



Field Support Tech Tip

Product: C-2

Tech Tip Number: VME-001

Date: March 3, 1989

Subject: VME Error Messages

Submitted By: Al Haddix

This tip will explain the format of the VME error message. The error will be the standard error message received with the system up and running under vmunix.

Error as displayed in errorlog or on console terminal:

VME cable #n - Slot #n, Src=VME, flg: 0xnn <type>

The flg will indicate the contents of the VBCU error register and <type> will indicate the type of error occurring. This would be bits 4-6.

VBCU ERROR REGISTER

The following is a breakdown of the VBCU error log register:

7	6	5	4	3	2	1	0
Air Flow Sensor	Arbiter Timeout	Data Parity	Address Parity	Cable Master	Slot ID, Last VMEbus Master		

Bits

- 2.0: Slot ID of last VME Master. These 3 bits indicate the slot number of the controller that was bus master when the contents of the register was latched.
- 3: Last Cable Master. When set to "1" this bit indicates that a VME peripheral controller was master of the cable I/F when the register was latched. A "0" indicates that the VIOP controlled the VBCU.
- 4: ADDRESS PARITY ERROR. When set to "1" this bit indicates that an address parity error was detected by the VBCU.
- 5: DATA PARITY ERROR. When set, indicates that a data parity error was detected by the VBCU.
- 6: VMEbus ARBITER TIMEOUT. When set this indicates that a controller has requested and granted mastership of the VMEbus and has failed to assert "BUSY" within 768 microseconds.
- 7: AIR FLOW SENSOR. When set indicates that the VBCU airflow sensor detects insufficient air flow.



CONVEX

Field Support Tech Tip

Product: C-2

Tech Tip Number: VME-002

Date: March 3, 1989

Subject: VME ADDRESSING

Submitted By: Al Haddix

The following is a list of helpful hints on installation and addressing of VME controllers. This info will be incorporated into the VIOP/VBCU Service Guide, but has not made it up to this point.

This should be very helpful when customer's ask about installing their own third party vme controllers.

Following is a set of compatibility guidelines for using VMEbus controllers in the CONVEX VMEbus chassis:

- a. All controllers must use BUS REQUEST LEVEL 3.
- b. Each controller must be assigned to a UNIQUE INTERRUPT LEVEL.
- c. Boards are standard 6U although we can accept a 9U board with an adapter change (special) in the VME chassis. 9U boards must not use more than 6A of +5V (VME spec) since there are only two connectors provided on the backplane to supply power.
- d. Controllers need to be able to be VMEbus Master and provide DMA capabilities to achieve high data transfer rates. Also, any DS inter-cycle times must be kept to a minimum to achieve maximum performance through the cable interface. Performance will approach 10 MBytes/sec on a single cable and about 6 MBytes/sec/cable if both VME chassis are operational.
- e. We support ONLY the standard VME address modifiers listed below. When the 68020 is VMEbus master, we generate address modifiers as follows:

16-bit Address: 2D	(Short Supervisory Access)
24-bit Address: 3D	(Standard Supervisory Data Access)
32-bit Address: 0D	(Extended Supervisory Data Access)



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When a controller is VMEbus master and wants to access memory through the VIOP cache, we respond to address modifiers as follows:

24-bit Address: 3D (Standard Supervisory Data Access)
or: 39 (Standard Non-Privileged Data Access)
32-bit Address: 0D (Extended Supervisory Data Access)
or: 09 (Extended Non-Privileged Data Access)

- f. Block mode VMEbus transfers (and the associated address modifiers 3B, 3F, 0B, and 0F) are not supported. Unaligned data transfers are also not supported.
- g. The VMEbus address bits A22-A23 must match the address map register in the VBCU for 24-bit Addresses, and bits A22-A31 must match for 32-bit Addresses. This is essentially a software issue. The DMA transfer address has to be set up consistent with the VBCU address map registers.