Contents of this issue:

8.1.1 Barracuda9 Disk Deficiency

It is likely that some of the Cuda9 disks, shipped with SPP2000 systems, or as upgrades for these systems, may not have the Automatic Reallocation bits set.

Because of this, it is recommended that this be checked, on the next site visit.

To check for these entries, the following procedure can be used:

1) Use diskutil, to locate all of the drives, as follows:

```
Diskutil> show disk
SD 0:0:2:0 mapped to sd0
SD 0:2:4:0 mapped to sd1
SD 0:2:5:0 mapped to sd2
SD 0:2:6:0 mapped to sd3
SD 0:2:8:0 mapped to sd4
SD 0:20:9:0 mapped to sd5
SD 0:20:10:0 mapped to sd6
SD 0:20:11:0 mapped to sd7
SD 0:20:12:0 mapped to sd8
```

2) cd /etc/scsiutil_scr/generic

3) Execute scsiutil

Open each 9GB drive. If it's not known what type, the disk capacity and type will be reported as follows:

```
su1> open 0:0:6:0
Device 0:0:6:0 opened
Vendor: SEAGATE, Product: ST19171W, Revision: 0017
Capacity: 9104952832 bytes, (17783111 blocks, 512 bytes per block)

su2> script mode_sense 01 18   < this dumps option page 18 into
                                 the data buffer>

su3> pr "Automatic write reallocation enabled (AWRE) = %d\n", d[14][7]
       <This prints the specific entry, from page 18>

      the response should be:

      Automatic write reallocation enabled (AWRE) = 1

su4> pr "Automatic read reallocation enabled (ARRE) = %d\n", d[14][6]

      Automatic read reallocation enabled (ARRE) = 1
```

(continued)

8.1.1 Barracuda9 Disk Deficiency(continued)

If either of these should return a value of 0, meaning that reallocation is not enabled, then the script auto_realloc should be executed, by:

```
su5> script auto_realloc
```

This will set these entries and write the data buffer back to page 18.

8.1.2 Direct Wiring AC Power to SPP2000

In some cases the customer may find it desirable to connect AC directly to the system, rather than mess with the standard plug and receptacle. This is the procedure, for doing so:

1) Remove the AC filter assembly, located on the very lower left side, at the rear of the system. This is the unit where the power cable conduit is.

   NOTE It is necessary to remove 16 screws, to remove this assembly.

2) Pull filter assembly loose from internal quick disconnect cable. This will allow the unit to be laid on the floor, with the base plate down.

3) Remove 2 screws restraining the power cable studs, on the filter. This is located on the left side, or nearest the power cable conduit.

4) Using 6AWG, 3 conductor cable, strip the outer insulation back, approximately 8 inches.

5) Further strip each conductor cable back about 2 inches, to expose the conductor.

6) Run cable through the cable conduit until the conductor can be looped around the filter studs.

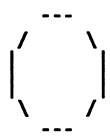
7) Place ferrite core over the ground, green, conductor.

8) Remove nuts from studs.

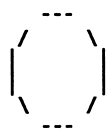
(continued)

8.1.2 Direct Wiring AC Power to SPP2000(continued)

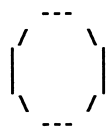
9) Loop conductor around studs, in pattern, as shown below:



Ground (Green)



Neutral (White)



Hot (Black)

NOTE

Studs shown as they appear with filter assembly laying flat on the floor and studs facing to the left.

10) Reinstall cover over studs.

11) Reinstall filter assembly in the system.

12) With power applied from the wall and before turning main system breaker on, the green power indicator, next to breaker should be illuminated.

13) Loosen screws and slide power test point cover back to expose the test points. Using a meter, verify proper AC power at this point.

14) If power checks ok, turn breaker on.

8.1.3 SPP2000 Power Supply Redundancy

A switch exists, on the ECUB, for support of redundant power supplies. This switch only has an impact at the time that the system is power cycled. After the system is powered up, this switch will have no further function.

(continued)

8.1.3 SPP2000 Power Supply Redundancy(continued)

In the down position, this switch will will allow the system to boot with a single NPS (Node Power Supply), turned off. It does this by monitoring the DCPWROK line of each power supply. In the up position, all power supplies must be on in order for the system to boot.

Virtually all systems will ship with 3 power supplies and only in a fully configured system, will 3 supplies be required. A rule of thumb is that a power supply is required for 2.5 KVA. A fully configured system, meaning one with all processors, MB's and disks installed, requires approximately 6 KVA. This means most systems with small disk subsystems will only require two supplies.

It is also possible to install a 4th supply, for full power redundancy. But, no order code exists, for this feature.

8.1.4 SPP2000 PCXU Spring Tension

In the case of intermittent connectivity related problems, isolated to a specific EPB, it is recommended that the spring tension be verified, on the PCXU, itself.

This is accomplished by using a torque wrench, with a 1/4", or 3/8" adapter and a 5/8" socket. The torque, on the 4 screws should be set to 4 in-lbs.

If it is set to less, the torque should be set using a X pattern.

Again, this should only be done if encountering a failure, on a specific processor, such as an EST failure.

The risk of this problem is very slight and does not warrant the checking of all EPB's, as a preventative measure. This should only be done, if a specific failure suggests.

8.1.5 SPP2000 Teststation Hangs

Test station hangs have been observed with the SPP2000. In this case, it is not possible to clear the hang by rebooting the teststation, or by any other means. Another symptom is that the console window hangs in the same manner, with no prompt, or means of gaining control.

The immediate solution, if this is encountered, is to remove and reinstall the serial cable, at the teststation. This will resolve the immediate problem.

The cause of the hang is not currently understood, but is a very infrequent problem. It is generally seen during heavy teststation activity, such as a sw upgrade.

Contents of this issue:

8.4.1 SPP2000 Modem Setup

These instructions outline how to set up a U.S.Robtics 33.6 modem on a SPP2000 test station running hp-ux 9.05. Although some of the specific information may not apply to other modems, this procedure can be used as a guide is setting up any modem, on a 9.05 system.

Note: hp-ux 9.05 does not support speeds higher than 19.2k on the serial ports.

After this setup, the test station must be in init level 3 to enable modem dialin's.

You must be root to edit the following files.

Configure the Modem.

Switch	Setting	Definition
1	up(off)	Data Terminal Ready Override Off = Normal Operation On = Ignore DTR
2	up(off)	Verbal/Numeric Result Codes Off = Verbal On = Numeric
3	up(off)	Result Code Display Off = Suppresses Result Codes On = Enables Result Codes
4	dwn(on)	Command Mode Local Echo Suppression Off = Displays Keyboard Commands On = Suppress Echo
5	up(off)	Auto Answer Suppression Off = Enable Auto Answer On = Disable Auto Answer
6	up(off)	Carrier Detect Override Off = Normal Mode On = Carrier Detect Always On
7	up(off)	Power On and ATZ Reset Software Defaults Off = Loads Configuration from NVRAM On = Loads Factory Defaults from NVRAM

(continued)

8.4.1 SPP2000 Modem Setup(continued)

8	up(off)	AT Command Set Recognition Off = Disables Command Recognition (Dumb Mode) On = Enables Recognition (Smart Mode)

Connect the modem to the rs232 connector on the Y cable from the combo ethernet/rs232 board.

Make the nodes for the dialin and dialout lines.

```
mknod /dev/cua01 c 1 0x604001
mknod /dev/cul01 c 1 0x604001
mknod /dev/ttyd01 c 1 0x604008
```

Add these lines at the end of the /usr/lib/uucp/Devices file.

```
#
Direct cul01 - 19200 direct
ACU cul01 cua01 19200 USR288t   ## use this if tone dialing
#ACU cul01 cua01 19200 USR288p   ## use this if pulse dialing
```

Add these lines at the end of the /usr/lib/uucp/Dialers file.

```
#
#   U.S. Robotics Sportster 28.8 -- This entry is set up for the
#   configuration HP-Convex Division uses on a SPP2000 test station.
#   'USR288t' is for tone dialing
#   'USR288p' is for pulse dialing
#
USR288t  =,-,    "" \dATV1Q\d\r OK\r \dAT\r\c OK\r \d\pATDT\T\r\c CONNECT
USR288p  =,-,    "" \dATV1Q\d\r OK\r \dAT\r\c OK\r \d\pATDP\T\r\c CONNECT
```

Add this line to inittab.

```
a0:3:respawn:/etc/getty -h ttyd01 19200
```

After installing the, modem do the following:

```
cu -s 19200 -l/dev/cul01 -m dir
```

Note: "echo" and "result" switches are off so you will not see the "OK" prompt and commands will not be echoed.

When you see the connected message, type:

```
at&b1s13=1&h1m0&w0 <cr>
```

This will setup the modem and save the parameters in NVRAM.

You may now put the system in run level 3 to enable dialin's.

Contents of this issue:
1. S2000 Installation Hints

8.5.1 S2000 Installation Hints

On page 22 of the installation Guide, the ground instructions indicate that a bolt be used to attach the ground to the chassis. This is in error and requires a 10/32 screw. All hardware is of the same size and extras are provided in the bag of hardware.

No ground mounting hardware is provided, with the system, as it is not possible to provide clamps to attach to all possible conduits and ground grids. As alwys, this is the responsibility of the field.

The Installation Guide, Chapter 4, calls for installing the skirt and cable closeout prior to installing all system cables. It is recommended to install all cables prior to permanently attaching this hardware. The

actual procedure is correct, just slightly out of order.

A transceiver bracket is now provdied for the ethernet transceivers used on the test bus and core bus. This bracket is intended to ground the trasceivers for EMI. It is not necessary to mount this bracket to anything, as the ground is provided by the cable shield.

Contents of this issue:

8.6.1 SPP S-CLASS MASTER DISK LAYOUT

```
DiskUtil: sel disk sd0
DiskUtil: show p
Logical disk name: sd0
partition table: (space available for file systems = 4194144)
```

part	offset	size	partition description	flags
a:	8K	897016K		*
b:	897024K	49152K	Miniroot	
c:	946176K	102400K	Crashdump	
d:	1048576K	1048576K	Paging	*D
e:	2097152K	897016K	Backup /	
f:	2994168K	1024000K	System Exerciser	

Partition a: is the root file system.
Partition b: is a miniroot file system that may be booted in an emergency in order to restore the a: partition. The miniroot file system has recovery utilities such as fsck, frecover, restore, etc..
Partition c: is a Crashdump partition used to dump OS data structures during a system crash
Partition d: is the Default Paging partition
Partition e: is a full back up of the root file system. If you intend to use this partition as a backup, it is recommended to routinely dd partition a: to partition e:
Partition f: is mounted on /texec and is were the System Exerciser (SX) files exist.

Recovery using the Master Disk

There are 2 methods of recovery built into the Master Disk in the event that your root file system on partition a: becomes corrupted.

Method 1:

At the OBP prompt boot the system on the miniroot partition which is sd0b. See the example below.

```
[0:0] ok boot /pci@fe,210000/qlisp@1000,0/sd@2,0:b -root sd0b
```

Once booted you can use fsck, frecover, restore, etc.. to get your root file system bootable OR if you have maintained your backup of the root file system on partition e:, you can dd e: back to a: (see below)

```
# dd if=/dev/rdsk/sd0e of=/dev/rdsk/sd0a bs=128k
```

(continued)

8.6.1 SPP S-CLASS MASTER DISK LAYOUT (continued)

If you only need to recover a file or two you can always mount partition a: and partition e: and copy over the files that you need.

Method 2:

At the OBP prompt boot the system on the backup root partition which is sd0e. See the example below

```
[0:0] ok boot /pci@fe,210000/qlisp@1000,0/sd@2,0:e -root sd0e
```

Once booted you can use any utility or means of recovery that you are accustomed to with SPP-UX.

8.6.2 SPP2000 Test Station Hang Resolution

It appears that the Test Station hang problem has been resolved for the Exemplar S and X Class Test Station. The following procedure should be performed on ALL Exemplar S and X Class Test Stations to ensure that the hang will not be encountered. The problem stems from having chassis codes transmitted out of the 712 to the rs232 port connected to the node. The codes are echoed back to the test station on the receive data line while it is still transmitting causing the test station to hang when executing boot firmware.

The following are the steps that need to be taken to disable chassis codes on the 712 workstation. Please contact the TAC if you experience any future Test Station hangs after following the procedure below.

1. Login as root on the test station and reboot.

   ```
   # /etc/reboot
   ```

2. Once the HP logo appears on the monitor during the boot process press and hold down the 'esc' key until you have a command menu and BOOT_ADMIN prompt.

3. From the BOOT_ADMIN prompt disable chassis codes.

   ```
   BOOT_ADMIN> chassis off
   ```

4. From the BOOT_ADMIN prompt issue a reset to reboot the 712.

   ```
   BOOT_ADMIN> reset
   ```

5. At the consle login prompt, login as sppuser.

8.6.3 SPP2000 Node Fast Ethernet

The PCI fast ethernet controller supports 10, or 100 Mbit/sec networks. It can also be configured in a half, or full duplex mode.

The controller is configured by means of a utility /usr/sbin/espeed, which exists in sppux.

The form of the command is espeed <unit num> <negotiate[speed]> <force [speed]> <query>.

unit num -- indicates the ethernet controller unit. The default is 0.

negotiate/force -- Determines whether the speed is negotiated, or forced. The default is negotiate.

speed -- Specifies the spped to be negotiated, or forced. The possible speeds are: 10halfduplex, 10fullduplex, 100halfduplex and 100fullduplex.

query -- Returns the current config.

Examples:

```
espeed 0 force 10halfduplex
espeed 0 negotiate 10fullduplex 10halfduplex
espeed 0 query
```

This command is executed only on intial setup and should not have to be run again, unless reconfiguring, or reinstalling OS.

Contents of this issue:
1. SPP2000 Test Station Permissions

8.9.1 SPP2000 Test Station Permissions

There is a permissions problem on the SPP2000 Exemplar Test Station. The permissions for the /spp/data directory is incorrect. As sppuser, change the permissions on the /spp/data directory to 775. This problem exists on the 1.1 ExDiags release and is not fixed by the 1.1 ExDiags_patch which are both a part of the 5.1.1 Software Distribution tape.

Contents of this issue:

8.10.1 Minimum SPP2000 Teststation Resources

In cases where a customer wishes to use a local HP workstation, as a teststation and not purchase one, with the system, the following minimum resources will apply:

1) HP712 Workstation.
2) 1GB disk
3) 32MB memory
4) 2 Ethernet ports
5) 1 serial port (2 required, if being used with a multi-node system)
6) Capable of running 9.0.5 HPUX

Failure to take this into consideration, before installation, will result in problems, which may preclude a successful installation.

8.10.2 SPP2000 ECUB Firmware load Caution

It is recommend that extreme caution be used when downloading JTAG firmware, to NVRAM, as mistakes can be costly.

When using the load_eprom utility, to download jtag firmware, it is important to understand that installing it in the incorrect segment, may cause loss of communications with the node.

The load_eprom utility uses a different switch for each type of firmware. This switch is used to determine the location, in the nvram, to load the firmware, as follows:

-j	load the JTAG firmware
-c	load the JTAG core code
-e	load the PDC Entry code
-p	load the POST code
-o	load the OBP firmware
-t	load the Test Controller code

So, inadvertently loading the JTAG core code, using the -j switch, will cause the core code to be downloaded into the wrong location. If this should occur and power is cycled, as required for initialization, contact will be lost to the node. There is no recovery, for this situation, in the field. A new ECUB will be required.

If the mistake is noticed prior to power cycling the node, then it is possible to recover by simply repeating the load_eprom for both JTAG codes. But, once power has been cycled, it is over.

Contents of this issue:
1. SPP 1200/1600 SIOP3 and "io_tc"

8.11.1 SPP 1200/1600 SIOP3 and "io_tc"

Before running "io_tc" on an SIOP3, OBP must be disabled and IO_CONFIG_* must be configured correctly.
Use "ccmu" to make these configuration changes.

Example setup for "io_tc".

```
what_d:/users/sppuser$ ccmu
ccmu> up
ccmu> get INITWHAT
node    value      parm   parm
 0    0x5880xxxx     1   INITWHAT
ccmu> put INITWHAT 0x5800xxxx
ccmu> put IO_CONFIG_* 0xe3f0080
ccmu> down
ccmu> quit
what_d:/users/sppuser$ do_reset
what_d:/users/sppuser$ io_tc
```

After io_tc has completed, re-enable OBP and reset IO_CONFIG_* to it's original setting.

```
what_d:/users/sppuser$ ccmu
ccmu> pull
ccmu> quit
what_d:/users/sppuser$ do_reset
```

Contents of this issue:

8.12.1 SPP2000 DAT Drive Compatibility Problems

The SPP-UX 5.1 tar utility uses a default blocking factor of 64. Previous versions of SPP-UX as well as HP-UX use a default of 20. This can cause problems when trying to read tar archives. To read a 5.1 tar archive on a non-5.1 system, specify a blocking factor of 64. To read a non-5.1 tar on a 5.1 system, specify a blocking factor of 20.

Env_Patch_5.1.131 is a fixed tar which uses the "standard" blocking factor of 20. The SPP-UX_5.1.3 patch also has this fixed tar.

8.12.2 SPP2000 Single Bit ECC Errors and EMB DIMM Locations

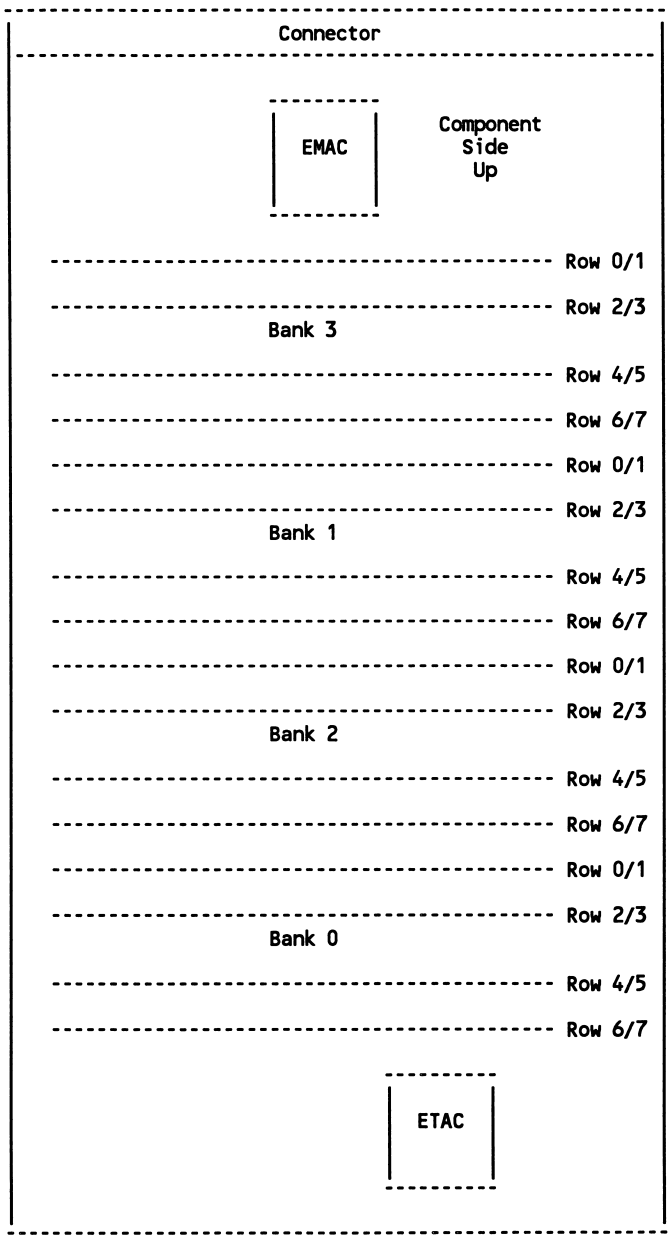
When a DIMM is causing single bit ecc errors, you should see an error similar to the following.

```
****

<Tue Mar 18 14:51:14 1997>  warning:0x72000001
OS:0.0.0.0::0
complex: 0x116e9        node: 0
[CC 0x72000001 SR 0x286580]
EMAC6 [0-7]:
EMAC Chip Config: (0x00de200000061006) : PartNum de, Vers 2, Id 6
EMAC Error Cause: (0x0000020000000000) : HardErrGrp 0, XbarPort 0
    LaInOverXbarPort 0, LaOutUnderXbarPort 0, LaInOve 0, LaOutUnde 0
    ErrBits 0x0000020000000000
-> 'Single Bit Memory Data ECC Error'
EMAC Error Info: (0x400c404018f54040) : ErrType 1, Overwritten 0
-> Multiple 0, Synd 62Enum 1, XbarPort 0, Responseless 0
-> ErrInfo c7aa02, Phase 0, Simult 0
-> ErrType 'Advisory Error', ErrNum 'Single Bit DataECC Error'
EMAC Error Address = 0x00003e01081ad1d8
-> MemRef: VI 0x3e, Node 0x0, Row 2, VR 0, VB 2
-> MemRef: Page 0x1ad, PgOfs 0xe, Bankbit 1, Even_Odd 1, Low_High 0
-> Bank Referenced: 3

****
```

To locate the suspect DIMM use the "EMAC#", the "Bank Referenced: #" and the "Row #". So in this example the suspect DIMM is EMAC6(EMB6), Bank 3 and Row 2. Using the illustration below we can see that the suspect DIMM, in this example, is the second DIMM from the EMAC.

(continued)

8.12.2 SPP2000 Single Bit ECC Errors and EMB DIMM Locations (continued)



Contents of this issue:
1. Barracuda 9 Disk Support for SPP1200/1600 (CORRECTION)

8.13.1 Barracuda 9 Disk Support for SPP1200/1600 (CORRECTION)

An error showed up in the first release of this bulletin when it indicated that the required level of drive f/w was 0006.lod. This information is incorrect for the Cuda9 drives, and a corrected bulletin follows:-

****

The Cuda9 disk is now supported on the 1200/1600 SPP systems.

This drive will only be supported for drives purchased directly from CXD. It will not be possible to support locally purchased drives due to differences in the mode pages and firmware levels.

The system requirements for this drive are as follow:

1) 0019.lod firmware
2) 4.2.139 level Sppux
3) Each PMC controller tuned to 100

This tunable is set as follows:

SCSI Controller x_y, Minimum Transfer Period:1=100:

where x = node number
y = controller number (0-7, if you're not sure, get cnx_ioscan from elvis:/pub/utilities/cnx_ioscan.2.1.gz via anonymous ftp).

example;
SCSI Controller 0_3, Minimum Transfer Period:1=100:
SCSI Controller 0_6, Minimum Transfer Period:1=100:
SCSI Controller 1_3, Minimum Transfer Period:1=100:

The FRU part number for this drive is: 550-000064-220.

Contents of this issue:

8.17.1 SPP2000 Teststation Upgrade Procedure

IMPORTANT - Since the following procedure involves replacing the teststation disk please take the necessary steps to save the data.

WARNING - ALL DATA ON TEST STATION WILL BE LOST!

1. As superuser shutdown SPP-UX with the command /etc/shutdown -h now.

2. As superuser shutdown HP-UX on the test station with the command /etc/shutdown -h now.

3. Power off the testation, the monitor and any peripheral devices.

4. Remove all external cables connected the rear of the teststation.

5. Lay the teststation base unit on a flat surface, such as a table top.

NOTE - ESD PRECAUTION!

Attach the static-grounding wrist strap by following the instructions on the package. Attach the sticky end of the wrist strap to the bare metal of the teststation unit. (this strap is located in the box containing the memory simms).

6. Release the top cover by pushing the two locking tabs at the rear of the teststation unit toward the outside of the unit and then forward.

7. Slide the cover forward about two inches, then carefully lift to remove it.

8. Remove the two 16Mb simms from the ESD packaging. Angle the memory simm with the top edge toward the rear of the system unit, and insert it into the connector labeled "slot 2". Snap the board into place by moving it to a vertical position. If the simm is aligned properly, the plastic alignment pins on either end of the connector align with the holes on the memory board. Repeat the same steps except for "slot 3".

9. Disconnect the SCSI and power cables from the hard disk.

10. Remove the disk retaining bracket by lifting the end closest to the rear of the teststation unit and rotating it toward the front of the system unit.

11. Remove the HP PAC (styrofoam bracket) from the top of the disk drive.

12. Lift the drive straight up, and set to the side.

(continued)

8.17.1 SPP2000 Teststation Upgrade Procedure(continued)

13. Remove the new 2Gb disk drive for the ESD packaging, and insert it in place of the old disk drive such that the scsi connector faces the rear of the teststation unit and the "SEAGATE" label on top of the disk faces up.

14. Install the SCSI and power cables to the hard disk.

15. Reinstall the the HP PAC and disk retaining bracket.

16. Reinstall the top cover by reversing the steps 8 and 9.

17. Reinstall the cables that were removed in step 5.

18. Power on the teststation unit, monitor and any peripheral devices.

19. When the teststation reboots, a blue set_parms box will appear.

Answer the following questions:

Set System Parameters Now? - Click on yes.
Do you have the required information? - Click on yes.
System Hostname? - Enter the Lan0 or global network hostname, Click on OK.
Confirm Hostname? - Click on yes if hostname is correct.
Time Zone? - Click on appropriate timezone.
Confirm Time Zone? - yes
Confirm Date and Time? - yes
System Internet Address? - this is the IP address for Lan0 interface.
Confirm InternetAddress? - Click on yes if IP address is correct.
Additional Network Parameters? - Click on yes.
Subnetwork Mask and Gateway
  Subnetwork Mask - Enter the appropriate information.
  Gateway Hostname - Enter the appropriate information.
  Gateway IP Address - Enter the appropriate information.
Confirm Network Parameters? - Click on yes.
Additional Network Devices? - Click on close.
Domain Name System?
  Domain Name - Enter the appropriate information.
  DNS server host name - Enter the appropriate information.
  DNS server address - Enter the appropriate information.
Network Information Service? - Click on cancel.
Configure Font Server - Click on No.
Additional System Parameters? - Click on close.

21. The teststation will finish the initialization process and boot to multiuser. At the login prompt type:
  Login: root
  Password: serialbus

22. As superuser, issue the following commands:

  a. create the file /etc/nsswitch.conf and insert the following line

    hosts:files

(continued)

8.17.1 SPP2000 Teststation Upgrade Procedure(continued)

b. Run ts.install and reboot the test station by performing the following commands:

```
# /spp/scripts/inst/ts.install

# /etc/reboot
```

23. The teststation will finish the initialization process and boot to multiuser. At the login prompt type:
    Login: sppuser
    Password: spp user

24. Please refer to the 5.1.2B Distribution Notice on page 10 beginning with Step 1 under "Loading JTAG Firmware" to complete this upgrade procedure.

8.17.2 SPP2000 Board Retainers

There are board retainers shipped with each SPP2000 node. These retainers are visible if you remove the main left and right EMI panel on the node. After removing these retainers to reseat boards in the node at install, please make sure to reinstall them.

The retainers are meant to retain boards during shipment AND to keep the boards from vibrating loose over time once the machine is installed.

8.17.3 SPP2000 Xconfig Warning

Beware of running xconfig on a 2000 system that is booted to the OS. It is possible that this can result in a hard error and crash the system. This will usually happen when just exiting the gui on a node under a reasonable load.

This problem is not easily duplicatable in-house, so no resolution is pending. In the meantime it is recommended to avoid using xconfig, unless the node is idle, or is not booted.

8.17.4 SPP2000 Recommended FRU's for EIOB Replacement

It is recommended that the EIOB not be used as the FRU level, on SPP2000's. Replacing the EIOB is too labor intensive, for both manufacturing and the field, as the the part must be removed for shipping, reinstalled on-site and then replaced in a chassis, here, when returned.

For this reason, it is requested that the 550 level number, for the PCI cardcage, be used as the FRU. For convenience, these part numbers are listed here:

PCI Cardcage/EIOB3.....550-001022-202
PCI Cardcage/EIOB4.....550-001022-203

8.17.5 SPP2000 Wrong Answers with Sx

It is possible to see wrong answers occur with sx and prll006. These wrong answers are os dependent and are generally associated with one answer file, SR011.exp. The source of the errors are differences in handling floating point zero's.

The solution is to go into the test source located at /texec/SX/xtests/pcxu_mem/prll006/prll006.sxext. This file will appear as below:

```
external "[SXETDIR]/pcxu_mem/prll006/prll006" prll006
(
    desc = "Prll006 (SPP2000 Processor/Memory Subsystem Test)"
    exit = 0
    destructive = false
    preexec = ""
    precompare = ""
    passhandler = "/bin/date >> [SXLOGDIR]/prll006.PASSED"
    failhandler = "/bin/date >> [SXLOGDIR]/prll006.WRONGANS"
    cleanup = ""
    stdin = ""
    expfile "[stdout]" "prll006.stdout.exp" ""
    expfile "SRV" "SRV.exp" ""
    expfile "SR04" "SR04.exp" ""
    expfile "SR06" "SR06.exp" ""
    expfile "SR011" "SR011.exp" ""              <<<<comment out this line
    required
    (
        "[SXETDIR]/pcxu_mem/prll006/prll006.exe"
        "[SXETDIR]/pcxu_mem/prll006/SRI5"
    )
)
```

As previously mentioned, the errors should be associated with SR011. So this line should be commented out.

(continued)

8.17.6 SPP2000 CPU Numbering/Location

The following is offered as a means to be able to identify cpu's, and their physical location within a node.

The LCD display located on the left side of an SPP2000 node, contains a line of information that indicates the state of each of the installed processors.

Translating any failing processors to a physical location within the node is not always an easy task, so try the following:-

The cpu numbering is as follows:-

As used by DIAGS, and OBP:-

```
CPU #       0 1 2 3   4 5 6 7  8 9 A B  C D E F
LCD display - - - -   - - - -  - - - -  - - - -
```

As used by the OS:-

```
CPU #       0 1 2 3   4 5 6 7  8 9 10 11  12 13 14 15
LCD Display - - - -   - - - -  - -  -  -   -  -  -  -
```

Using the LCD Display contents:-

```
EPAC #         0   1     2   3    4   5     6   7
EPAC Location  L   R     L   R    L   R     L   R
LCD Display    - - - -   - - - -  - - - -   - - - -
CPU Location   L R R L   L R R L  L R R L   L R R L
```

where L= LEFT, and R=RIGHT

This includes more information than was intended, but it may be a good reference source.

To physically locate CPU4, remembering the L R R L numbering, it turns out to be a left side processor in location PB2L. Processor CPU10 is located in PB5R, and so on.

8.17.7 SPP2000 IO3000 Command-line Disk Test

There is a much simpler way to use io3000 to determine the functionality of the Qlogic scsi disk controllers and disk drives, in a non-destructive mode.

It requires that the test controller be in standalone mode.
Please see the man page for "cxtest" and "io3000" for full details.

Here is an example:

```
[0:0] ok
[0:0] ok setenv boot-module diags
boot-module =         diags
[0:0] ok
```

(continued)

8.17.7 SPP2000 IO3000 Command-line Disk Test(continued)

```
/users/sppuser$ tc_standalone
0:0xf000d00a90 0x01000000
0x01000000
/users/sppuser$ do_reset
/users/sppuser$ cxtest -io -pa8 0x41200f00 -c 4 -s 500-515
```

The above command will run io3000, class 4 and subtests 500-515 on 0:17:2:0.

Note that subtests 500-515 was used instead of class 5. Class 5 contains subtest 520 that is a SCSI WRITE test.

Cxtest uses -pa8 (parameter 8) to determine which pci disk controller to test. The first 4 nibbles starting from the left will define epic/pci/ target id/lun#. The last 4 nibbles can be another value but for the scope of this bulletin it will be left at the default - 0f00. An example:

```
EPIC SLOT SPPUX pa8 value
       ----    ----    -----    ----------
 4  0  16 0x40xy0f00  where x = scsi target id
        4       1       17      0x41xy0f00        y = lun id (always 0)
        4       2       18      0x42xy0f00
        0       0       0       0x00xy0f00
        0       1       1       0x01xy0f00
        0       2       2       0x02xy0f00

        5       0       20      0x50xy0f00
        5       1       21      0x51xy0f00
        5       2       22      0x52xy0f00
        1       0       4       0x10xy0f00
        1       1       5       0x11xy0f00
        1       2       6       0x12xy0f00

        6       0       24      0x60xy0f00
        6       1       25      0x61xy0f00
        6       2       26      0x62xy0f00
        2       0       8       0x20xy0f00
        2       1       9       0x21xy0f00
        2       2       10      0x22xy0f00

        7       0       28      0x70xy0f00
        7       1       29      0x71xy0f00
        7       2       30      0x72xy0f00
        3       0       12      0x30xy0f00
        3       1       13      0x31xy0f00
        3       2       14      0x32xy0f00
```

To exit out of test controller do the following:

```
/users/sppuser$ ccmu
ccmu >get 0 boot_module
boot_module: 2
ccmu >put 0 boot_module 1
ccmu >push
/users/sppuser$ do_reset
/users/sppuser$
```