWZZB-VW are located in BA660-AB StorageWorks shelf and connected via Fast Wide Differential (FWD) port on KFTIA-AA system I/O module, using one CK-KFTIA-AA.
  - For recommended power protection see section after system specifications. UPS Power Management Software is included in ServerWORKS Manager kit. Software communicates with recommended UPS.

**AlphaServer 8400 Base Servers include**

- Processor module with
  - Two Alpha microprocessor 21164 5/300 MHz or
  - Two Alpha microprocessor 21164 5/440 MHz
- System I/O module (KFTIA-AA) includes
  - I/O channel
  - Two twisted-pair 802.3/Ethernets
  - Single-ended SCSI-2 port
  - Three Fast Wide Differential (FWD) SCSI-2 ports
- Three CK-KFTIA-AA cabinet kits
- 256 MB, 512 MB, or 2 GB of memory
- BA660-AB StorageWorks Plug-in-unit (PIU)
- 2 GB or 4.3 GB 3.5" SCSI system disk drive
- 600 MB CD-ROM drive
- DWZZB-VW SCSI signal converter
- Three-Phase Power Subsystem with power cord
- One H7263-AC or H7263-AD non-BBU capable 48 VDC power regulator
- Shielded console cable is included for connection to the console terminal
- Factory Installed Software
  - 5/300 Operating System Software
    - DIGITAL UNIX base license,
    - DIGITAL NAS Base Server 200 software, **or**
    - OpenVMS base license,
    - DIGITAL NAS Base Server 200 software
  - 5/440 Operating System Software
    - DIGITAL UNIX base license,
    - Unlimited User license, Server Extension license, Internet Access Software license, **or**
    - OpenVMS base license,
    - DIGITAL Enterprise Integration Package (EIP).
- One year hardware product warranty
- 90 day software product warranty
- System installation included with AlphaServer 8400 5/440 Base Servers

5/300 Dual-CPU systems	Operating System	Power	Memory
DA-291BC-BA/BB/BC	DIGITAL UNIX	Three Phase	256 MB
DA-291BD-BA/BB/BC	DIGITAL UNIX	Three Phase	512 MB
DA-291BF-DA/DB/DC	DIGITAL UNIX	Three Phase	2 GB
DY-291BC-BA/BB/BC	OpenVMS	Three Phase	256 MB
DY-291BD-BA/BB/BC	OpenVMS	Three Phase	512 MB
DY-291BF-DA/DB/DC	OpenVMS	Three Phase	2 GB
5/440 Dual-CPU systems	Operating System	Power	Memory
DA-292FF-CA/CB/CC	DIGITAL UNIX	Three Phase	2 GB
DY-292FF-CA/CB/CC	OpenVMS	Three Phase	2 GB

Note: xA = 60 Hz, 208 V, xB = 50 Hz, 380/416 V, xC = 50/60 Hz, 202 V Japan  
All Three Phase power variations include attached power cord.

**Step 1—Base Systems (continued)****AlphaServer 8400 Expanded Base Servers include:**

- Processor module with
  - Two Alpha microprocessor 21164 5/300 MHz or 5/440 MHz CPUs; each CPU includes 4-MB Backup cache
- System I/O module with four I/O channels (KFTHA-AA)
- 512 MB or 2 GB of memory
- BA660-AB StorageWorks Plug-in-unit
- 2 GB or 4.3 GB 3.5" SCSI system disk drive
- BN21K-02 2-meter SCSI cable(s)
  - Two with 5/300 systems
  - One with 5/440 systems
- DWZZB-VW SCSI signal converter(s)
  - Two with 5/300 systems
  - One with 5/440 systems
- 600 MB CD-ROM drive
- PCI 12 slot Plug-in-unit(s)
  - One DWLPB-AA and one DWLPB-BA with 5/300 systems
  - One DWLPB-AA with 5/440 systems
- PCI Fast Wide Differential SCSI controller(s)
  - Eight KZPSA-BBs with 5/300 DIGITAL UNIX systems
  - Seven KZPSA-BBs with 5/300 OpenVMS systems
  - One KZPSA-BB with 5/440 systems
- PCI Fast Narrow Single-Ended SCSI controller KZPAA-AA for CD-ROM connection only
- DIGITAL Etherworks 32-bit Network Interface Card
- BN21H-02 2-meter SCSI cable
- Two H7263-AC or H7263-AD non-BBU capable 48 VDC power regulators
  - Three-Phase power subsystem **includes** power cord
- Shielded console cable for connection to console terminal
- Factory Installed Software
- 5/300 Operating System Software
  - DIGITAL UNIX base license, DIGITAL NAS Base Server 200 software, **or**
  - OpenVMS base license, DIGITAL NAS Base Server 200 software
- 5/440 Operating System Software
  - DIGITAL UNIX base license, Unlimited User license, Server Extension license, Internet Access Software license, **or**
  - OpenVMS base license, DIGITAL Enterprise Integration Package (EIP).
- One year hardware product warranty
- 90 day software product warranty
- System installation included with AlphaServer 8400 5/440 Expanded Base Servers

5/300 Dual-CPU systems	Operating System	Power	Memory
DA-291BD-CA/CB/CC	DIGITAL UNIX	Three Phase	512 MB
DA-291BF-HA/HB/HC	DIGITAL UNIX	Three Phase	2 GB
DY-291BD-CA/CB/CC	OpenVMS	Three Phase	512 MB
DY-291BF-HA/HB/HC	OpenVMS	Three Phase	2 GB
5/440 Dual-CPU systems	Operating System	Power	Memory
DA-292FF-DA/DB/DC	DIGITAL UNIX	Three Phase	2 GB
DY-292FF-DA/DB/DC	OpenVMS	Three Phase	2 GB

**Note:** xA = 60 Hz, 208 V, xB = 50 Hz, 380/416 V, xC = 50/60 Hz, 202 V Japan  
All Three Phase power variations include attached power cord.

## Step 1a—5/300 System Building Blocks

System Building Blocks are an alternative to standard Base Servers, or Expanded Base Servers. They provide flexibility in configuring the AlphaServer 8400 with a choice of memory and I/O options.

### System Building Block Requirements:

- Minimum of one Memory module
- Minimum of one I/O module
- CD-ROM Drive
- Systems require DIGITAL UNIX V3.2B or later, and OpenVMS V6.2 or later.
- Console terminal required unless available on site.
- System consists of 9 slot backplane—three slots used by CPU, memory, and system I/O modules.
  - Six slots available for additional CPU, memory, or system I/O module(s).
- If KFTHA-AA I/O module is selected the following PCI or XMI options must be ordered to provide the interface to CD-ROM drive.

### Required for PCI systems

DWLPB-AA	PCI plug-in unit. See Step 5 for details.
KZPAA-AA	PCI single-ended SCSI controller for CD-ROM connection only; KZPAA is restricted as CD-ROM connection only, no other disk or tape connections are supported—maximum one per system.
BN21H-02	SCSI cable

### Required for XMI systems

DWLMA-AA	XMI plug-in unit. See Step 6 for details.
KZMSA-AB	XMI single-ended SCSI controller
BN21H-02	SCSI cable

- CD-ROM, 600 MB 5.25" in cabinet drive (**RRDCD-CA**) is required and **must** be ordered separately.
- If Factory Installed Software is required, BA660-AB, appropriate disk drive, and controller **must** be ordered separately.
- Redundant power supply (N+1) can be added if required.

## AlphaServer 8400 5/300 System Building Blocks

- Processor module with Two Alpha microprocessor  
21164 5/300 MHz CPU(s), each CPU includes 4 MB  
Backup cache
- Three-Phase Power Subsystem with power cord
- 48 VDC power regulator
- DIGITAL UNIX base license, **or**
- OpenVMS base license
- DIGITAL NAS Base Server 200 software
- One year hardware product warranty
- 90 day software product warranty

Dual-CPU systems	Operating System	Power	Memory	I/O Module
DA-291BY-AA/AB/AC	DIGITAL UNIX	Three Phase	Required	Required
DY-291BY-AA/AB/AC	OpenVMS	Three Phase	Required	Required

**Note:** xA = 60 Hz, 208 V, xB = 50 Hz, 380/416 V, xC = 50/60 Hz, 202 V Japan  
All Three Phase power variations include attached power cord.

## Step 1b—AlphaServer Expansion Packages

AlphaServer Expansion Packages are designed to be added to Base AlphaServers, Expanded Base Servers, and System Building Blocks to create fully functional CI cluster add-on systems. They include all the necessary hardware (excluding console terminal) and software to provide complete and operational systems.

**Note:** These packages are only orderable with a system configuration. They are not orderable as stand alone, upgrade options or spared on the order.

### OpenVMS AlphaServer Expansion Package

**8YCAA-AX**            **Cluster Add-on Package** includes:  
 DWLMA-AA XMI plug-in unit  
 CIXCD-AC XMI CI controller  
 One BNCIA 10-meter cable  
 OpenVMS cluster License (QL-MUZAQ-AA)

## Step 2—Additional CPU Modules (SMP Upgrades)

- 5/300 MHz systems support a maximum of 6 processor modules (total of 12 CPUs)
- 5/440 MHz systems support a maximum of 7 processor modules (total of 14 CPUs) under UNIX V3.2G and V4.0B or OpenVMS V6.2-1H3 and V7.1. Requires console V4.8-6 or later firmware and DECEvent V2.3 plus patch files included in the QZ-00RAA-T8 kit.
- Combining 5/300, 5/350, or 5/440 MHz CPU modules in same system is **not** supported.
- For more than three processor modules in a system, a minimum of two separate memory modules are recommended for optimal system performance.
- All SMP upgrades include processor module with Alpha microprocessor(s) SMP license, and end-user product warranty.

5/300 Servers	5/350 Servers	5/440 Servers	CPU Module Type	Operating System
751P2-AX	753P2-AX	N/A	Single-CPU	DIGITAL UNIX
752P2-AX	754P2-AX	756P2-AX	Dual-CPU	DIGITAL UNIX
751P1-AX		N/A	Single-CPU	OpenVMS
752P1-AX	754P1-AX	756P1-AX	Dual-CPU	OpenVMS

## Step 3—Memory

- Maximum of 28 GB of memory supported on 5/300 MHz CPUs Rev H07, H08, H09, P08, P09, P10, and all 5/350 and 5/440 MHz CPUs.
- For Base Servers or Expanded Base Servers order up to six additional memory modules—system maximum seven.
- System Building Blocks require the selection of one memory module—system maximum seven.
- Maximum of seven memory modules is reduced by one for each additional CPU module added from Step 3 and each additional System I/O module added from Step 5.
- Memory modules
  - 128 MB through 2 GB memory modules have built in two-way interleaving; additional interleaving is accomplished by adding more memory modules
  - 4 GB memory modules have built in four-way interleaving. Best performance is achieved when two 2 GB modules are paired with one 4 GB module. This set (2 x 2 GB and 1 x 4 GB) can be paired with another 8 GB memory set for a maximum of 16-way memory interleaving.

MS7CC-BA            128 MB memory module  
 MS7CC-CA            256 MB memory module  
 MS7CC-DA            512 MB memory module  
 MS7CC-EA            1073 MB memory module  
 MS7CC-FA            2147 MB memory module  
 MS7CC-GA<sup>1</sup>            4294 MB memory module

1. Supported on 5/300 MHz CPUs Rev H07, H08, H09, P08, P09, P10, and all 5/350 and 5/440 MHz CPUs.

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### Step 3a—Memory Upgrades

- Memory upgrades are field installed only (not configured in Manufacturing).

MS7CC-UA	128 MB memory upgrade (8 MB SIMMs); upgrades 128 MB (-BA) module to 256 MB (-CA) module
MS7CC-UB	512 MB memory upgrade (32 MB SIMMs); upgrades 512 MB (-DA) module to 1 GB (-EA) module

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### Step 3b—Prestoserve Non-Volatile Random Access Memory (NVRAM)

- Supported on DIGITAL UNIX systems only.
- Maximum one Prestoserve I/O performance enhancement option per system.
- Includes Prestoserve license and documentation kit.

DJ-ML200-BA	4 MB Prestoserve; PCI option—requires DWLPB-AA/BA
DJ-ML200-CA	8 MB Prestoserve; PCI option—requires DWLPB-AA/BA
DJ-ML300-BA	4 MB Prestoserve; KFTIA-AA daughter card mounting, requires KFTIA-AA

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### Step 4—I/O Expansion Buses

PCI and XMI I/O expansion buses are available on AlphaServer 8400 systems. Application and system configuration determines maximum I/O configuration. Configuration limits exist at I/O bus level and controller level. With different I/O buses present in the system, verify maximum number of allowed controllers listed in the Controller Configuration Table.

- Each DWLPB-AA/AB (PCI plug-in unit) includes a 12-slot PCI bus and uses one rear expansion bay. SCSI disks in BA660-AB plug-in units can occupy the corresponding front expansion bay.
- Each DWLPB-AA/AB (PCI plug-in unit) has one open space for addition of DWLPB-BA/BB (second PCI expansion box) or BA661-AA (Wide SCSI StorageWorks shelf)
- Each DWLMA-AA/BA (XMI plug-in unit) includes one 12-slot XMI channel—uses two expansion bays, front and back.
- Each PCI and XMI plug-in unit requires one I/O channel connection to either KFTIA-AA or KFTIA-AA, see Step 6.
- Maximum of twelve I/O channels supported (three KFTHAs).

DWLPB-AA	<b>PCI plug-in unit with one PCI box for AlphaServer 8400 system cabinet only</b> , maximum two per system cabinet, two per system. Requires one I/O channel connection on either KFTIA-AA or KFTHA-AA.
DWLPB-AB	<b>PCI plug-in unit with one PCI box for AlphaServer 8400 expansion cabinet only</b> , maximum two per expansion cabinet, four per system. Maximum of six DWLPB-AA and DWLPB-AB (PCI plug-in units) per system. Requires one I/O channel connection on either KFTIA-AA or KFTHA-AA.
DWLPB-BA	<b>Second PCI expansion box for mounting in DWLPB-AA</b> —maximum one per DWLPB-AA. Requires one I/O channel connection on either KFTIA-AA or KFTHA-AA.
DWLPB-BB	<b>Second PCI expansion box for mounting in DWLPB-AB</b> —maximum one per DWLPB-AB. Requires one I/O channel connection on either KFTIA-AA or KFTHA-AA.
BA661-AA	<b>Wide SCSI StorageWorks Shelf (BA356-LB)</b> can be added to DWLPB-AA/AB in place of second PCI expansion box (DWLPB-BA/BB). Maximum one BA661-AA per DWLPB-AA/AB, and maximum of six BA661-AA per system. Supports 16-bit (Wide) SCSI and some 8-bit (Narrow) SCSI devices.
KFE70-AA	<b>EISA Bridge option</b> —PCI to EISA bridge module set—must reside in first DWLPB-AA in system cabinet only. Converts PCI bus from 12-slot bus to 2 EISA, 6 PCI/EISA, and 2 PCI slots. Includes RX26 floppy drive, mounting hardware, and cables to mount RX26 below CD-ROM in the system cabinet. Maximum of one EISA Bridge option per system. This option is required to support KZPSC SCSI RAID controllers. It includes the floppy disk drive required to run the RAID Configuration Utility (RCU).
DWLMA-AA	<b>XMI plug-in unit for system cabinet</b> —maximum two per system. Requires one I/O channel connection on either KFTIA-AA or KFTHA-AA.
DWLMA-BA	<b>XMI plug-in unit for I/O expansion cabinet</b> —maximum two per cabinet, four per system. Total maximum six DWLMA-AA and DWLMA-BA (XMI plug-in units) per system. Requires one I/O channel connection on either KFTIA-AA or KFTHA-AA.

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## Step 5—System I/O Modules

- KFTIA-AA system I/O module included with Base Server; KFTHA-AA included with Expanded Base Server—any combination of KFTIA or KFTHA modules can be added for a maximum of three.
  - Maximum twelve I/O channels available on AlphaServer 8400.
- System Building Block requires the selection of one I/O module.

<b>KFTHA-AA</b>	<b>System I/O module with four I/O channels</b> for PCI or XMI plug-in units
<b>KFTIA-AA</b>	<b>System I/O module with one I/O channel</b> for PCI or XMI plug-in units. Includes <ul style="list-style-type: none"> <li>- two 802.3 twisted-pair Ethernet ports—requires BN26M cable per port</li> <li>- single-ended SCSI-2 port—requires BN21H cable</li> <li>- three FWD (Fast Wide Differential) SCSI-2 ports—requires CK-KFTIA-AA and BN21K cable per port</li> </ul> One of the following optional FDDI daughter cards can be added to KFTIA-AA—see Step 8 for cables. <ul style="list-style-type: none"> <li>- Single attachment station multi-mode fiber card (DEFPZ-AA) or</li> <li>- Twisted-pair copper card (DEFPZ-UA)</li> </ul> Prestoserve (DJ-ML300-BA) can be added to KFTIA-AA
<b>BN26M-xx</b>	Ethernet twisted-pair cable; 8-pin MP to 8-pin MP, screened, EIA/TIA Category 5 cable.
<b>BN21H-xx</b>	SCSI-2 Single-ended cable; 50-pin male straight to 50-pin male straight. Connects KFTIA-AA single-ended SCSI-2 port to StorageWorks shelf.
<b>CK-KFTIA-AA</b>	<b>Cabinet kit for FWD (Fast Wide Differential) SCSI-2 port.</b> One kit required for each used port on KFTIA-AA, maximum three per KFTIA-AA. Cabinet kit includes Y-cable and FWD terminator.
<b>BN21K-xx</b>	SCSI-2 Fast Wide Differential cables; 68-pin male straight to 68-pin male right-angle. Connects KFTIA-AA Fast Wide Differential SCSI-2 ports to DWZZA-VA or DWZZB-VW.
<b>BN21K-02*</b>	Connects from KFTIA FWD port to DWZZB-VW in BA660-AB System cabinet (rear) Connects from KFTIA FWD port to DWZZB-VW in BA661-AA in DWLPB-xx PIU
<b>BN21K-03*</b>	Connects from KFTIA FWD port to DWZZB-VW in BA660-AB System cabinet (front)
<b>BN21K-05/10</b>	Connects from KFTIA FWD port to DWZZB-VW in BA660-AB Expansion cabinet (front or rear) Connects from KFTIA FWD port to DWZZB-VW in BA356-JB in SW500 and SW800 Cabinets

\* Manufacturing may substitute correct cable length depending on configuration.

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## Step 6—Storage Controllers

- KFTIA-AA included with each Base Server; KFTHA-AA included with Expanded Base Server—PCI, EISA, and XMI storage controllers can be added.
  - Requires corresponding PCI plug-in unit (DWLPB-AA/AB/BA/BB) or XMI plug-in unit (DWLMA-AA/BA).
- DWZZA-AA requires minimum revision E02 for connecting any Fast Wide Differential SCSI-2 port from KFTIA-AA or KZPSA-BB to TZ8xx tape loaders.
- DWZZB-VW Fast Wide Differential Single-ended SCSI Converter requires minimum revision A01 for connecting FWD SCSI-2 signals from KFTIA-AA or KZPSA-BB to BA356-JB StorageWorks Shelf.
- System maximum of two KZPSC-AA/BA SCSI RAID controllers.
- Tape and optical devices are not supported on KZPSC SCSI RAID controllers.

### PCI-based Storage Controllers

<b>KZPSA-BB</b>	<b>PCI Fast Wide Differential SCSI Adapter</b> —OpenVMS V6.2-1H3 supports eight per PCI, maximum 26 per system. DIGITAL UNIX supports eight per PCI, maximum 32 per system (uses one PCI slot). Provides one SCSI-2 bus. KZPSA supports DECsafe Available Server.
<b>BN21K-xx</b>	SCSI-2 Fast Wide Differential cables—68-pin male straight to 68-pin male right-angle. Connects KZPSA-BB Fast Wide Differential SCSI-2 port to DWZZA-VA or DWZZB-VW.
<b>BN21K-01*</b>	Connects from KZPSA to DWZZB-VW in BA660-AB System cabinet (rear) Connects from KZPSA to DWZZB-VW in BA661-AA in DWLPB-xx PIU
<b>BN21K-02*</b>	Connects from KZPSA to DWZZB-VW in BA660-AB System cabinet (front)
<b>BN21K-05/10</b>	Connects from KZPSA to DWZZB-VW in BA660-AB Expansion cabinet (front or rear)

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**Step 6—Storage Controllers (continued)**
**PCI-based Storage Controllers**

<b>KZPSC-AA</b>	<b>PCI SCSI RAID Controller with 1 port</b> —OpenVMS and DIGITAL UNIX support four per PCI, maximum four per system (uses one PCI slot). KFE70-AA EISA Bridge option required. Provides one Fast/wide/single-ended connection. Allows RAID levels 0,1, and 5. Tape drives not supported.
<b>BN31S-1E</b>	1.5 meter wide single-ended SCSI cable for connections from PCI RAID controller to BA660-AB system cabinet (rear only) and BA661-AA.
<b>BN31S-02</b>	2.0 meter wide single-ended SCSI cable for connections from PCI RAID controller to BA660-AB system cabinet and BA661-AA.
<b>KZPSC-BA</b>	<b>PCI SCSI RAID Controller with 3 ports</b> —OpenVMS and DIGITAL UNIX support four per PCI, maximum four per system (uses two PCI slots). KFE70-AA EISA Bridge option required. Provides three Fast Wide/single-ended connections. Allows RAID levels 0,1, and 5. Tape drives not supported.
<b>BN31K-0E</b>	Required for KZPSC-BA to use third port on module. Connects internally from KZPSC-BA module to second PCI slot/bulkhead.
<b>BN31S-1E</b>	1.5 meter wide single-ended SCSI cable for connections from PCI RAID controller to BA660-AB system cabinet (in front and rear locations) and BA661-AA. One required for each used port on KZPSC-BA module.
<b>BN31S-02</b>	2.0 meter wide single-ended SCSI cable for connections from PCI RAID controller to BA660-AB system cabinet and BA661-AA.
<b>MS100-AA†</b>	16 MB Cache memory option for KZPSC-AA/BA, maximum one per controller, field installable only.
<b>MS100-AB†</b>	32 MB Cache memory option for KZPSC-AA/BA, maximum one per controller, field installable only.
<b>KZPSC-UB</b>	Battery back-up for Cache memory option.
<b>KFPSA-AA</b>	<b>PCI DSSI Adapter (OpenVMS only)</b> —Requires OpenVMS V6.2-1H2 or later; minimum System Console Firmware Revision 3.09. Maximum twelve per PCI, 24 per system with OpenVMS V6.2-1H3. (End node only) Note: KFPSA and KFMSB not supported on the same bus.
<b>BC21Q-xx</b>	External shielded cable (MR/MR connectors) Select required length—09, 16, 25, 50 ft
<b>BC22Q-xx</b>	External shielded cable (MR/PS connectors) Select required length—16, 25, 50 ft
<b>CIPCA-AA</b>	<b>PCI-to-CI Adapter (OpenVMS only)</b> —Requires OpenVMS V6.2-1H3 or V7.1, minimum System Console Firmware Revision 4.0-4. Maximum four per PCI, 26 per system running OpenVMS V7.1. Uses one PCI slot for adapter and one EISA slot for power only. Note: KFE70 option is <b>not</b> required.
<b>CIPCA-BA</b>	Same as above except uses two PCI slots
<b>BNCIA-xx</b>	Computer interconnect cable sets—Connects CIPCA to Star Coupler. Select required length—10, 20, or 45 m (10 m = 32.8 ft, 20 m = 65.6 ft, 45 m = 147.6 ft)

† Requires AlphaServer 8400 minimum System Console Firmware Revision V3.2.2, OpenVMS V6.2-1H2 and DIGITAL UNIX V3.2D or later operating system software.

**XMI-based Storage Controllers**

<b>KZMSA-AB</b>	<b>Fast single-ended SCSI-2 Disk/Tape Adapter</b> —OpenVMS supports six per XMI, maximum 12 per system. DIGITAL UNIX supports 10 per XMI, maximum 16 per system (uses one XMI slot). Provides two single-ended SCSI-2 buses. KZMSA supports DECsafe Available Server.
<b>CK-KZMSA-LA</b>	Two 30" internal cabinet cables—One kit per KZMSA required.
<b>KFMSB-AA</b>	<b>DSSI Adapter (OpenVMS only)</b> —Supports six per XMI, maximum 12 per system (uses one XMI slot) Provides two DSSI buses; each bus provides seven ports for DSSI Integrated Storage Element (ISE) devices; no more than two tapes per bus. Maximum three DSSI cluster nodes supported.
<b>CK-KFMSB-LC</b>	Two 8-foot internal cabinet cables and two DSSI terminators. One kit per KFMSB required.
<b>KFMSB-UA</b>	<b>DSSI-Controller Upgrade</b> —Upgrades KFMSA-xx to KFMSB-AA. Includes KFMSB-AA, CK-KFMSB-LC, and requires return of KFMSA-xx

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## Step 6—Storage Controllers (*continued*)

### XMI-based Storage Controllers

<b>CIXCD-AC</b>	<b>XMI CI Controller</b> —OpenVMS supports four per XMI, maximum 10 per system. DIGITAL UNIX supports one per XMI, maximum one per system (uses one XMI slot). The CIXCD requires one BNCIA cable set to connect system to Star Coupler. OpenVMS Cluster software license required for each system when multiple OpenVMS systems are used in cluster environment. <b>Note:</b> One CIXCD is supported on DIGITAL UNIX systems for expanded disk interconnect capability only.
<b>BNCIA-xx</b>	<b>Computer interconnect cable sets</b> —Connects Star Coupler to system and SW800. Select required length—10, 20, or 45 m (10 m = 32.8 ft, 20 m = 65.6 ft, 45 m = 147.6 ft).

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## Step 7—Storage

**Note:** When multiple storage devices are configured with the system, specify which devices should be installed inside the system cabinet, inside the system expansion cabinet, or installed in the external StorageWorks cabinet. Line item sequencing allows Manufacturing to configure storage options in the appropriate cabinet.

- List storage options to be integrated in system cabinet immediately following the system part number.
- List storage options to be integrated in StorageWorks cabinet immediately following StorageWorks cabinet part number.
- Order the appropriate BN21\*.-\*\* SCSI cables for connecting controllers and SCSI storage options.
- Wide SCSI devices are supported in BA660-AB/BA661-AA StorageWorks PIUs, or external StorageWorks cabinets. BA660-AB/BA661-AA support both wide and narrow SCSI 5400 RPM and 7200 RPM disk drives.
- System cabinet provides space for four disk plug-in units (PIU) if no PCI or XMI plug-in units are installed. Each of the two pairs of expansion bays (front to back) in bottom of system cabinet can hold one Battery PIU; one XMI PIU, one PCI PIU, one PCI PIU plus one SCSI disk PIU, one SCSI disk PIU, or two SCSI disk PIUs.
- System cabinet provides space for up to seven StorageWorks shelves—three BA660-AB plug-in-units (each includes two StorageWorks shelves) and one BA661-AA StorageWorks shelf. Each shelf holds a maximum of two 5.25" devices and one 3.5" device or seven 3.5" devices. Typical configurations will require a signal converter, i.e., DWZZB-VW which counts as one 3.5" device.

### Wide SCSI Options

- StorageWorks shelves (BA356-xx) are normally configured in single bus mode (seven SCSI devices per shelf). To configure BA356-xx shelf in split-bus mode the following options are required:
  - Split-bus terminator (BA35X-ME)
  - SCSI controller for each active SCSI port
  - SCSI cables to connect each controller to BA356-xx shelf

<b>BA660-AB *</b>	<b>Wide SCSI-2 StorageWorks plug-in-unit</b> —includes two BA356-LB modular expansion shelves, 16-bit I/O personality module, 48V/150W DC power supply, DC fans, and AlphaServer 8400 mounting hardware. Supports 16-bit wide SCSI devices and some 8-bit narrow SCSI devices depending on compliance with minimum hardware revision levels.
<b>BA661-AA *</b>	<b>Wide SCSI-2 StorageWorks Shelf</b> —includes 16-bit I/O personality module, 48V/150W DC power supply, DC fans, mounting hardware and BA356-LB. Can be added to DWLPB-AA/AB in place of second PCI expansion box (DWLPB-BA/BB). Maximum one BA661-AA per DWLPB-AA/AB; maximum six BA661-AA per system. Supports 16-bit (wide) SCSI and some 8-bit (narrow) SCSI devices.
<b>DWZZB-VW</b>	<b>Wide SCSI-2 StorageWorks Signal Converter</b> —required to convert FWD signals from KFTIA-AA and KZPSA-BB for use in BA660-AB and BA661-AA/BA.
<b>BA35X-MG</b>	<b>8-bit I/O Personality Module</b> —can be used in place of 16-bit I/O personality module for direct connection to narrow single-ended controllers, field installable only.

\* **Note:** BA35X-ME terminators must be ordered separately to split a BA356 bus..

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## Step 7—Storage (*continued*)

### 16-bit Disk Drives

DS-RZ26N-VZ	1.05 GB 16-bit 5400 RPM SCSI-2 disk drive in 3.5" carrier supported under OpenVMS V6.2-1H3 and UNIX V3.2G
DS-RZ28M-VZ	2.1 GB 16-bit 5400 RPM SCSI-2 disk drive in 3.5" carrier supported under OpenVMS V6.2-1H3 and UNIX V3.2G
RZ28D-VW	2.1 GB 16-bit 7200 RPM SCSI-2 disk drive in 3.5" carrier
RZ29B-VW	4.3 GB 16-bit 7200 RPM SCSI-2 disk drive in 3.5" carrier

### 8-bit Disk Drives

RZ26N-VA	1.05 GB 8-bit 5400 RPM SCSI-2 disk drive in 3.5" carrier
RZ28M-VA	2.1 GB 8-bit 5400 RPM SCSI-2 disk drive in 3.5" carrier
RZ28D-VA	2.1 GB 8-bit 7200 RPM SCSI-2 disk drive in 3.5" carrier
RZ29B-VA	4.3 GB 8-bit 7200 RPM SCSI-2 disk drive in 3.5" carrier

**Note:** To ensure 16-bit wide SCSI operation, use wide SCSI drives with wide SCSI controllers in wide SCSI StorageWorks shelves with wide SCSI cables. See Storage Devices—StorageWorks Supported Devices for 8-bit and 16-bit Expansion Table for minimum hardware revision levels.

### Tape Devices

TLZ09-VA	8.0 GB DAT 3.5" SCSI tape drive in StorageWorks carrier. OpenVMS V6.2-1H3 and DIGITAL UNIX V3.2C required along with System Console Firmware Revision 3.0-9.
TLZ9L -VA	32/64 GB DAT tape loader in StorageWorks carrier
TKZ9E -VA	2/5/7/10/14 GB 8 mm helical scan tape drive in 5.25" StorageWorks carrier
TZ87-VA	20.0 GB DLT 5.25" SCSI tape drive in StorageWorks carrier; must be mounted in BA660-AB located in rear of cabinet or BA661-AA located in DWLPB-xx.
TZ88N-VA	20/40 GB DLT 5.25" SCSI tape drive in StorageWorks carrier
TZ89N-VA	35/70 GB DLT 5.25" SCSI tape drive in StorageWorks carrier

### Solid State Disks

- Supported with KZMSA, KZPSC, KZPSA, KFTIA—cannot be combined with RZxx disks/tapes on same SCSI bus
- |            |   |
|------------|---|
| EZ31-VW    | 134 MB Solid State Disk; requires OpenVMS V6.2 or later and DIGITAL UNIX V3.2C or later |
| EZ32-VW    | 268 MB Solid State Disk; requires OpenVMS V6.2 or later and DIGITAL UNIX V3.2C or later |
| EZ64-VA/VW | 475 MB Solid State Disk; requires OpenVMS V6.2 or later and DIGITAL UNIX V3.2C or later |
| EZ69-VA/VW | 950 MB Solid State Disk; requires OpenVMS V6.2 or later and DIGITAL UNIX V3.2C or later |

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## Step 7a—StorageWorks Expansion Packages

StorageWorks Expansion Packages have been created to simplify ordering StorageWorks options. They are intended to be used with Expanded Base Servers.

- Order the correct number of HSZ40-TL packages to fill the BA350-MB RAID controller shelves in the SW82x StorageWorks Cabinet package.
- Order disk drives separately.
- SW820/SW821 StorageWorks Expansion Packages—all BA356 shelves operate in split-bus mode.
- All SW82x StorageWorks Expansion Packages include redundant power supplies (BA35X-HF)—this reduces the number of available slots in each BA356 shelf to six in the SW822 and three on each split-bus of the SW820/SW821.

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**Step 7a—StorageWorks Expansion Packages (continued)****StorageWorks Expansion Packages**

<b>SW820-LA/LB</b>	SW800 StorageWorks Cabinet with five BA350-MB RAID controller shelves, 15 BA356-JC device shelves, 15 BA35X-MG 8-bit I/O personality modules for BA356, 30 BN21H-02 SCSI-2 single-ended cables, 20 BA35X-HF redundant power supplies, 15 BA35X-ME terminator boards— <b>split-bus mode</b>
<b>SW821-LA/LB</b>	SW800 StorageWorks Cabinet with seven BA350-MB RAID controller shelves, 14 BA356-JC device shelves, 14 BA35X-MG 8-bit I/O personality modules for BA356, 28 BN21H-02 SCSI-2 single-ended cables, 21 BA35X-HF redundant power supplies, 14 BA35X-ME terminators boards— <b>split-bus mode</b>
<b>SW822-LA/LB</b>	SW800 StorageWorks Cabinet with three BA350-MB RAID controller shelves, 18 BA356-JC device shelves, 18 BA35X-MG 8-bit I/O personality modules for BA356, 18 BN21H-02 SCSI-2 single-ended cables, 21 BA35X-HF redundant power supplies
<b>HSZ40-TL</b>	Two HSZ40B SCSI RAID array controllers each with 32 MB cache, HSZ Traditional License (QL-2YJA9-AA), RAID HSZ40 Firmware License (QL-3J0A9-AA), Mirror Firmware HSZ40 Traditional License (QL-4DTA9-AA), BN21K-20 20-meter cable, BN21L-0B .15-meter cable

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**Step 7b—External Storage (I/O Expansion Cabinet)**

I/O expansion cabinet (H9F00-BA/BB/BC/BD) provides space for up to six SCSI disk plug-in units (PIU) if no other PCI/XMI plug-in unit (PIU) is configured in the expansion cabinet. Each of the two pairs of expansion bays in the bottom of the cabinet can hold one Battery PIU, one PCI PIU, one XMI PIU, or two SCSI disk PIUs. Two expansion bays in the top of the expansion cabinet can hold up to two SCSI disk PIUs. Disk and tape drives supported are the same as Step 7 Internal Storage.

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**Step 7c—External Storage**

Following list describes available disk storage devices and capacities. These supported options can be added as required.

<b>Storage Cabinets</b>	<b>Capacity</b>
<b>SW5XX, SW8XX</b>	6–227 GB
<b>SCSI Disk Drives</b>	<b>Capacity</b>
<b>RZ26N-VA</b>	1.05 GB      Narrow
<b>RZ28M-VA, RZ28D-VA</b>	2.1 GB        Narrow
<b>RZ29B-VA</b>	4.3 GB        Narrow
<b>RZ26N-VW</b>	1.05 GB      Wide
<b>RZ28M-VW, RZ28D-VW</b>	2.1 GB        Wide
<b>RZ29B-VW</b>	4.3 GB        Wide
<b>Tape Drives</b>	
<b>TZ87, TZ857*, TZ877, TZ88, TZ885, TZ887, TSZ07, TKZ9E, TKZ60, TKZ61, TKZ62, TL810, TL812, TL820, TL822, TL826</b>	See <i>Storage Devices</i> for ordering information.
<b>Optical Libraries</b>	
<b>RW546-ZA</b>	36 GB Optical Library, 2 drives
<b>RW551-ZC</b>	73 GB Optical Library, 2 drives
<b>RW552-ZF</b>	147 GB Optical Library, 4 drives
<b>RW555-ZF</b>	294 GB Optical Library, 4 drives
<b>RW557-ZF</b>	547 GB Optical Library, 6 drives

\* Loader support for DIGITAL UNIX is available via DECnsr.

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**Step 8—Networks and Communications**

Two twisted-pair 802.3/Ethernet controllers on KFTIA-AA system I/O module included with Base Server; DE500 fast ethernet network interface card included with Expanded Base Server. See Step 5 for twisted-pair Ethernet cable part number. Optional DEFPZ-AA/UA (FDDI) daughter card can be installed on KFTIA-AA system I/O module. Select additional devices if required. **Note:** Connection of system to Ethernet requires twisted-pair cable. See *Network Products Guide* for details.

## LAN Communications Controllers—KFTIA-AA Daughter Cards

**Step 8—Networks and Communications** (*continued*)

- Maximum one FDDI controller fiber daughter card per KFTIA-AA I/O module

DEFPZ-AA	<b>FDDI controller Fiber—Single Attachment Station—daughter card</b> for mounting on KFTIA-AA. Requires BN24x cable.
BN24E-xx	Fiber-Optic Cable, Dual 2.5mm Bayonet “ST” type connectors
BN24D-xx	Fiber-Optic Cable, Dual 2.5mm Bayonet “ST” type connector to FDDI “MIC” connector
DEFPZ-UA	<b>FDDI controller Fiber—Twisted-pair Copper—daughter card</b> for mounting on KFTIA-AA. Requires BN26x cable.
BN26M-xx	8-pin MP to 8-pin MP, screened, EIA/TIA Category 5 cable
BN26S-xx	8-pin MP to 8-pin MP, screened, crossover, EIA/TIA Category 5 cable

**LAN Communications Controllers—PCI based**

- Requires DWLPB-AA/AB/BA/BB
- System maximum of six DEFPA-AB/DB/UB/MB FDDI controllers.

DE450-CA	<b>PCI-to-Ethernet 3-port Adapter</b> (uses one PCI slot). OpenVMS (V6.2) and DIGITAL UNIX (V3.2C) support eight per PCI, maximum eight per system. Two patch kits required to support DE450 with OpenVMS V6.2.
DE450-TA	<b>PCI-to-Ethernet 1-port Adapter</b> (uses one PCI slot). OpenVMS (V6.2) and DIGITAL UNIX (V3.2C) support eight per PCI, maximum eight per system. Two patch kits required to support DE450 with OpenVMS V6.2.
DE500-AA	<b>Fast Ethernet (100 Mbit) PCI Adapter</b> (uses one PCI slot). DIGITAL UNIX V3.2C and OpenVMS V6.2 and 7.1 support. Up to eight per PCI, maximum eight per system.
DEFPA-AB	<b>FDDI controller Fiber—Single attachment station MultiMode Fiber</b> (uses one PCI slot). OpenVMS and DIGITAL UNIX support six per DWLPB, maximum six per system with DIGITAL UNIX V3.2G and OpenVMS V6.2-1H3 operating system releases. Requires BN34x “SC” type connecting cable.
DEFPA-DB	<b>FDDI controller Fiber—Dual attachment station MultiMode Fiber</b> (uses one PCI slot). OpenVMS and DIGITAL UNIX support six per DWLPB, maximum six per system with DIGITAL UNIX V3.2G and OpenVMS V6.2-1H3 operating system releases. Requires BN34x “SC” type connecting cable.
BN34A-xx	MultiMode Fiber-Optic Duplex cable—“SC” connector to “ST” connector
BN34B-xx	MultiMode Fiber-Optic Duplex cable—“SC” connector to “SC” connector
BN34D-xx	MultiMode Fiber-Optic Duplex cable—“SC” connector to “MIC” connector
DEFPA-MB	<b>FDDI controller Copper—Dual attachment station UTP</b> (uses one PCI slot). OpenVMS and DIGITAL UNIX support six per DWLPB, maximum six per system with DIGITAL UNIX V3.2G and OpenVMS V6.2-1H3 operating system releases. . Requires BN26x or BN25H connecting cables.
DEFPA-UB	<b>FDDI controller Copper—Single attachment station UTP</b> (uses one PCI slot). OpenVMS and DIGITAL UNIX support six per DWLPB, maximum six per system with DIGITAL UNIX V3.2G and OpenVMS V6.2-1H3 operating system releases. . Requires BN26x or BN25H connecting cables.
BN26M-xx	8-pin MP to 8-pin MP, screened, EIA/TIA Category 5 cable
BN26S-xx	8-pin MP to 8-pin MP, screened, crossover, EIA/TIA Category 5 cable
BN25H-03	3-meter Unshielded twisted pair RJ45 connectors
DGLPB-AB	<b>ATMworks 350 ATM PCI bus adapter</b> (uses one PCI slot). DIGITAL UNIX V4.0a supports four per PCI, maximum four per system.

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## Step 8—Networks and Communications (*continued*)

### LAN Communications Controllers—EISA based

- Requires DWLPB-AA and KFE70-AA, EISA bridge module set.
- See EISA Bus IRQ Address Table.

<b>DNSES-AA</b>	<b>Synchronous Communications Controller</b> (uses one EISA slot). DIGITAL UNIX supports two per EISA, maximum two per system. Requires BC19x cable
<b>BC19B-02</b>	EIA-422-A/V.11 adapter cable, can be extended with BC55D-33
<b>BC19D-02</b>	EIA-232-D/V.24 adapter cable, can be extended with BC22F-xx
<b>BC19E-02</b>	EIA-423-A/V.10 adapter cable, can be extended with BC55D-33
<b>BC19F-02</b>	V.35 adapter cable, can be extended with BC19L-25
<b>DW300-AA</b>	<b>Token Ring Adapter</b> (uses one EISA slot). DIGITAL UNIX supports one per EISA, maximum one per system. Requires BN26M cable.
<b>BN26M-xx</b>	802.5/Token Ring twisted-pair cable; 8-pin MP to 8-pin MP, screened, EIA/TIA Category 5 cable.
<b>CXI01-AA</b>	<b>Digiboard Asynchronous Xem/ISA Multiport Serial Card with 16 RJ45 PORTS/Xem Port</b> (uses one EISA slot). DIGITAL UNIX only, supports one per EISA, maximum one CXI01-AA/AD per system.
<b>CXI01-AB</b>	<b>Digiboard PORTS/Xem, 16 RJ45 Port Concentrator</b> —mounts separately from PCI bus. Maximum of three CXI01-AB can be attached to CXI01-AA, provides up to 48 additional ports. DIGITAL UNIX only.
<b>CXI01-AD</b>	<b>Digiboard Asynchronous EPC/X Multiport Serial Card with 16 RJ45 Port EPC/CON-16 Concentrator</b> (uses one EISA slot). DIGITAL UNIX one per EISA, maximum one CXI01-AA/AD per system. DIGITAL UNIX only.
<b>CXI01-AE</b>	<b>Digiboard EPC/CON-16 Concentrator</b> mounts separate from PCI bus. Maximum three CXI01-AE can be attached to the CXI01-AD provides up to 48 additional ports. DIGITAL UNIX only.
<b>CXI01-AC</b>	Digiboard RJ45 to DB25 Male Converter
<b>CXI01-AF</b>	Digiboard RJ45 to DECMJ11 Adapter—8 per package

### LAN Communications Controllers—XMI based

<b>DEMNA-M</b>	<b>802.3/Ethernet controller XMI-to-Ethernet adapter</b> , (uses one XMI slot). OpenVMS supports four per XMI, maximum six per system. DIGITAL UNIX supports six per XMI, maximum eight per system.
<b>CK-DEMNA-KN</b>	DEMNA cabinet kit, required with DEMNA-M
<b>DEMFA-AA</b>	<b>DEC FDDI controller 400 XMI-to-FDDI adapter</b> , Single attachment station with fiber MIC connector; (uses one XMI slot). OpenVMS supports four per XMI, maximum four per system. DIGITAL UNIX supports seven per XMI, maximum eight per system.

### Local and Wide Area Communications Servers

Each communications server requires 802.3/Ethernet connection. Depending on the server selected, either ThinWire BNC-type connection (e.g., BC16M cable) or thick wire 15-pin AUI transceiver cable (e.g., BNE3x) is required. Additional items also required—see *Network Products Guide* for ordering information.

### Network Connectivity Products

See *Network Products Guide* for details.

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**Step 8a—MEMORY CHANNEL Controller**
**DIGITAL UNIX Systems**

- Require DIGITAL UNIX V3.2E (DIGITAL UNIX V3.2D plus TruCluster software or MEMORY CHANNEL Driver software).
- Each system node in a MEMORY CHANNEL cluster requires a software license.
- Servers in a compute-server array require a DIGITAL UNIX Driver for MEMORY CHANNEL License.
- Servers in a TruCluster high-availability environment require a license for TruCluster for DIGITAL UNIX.
- The following options are not currently supported with MEMORY CHANNEL: DJ-ML200, DNSES-AA, CIPCA, CIXCD

**OpenVMS Systems**

- Require OpenVMS V7.1 and OpenVMS Cluster License.
- On systems with DWLPA-AA/AB/BA/BB and no other PCI option(s) and/or KFE70-AA, a maximum of two CCMAA-AA modules are supported.
- On systems with DWLPA-AA/AB/BA/BB and any PCI option(s) and/or KFE70-AA, a maximum of one CCMAA-AA module is supported.
- DWLPB-AA/AB/BA/BB option **does not** have the restrictions of the DWLPA-AA/AB/BA/BB.
- DNSES-AA is not currently supported with MEMORY CHANNEL.

**MEMORY CHANNEL requirements for AlphaServer 8400 systems:**

- Console firmware at revision V2.3 or higher.
- CCMAA-BA Adapter must be installed in slots 0-7 of a DWLPA-AA/AB/BA/BB PCI; no restriction for DWLPB-AA/AB/BA/BB PCI bus.
- For two-system nodes, order one CCMAA-BA per system and one BC12N-10 cable to connect them.
- For three or more system nodes, order CCMHA-AA (MEMORY CHANNEL Hub) one CCMAA-BA and one BC12N-10 cable per system node.
- CCMHA-AA (MEMORY CHANNEL Hub) is configured with four CCMLA-AA Line Cards and supports up to four nodes. Expansion up to eight system nodes can be achieved by adding up to four additional CCMLA-AA Line Cards, except TruCluster Production Server configurations.

CCMAA-BA	PCI to MEMORY CHANNEL controller—Maximum two supported
CCMHA-AA	MEMORY CHANNEL Hub with 4 Line Cards
CCMLA-AA	MEMORY CHANNEL Line Card for use with MEMORY CHANNEL Hub (CCMHA-AA)
BC12N-10	MEMORY CHANNEL Cable
QB-3RLAQ-AA	TruCluster Software for DIGITAL UNIX
QB-4ZCAQ-AA	DIGITAL UNIX Driver for MEMORY CHANNEL license
QL-MUZAQ-AA	OpenVMS Cluster license for Alpha systems

CCMHA-AA, MEMORY CHANNEL Hub, includes BN19P-2E line cord for Canada, Japan, US operation. For other regions, order one of the following:

BN19A-2E	Ireland, United Kingdom
BN19S-2E	Egypt, India
BN19C-2E	Central Europe
BN18L-2E	Israel
BN19E-2E	Switzerland
BN24X-2E	Italy
BN19K-2E	Denmark
BN19H-2E	Australia, New Zealand

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## Step 9—Console Terminal

- Console terminal with EIA-232 25-pin DSUB connector and printer required unless otherwise available.
- Shielded console cable is included for connection to the console terminal.

VT510-xx	VT510 terminal
LA30N-xx	LA30 printer
LK411-xx	Keyboard

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## Step 10—Expansion—System Cabinet and I/O Expansion Cabinet

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### Step 10a—System Cabinet

- System Cabinet includes one three-phase power regulator with space for two additional three-phase power regulators. System cabinets shipped after June 1996 (H9F00-FC/FD/FE Rev B03 or greater) include the H7263-AC/AD non-battery back-up ready power regulator. See Step 11 for power expansion options for these system cabinets.
- Maximum four I/O channels per cabinet allowed. PCI and XMI plug-in units each require one I/O channel connection.
- Four lower expansion bays are available for plug-in units. The lower bays accommodate plug-in units as follows.

#### AlphaServer 8400 System Cabinet

Expansion Bay Location	Plug-In Unit (PIU)	Quantity	Expansion Bays Occupied
Lower	Disk plug-in unit (BA660-AB)	Four maximum	Front or Rear
Lower	XMI plug-in unit (DWLMA-AA)	Two maximum	Front and Rear
Lower	Battery plug-in unit (H7237-AA/AC/CA/CB)	One maximum	Front and Rear
Lower	PCI plug-in unit (DWLPB-AA)	Two maximum	Rear only

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### Step 10b—I/O Expansion Cabinet

- I/O Expansion Cabinet includes one three-phase power regulator
  - Provides space for two additional three-phase power regulators
- H9F00-BA/BB/BC Rev D03 or later cabinets include the H7263-AC or H7263-AD non-BBU capable power regulator. Refer to Step 11 for expansion options.

**H9F00-BA/BB/BC** I/O expansion cabinet—Three phase power, maximum two per system.  
**Note:** -BA = 60 Hz, 208V, -BB = 50 Hz, 380/416V, -BC = 50/60 Hz, 202V.

- Expansion cabinet can be configured to hold all disk plug-in units or combination of disk plug-in units and PCI or XMI plug-in units.
  - Six expansion bays—two upper and four lower—are available for plug-in units. The two upper bays accommodate maximum of two disk plug-in units. The four lower bays accommodate plug-in units as follows:

Expansion Bay Location	Plug-In Unit (PIU)	Quantity	Expansion Bays Occupied
Upper	Disk plug-in unit (BA660-AB)	Two maximum	Front or Rear
Lower	Disk plug-in unit (BA660-AB)	Four maximum	Front or Rear
Lower	PCI plug-in unit (DWLPB-AB)	Two maximum	Rear only
Lower	XMI plug-in unit (DWLMA-BA)	Two maximum	Front and Rear
Lower	Battery plug-in unit (H7237-AA/AC/CA/CB)	One maximum	Front and Rear

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## Step 11—Power Expansion Components

- System Cabinet and Expansion Cabinets must be same type; either three-phase or single-phase. Mixing of three-phase and single-phase cabinets in same system configuration is not allowed.
- Determine the need for adding second power regulator by filling in the EPU- Power Configuration Table. **Note:** The Power Configuration Table provides a manual method for determining the need of second power regulator. Equivalent power unit (EPU) is an equivalent value of power used (48 VDC) by each option.

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**Step 11a—Three-Phase Expansion Components**
**For new system orders, or for systems shipped after June 1996:**

- Select additional **H7263-AC/AD** for systems that **do not** require battery back-up option
  - If EPU value of 1st regulator is exceeded
  - If N+1 redundancy is required
  - If 2nd or 3rd power regulator is required
- Select **H7237-CA/CB** for systems that require battery back-up option (Factory Installed)
  - Includes battery plug-in-unit, one H7263-AA/AB power regulator and batteries for battery backup/UPS capability. Must be ordered at time of system purchase if BBU functionality is required. The H7263-AA/AB mounts alongside the standard H7263-AC/AD.
- Select **H7238-BA/BB** for additional battery UPS (Factory Installed)
  - Includes H7263-AA/AB and H7238-AA 4-pack battery option for second and third regulator support

**For systems shipped prior to June 1996, select the following power options**

- H7263-AA/AB\***      Three-Phase 48 VDC power regulator with BBU capability—maximum three per cabinet. Second regulator may be required to supply adequate power depending on configuration. Third regulator assures N+1 power redundancy and higher availability in the event of power regulator failure. See Power Configuration Table.
- H7237-AA\***      Battery plug-in unit with batteries for battery backup/UPS capability—maximum one per cabinet. Use in system cabinet and/or H9F00-BA/BB/BC expansion cabinet. Includes four batteries to support 48 V power regulator and cabling for additional H7238-AA battery options.
- H7238-AA\***      4-pack battery option—one required per optional 48 V power regulator to support battery backup/UPS capability. For use only with the H7237-AA.

\* Will ship as spare from Manufacturing

**Battery backup I/O expansion cabinet**

- H9B00-AF**      Battery option for I/O Expansion Cabinet—fully loaded battery cabinet supports three power regulators, provides for 60 minutes uninterruptible power (UPS). Maximum one per H9F00-BA/BB/BC expansion cabinet.

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**Step 11b—Single-Phase to Three-Phase Power Upgrade**

- Includes new AC distribution box with attached line cord, DC subrack, one three-phase 48VDC power regulator.
  - If single phase power system has two power regulators, an additional three-phase 48VDC power regulator is required.
- H7268-AA/AB**      Single-Phase to Three-Phase Upgrade Kit, Converts system to three-phase power subsystem.  
 -AA= 60 Hz, 208V, -AB = 50 Hz, 380/416V

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**Step 11c—Power Option for StorageWorks Shelves in StorageWorks Plug-in-Units**

- Provides N+1 power for BA660-AB, BA661-AA StorageWorks PIUs/shelves.
  - Occupies one slot in StorageWorks shelf.
- BA35X-HG**      48V DC 150W Redundant Power Supply for BA660-AB, BA661-AA—includes 48VDC jumper cable for connecting to first power supply in StorageWorks shelf.

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## Step 12—Software

Select user licenses and additional software as required. Media and documentation recommended for first system on site.

**Software Processor Code = Q**

### DIGITAL UNIX Concurrent Use Licenses

DIGITAL UNIX Concurrent Use licenses are not specific to a single system and can be moved from one system to another at user discretion.

**Note:** DIGITAL UNIX 8400 5/440 Mhz CPU Base Servers and Expanded Base Servers include traditional unlimited user license.

QL-MT7AM-3B	DIGITAL UNIX Concurrent Use 1-user license
QL-MT7AM-3C	DIGITAL UNIX Concurrent Use 2-user license
QL-MT7AM-3D	DIGITAL UNIX Concurrent Use 4-user license
QL-MT7AM-3E	DIGITAL UNIX Concurrent Use 8-user license
QL-MT7AM-3F	DIGITAL UNIX Concurrent Use 16-user license
QL-MT7AM-3G	DIGITAL UNIX Concurrent Use 32-user license
QL-MT7AM-3H	DIGITAL UNIX Concurrent Use 64-user license
QL-MT7AQ-AA *	DIGITAL UNIX Traditional unlimited user license
QL-MT5AQ-AA	DIGITAL UNIX developer's extension license
QL-MT6AQ-AA *	DIGITAL UNIX server extension license
QL-MTJAQ-AA	DECnet/OSI end-system license
QL-MTKAQ-AA	DECnet/OSI extended function license
QB-05SAQ-AA	DECsafe Available Server license and documentation (DIGITAL UNIX only). Media available on layered product CD-ROM. KZMSA or KZPSA adapter required.

\* Included in 5/440 DIGITAL UNIX Base and Expanded Base Servers.

### DIGITAL UNIX Media and Documentation

QA-MT4AA-H8	DIGITAL UNIX media and on-line documentation (base system, complementary products) on CD-ROM
QA-MT4AA-GZ	DIGITAL UNIX full hardcopy documentation
QA-MT4AB-GZ	DIGITAL UNIX end user hardcopy documentation subkit
QA-MT5AA-GZ	DIGITAL UNIX developer's extension hardcopy documentation subkit
QA-MT6AA-GZ	DIGITAL UNIX server extension hardcopy documentation subkit

### OpenVMS Concurrent Use Licenses

OpenVMS Concurrent Use license provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system. OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.

QL-MT3AA-3B	OpenVMS Concurrent Use 1-user license
QL-MT3AA-3C	OpenVMS Concurrent Use 2-user license
QL-MT3AA-3D	OpenVMS Concurrent Use 4-user license
QL-MT3AA-3E	OpenVMS Concurrent Use 8-user license
QL-MT3AA-3F	OpenVMS Concurrent Use 16-user license
QL-MT3AA-3G	OpenVMS Concurrent Use 32-user license
QL-MT3AA-3H	OpenVMS Concurrent Use 64-user license
QL-MT3AA-3J	OpenVMS Concurrent Use 128-user license
QL-MT3AA-3K	OpenVMS Concurrent Use 256-user license
QL-MT2AQ-AA	OpenVMS Traditional unlimited user license

**Step 12—Software (continued)****OpenVMS**

QL-MTFAQ-AA	DECnet/OSI end-system license
QL-MTHAQ-AA	DECnet/OSI extended function license
QL-MUZAQ-AA	OpenVMS cluster software license. Required with each system that connects to an OpenVMS cluster.

**OpenVMS Media and Documentation**

QA-MT1AA-H8	OpenVMS media and documentation on CD-ROM
QA-09SAA-GZ	OpenVMS base hardcopy documentation
QA-001AA-GZ	OpenVMS full hardcopy documentation

**Layered Products CD-ROM**

QA-054AA-H8	Layered products media and documentation for DIGITAL UNIX
QA-03XAA-H8	Layered products media and documentation for OpenVMS

**Open VMS Layered Products CD-ROM**

QA-03XAA-H8 *	Layered products media and documentation for OpenVMS
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\* Includes DIGITAL Enterprise Integration Server for OpenVMS media and documentation

**DIGITAL Enterprise Integration Package—included in 5/440 Base Servers and Expanded Base Servers**

QA-5LVAA-H8	DIGITAL Enterprise Integration Server for OpenVMS media and documentation
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**DIGITAL NAS Base Server 200 Software**

DIGITAL NAS 200 Base Server software included with base 5/300 MHz AlphaServer 8400 systems. Media available on layered product CD-ROM.

**Step 13—Hardware and Software Supplemental Support Services****Hardware—Americas and Asia Pacific only**

- Systems include one-year hardware warranty, on-site, same day, 4-hour response time.
- Select optional Hardware Supplemental Support Services if required.

**AlphaServer 8400**

Two CPUs with less than 2 GB memory	Two CPUs with 2 GB memory	
FM-4Y4HR-36	FM-4Z4HR-36	Years 1-3, 5 x 9, 4-hour response time
FM-4Y512-36	FM-4Z512-36	Years 1-3, 5 x 12, 4-hour response time
FM-4Y616-36	FM-4Z616-36	Years 1-3, 6 x 16, 4-hour response time
FM-4Y724-36	FM-4Z724-36	Years 1-3, 7 x 24, 4-hour response time
FM-4Y4HR-60	FM-4Z4HR-60	Years 1-5, 5 x 9, 4-hour response time
FM-4Y512-60	FM-4Z512-60	Years 1-5, 5 x 12, 4-hour response time
FM-4Y616-60	FM-4Z616-60	Years 1-5, 6 x 16, 4-hour response time
FM-4Y724-60	FM-4Z724-60	Years 1-5, 7 x 24, 4-hour response time

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**Step 13—Hardware and Software Supplemental Support Services (*continued*)**
**Software—Americas and Asia Pacific only**

- Systems include 90-day Conformance to SPD and Telephone Advisory Support. Select optional Software Supplemental Support Services, if required.
- Software service upgrades for DIGITAL UNIX and OpenVMS include advisory and remedial software support with new version license rights for operating system and DIGITAL NAS Base Server 200 for the time period indicated.

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**AlphaServer 8400 Two CPU Systems**

<b>FM-84DOS-12</b>	12-month Software Supplemental Support for DIGITAL UNIX two CPU systems
<b>FM-84DOS-36</b>	36-month Software Supplemental Support for DIGITAL UNIX two CPU systems
<b>FM-84DOS-60</b>	60-month Software Supplemental Support for DIGITAL UNIX two CPU systems
<b>FM-84DVM-12</b>	12-month Software Supplemental Support for OpenVMS two CPU systems
<b>FM-84DVM-36</b>	36-month Software Supplemental Support for OpenVMS two CPU systems
<b>FM-84DVM-60</b>	60-month Software Supplemental Support for OpenVMS two CPU systems

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**Step 13a—Hardware and Software Supplemental Support Services (Europe only)**

Europe does **not** have specific part numbers for Hardware and Software Supplemental Support Services. Prices can be quoted using the Exceleator tool; contact MCS Sales in your country for information on Hardware and Software Supplemental Support Services.

**AlphaServer 8400 EPU (Equivalent Power Units)—Power Configuration Table**

- Second power regulator may be needed to supply additional 48V power to the system.
- Mixing of three-phase and single-phase power regulators in system configuration is not allowed.
- Use chart to determine need for second power regulator.
- If EPU is greater than 80, order second power regulator (three-phase regulator—H7263-AC/AD) or H7263-AA/AB if BBU is required).
- EPU must not exceed 180.

Options	EPU Values System Cabinet Options	Quantity	Total EPU (Qty times EPU)	EPU Values Expansion Cabinet Options	Quantity	Total EPU (Qty times EPU)
Base system includes power regulator, CPU module, system I/O module, memory module	30	1	30			
I/O expansion cabinet (H9F00-BA/BB/BC) includes one power regulator					1	0
Additional 5/300 CPU modules—751P1-AX, 751P2-AX	11					
Additional 5/300 CPU modules—752P1-AX, 752P2-AX	13					
Additional 5/350 CPU modules—753P1-AX, 753P2-AX	12					
Additional 5/350 CPU modules—754P1-AX, 754P2-AX	14					
Additional dual 5/440 CPU modules—756P1-AX, 756P2-AX	8					
KFTIA-AA System I/O module	4					
KFTHA-AA System I/O module	3					
MS7CC-BA 128 MB memory	5					
MS7CC-CA 256 MB memory	5					
MS7CC-DA 512 MB memory	5					
MS7CC-EA 1 GB memory	5					
MS7CC-FA 2 GB memory	5					
MS7CC-GA 4 GB memory	5					
<b>Add PCI options</b>						
DWLPB-AA/AB/BA/BB	1					
KZPSA-BB	1					
KZPSC-AA/BA	1					
DE435-AA, DE450-AA, DE500-XA	1					
DEFPA-AB/DB/UB/MB	1					
KFE70-AA	1					
<b>Add EISA options</b>						
DNSES-AA	1					
DW300-AA	1					
CXI01-AA/AD	1					
<b>Add XMI options</b>						
DWLMA XMI plug-in unit	4					
KZMSA-AB XMI SCSI controller	3					
KFMSB-AA DSSI disk/tape adapter	3					
CIXCD-AC XMI CI controller	4					
DEMNA-M XMI Ethernet controller	3					
DEMFA-AA XMI FDDI adapter	5					
<b>Disk and Tape options</b>						
RZ26, RZ28, RZ29 -VA SCSI disk drive	1					
RZ26, RZ28, RZ29 -VW SCSI disk drive	1					
TLZ07, TLZ09, TLZ9L, TLZ15-VA SCSI tape drive	1					
TL810, TL820, TZ86, TZ87, TZ88 -VA SCSI tape drive	3					
DWZZA-VA/DWZZB-VW SCSI signal converter	0					
<b>Total</b>						

**Note:** Depending on configuration, system offers integral UPS capability that supports all in-cabinet components for at least 11 minutes. If UPS support is required for external devices, e.g., console terminals, terminal servers, printers, and modems, a universal UPS can be ordered separately.

### Optional Controller Configuration Table

With multiple adapters that provide the same interface available on different I/O buses (PCI or XMI), it is possible to exceed operating system limit on number of ports supported for that interface. Follow these guidelines for maximum number of ports that each operating system will support. Fill in table under the relevant area, add up the number of controllers/ports available, and verify the operating system limits will not be exceeded. **Do not exceed these values.**

Option Name	A Number of Ports/Buses	B Number of Options	C Total Ports (A * B)	DIGITAL UNIX Limit	OpenVMS Limit
<b>SCSI Options</b>					
Included KFTIA-AA I/O module, one single-ended and three FWD SCSI ports*	4	1	4		
Additional KFTIA-AA I/O module, one single-ended and three FWD SCSI ports	4				
KZPSA-BB PCI fast wide differential SCSI adapter	1				
KZMSA-AB XMI fast single-ended SCSI adapter	2				
Add column "C"—must be less than or equal to value listed under operating system to be used.				<b>32</b>	<b>26</b>
<b>802.3/Ethernet Options</b>					
Included KFTIA-AA I/O module, two 802.3/Ethernet ports*	2	1	2		
Additional KFTIA-AA I/O module, two 802.3/Ethernet ports	2				
DE435-AA PCI 802.3/Ethernet controller, DE450, DE500	1				
DEMNA-M XMI 802.3/Ethernet controller	1				
Add column "C"—must be less than or equal to value listed under operating system to be used.				<b>8</b>	<b>8</b>
<b>FDDI Options</b>					
Included KFTIA-AA I/O module, optional FDDI daughter card installed (DEFPZ-AA/UA)*	1				
Additional KFTIA-AA I/O module, optional FDDI daughter card installed (DEFPZ-AA/UA)	1				
DEFPA-AA/-DA/-UA/MA PCI FDDI controller, one port each	1				
DEMFA-AA XMI FDDI controller	1				
Add column "C"—must be less than or equal to value listed under operating system to be used.				<b>8</b>	<b>8</b>

### EISA Bus IRQ Address Table

#### Configuration Rules and Information

- EISA Bus IRQ address assignments are for DIGITAL UNIX and OpenVMS systems only.
- In some cases, the maximum number of each supported device is less than the number of EISA bus addresses available; this is due to other limitations.
- Only one device can occupy any given IRQ address; if multiples of a device are configured, each device occupies separate address.
- Match each device to one available address. (Note: With the table as a worksheet, fill in "0" for each device; fill in only one "0" per column.)
- Actual IRQ address assignment will be made by the EISA Configuration Utility (ECU), which is run during system manufacture, or in the installed system if the EISA bus is reconfigured.

Option	EISA Bus IRQ Addresses									Maximum of Each Supported	
	5	7	8	9	10	11	12	14	15	OpenVMS	DIGITAL UNIX
DNSES-AA	–	–	0	0	0	0	0	0	0	0	2
DW300-AA	0	–	–	0	0	0	–	–	0	0	1
CXI01-AA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	1
CXI01-AD	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	1

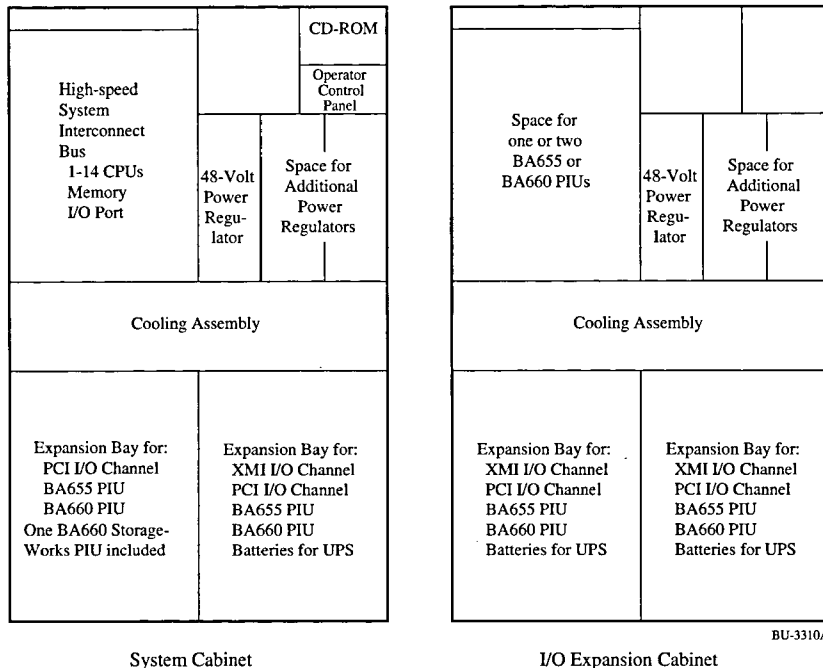
Table Codes:

0 = address is available for device,

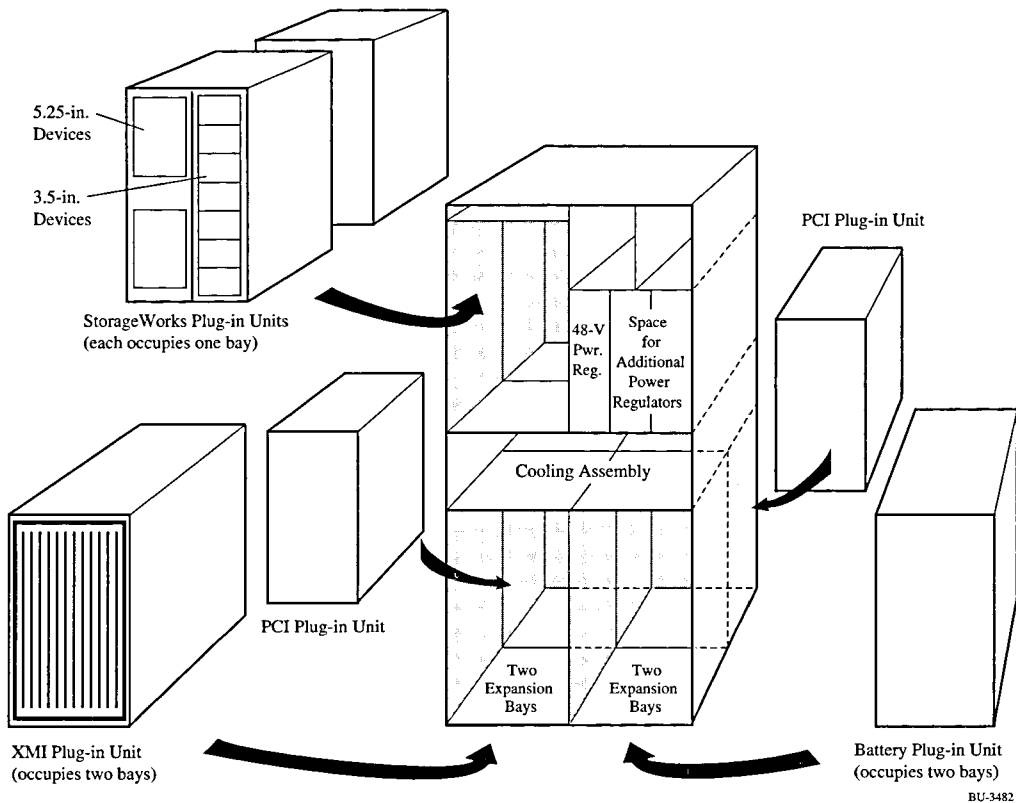
– = address not available for device

NA = Not Applicable

System Diagram



Note: Three-Phase Power Systems support up to three Power Regulators.



## Specifications

Physical Characteristics	Operating	Shipping	
Height	170.0 cm (67.0 in.)	195.0 cm (76.7 in.)	
Width	80.0 cm (31.5 in.)	109.5 cm (43.1 in.)	
Depth	87.5 cm (34.4 in.)	121.0 cm (47.5 in.)	
Weight, full configuration			
Without batteries	408 kg (900 lb.)	448 kg (1000 lb.)	
With batteries	545 kg (1200 lb.)	585 kg (1300 lb.)	
Clearances	Operating	Service	
Front	1.0 m (40 in.)	1.5 m (59 in.)	
Rear	1.0 m (40 in.)	1.0 m (40 in.)	
Sides	0	0	
Environmental	Operating	Non-Operating	
Temperature	15° to 28°C (59° to 82°F)	-40° to 66°C (-40° to 151°F)	
Humidity	20% to 80%	10% to 95%	
Altitude	0–2.4 km (0–8000 ft)	9,100 m (30,000 ft)	
Vibration	2–22 Hz @ 0.01"da minimum	22–500 Hz @ 0.25g max.	
Heat dissipation <sup>1</sup>	<b>Minimally configured system<sup>1</sup></b> (system cabinet) 3,400 Btu/hr, 1,000 W  <b>Fully configured system<sup>2</sup></b> (system cabinet) 15,700 Btu/hr, 4,600 W  <b>Fully configured system<sup>3</sup></b> (system cabinet with two I/O expansion cabinets) 30,600 Btu/hr, 9,000 W		
Regulatory			
Agency approvals	UL Listed to UL1950 UL Classified to IEC950 CSA Certified to CAN/CSA-C22.2, No. 950-M89 FCC Part 15 (Class A) CE Declaration #1171		
Reviewed to	AS 3260, Australian Standard EN 60950, European Norm		
Power Requirements <sup>1</sup>			
Three-Phase Power Subsystem <sup>2</sup>	US/Canada	Europe/AP	Japan
Nominal voltage	120/208 V	380–415 V	202 V
Frequency range	50–60 Hz	50–60 Hz	50–60 Hz
Phases	3-phase star 4-wire N-GND	3-phase star 4-wire N-GND	3-phase delta 4-wire mid-GND or 3-wire junction GND
Maximum input current/phase	24 A rms	12.8 A rms	24 A rms
Surge current	50 A peak	50 A peak	50 A peak
Rating	30 A	16 A	30 A
Power cap (system)	DEC 12-12314-00	DEC 12-30333-02	DEC 12-12314-00
Receptacle (site)	DEC 12-12315-01	See footnote 4	DEC 12-12315-01
(Industry equivalent)	NEMA L21-30R	IEC 309	NEMA L21-30R
PCS/PDS/PDU/UPS cable	BC24W	BN29X	BC24W

1 Minimally configured system contains one regulator, one CPU module, one memory module, one KFTIA-AA module, CD-ROM, and RZ28 disk drive.

2 Fully configured system contains two power regulators, four CPU modules, three memory modules, two System I/O modules, one DWLPB-AA, one DWLPB-BA, three BA655-AB, CD-ROM, 36 RZ28 drives.

3 Fully configured system and expansion cabinets consist of the above "fully configured system" and two expansion cabinets which each contain one DWLPB-AB, one DWLPB-BB, six KZPSA-BB, five BA655-AB, and 60 RZ28 drives.

4 Receptacle type is Hubbell 516R6 or equivalent

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**UPS Solutions**


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For complete protection, UPS products should be used with data line surge protectors. See TVSS section of Environmental Products Chapter.

4N-GA249-AB	2 wire modem	wall plug in
4N-GA249-CA	10BaseT	wall plug in
4N-GA510-BF	ThinWire	device port
4N-GA245-xx	Din rail and modules	up to 32 ports

UPS Model	Receptacle Module for Plug-in Connection		AlphaServer 8400	External Storage
	60 HZ	50 HZ		
4N-AEAAL-BA	4N-AEACK-BN	Hardwired	Single phase	None, SW500, or Expansion Cabinet
4N-AEAAN-BA (60 Hz) 4N-AEAAN-BE (50 Hz)	4N-AEACM-BN	Hardwired	Single phase	SW800
4N-AEAAN-BA (60 Hz) 4N-AEAAN-BE (50 Hz)	4N-AEACM-BK	Hardwired	Three Phase	None
4N-AEAAN-BA (60 Hz) 4N-AEAAN-BE (50 Hz)	4N-AEACM-PA	Hardwired	Three Phase	SW800 or Expansion Cabinet

**UPS Models**

4N-AEAAL-BA	PUPS plus 10kVA (7kW), single-phase, 50/60Hz, 176-276V in, 200-240V out, 9 minutes battery at full load; hardwired with optional plug-in output receptacle modules.
4N-AEAAN-BA	PUPS plus 15kVA (10kW), three-phase, 50/60Hz, 176-256V in, 200-240V out, 10 minutes battery at full load; hardwired with optional plug-in output receptacle modules.
4N-AEAAN-BE	PUPS plus 15kVA (10kW), three-phase, 50/60Hz, International model rated 380/415V in, 380/415/220V out; hardwired input/output.

**Options**

4N-AEACK-BN	PUPS plus 10kVA receptacle module (3) L6-30R, (3) 5-20R2, (2) L5-20R
4N-AEACM-BK	PUPS plus 15kVA receptacle module (2) L21-30R, (3) 5-20R2
4N-AEACM-BN	PUPS plus 15kVA receptacle module (2) L6-30R, (2) L21-30R, (1) 5-20R2
4N-AEACM-PA	PUPS plus 15kVA dual receptacle module: Module 1: (2) L21-30R and conduit kit for connecting Module 1 to Module 2 Module 2: (2) L21-30R, (3) 5-20R2

**UPS Monitoring and Unattended Shutdown Software (for above UPS systems only)**

Note: Power Management software is included in ServerWORKS Manager kits shipping with all AlphaServers. Cable kit required, select UPS Communications Cable Kit

DIGITAL UNIX <sup>1</sup>	OpenVMS	
4N-ONLIN-NT <sup>1</sup>	4N-ONLIS-FE	UPS Communications Cable Kit
4N-AEAEO-Dx <sup>2</sup>	4N-JMIU4-AB <sup>3</sup>	4 port Hardware Option for multi-systems on one UPS
4N-AEAEO-Dx <sup>2</sup>	4N-AEAEO-Dx <sup>2</sup>	Option for SNMP/ ServerWORKS Manager interface

**Ala Carte Software kits available for existing installations**

DIGITAL UNIX <sup>1</sup>	OpenVMS	
4N-AEAES-AK	4N-AEAES-EM	Prestige (single system)
4N-AEAES-AK	4N-AEAES-FM	PUPS Plus (single system)
4N-AEAES-BK	4N-JMMCRA-AA <sup>4</sup>	2 port Multi-systems on one UPS
	4N-JMIU4-AA	4 port
	4N-JMIU8-AA	8 port
4N-AEAEO-Dx	4N-AEAEO-Dx	Network Monitoring

1. Connect-UPS network adapter required for operation on AlphaServer 8400 DIGITAL UNIX systems. See footnote 2.
2. Connect-UPS network adapter; D\* denotes Twisted Pair / ThinWire = DA/DC (60Hz; 120V NEMA); DB/DD (50Hz: 240V IEC)
3. Multi-port interface kit with splitter cable to interface with network adapter and local shutdown signal from UPS. Kits may be daisy chained, kits include software
4. Same as 3 above except 2 port for basic shutdown and one smart monitoring port



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