Digital Alpha VME 4/224 and 4/288 Single-Board Computers

Corrections for User Guide and Technical Description (EK–DAVME–TD. A01)

August 1996

This document identifies corrections that need to be made to the *Digital Alpha VME 4/224 and 4/288 Single-Board Computers User Guide and Technical Description* (EK-DAVME-TD. A01).

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FCC Notice:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Warning!
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Achtung!
Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

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Ceci est un produit de Classe A. Dans un environment domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

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''This Class [A] Digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.''

''Cet appareil numerique de la class [A] respecte toutes les exigences du Reglement sur le materiel broilleur du Canada.''

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Preface

Purpose

This document is a mechanism for communicating corrections that need to be made in the *Digital Alpha VME 4/224 and 4/288 Single-Board Computers User Guide and Technical Description* while the manual is being revised.

Audience

This document is for Digital FAEs and support personnel servicing customers who have purchased Digital Alpha VME 4/224 or 4/288 single-board computers.

Conventions

This guide uses the following conventions:

Convention	Meaning
Return	Press the key that executes commands or terminates a sequence. This key is labeled Return, Enter, or ⟵, depending on your keyboard.
Ctrl/*x*	Hold down the Ctrl key while you press another key.
Upper- and lower-case characters	OSF and VxWorks commands are case sensitive. You must enter commands in the correct case, as printed in the text.
bold	Bold type identifies the names of environment variables and commands.
`Monospace type`	Indicates examples of system output or user input.
italics	In commands and examples, italics indicates a value that you should supply.
U*X	Is used in place of UNIX and ULTRIX in this document.

Convention	Meaning
[ ]	Square brackets in command descriptions enclose the optional command qualifiers. Do not type the brackets when entering information enclosed in the brackets.
|	A vertical bar in command descriptions indicates that you have a choice between two or more entries. Select one entry unless the entries are optional.
{ }	Braces indicate that you are required to specify one (and only one) of the enclosed options. Do not type the braces when you enter the command.
( )	Parentheses enclose a set of options that must be specified together.

1 Global Corrections

The following corrections should be made throughout the manual:

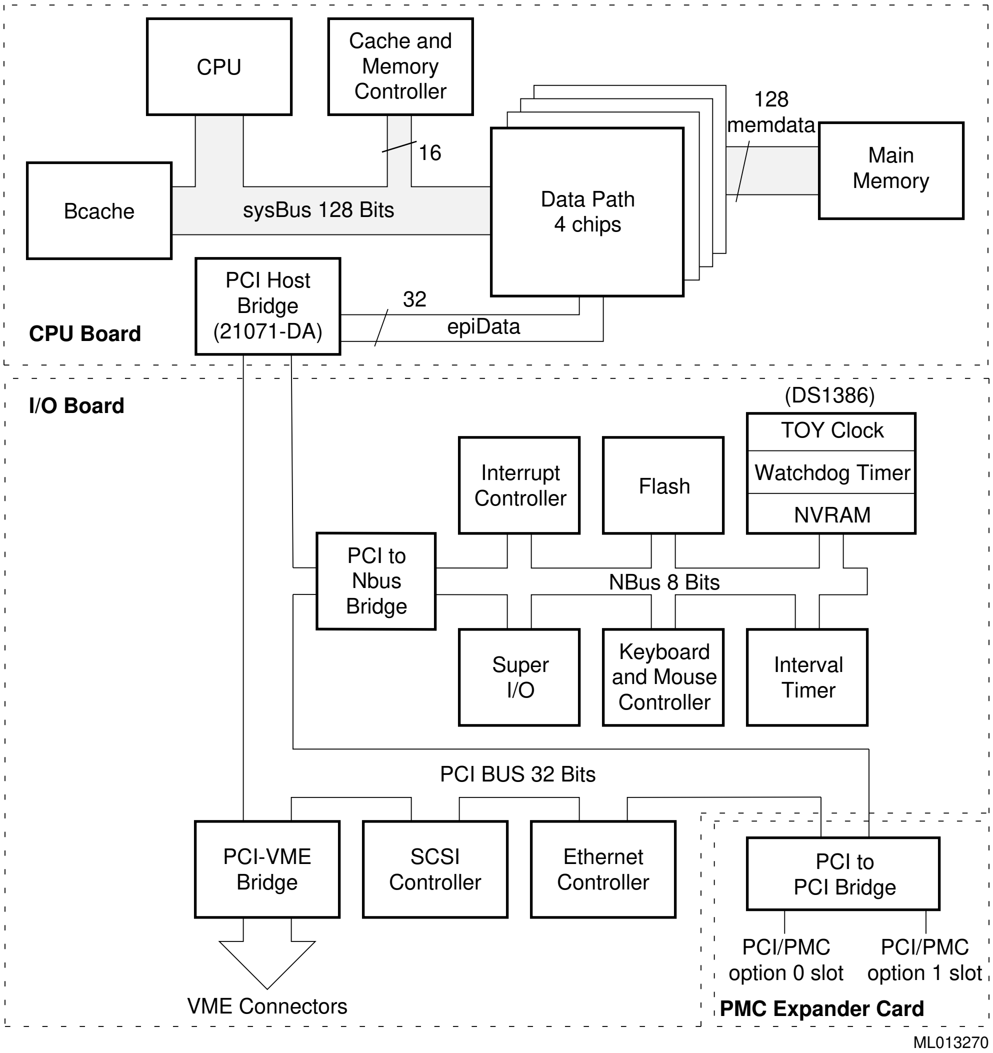
- References to AXPvme need to be changed to Alpha VME 4.
- References to ISA bus need to be changed to Nbus.
- References to scsi_id need to be changed to pka0_host_id.
- References to main and Type 1 breakout module need to be changed to primary breakout module.
- References to Type 2 breakout module need to be changed to secondary breakout module.

2 Corrections for Chapter 1, Product Overview

2.1 PCI to Nbus Bridge Misplaced in Alpha VME 4 Block Diagram

The positioning of the PCI to Nbus bridge in Figure 1-1, Alpha VME 4 Block Diagram, on page 1-3 is misplaced. The use of broken lines in the figure also needs clarification. The corrected figure should appear as shown in the following figure:

Figure 1 Alpha VME 4 Block Diagram



2.2 Text Missing from Note Following Table 1-3

The Note following Table 1-3 on page 1-5 concerns power and heat dissipation. Thus, the note should read as follows:

Note: Power and heat dissipation assumes nominal voltages (5.0 V, 12.0 V, and −12 V). Add 10% to the current and power values for a worst-case power and heat scenario.

3 Corrections for Chapter 2, Installation Procedures

3.1 Caution on Installing Breakout Modules is Incorrect

The Caution on page 2-1 needs to be replaced with the following:

Caution

You must install the primary breakout module (54-24663-01) included in your hardware kit (see Figure 2-7). Applying power to the Digital Alpha VME 4 module **WITHOUT** that primary breakout module in place, or **WITH** the breakout module included with the AXPvme 160, 166, or 230 (P/N 54–22605–01) in place may damage your backplane, the Digital Alpha VME 4 module, or both.

3.2 Kit Numbers for the Digital Alpha VME 4 Memory Modules are Incorrect

The kit numbers listed for the Digital Alpha VME 4 memory modules in Table 2-2 on page 2-4, in Section 2.5.1 on page 2-32, and in Table 2-14 on page 2-35 are incorrect. The following replacement table for Table 2-2 lists the correct kit numbers:

Table 1 Digital Alpha VME 4 Memory Modules

Memory Size (Mbyte)	Kit Number	Part Number
16	EBMXM-DB	54–24659–AB X 2
32	EBMXM-EB	54–24659–AA X 2
64	EBMXM-FB	54–24645–AA X 2

The kit numbers for the memory modules are listed correctly in the following table, which should replace the parts listing in Section 2.5.1.

Table 2 Products With a 1 Year Return to Digital Warranty

Product	Order Number
Alpha VME 4/224, SBC	EBV14-AA

(continued on next page)

Table 2 (Cont.) Products With a 1 Year Return to Digital Warranty

Product	Order Number
Alpha VME 4/224, UNIX Development	EBV14-ZA
Alpha VME 4/224, UNIX Runtime	EBV14-RA
Alpha VME 4/224, VxWorks Runtime	EBV14-XA
Alpha VME 4/288, SBC	EBV14-AE
Alpha VME 4/288, UNIX Development	EBV14-ZE
Alpha VME 4/288, UNIX Runtime	EBV14-RE
Alpha VME 4/288, VxWorks Runtime	EBV14-XE
16MB Memory DIMM set, 80-bits, 70ns	EBMXM-DB
32MB Memory DIMM set, 80-bits, 70ns	EBMXM-EB
64MB Memory DIMM set, 80-bits, 70ns	EBMXM-FB
PMC I/O Companion Card	EBV1P-AA

A corrected version of Table 2-14 follows:

Table 3 FRUs and Order Numbers

Saleable Number[1]	FRU Number	Description
EBV14-*A		
	70-32976-04	224 Mhz Single Board Computer — 2 board set, .5 MB Cache
	54-24729-01	VME Secondary Breakout Module
	54-24663-01	VME Primary Breakout Module
EBV14-*E		
	70-32976-02	288 MHZ Single Board Computer — 2 board set, 2 MB Cache
	54-24729-01	VME Secondary Breakout Module
	54-24663-01	VME Primary Breakout Module
EBV1P-AA		
	54-24665-01	PMC I/O Companion Card

[1]An asterisk (*) indicates any of the four possible letters (A,Z, R, or X).

(continued on next page)

Table 3 (Cont.) FRUs and Order Numbers

Saleable Number[1]	FRU Number	Description
	17-04230-01	Cable, Y-Adapter, IBM ThinkPAD
EBMXM-DB	54-24659-AB	16 MB (2x8) DIMM Set
EBMXM-EB	54-24659-AA	32 MB (2x16) DIMM Set
EBMXM-FB	54-24645-AA	64 MB (2x32) DIMM Set

[1]An asterisk (*) indicates any of the four possible letters (A,Z, R, or X).

3.3 Information on Attaching Printer to Parallel Port of Breakout Module Missing

The following paragraph on attaching a printer to the parallel port of the secondary breakout module (54-24729-01) needs to be added at the bottom of page 2-4:

To attach a printer to the parallel port of the secondary breakout module (54-24729-01), use any standard parallel port printer cable that has a 26 pin IDC connector on one end (for example, 17-04060-01). When you connect the cable, make sure pin 1 of the cable is on pin 1 of the connector that is mounted on the breakout module (see Section A.4).

3.4 List of Additional Hardware Installation Items is Incorrect

Table 2-4 on page 2-5 incorrectly lists the IEEE 802.3 loopback connector and is missing the 10BASET loopback connector and an example parallel port cable. The corrected version of the table is as follows:

Table 4 Additional Hardware Installation Items

Item	Supplier	Part Number
Serial line cable for console and auxiliary terminals	Digital	BC16E– *nn*[1]
IEEE 802.3 Twisted-pair transceiver to ThinWire	Digital	DETTR–AA
IEEE 802.3 Twisted-pair transceiver to twisted-pair	Digital	DETTR–BB
10BASET loopback connector	Digital	12-35619-01 (H4082-AA)
SCSI 20.32 cm (8 in), 30.48 cm (12 in), or 53.34 cm (21 in) cable with a 50-pin female IDC connector for connection to the Alpha VME breakout module and a female IEEE (Champ) connector for connection to external drives[2]	Digital	17-01244-01, -02, -03
SCSI 102.87 cm (40.5 in) cable with six 50-pin female IDC connectors and an included 50-pin IDC SCSI terminator for connection to the Alpha VME breakout module and up to 4 internal drives with the terminator on the last connector	Digital	17–03459–02
SCSI 220.98 cm (87 in) cable with five 50-pin female IDC connectors for connection to the Alpha VME breakout module and up to 4 internal drives and a female IEEE (Champ) connector for connection to external drives[2]	Digital	17-03036-01
Parallel port cable (example)	Digital	17-04060-01

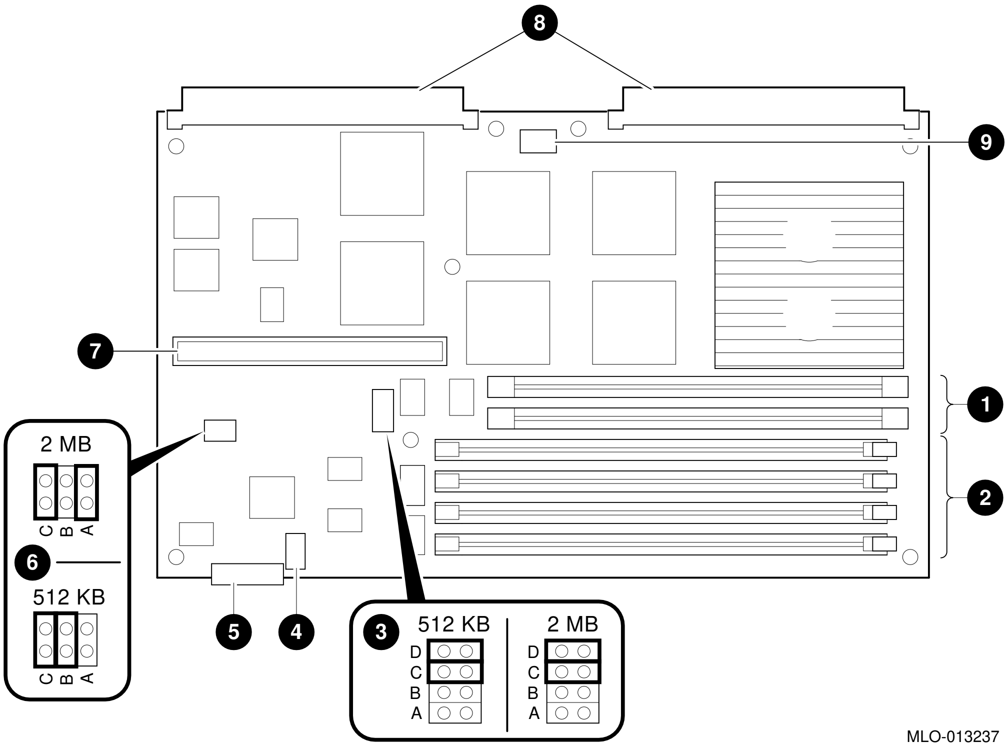
[1]The *nn* = cable length.

[2]A Champ SCSI terminator (PN H8574-A) might be required if external drives are not connected.

3.5 Figure of Digital Alpha VME 4 Module Layout is Incomplete

Cache memory size and speed select jumper settings and the label for SROM (❾) are missing from Figure 2-2 on page 2-7. The corrected figure is as follows:

Figure 2 Alpha VME 4 Module Layout



3.6 Callout List Corresponding to Figure 2-2 Needs Updating

The callout list corresponding to Figure 2-2 on page 2-7 needs to be updated to reflect the corrections to Figure 2-2. The corrected callout list is as follows:

❶ Cache memory connectors

❷ Memory connectors

❸ Cache configuration select jumper (J9)

❹ Power and VME slave activity/watchdog timeout LEDs

❺ Status display

❻ Cache memory size and speed select jumper (J10)

❼ I/O module connector

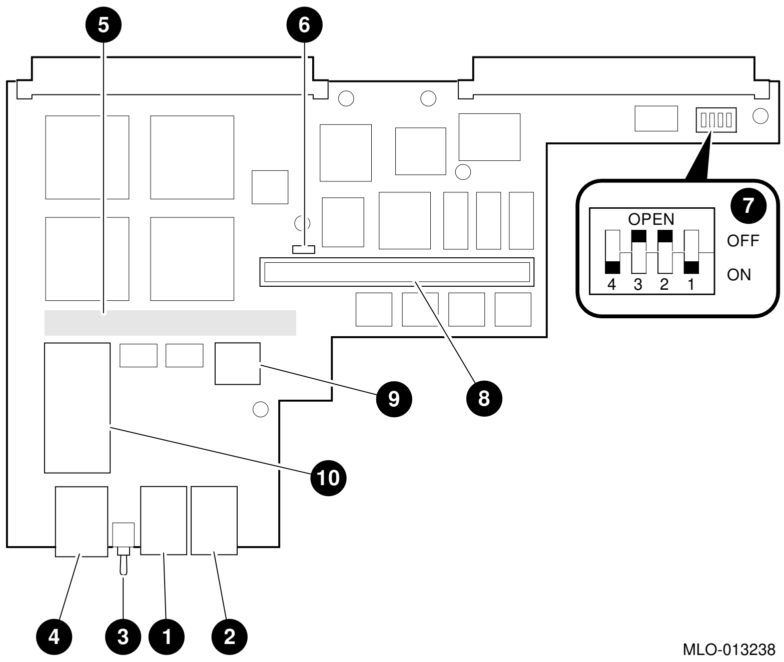
❽ VME connectors

❾ SROM (8 pin)

3.7 Figure of I/O Module Layout is Missing a Label

The label for the NVRAM/TOY (❿) is missing from Figure 2-3 on page 2-8. The corrected figure is a follows:

Figure 3 I/O Module Layout



3.8 Callout List Corresponding to Figure 2-3 Needs Updating

The callout list corresponding to Figure 2-3 on page 2-8 needs to be updated to reflect the following corrections:

- "(console only)" needs to be deleted from ❷
- "Digital Alpha VME 4 connector" in ❺ needs to be replaced with "Connector to CPU module"

- "(Manufacturing use only)" in ❻ needs to be replaced with "(not installed for normal operation)"
- "System" in ❾ needs to be replaced with "Ethernet"
- ❿ NVRAM/TOY needs to be added

The corrected callout list is as follows:

❶ Console serial port

❷ Auxiliary serial port

❸ Reset/halt switch

❹ Twisted pair Ethernet connector

❺ Connector to CPU module (on back of I/O module)

❻ Debug jumper (not installed for normal operation)

❼ Configuration switchpack

❽ PMC I/O companion card connector

❾ Ethernet Address ROM

❿ NVRAM/TOY clock

3.9 Table Title Incorrect

Table 2-7 on page 2-10 lists supported switch settings for nonsystem controller modules in slots other than slot 1. Thus the title needs to be changed to:

Table 2-7 Supported Switch Settings for Digital Alpha VME 4 Modules in Other Than Slot 1 (Nonsystem Controller)

3.10 Clarification Needed for Instructions on Installing Memory Module

The text for the third bullet under step 3 on page 2-10 needs to be modified to read as follows:

- Align pin 1 of the memory module with pin 1 on the connector. The position of the orientation notches (see ❸ in Figure 2-4) assure proper connectivity.

3.11 Clarifications Needed for Memory Bank and Slot References

References to memory banks and slots in the callout list at the bottom of page 2-11 and in the headings of Table 2-8 need clarification. References in the callout list should read:

❶ Memory bank 0 slots A and B

❷ Memory bank 1 slots A and B

The headings in Table 2-8 should be changed to:

Memory Size (Mbytes)	Bank 0 Slot A	Bank 0 Slot B	Bank 1 Slot A	Bank 1 Slot B

3.12 Incorrect Callout Used to Identify Cutout on Cache Memory DIMM

Step 4 on page 2-12 refers to callout ❷ to identify the orientation notch on the cache memory DIMM shown in Figure 2-5. This is incorrect. The last sentence of step 4 needs to be changed to the following:

The position of the orientation notch on the cache memory DIMM in Figure 2-5 (see ❶) denotes the location of pin 1.

3.13 Note Needs to be Removed

The Note on page 2-13 needs to be deleted.

3.14 J10 Cache Jumper Settings are Incorrect

The second and fifth J10 cache jumper settings shown in Table 2-10 on page 2-14 are incorrect. The following table shows the correct jumper settings:

Table 5 J10 Cache Jumper Settings

A	B	C	Total Size	Speed
In	In	In	Disable cache	
In	In	Out	Reserved	
In	Out	In	2 Mbytes	12 ns
In	Out	Out	Reserved	
Out	In	In	512 Kbytes	15 ns
Out	In	Out	Reserved	
Out	Out	In	Reserved	
Out	Out	Out	Reserved	

3.15 Caution on Installing Breakout Modules is Incorrect

The Caution on page 2-15 needs to be replaced with the following:

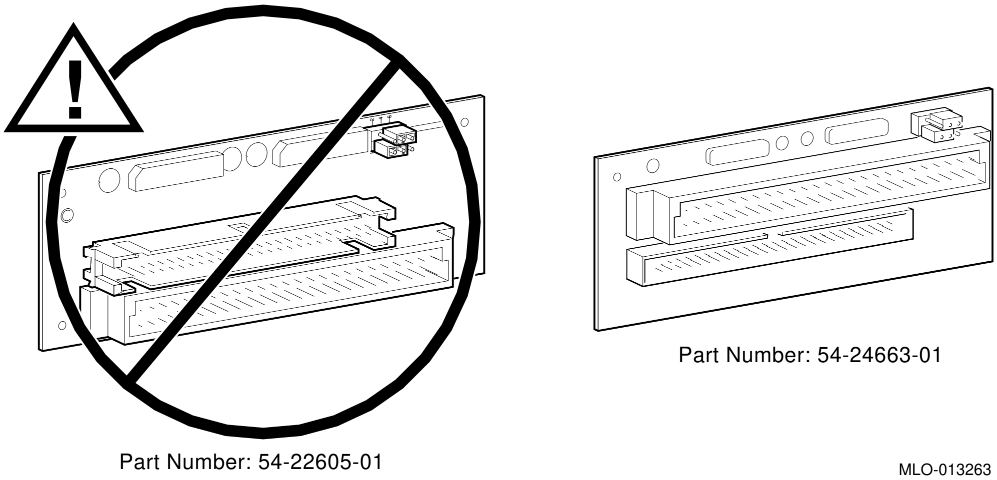
Caution

You must install the primary breakout module (54-24663-01) included in your hardware kit (see Figure 2-7). Applying power to the Digital Alpha VME 4 module **WITHOUT** that primary breakout module in place, or **WITH** the breakout module included with the AXPvme 160, 166, or 230 (P/N 54–22605–01) in place may damage your backplane, the Digital Alpha VME 4 module, or both. Also, do not press on the LED window when you install the module.

3.16 Labels Needed to Identify Breakout Modules

The breakout modules shown in Figure 2-7 on page 2-16 should be identified with part number labels as shown in the following figure:

Figure 4 Alpha VME 4 Primary Breakout Module



3.17 Pin and Connector References for External Watchdog Reset Signal are Incorrect

The pin and connector references (9C and J2) in the paragraph just above Figure 2-8 on page 2-17 are incorrect. The paragraph needs to be corrected as follows:

The external Watchdog Reset signal is on pin C10 of the VMEbus J3 (P2) connector on the breakout module. This signal is low during normal operation and high during a watchdog timer reset (provided that pullup power is connected).

3.18 Backplane Connector Reference is Incorrect

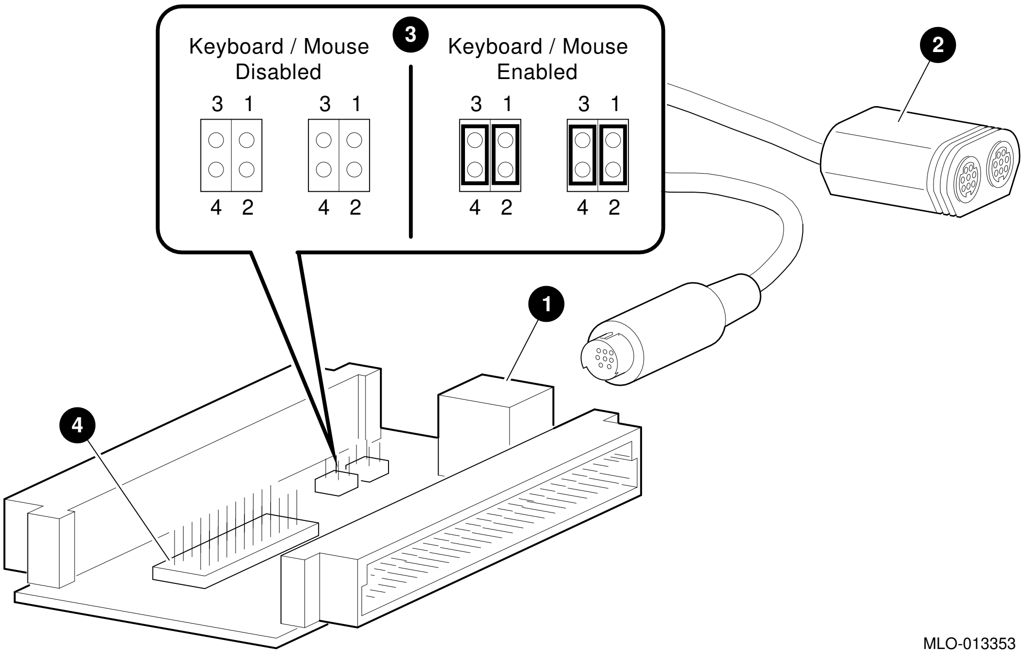
The second paragraph of the Caution on page 2-18 incorrectly refers to the J2 backplane connector. J2 needs to be replaced with P2. A corrected version of the paragraph follows:

Never insert a module other than a Digital Alpha VME 4 module into a slot opposite the breakout module. The breakout module feeds power to several of the user-defined pins on the P2 backplane connector. This may damage other VME modules.

3.19 Secondary Breakout Module Jumpers are Incorrect

Figure 2-11 on page 2-20 shows the jumper settings for Keyboard/Mouse Enabled incorrectly. The following figure shows the jumper settings correctly:

Figure 5 Secondary Breakout Module Jumpers



3.20 Callout List Corresponding to Figure 2-11 Needs Updating

The callout list corresponding to Figure 2-11 on page 2-20 needs to be updated to reflect the following corrections:

- "or" needs to be changed in "and" in ❶
- "connectors" needs to be replaced with "Y cable (17-04230-01)" in ❷
- "(see Appendix A for pinout)" needs to be added to ❹

The corrected callout list is as follows:

❶ Mouse and keyboard connector

❷ Mouse and keyboard Y cable (17-04230-01)

❸ Keyboard and mouse jumper configurations

❹ Parallel port (see Appendix A for pinout)

3.21 Description of Labels Used in Figure 2-12 Missing

The following callout list needs to be added after Figure 2-12 on page 2-21 to describe the labels used in that figure:

❶ Primary breakout module (54-24663-01)

❷ Secondary breakout module (54-24729-01)

3.22 Misleading Sentence Needs to be Deleted

The last sentence in step 15 on page 2-21 needs to be deleted. Use of the term "default" in that sentence implies you can adjust the settings on the module and that is not the case.

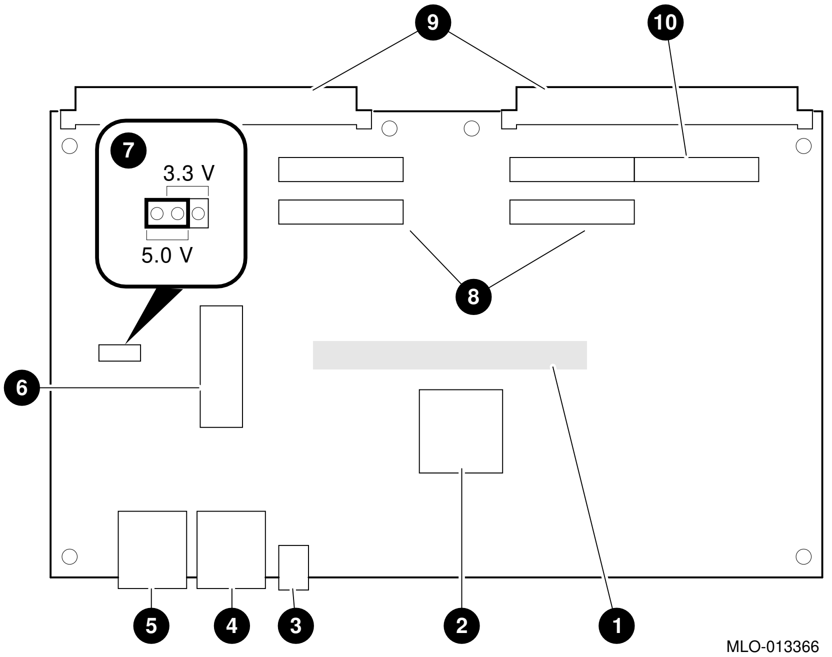
3.23 Unnecessary Note Regarding Installation of PMC I/O Companion Card

The Note in step 16 on page 2-22 needs to be deleted. The Note discusses the option of installing the PMC I/O companion card. At this point of the installation, the PMC I/O companion card should already be installed if the card is being used.

3.24 Jumper Setting and Label Missing from PMC I/O Companion Card Layout

The signaling level jumper setting and the label for the I/O to P2 signal connector are missing from Figure 2-14 on page 2-23. The following corrected figure shows the jumper setting and label (❿):

Figure 6 PMC I/O Companion Card Layout



3.25 Callout List Corresponding to Figure 2-14 Needs Updating

The callout list corresponding to Figure 2-14 on page 2-23 needs to be updated to reflect the following corrections:

- "(jumper MUST be set to 5.0 V)" needs to be added to ❼
- "❿ I/O-to-P2 signal connector" needs to be added

The corrected callout list is as follows:

❶ I/O module connector (on back of PMC I/O companion card)

❷ PCI-to-PCI bridge chip

❸ Power LED

❹ Keyboard connector

❺ Mouse connector

❻ Debug socket

❼ Signaling level jumper (jumper MUST be set to 5.0 V)

❽ PMC option slots

❾ VME connectors

❿ I/O-to-P2 signal connector

3.26 Instructions for Setting Signaling-Level Jumper are Incorrect

The instructions for setting the signaling-level jumper in step 1 on page 2-24 are incorrect. The correct text for step 1 is as follows:

Make sure the signaling-level jumper on the PMC I/O companion card is set for 5.0 V.

3.27 Steps to Installing PMC I/O Companion Card Need to be Corrected

On page 2-27, step 8 needs to be corrected and step 9 needs to be deleted. The correct text for step 8 is as follows:

Return to step 6 in Section 2.2 for instructions on installing the Digital Alpha VME 4 module into the VME chasis and setting up and installing the breakout modules.

4 Corrections for Chapter 3, Operating the Digital Alpha VME 4 Computer

4.1 Statement on Modifying Environment Variables Needs to be Clarified

The first sentence on page 3-4 is misleading and needs to be corrected to read as follows:

Table 3-2 lists product console environment variables.

4.2 Some Variables Need to be Deleted from Environment Variable Summary

Descriptions of the following variables should be deleted from Table 3-2 on page 3-4:

boot_reset
ncr*_setup
pci_arb_mode
pci_park_dev
sys_serial_num
tt_baud

These environment variables are not available for use or do not apply to the Alpha VME 4 SBCs.

5 Corrections for Chapter 4, Diagnostics

5.1 Pointer to Description of Loopback Connections Needs to be Added to Note

A pointer to a description of the loopback connections for the VMEbus P2 loopback connector needs to be added to the Note on page 4-12. The corrected note reads:

Note

A VMEbus P2 loopback connector is required. See Figure 4-1 for a description of the loopback connections.

5.2 Note Needs to be Corrected

The Note on page 4-16 needs to be corrected as follows:

Note

To run the external loopback test, you must use a 10baseT loopback connector (H4082-AA). The external loopback test will not run if the device is connected to an open network.

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6 Corrections for Chapter 6, Cache and Memory Subsystem

6.1 Address of Global Timing Register is Incorrect

The address noted for the global timing register in the title of Figure 6-19 is incorrect. The correct address is 1 8000 0200 as shown in the following corrected title:

Figure 6-19 Global Timing Register: 1 8000 0200

7 Corrections for Chapter 8, PCI Bus

7.1 scsi_id Environment Variable is Incorrect

The reference to the **scsi_id** environment variable in Section 8.2.2 on page 8-7 is incorrect. You need to use the environment variable **pka0_host_id** to set the SCSI ID. The corrected text for Section 8.2.2 follows:

The default SCSI ID is 7. You set the SCSI ID by writing the SCSI controller's SCID register (offset 04h). To do this, use the console the console command **set pka0_host_id** *n*.

For example, if you enter the command **set pka0_host_id 4**, the embedded SCSI controller assumes a SCSI ID of 4.

8 Corrections for Chapter 9, Nbus

8.1 Onboard Switch for 5 V Standby Connection Incorrectly Identified

The Alpha VME 4 CPU board's onboard switch for allowing a connection to a VMEbus 5 V standby connection is misnamed in Section 9.6 on page 9-23. The switch is incorrectly named E44. The correct name is J3. Thus, the fourth sentence in the fourth paragraph in Section 9.6 should read as follows:

The Digital Alpha VME 4 CPU board has an onboard switch (J3 switch 1) to allow a connection to the 5 V standby connection on the VMEbus (5VSTDBY).

8.2 P2 Pin Identifiers for Timer Registers are Incorrect

The references to the P2 pin identifiers for the timer registers described in section 9.7.2 on page 9-29 are incorrect.

Pin	Should Be
C17	C13
C18	C14
C16	C12
C15	C11

The corrected bulleted list is as follows:

- Timer #0 must be clocked externally by P2 pin C13. Optionally, its gate input can also be driven by P2 pin C14. When Timer #0 makes a low-to-high transition, its output causes the assertion of an interrupt request (IRQ). The IRQ can be dismissed by an access to the Timer Interrupt Status Register.
- Timer #1 operates as a rate generator with its output being driven off module by P2 pin C12. This timer is clocked by a fixed 10 MHz. The output is also routed directly to VIC local IRQ input <3>.
- Timer #2 operates as a rate generator with its output connected to P2 pin C11. This timer is clocked with the same fixed 10 MHz. The output can also be used on the module to generate an interrupt request. If enabled, Timer #0's output during a transition from low-to-high causes the assertion of an interrupt request (IRQ). The IRQ can be dismissed by an access to the Timer Interrupt Status Register.

8.3 P2 Pin Identifier for TMR_MAJOR_IP L is Incorrect

References to the P2 pin identifier for TMR_MAJOR_IP L in Section 9.7.3 on page 9-31 are incorrect. In the first paragraphs of the first and third list elements on that page, the pin is incorrectly identified as C18. This pin should be identified as C14.

The corrected paragraphs are as follows:

- **Mode 1 - Hardware Retriggerable One-Shot**

  This mode allows a value to be written to the timer which can be used when a hardware trigger has been received. TMR_MAJOR_IP L (P2 pin C14) transitions from a high to a low.

  .
  .
  .

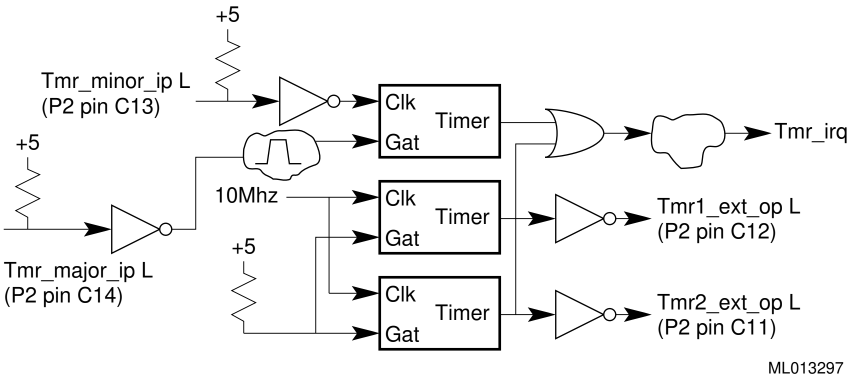
- **Mode 5 - Hardware Triggered Strobe**

  Placing timer #0 in this mode generates a single clock wide pulse delayed by N+1 clocks. The output is initially high. Counting is triggered by a high-to-low transition of TMR_MAJOR_IP L (P2 pin C14). The output of timer #0 goes low for one clock period after N + 1 clock pulses. The counting sequence is retriggerable. Timer #0's output does not strobe low for N+1 clocks after any strobe.

8.4 P2 Pin Identifiers in Figure 9-15 are Incorrect

The P2 pin identifiers shown in Figure 9-15 (C15, C16, C17, and C18) are incorrect. The correct pin idenfitiers are C11, C12, C13, and C14 as shown in the following figure:

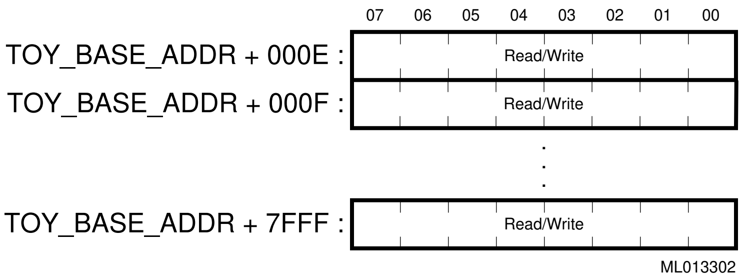
Figure 7 Timer Clocking



8.5 Byte Offset of Ending Address for NVRAM is Incorrect

The byte offset of the ending address for NVRAM access as shown in Figure 9-20 on page 9-37 is incorrect. The offset should be 7FFF instead of 000E as shown in the following figure:

Figure 8 NVRAM Access



9 Corrections for Chapter 10, VME Interface

9.1 VME Interface Handles Interprocessor Communication

The second list element at the top of page 10-2 incorrectly states that the VME interface handles interprocess communication. "Interprocess" communication should be "interprocessor" communication. The corrected list element reads as follows:

- As a VMEbus slave, it handles VMEbus-to-PCI bus, or inbound, transactions and interprocessor communication.

9.2 Missing Underscores in Names of Address Windows

In the first sentence of Section 10.1.1 on page 10-5 the names of the address windows VME_WINDOW_1 and VME_WINDOW_2 are missing the first underscore. The corrected sentence reads as follows:

A PCI memory access in either VME_WINDOW_1 or VME_WINDOW_2 address windows causes a lookup for the corresponding S/G entry.

9.3 Missing Qualifying Text to PCI Address Notation

In the last sentence of the second paragraph of Section 10.1.1 on page 10-5 the qualifying text "PCI Address" is missing from the reference to <25:18>. The corrected sentence reads:

If the PCI memory cycle addreses VME_WINDOW_2, the S/G entry is identified by PCI Address <25:18>.

9.4 Master May Be Blocked by Masters Higher Up Daisy Chain

The second paragraph of Section 10.3.1.1 on page 10-17 discusses how the granting of ownership of the VMEbus to a master passes down the VMEbus along a daisy-chain. The second sentence in the paragraph incorrectly states that the masters further down the daisy-chan may not be blocked by masters higher up the chain. Master further down the daisy-chain may be blocked by masters higher up the chain. The corrected paragraph reads as follows:

The granting of ownership of the VMEbus to a master is passed down the VMEbus along a daisy-chain. Because of this arrangement, the masters further down the daisy-chain may be blocked by masters higher up the chain. This problem (bus starvation) can be minimized if the masters all implement a Fair Request scheme. If any master does not obey the fairness scheme, it can starve the masters further along the daisy-chain.

9.5 Description of Field <0> for VMEbus Transfer Timeout Register is Incorrect

The description of field <0> for the VMEbus Transfer Timeout Register (VIC_ TTR) in Table 10-9 on page 10-22 is incorrect. The table entry needs to be corrected as follows:

<0>	When set, the local bus timer includes the time for VMEbus acquisition

9.6 Date in VME Subsystem Restrictions Heading is Incorrect

The date included in the heading for Section 10.7 on page 10-40 (22-Nov-94) is incorrect. The correct date is 03-Jun-96. Text for the correct heading is as follows:

VME Subsystem Restrictions (as of 03-Jun-96)

10 Corrections for Chapter 11, System Interrupts

10.1 Only Two External/System Interrupt Sources

The first sentence on page 11-7 (Section 11.1.3.1) indicates that there are three external/system interrupt sources when there are only two sources. That sentence should be corrected as follows:

Each of these interrupt sources has an associated Interrupt Control Register that allows the interrupt to be programmed with an individual IPL or to be disabled.

10.2 Incorrect Address Listed for VME IRQ Interrupt Control Register

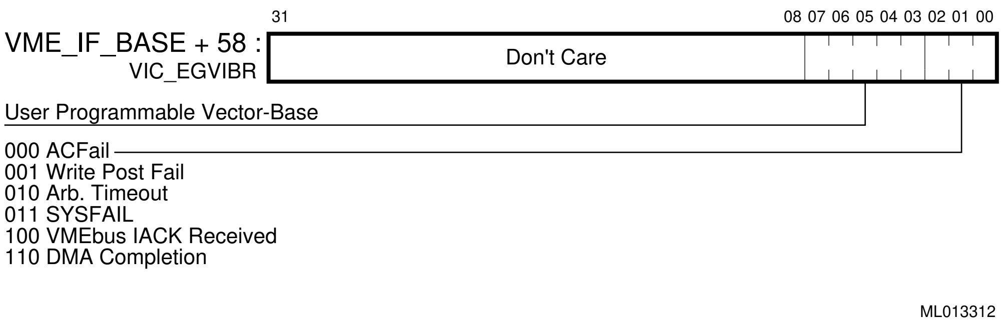
The last address listed in Table 11-3 on page 11-8 is incorrect. The following table entry lists the correct address:

:VME_IF_BASE+1C	VIC_ICR7	IRQ7

10.3 Byte Offset and Name of VIC Error Group Interrupt Vector Base Register are Incorrect

The byte offset and name of the VIC error group interrupt vector base register (VIC_EGVIBR) shown in Figure 11-13 on page 11-10 are incorrect. The correct offset and register name are shown in the following figure:

Figure 9 VIC Error Group Interrupt Vector Base Register



11 Corrections for Chapter 12, Console Primer

11.1 Display Output of System Information Commands Needs to be Updated

The example display output for the **show version** and **show pal** commands in Section 12.2 on pages 2-6 and 2-7 needs to be updated. The following table entries show updated command output:

Command	Description	Example
show version	Displays version number of CONSOLE FW	`V1.1-0 Jul 1 1996 10:16:59`
show pal	Displays version number of PALcode	`VMS PALcode V5.56-4, OSF PALcode X1.45-8`

The example output for **show version** in Section 12.9 on page 12-19 needs updating also. That example should a appear as follows:

```
>>>cat sample
show version
ls -l sample
>>>sample
version            V1.1-0 Jul 1 1996 10:16:59

rwx-   rd               512/2048          0   sample
```

12 Corrections for Chapter 13, Console Commands

12.1 nettest Command Needs to be Deleted

The reference to the **nettest** command on page 13-75 and the description of that command, starting on page 13-76, need to be deleted. The Alpha VME 4 console program does not support the **nettest** console command.

12.2 Note Needs to be Added to set reboot srom Description

The following note needs to be added to the description of the **set reboot srom** command on page 13-88:

Note

If the I/O module's debug jumper is installed, the system displays the SROM Mini-Debugger prompt every time you power-on the system. While in the SROM Mini-Debugger, you can start the SRM console by entering the **st** command and then entering address 8000 at the address prompt as follows:

```
SROM>  st
a>  8000
```

12.3 Output of show version Command Needs Updating

The output shown in the example of the **show version** command on page 13-93 needs to be updated. The following example shows the updated output:

```
>>> show version
version                 V1.1-0 Jul 1 1996 10:16:59
>>>
```

12.4 show config Command Example Output Needs Updating

The output shown in the **show config** command example on page 13-94 needs to be updated. The following example shows the updated output:

```
>>> show config

                        Digital Equipment Corporation
                              Alpha VME 4/288

        SRM Console V1.1-0  VMS PALcode V5.56-4, OSF PALcode X1.45-8

                     MEMORY:    16 Meg of system memory
          System Controller:    VIC64 Enabled
```

```
Hose 0, PCI
        slot 0  DECchip 7407
        slot 1  DECchip 21040-AA      ewa0.0.0.1.0      08-00-2B-E4-E3-06
        slot 2  NCR 53C810            pka0.7.0.2.0      SCSI Bus ID 7
                              dka0.0.0.2.0         RZ26L
                              dka300.3.0.2.0       RZ26L
                              dka500.5.0.2.0       RRD42
        slot 3  Intel 82378IB
        slot 4  DECchip 21052-AA

>>>
```

Displays the system's configuration.

12.5 show error Command Needs to be Deleted

The description of the **show error** command on page 13-97 needs to be deleted. The Alpha VME 4 console program does not support the **show error** console command.

12.6 update Command Example Output Needs Updating

The output shown in the examples of the **update** command on page 13-109 need to be updated. The following examples show the updated output:

1.

```
>>> update -fi alphavme_v1_1-0 -dev ewa0 -prot mop -tar console
>>> update -path mop:alphavme_v1_1-0/ewa0 -target console
.....
Network load complete.
Host name: OHMY
Host address: aa-00-04-00-00-4b

new: 1.1-0
Note: Module DIP Switch #2 must be CLOSED to enable Updates!

                        FEPROM UPDATE UTILITY
                        -----> CAUTION <-----
        EXECUTING THIS PROGRAM WILL CHANGE YOUR CURRENT ROM!

Do you really want to continue [Y/N] ? : Y

        DO NOT ATTEMPT TO INTERRUPT PROGRAM EXECUTION!
        DOING SO MAY RESULT IN LOSS OF OPERABLE STATE.

The program will take at most several minutes.
```

```
Erasing the target flash device...
........
Erasure completed.
Programming...
........
Programming completed.
Verifying...
Update successful
>>>
```

The example above shows how to do an update using the MOP protocol.

2.

```
>>> update -fi //usr//local//bootfiles//alphavme_v1_1-0 -dev ewa0
-target console -pro tftp
>>> update -path tftp://usr//local//bootfiles//alphavme_v1_1-0/ewa0
-target console

                        FEPROM UPDATE UTILITY
                        -----> CAUTION <-----
        EXECUTING THIS PROGRAM WILL CHANGE YOUR CURRENT ROM!

Do you really want to continue [Y/N] ? : y

        DO NOT ATTEMPT TO INTERRUPT PROGRAM EXECUTION!
        DOING SO MAY RESULT IN LOSS OF OPERABLE STATE.

The program will take at most several minutes.

Erasing the target flash device...
........
Erasure completed.
Programming...
........
Programming completed
Verifying...
Update successful
>>>
```

The example above shows how to do an update using the TFTP protocol.

13 New Appendix A for Listing Module Connector Pinouts

An appendix, which lists the module connector pinouts, needs to be added to the manual. Sections 13.1 through Section 13.5 include the content of that new appendix. These sections provide pinout information for the Alpha VME 4:

- CPU connector
- I/O Type 1 card connector
- Primary breakout module connector
- Secondary breakout module connector
- PMC I/O Companion card

13.1 CPU Connector Pinouts

The Alpha VME 4 CPU (54-24325-*xx*) J12 (P2) connector has the following power/ground pin assignments:

	Row A	Row B	Row C
Ground	1, 2, 4, 5, 7, 8, 10, 11, 13, 15, 16, 18-23, 28-30	2, 12, 22, 31	3, 4, 7-11, 14-17, 20-22, 24-27, 30
VCC	3, 6, 9, 12, 14, 17, 24-27, 31, 32	1, 13, 32	1, 2, 5, 6, 12, 13, 18, 19, 23, 28, 29, 31, 32

13.2 I/O Type 1 Card Connector Pinouts

Sections 13.2.1 through 13.2.3 show the pinouts for the VMEbus connector, console and serial connectors, and the Ethernet connector on the Alpha VME I/O Type 1 card (54-24139-01).

13.2.1 VMEbus (J1) Connector Pinouts

Table 6 lists the pinouts for the VMEbus (J1) connector (P2).

Table 6 VMEbus (J1) Connector

Pin	Row A	Row B	Row C
1	SCSI_DATA0_L	VCC	MSDATA
2	SCSI_DATA1_L	Ground	MSCLK
3	SCSI_DATA2_L	N/C	Ground

(continued on next page)

Table 6 (Cont.) VMEbus (J1) Connector

Pin	Row A	Row B	Row C
4	SCSI_DATA3_L	VME_A24	KBDATA
5	SCSI_DATA4_L	VME_A25	KBCLK
6	SCSI_DATA5_L	VME_A26	WD_STATUS_ OC
7	SCSI_DATA6_L	VME_A27	BREAKOUT0
8	SCSI_DATA7_L	VME_A28	BREAKOUT1
9	SCSI_DP_L	VME_A29	Ground
10	SCSI_ATN_L	VME_A30	EXT_RESET_L
11	SCSI_BSY_L	VME_A31	TMR2_EXT_ OP_L
12	SCSI_ACK_L	Ground	TMR1_EXT_ OP_L
13	SCSI_RST_L	VCC	TMR_MINOR_ IP_L
14	SCSI_MSG_L	VME_D16	TRM_MAJOR_ IP_L
15	SCSI_SEL_L	VME_D17	Ground
16	SCSI_CD_L	VME_D18	PP_STB_L
17	SCSI_REQ_L	VME_D19	PP_ERR_L
18	SCSI_IO_L	VME_D20	PP_DATA0
19	Ground	VME_D21	PP_DATA1
20	Ground	VME_D22	PP_DATA2
21	Ground	VME_D23	PP_DATA3
22	Ground	Ground	PP_DATA4
23	VME_MASTER_SW_L	VME_D24	PP_DATA5
24	VCC	VME_D25	PP_DATA6
25	VCC	VME_D26	PP_DATA7
26	VCC	VME_D27	PP_SLCT
27	VCC	VME_D28	PP_PE
28	Ground	VME_D29	PP_BUSY

(continued on next page)

Table 6 (Cont.) VMEbus (J1) Connector

Pin	Row A	Row B	Row C
29	Ground	VME_D30	PP_ACK_L
30	Ground	VME_D31	PP_AFD_L
31	VCC	Ground	PP_INIT_L
32	VCC	VCC	PP_SLIN_L

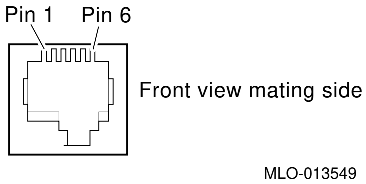
13.2.2 Console (J6) and Serial (J7) Connector Pinouts

Table 7 lists the pinouts for the console (J6) and serial (J7) connectors. Figure 10 shows a pinout diagram.

Table 7 Console (J6) and Serial (J7) Connector Pinouts

Pin	Signal
1	ready out
2	transmit +
3	transmit -
4	receive +
5	receive -
6	ready in

Figure 10 Console (J6) and Serial (J7) Connector Pinouts



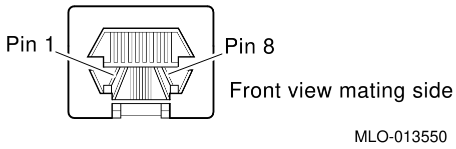
13.2.3 Ethernet (J9) Connector Pinouts

Table 8 lists the pinouts for the Ethernet (J9) connector. Figure 11 shows a pinout diagram.

Table 8 Ethernet (J9) Connector Pinouts

Pin	Signal
1	transmit +
2	transmit -
3	receive +
4	no connection
5	no connection
6	receive -

Figure 11 Ethernet (J9) Connector Pinouts



13.3 Primary Breakout Module Connector Pinouts

Table 9 lists the pinouts for the primary breakout module (54-24663-01). Figure 12 shows a pinout diagram.

Table 9 Primary Breakout Module Connector Pinouts

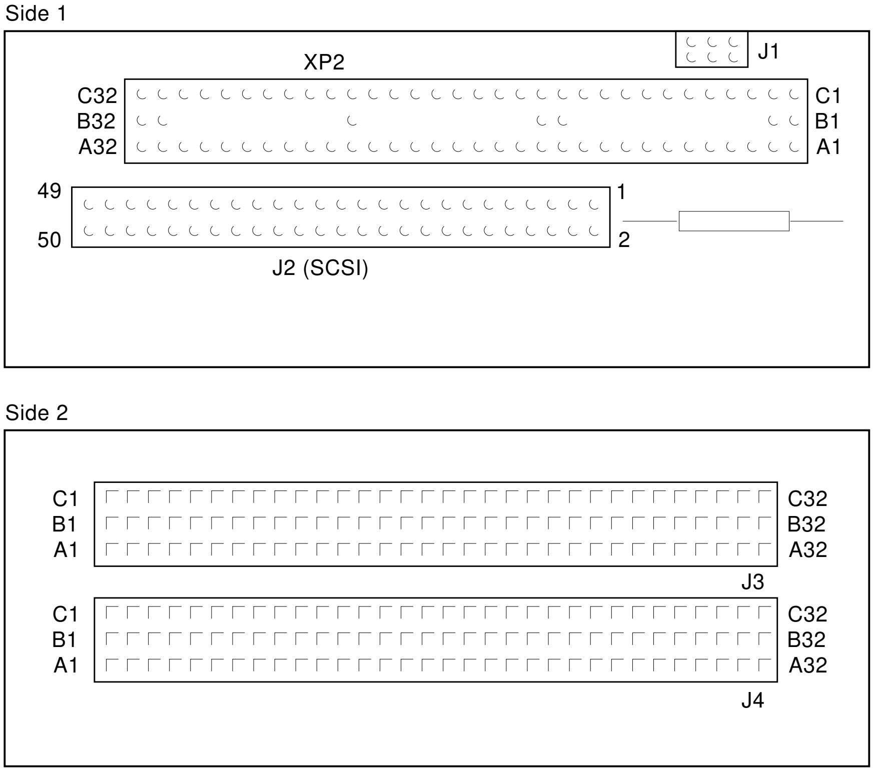
Pin	Row A	Row B	Row C
1	SCSI_DATA0_L	VCC	MSDATA
2	SCSI_DATA1_L	Ground	MSCLK
3	SCSI_DATA2_L	N/C	Ground
4	SCSI_DATA3_L	N/C	KBDATA
5	SCSI_DATA4_L	N/C	KBCLK
6	SCSI_DATA5_L	N/C	WD_STATUS_OC
7	SCSI_DATA6_L	N/C	BREAKOUT0
8	SCSI_DATA7_L	N/C	BREAKOUT1

(continued on next page)

Table 9 (Cont.) Primary Breakout Module Connector Pinouts

Pin	Row A	Row B	Row C
9	SCSI_DP_L	N/C	Ground
10	SCSI_ATN_L	N/C	EXT_RESET_L
11	SCSI_BSY_L	N/C	TMR2_EXT_OP_L
12	SCSI_ACK_L	Ground	TMR1_EXT_OP_L
13	SCSI_RST_L	VCC	TMR_MINOR_IP_L
14	SCSI_MSG_L	N/C	TRM_MAJOR_IP_L
15	SCSI_SEL_L	N/C	Ground
16	SCSI_CD_L	N/C	PP_STB_L
17	SCSI_REQ_L	N/C	PP_ERR_L
18	SCSI_IO_L	N/C	PP_DATA0
19	Ground	N/C	PP_DATA1
20	Ground	N/C	PP_DATA2
21	Ground	N/C	PP_DATA3
22	Ground	Ground	PP_DATA4
23	VME_MASTER_SW_L	N/C	PP_DATA5
24	VCC	N/C	PP_DATA6
25	VCC	N/C	PP_DATA7
26	VCC	N/C	PP_SLCT
27	VCC	N/C	PP_PE
28	Ground	N/C	PP_BUSY
29	Ground	N/C	PP_ACK_L
30	Ground	N/C	PP_AFD_L
31	VCC	Ground	PP_INIT_L
32	VCC	VCC	PP_SLIN_L

Figure 12 Primary Breakout Module Connector Pinouts



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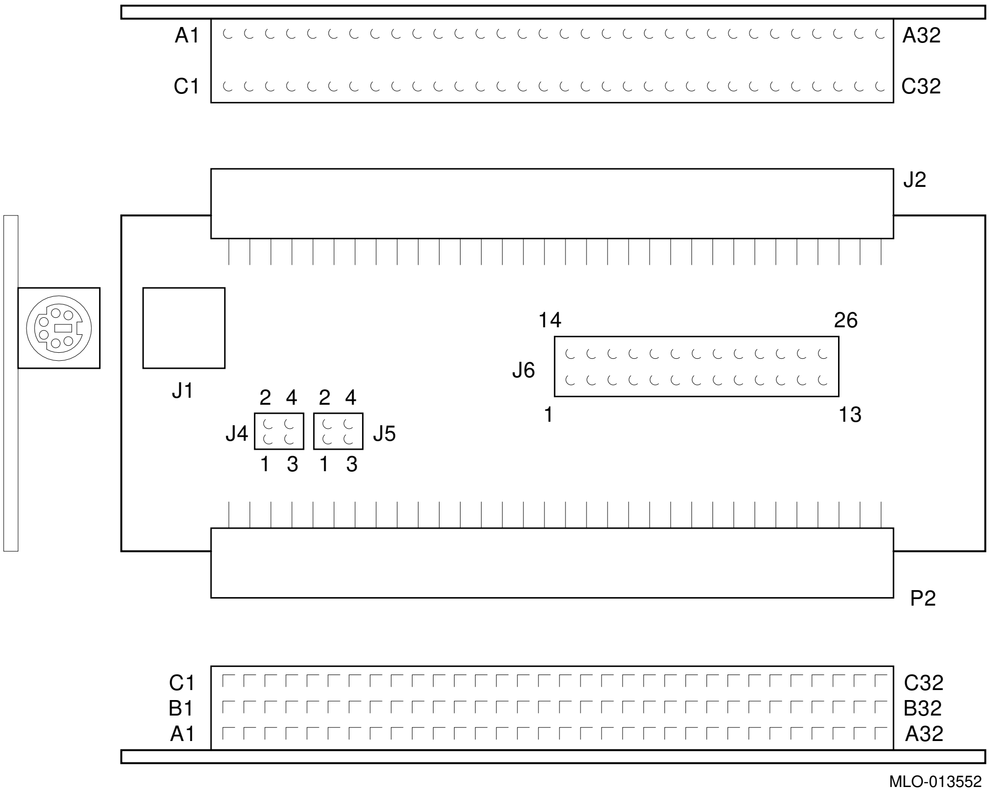
13.4 Secondary Breakout Module Connector Pinouts

Figure 13 shows the layout of the pinouts for the secondary breakout module. Note the positions of the J1 (keyboard and mouse) and J6 (parallel port) connectors.

Figure 13 Secondary Breakout Module Connector Pinouts



Sections 13.4.1 and 13.4.2 provide more detail on the J1 and J6 connectors, respectively.

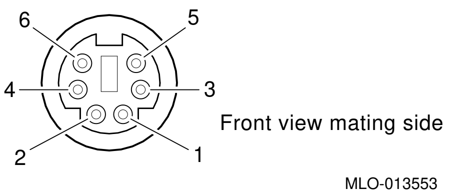
13.4.1 Keyboard and Mouse (J1) Connector Pinouts

Table 10 lists the pinouts for the keyboard and mouse (J1) connector. Figure 14 shows a pinout diagram.

Table 10 Keyboard and Mouse (J1) Connector

Pin	Signal
1	MOUSE_DATA
2	KBRD_DATA
3	Ground
4	VCC
5	MOUSE_CLOCK
6	KBRD_CLOCK

Figure 14 Keyboard and Mouse (J1) Pinouts



13.4.2 Parallel Port (J6) Connector Pinouts

Table 11 lists the pinouts for the parallel port (J6) connector. Figure 15 shows a pinout diagram.

Table 11 Parallel Port (J6) Connector

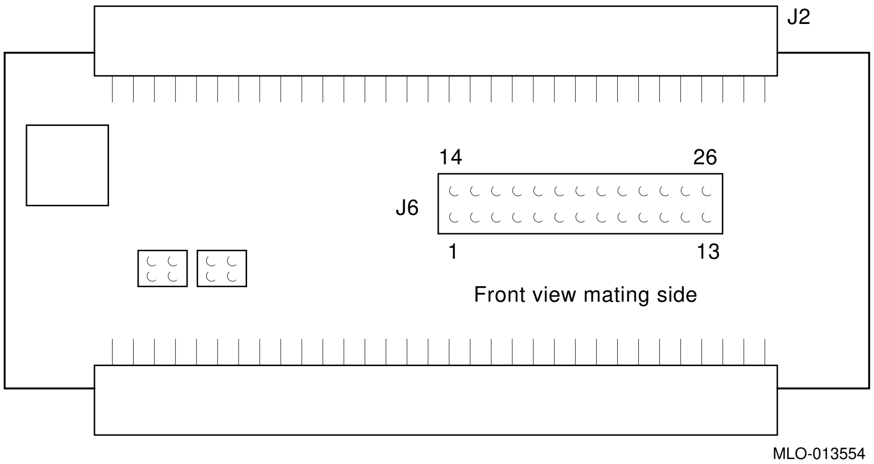
1	PP_STB_L
2	PP_DATA0
3	PP_DATA1
4	PP_DATA2
5	PP_DATA3
6	PP_DATA4
7	PP_DATA5
8	PP_DATA6

(continued on next page)

Table 11 (Cont.) Parallel Port (J6) Connector

9	PP_DATA7
10	PP_ACK_L
11	PP_BUSY
12	PP_PE
13	PP_SLCT
14	PP_AFD_L
15	PP_ERR_L
16	PP_INIT_L
17	PP_SLIN_L
18-25	Ground
26	N/C

Figure 15 Parallel Port (J6) Connector Pinouts



13.5 PMC I/O Companion Card Connector Pinouts

Tables 12 and Table 13 list the pinouts for the PMC I/O Companion Card (54-24665-01) mouse (J2) and keyboard (J3) connectors, respectively. Figure 16 shows a pinout diagram for the connectors.

Table 12 PMC I/O Companion Card Mouse (J2) Connector

Pin	Signal
1	MOUSE_DATA
2	KBRD_DATA
3	Ground
4	VCC
5	MOUSE_CLOCK
6	KBRD_CLOCK

Table 13 PMC I/O Companion Card Keyboard (J3) Connector

Pin	Signal
1	KBRD_DATA
2	MOUSE_DATA
3	Ground
4	VCC
5	KBRD_CLOCK
6	N/C

Figure 16 PMC I/O Companion Card Mouse (J2) and Keyboard (J3) Connector Pinouts