

Dual SCSI Module (PMAZC-AA)

Owner's Guide

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Purpose of This Guide

This guide provides general information on the dual SCSI TURBOchannel module (PMAZC-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 system documentation.

This guide provides the following information:

- Description of the module
- Setting jumpers
- Module testing procedures
- Port designations
- SCSI bus cabling recommendations

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: <code>setid</code> .
WARNING:	Warnings contain information to prevent personal injury. Read these carefully.
CAUTION:	Cautions provide information to prevent damage to equipment or software. Read these carefully.
NOTE:	Notations provide information to help you understand how your system works with the module.

Description of the Module

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The dual SCSI module (PMAZC-AA) is a single-ended TURBOchannel-to-SCSI controller that provides two additional 8-bit, 5-MB/sec or 10-MB/sec SCSI ports. It occupies one slot in the system unit.

The dual SCSI module is for use in Alpha AXP systems. There is no support for this module on MIPS systems at this time.

Operating Systems

The dual SCSI module is compatible with the OpenVMS AXP (V1.5-H1 and later) and DEC OSF/1 AXP (V1.3A or later) operating systems.

Limitations

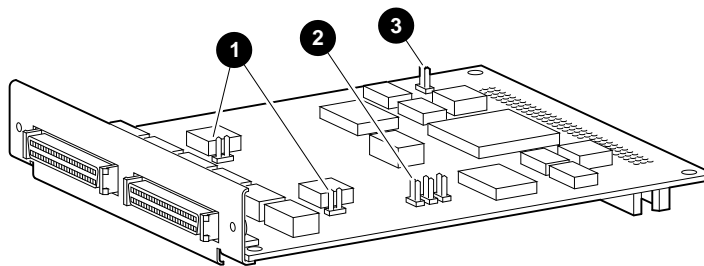
The dual SCSI module is intended for installation in a system enclosure, and is not to be installed in the TURBOchannel Extender box.

Setting Module Jumpers

Check Jumper Positions

Before installing a dual SCSI module, make sure that the jumpers are set correctly. Refer to Figure 1.

Figure 1 Dual SCSI Module Jumpers



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Terminator Jumpers

Make sure that the W2 and W3 terminator jumpers ❶ are in place. These jumpers provide required termination to one end of the two SCSI buses.

Note

The default location for the terminator jumpers is positions W2 and W3. Position W1 ❸ contains no jumper.

Flash Memory Write Jumper

Referring to Figure 1, make sure that the flash memory write jumper W1 ❹ 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.

Installation of Module

See System Documentation

See the documentation that came with your system 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.

When installing the module in a DEC 3000 Model 300 AXP system, two additional screws are needed to secure the module. See your system documentation for the additional installation information.

**NOTE:
Connecting Cables**

When connecting SCSI cables to a module installed in a DEC 3000 Model 400 AXP 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 on the system enclosure next to the port, to seat the SCSI connector.

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 *PMAZC* or *PMAZC-AA* appears in the configuration display and that no errors are reported.

If the module does not appear in the configuration display, reseal the module. 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.

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.

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 in TURBOchannel slot 2, type the following at the console prompt:

```
>>> t tc2 trans
```

Note

On an unterminated SCSI bus, test time will exceed 2 minutes. During testing of each ID, a SCSI bus reset occurs which will result in a 10 second wait per ID.
(Number_of_IDs x number_of_busses x 10_seconds)

Module Tests

The `trans` test includes 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
- 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 the `trans` test. Scripts include:

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

The setid Utility

Purpose The `setid` utility allows setting the SCSI IDs (addresses) for the SCSI controllers for the two ports on the module; it reflashes the ROM with the new value of the IDs or speed. The new IDs or speed are permanently saved so power cycling does not change them. The default IDs for ports A and B = 7 and slow. You need to change the values *only* if another device, on the same SCSI bus, uses that ID.

Determining Current Settings To determine whether you need to change the speed and/or the SCSI ID, you need to know the current values. To determine the current values, use the following example. For a module residing at TURBOchannel slot 2, type the following at the console prompt:

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

Jumper Positions

Make sure that the flash memory write jumper (Ⓢ in Figure 1) is in place when using this utility. Move the jumper to a jumper rest after resetting the SCSI addresses, or after changing SCSI bus speeds.

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
```

The setid Utility

Setting SCSI Bus Speeds

Type the following at the console prompt to set the SCSI bus speed:

```
>>> t tc2 setid f f
```

This sets the bus speed on both ports A and B to fast.

```
>>> t tc2 setid f s
```

This sets the bus speed on port A to fast and port B to slow.

Note

The speed for both ports must be set using the `setid` command. The following commands are illegal:

```
>>>t tc2 setid f  
>>>t tc setid 5
```

The port ID is unaffected by a speed change.

The factory default setting for both ports A and B is slow.

Boot Command

Purpose	The <code>boot</code> command allows you to specify a boot device.
Determining Devices	Refer to the documentation that came with your system for the command (such as <code>show device</code>) that tells you which devices are available.
Command Format	<p>The format of the command is as follows:</p> <pre>>>> b[oot] [-fl value][-fi filename] ["slot_number/device_name"] [-ns] Return</pre> <p>For example, to boot device DKA0, a module residing at TURBOchannel slot 1, type the following at the console prompt:</p> <pre>>>> set bootdef_dev "1/DKA0" >>> boot "1/DKA0"</pre>

SCSI Cabling Recommendations

Cabling recommendations are different for slow (5 MBytes/sec) and fast (10 MBytes/sec) SCSI buses. Use the following recommendations to ensure the proper operation of your system:

Table 1 Cabling Recommendations

Bus Speed	Maximum Bus Length
Slow SCSI	4 meters (13 ft)
Fast SCSI	3 meters (10 ft)

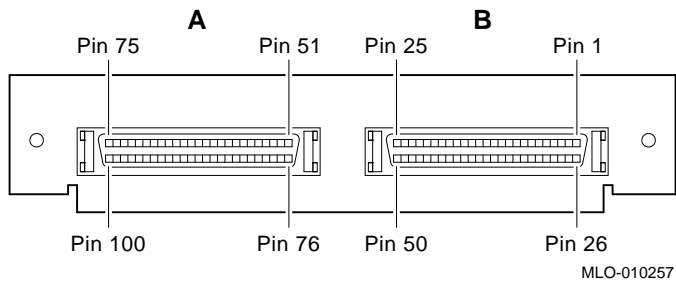
Note

Include the cable internal to an expansion box when calculating maximum bus length. There is about 1 meter of cable or backplane in most Digital expansion boxes.

There is zero (0) bus length for either port inside the PMAZC-AA option.

Appendix A: SCSI Port Designations

Figure 2 SCSI Port Designations



Signal Names

Signal names preceded by ~ in Table 2 refer to active low signals.

Table 2 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 2 (Cont.) SCSI Port Designations

Pin	Signal	Comments
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

(continued on next page)

Appendix A: SCSI Port Designations

Table 2 (Cont.) SCSI Port Designations

Pin	Signal	Comments
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