

# Dual SCSI Module (PMAZB-AA)

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## Owner's Guide

Order Number: EK-DSCSI-OG. A01

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## **Purpose of This Guide**

This guide provides general information on the dual SCSI TURBOchannel module (PMAZB-AA). Some information, such as self-testing and port designations, is for more advanced users.

This information is independent of hardware platform. For hardware installation information, see your hardware options documentation.

This guide provides the following information:

- Description of the module
- Setting jumpers
- Module testing procedures
- Port designations

## **Conventions in This Guide**

The following conventions are used in this guide:

`lowercase`

Lowercase monospaced letters indicate a command that you must enter exactly as shown. For example: `setid`.

### **NOTE:**

Notations provide information to help you understand how your system works with the module.

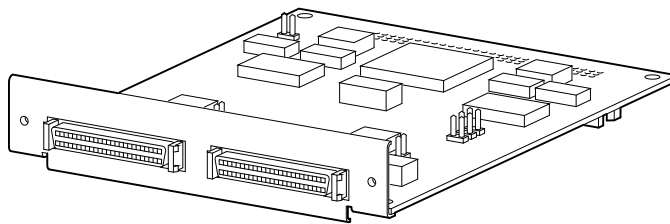
Description of the Module

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## Description of the Module

<b>Purpose of the Module</b>	The dual SCSI module (PMAZB-AA) is a single-ended TURBOchannel-to-SCSI controller that provides two additional 8-bit, 5-MB/sec SCSI ports. It occupies one slot in the system unit.
<b>System Architecture</b>	The dual SCSI module is for use in AXP-based systems. There is no support for this module on MIPS-based systems at this time.
<b>Operating Systems</b>	The dual SCSI module is compatible with the OpenVMS AXP (V1.5 and later) and DEC OSF/1 AXP operating systems.
<b>Limitations</b>	The dual SCSI module is intended for installation in a system enclosure, and is not to be installed in the TURBOchannel Extender.
<b>Illustration</b>	The dual SCSI module is shown in Figure 1.

**Figure 1 Dual SCSI Module (PMAZB-AA)**



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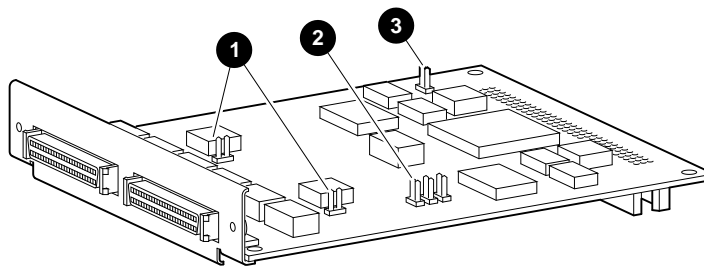
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## Setting Module Jumpers

### Check Jumper Positions

Before installing a dual SCSI module, make sure that the jumpers are set correctly. Refer to Figure 2.

**Figure 2 Dual SCSI Module Jumpers**



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### Terminator Jumpers

Make sure that the terminator jumpers ❶ are in place. These jumpers provide required termination to one end of the two SCSI buses.

### Flash Memory Write Jumper

Referring to Figure 2, make sure that the flash memory write jumper ❸ is removed. Leaving the jumper in place may result in corruption of the ROM. The jumper should only be in place when the ROM code is being updated by your Digital service representative, or when using the `setid` utility.

Use one of the jumper rests ❷ for storing the jumper.

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## Installation of Module

**See Options Documentation**

See the options documentation that came with your workstation for installation instructions.

**CAUTION:  
Module Damage**

To avoid damage from static discharge, make sure that you wear an antistatic wrist strap. Instructions for use are on the strap envelope.

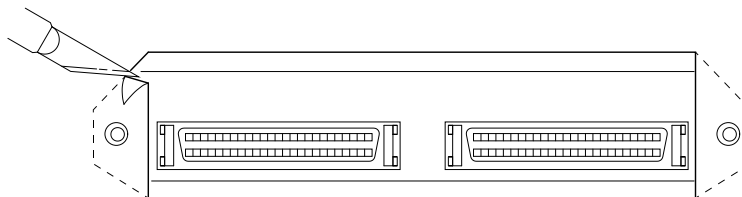
**IMPORTANT:  
Grounding Module**

When installing a module inside a system, make sure that you use the screws that came with the system to fasten the module to the enclosure.

**NOTE:  
Connecting Cables**

When connecting SCSI cables to a module installed in a DEC 3000 Model 400 or similar enclosure, you may need to use a hobby knife or utility knife to trim away a small portion of the rear panel plastic covering next to the port to seat fully the SCSI connector. Refer to Figure 3.

**Figure 3 Trimming Rear Panel Plastic**



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## Confirming Proper Installation

### Procedure

To confirm that the module is installed properly, do the following:

1. Turn on the monitor and peripheral devices connected to the system unit.
2. Turn on the system unit.
3. Refer to the documentation that came with your workstation to make sure that *PMAZB* or *PMAZB-AA* appears in the configuration display and that no errors are reported.

If the module does not appear in the configuration display, move the module to another slot. If the module still does not appear in the configuration display, contact your Digital service representative.

### Startup Test

When your system is first turned on, startup testing is performed. The dual SCSI module participates in that testing.

#### **NOTE: Startup Testing Time**

Depending on the option configuration of your system, startup testing may take several minutes. Startup testing for this module is 3 seconds, if no devices are attached to the SCSI ports.

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## Running Self-Tests

If startup testing shows an error for this module, self-tests may help to determine the problem. Self-tests are optional tests that can be run to ensure that the module is working properly. They are run in console mode.

### Command Format

The format of the self-test command is `t tc# testname`. For example, for a module residing at TURBOchannel slot 2, to run the `asic` test, type the following at the console prompt:

```
>>> t tc2 asic
```

### Available Module Tests

Tests include:

- `asic` - This is a register test for the ASIC chip, and includes a memory test for the 2 ASIC DMA buffers.
- `reg` - This test consists of five subtests, whose 4 character code is displayed when an error is encountered:
  - `RSET` - Reset test for the SCSI controller chip and registers
  - `CNFG` - Test of the configuration registers
  - `FIFO` - Test of the FIFO registers
  - `TCNT` - Test of the transfer count/counter registers
  - `ISTA` - Test of the interrupt and status registers
- `int` - This is a test of the interrupt logic registers. Subtests displayed when an error is encountered may include:
  - `CNIE` - Cause no int error
  - `CITE` - Cause int test error
- `trans` - These are a series of data transfer tests. Subtests displayed when an error is encountered may include:
  - `NINQ` - nondma inquiry error
  - `DINQ` - dma inquiry error
  - `DNIE` - dma nonaligned inquiry error



## Running Self-Tests

- NASM - nondma/dma nonaligned inquiry size miscompare
- NADM - nondma/dma nonaligned inquiry data miscompare
- SDIE - sync dma inquiry error
- SISM - nondma/sync inquiry size miscompare
- SIDM - nondma/sync inquiry data miscompare
- NISM - nondma/dma inquiry size miscompare
- NIDM - nondma/dma inquiry data miscompare
- NNED - nondma inquiry not enough data

### Available Scripts

Scripts are groups of tests. They provide a convenient way to run related tests consecutively. They are run using the same format as the individual tests.

There are 3 identical scripts for this module, each of which runs all four tests. Scripts include:

- `pst-q` - for quick testing
- `pst-t` - for thorough testing
- `pst-m` - for manufacturing use

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## The setid Utility

**Purpose** The `setid` utility allows setting the SCSI IDs (addresses) for the SCSI controllers for the two ports on the module. The default IDs are 7 for both ports - you will need to change them *only* if another device uses that ID.

**Determining Current Settings** To determine whether you need to change the IDs, you need to know what the IDs currently are. To determine the current IDs, for a module residing at TURBOchannel slot 2, type the following at the console prompt:

```
>>> t tc2 cnfg
```

**IMPORTANT: Jumper Position**

Make sure that the flash memory write jumper (Ⓢ in Figure 2) is in place when using this utility. Move the jumper to a jumper rest after resetting the SCSI addresses.

**NOTE: Port Designations**

Devices attached to SCSI ports A & B may be recognized by the system as being on buses C & D, if bus designations A & B are already in use by the system. If more than one dual SCSI module is used, other bus designations (such as E & F) may be seen.

**Command Format** The format of the command for setting IDs is `t tc# setid ID-A(0-7) ID-B(0-7)`. For example, for a module residing at TURBOchannel slot 2, to set the SCSI controller for port A to SCSI ID 5 and to set the SCSI controller for port B to SCSI ID 7, type the following at the console prompt:

```
>>> t tc2 setid 5 7
```

**Changing Only  
One Port**

If only one port needs to be changed, you can leave the other port at its current setting by using the current setting in the command. For example, if the SCSI controller for port A is set at 5 and the SCSI controller for port B is set at 6, and you want to change the SCSI controller for port A to 7 and leave the SCSI controller for port B at 6, type the following at the console prompt:

```
>>> t tc2 setid 7 6
```

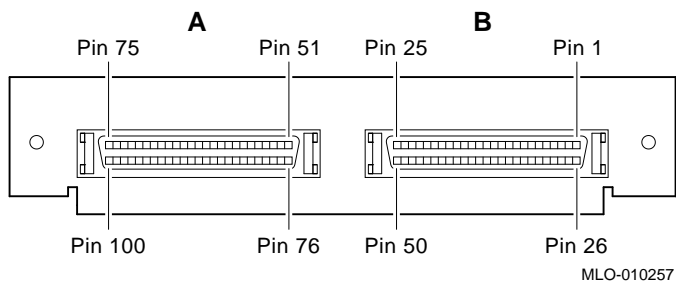
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## Boot Command

<b>Purpose</b>	The <code>boot</code> command allows you to specify a boot device.
<b>Determining Devices</b>	Refer to the documentation that came with your workstation for the command (such as <code>show device</code> ) that tells you which devices (drives) are available.
<b>Command Format</b>	<p>The format of the command is <code>boot [[OPTIONS] #/path [argument...]]</code>. For example, for a module residing at TURBOchannel slot 1, to boot from DKA0, type the following at the console prompt:</p> <pre>&gt;&gt;&gt; boot "1/DKA0"</pre>

## Appendix A: SCSI Port Designations

Figure 4 SCSI Port Designations



### Signal Names

Signal names preceded by ~ in Table 1 refer to active low signals.

Table 1 SCSI Port Designations

Pin	Signal	Comments
1-12	Ground	
13	NC	
14-25	Ground	
26	~SD0_B	SCSI Port B Data Bus 0
27	~SD1_B	SCSI Port B Data Bus 1
28	~SD2_B	SCSI Port B Data Bus 2
29	~SD3_B	SCSI Port B Data Bus 3
30	~SD4_B	SCSI Port B Data Bus 4
31	~SD5_B	SCSI Port B Data Bus 5

(continued on next page)

Appendix A: SCSI Port Designations

**Table 1 (Cont.) SCSI Port Designations**

<b>Pin</b>	<b>Signal</b>	<b>Comments</b>
32	~SD6_B	SCSI Port B Data Bus 6
33	~SD7_B	SCSI Port B Data Bus 7
34	~SDP_B	SCSI Port B Data Bus Parity
35-37	Ground	
38	TERMPWR_B	SCSI Port B TERMPWR
39-40	Ground	
41	~ATN_B	SCSI Port B ATN
42	Ground	
43	~BSY_B	SCSI Port B BSY
44	~ACK_B	SCSI Port B ACK
45	~RST_B	SCSI Port B RST
46	~MSG_B	SCSI Port B MSG
47	~SEL_B	SCSI Port B SEL
48	~CD_B	SCSI Port B CD
49	~REQ_B	SCSI Port B REQ
50	~IO_B	SCSI Port B IO
51-62	Ground	
63	NC	
64-75	Ground	
76	~SD0_A	SCSI Port A Data Bus 0
77	~SD1_A	SCSI Port A Data Bus 1
78	~SD2_A	SCSI Port A Data Bus 2
79	~SD3_A	SCSI Port A Data Bus 3
80	~SD4_A	SCSI Port A Data Bus 4
81	~SD5_A	SCSI Port A Data Bus 5
82	~SD6_A	SCSI Port A Data Bus 6

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Appendix A: SCSI Port Designations

**Table 1 (Cont.) SCSI Port Designations**

<b>Pin</b>	<b>Signal</b>	<b>Comments</b>
83	~SD7_A	SCSI Port A Data Bus 7
84	~SDP_A	SCSI Port A Data Bus Parity
85-87	Ground	
88	TERMPWR_A	SCSI Port A TERMPWR
89-90	Ground	
91	~ATN_A	SCSI Port 0 ATN
92	Ground	
93	~BSY_A	SCSI Port A BSY
94	~ACK_A	SCSI Port A ACK
95	~RST_A	SCSI Port A RST
96	~MSG_A	SCSI Port A MSG
97	~SEL_A	SCSI Port A SEL
98	~CD_A	SCSI Port A CD
99	~REQ_A	SCSI Port A REQ
100	~IO_A	SCSI Port A IO

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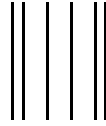
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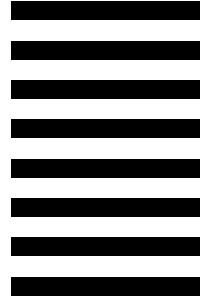


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