

NVRAM Module (PMTNV-AA)

Owner's Guide

Order Number: EK-TNVRM-OG. A01

First Printing, February, 1993

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This document was prepared using VAX DOCUMENT, Version 2.1.

Purpose of This Guide

This guide is for anyone who is seeking general information on the NVRAM TURBOchannel module (PMTNV-AA). This information is independent of hardware platform. For hardware installation information, see your hardware options guide.

This guide provides the following information:

- Description of the module
- Module testing procedure
- Battery specifications

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: `ioread`.

NOTE:

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

Description of the Module

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Purpose of the Module

The NVRAM module (PMTNV-AA) is a TURBOchannel module that provides 1 megabyte of nonvolatile RAM storage for applications requiring it. The module contains a lithium battery for memory retention, and occupies one slot in the system unit or TURBOchannel expansion box.

Operating System

The NVRAM module is compatible with the DEC OSF/1 operating system.

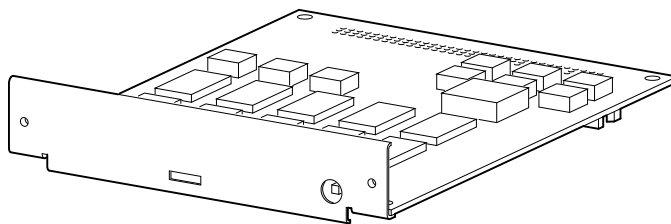
Limitations

Only one module should be used per system.

Illustration

The NVRAM module is shown in Figure 1.

Figure 1 NVRAM Module (PMTNV-AA)



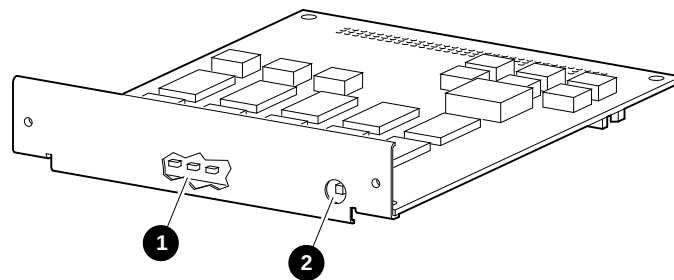
MLO-010249

Description of the Module

Indicators and Push Button

The module bulkhead contains three indicators ❶ and a battery test push button ❷, as shown in Figure 2 and explained in Table 1.

Figure 2 Indicators and Battery Test Push Button



MLO-010250

Table 1 Module Indicators

Position	Color	Function
Left	Green	Indicates that battery is connected and ready. ¹
Middle	Green	When the battery test button is pushed, this indicator shows that the battery is connected and ready. This indicator is functional even when the module is not installed in a system.
Right	Red	Indicates that the battery needs replacing. ² This indicator activates when the battery voltage falls to 2.5.

¹This green indicator will be on when the system is first turned on.

²This red indicator will normally flash momentarily when the system is first turned on.

Installation of Module

See Options Guide	See the options guide 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 or expansion box, make sure that you use the screws that came with the system or expansion box to fasten the module to the enclosure.

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 PMTNV 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 NVRAM module participates in that testing. Startup testing for this module is about 15 seconds.

Running Self-Tests

Self-Tests are optional tests that can be run to ensure that the module is working properly. Self-tests are run in console mode.

Command Format

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

```
>>> t tc2 csr
```

Available Module Tests

Tests include:

- address - Test to insure all address lines are checked, and that none are tied together or open
- csr - Test of read/write capability in the CSRs
- battery - Test for proper connection and disconnection of the battery
- dma - Test of DMA burst functionality
- ioread - Test of read/write transactions for entire memory

NOTE: Testing Time

The ioread test takes approximately 45 seconds to run.

Running Self-Tests

Power Down Data Integrity Test

The power down data integrity test (pddi) tests the ability of the module battery to preserve SRAM data after system power is turned off. To run this test, do the following:

1. Type "set diag_section 3" and press `[Return]`.
2. Type `t tc# pddi`, where # is the TURBOchannel slot number, and press `[Return]`.
3. Turn the system power off.
4. Turn the system power on.
5. Type "set diag_section 3" and press `[Return]`.
6. Type `t tc# pddi read`, where # is the TURBOchannel slot number, and press `[Return]`.

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, or they can be set by the environment variable *testaction*, so that one of them runs automatically at startup.

Scripts include:

- `pst-t` - "thorough" mode, runs `cdru`¹, `csr`, `battery`, `address`, `dma`, and `ioread` tests
- `pst-q` - "quick" mode, runs `cdru`¹, `csr`, `battery`, and `dma` tests
- `pst-m` - "manufacturing" mode, runs `cdru`¹, `csr`, `battery`, `address`, `dma`, and `ioread` tests

¹ `cdru` is not a test; it serves to clear the diagnostic register.

Appendix A: Battery Information

Table 2 Battery Information

Type	200mAh lithium primary
Shelf Life	10 years (estimated)
Life with system power on and battery disconnected or connected	10 years (estimated)
Life with system power off and battery disconnected	2.7 years (estimated)
Life with system power off and battery connected	9.7 months (estimated)

Reader's Comments

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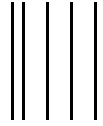
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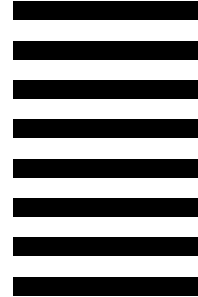
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