

NetApp® Hardware

Diagnostics Guide

The sections in this guide provide the following information:

- Overview of the Diagnostics Guide gives a high-level overview of what diagnostics are available for your Network Appliance® storage appliances and gives some examples of when to run them.
- Running Diagnostics describes the Diagnostic Monitor and how to run diagnostics on your system.
- Diagnostics Menus lists and defines the menu options of the Diagnostic Monitor's individual diagnostic tests.
- Error Messages defines the coding conventions used, lists and defines the error messages generated by the diagnostic tests, and recommends the corrective action to address errors you encounter.
- Environmental Error Messages lists and defines the environmental error messages generated when you run the environmental status test in the miscellaneous motherboard test menu. The error messages are listed according to the platform in which the motherboard and any related daughterboard resides and are described according to the type of sensor that is reporting the error condition. This section also recommends the corrective action to address errors you encounter.

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Legal Information

This section describes the following topics:

- **Copyright**
- **Trademarks**
- **Support note**
- **Communications regulations**

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Microsoft has not established a commitment to support SnapManager for Exchange and filers used in an Exchange configuration. There can be no assurance that Microsoft will provide support for this usage. Network Appliance supports SnapManager for Exchange and NetApp filers used in an Exchange environment and has invested resources in third-party programs to provide the highest quality support possible to our customers.

Communications regulations

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Network Appliance devices are designed for a CFR 47 (Code Federal Regulations) Part 15 Class A environment.

The FCC and Network Appliance guarantee the user's rights to operate this equipment only if the user complies with the following rules and regulations:

- Install and operate this equipment in accordance with the specifications and instructions in this guide.
- Modify this equipment only in the ways specified by Network Appliance.
- Use shielded cables with metallic RFI/EMI connector hoods to maintain compliance with applicable emissions standards.
- If the system has nine or more Fibre Channel disk shelves, install the system in two or three NetApp System Cabinets to maintain performance within Part 15 of CFR 47 regulations.

Compliance with Part 15 of CFR 47

This equipment has been tested and found compliant with Part 15 of the CFR 47 rules for Class A digital devices. These rules are designed to provide reasonable protection from interference to electronics equipment operated in a commercial environment.

Operation of this device is subject to the following two conditions:

- This device cannot cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Compliance with ICES-003

This Class A digital apparatus complies with Canadian ICES-003.

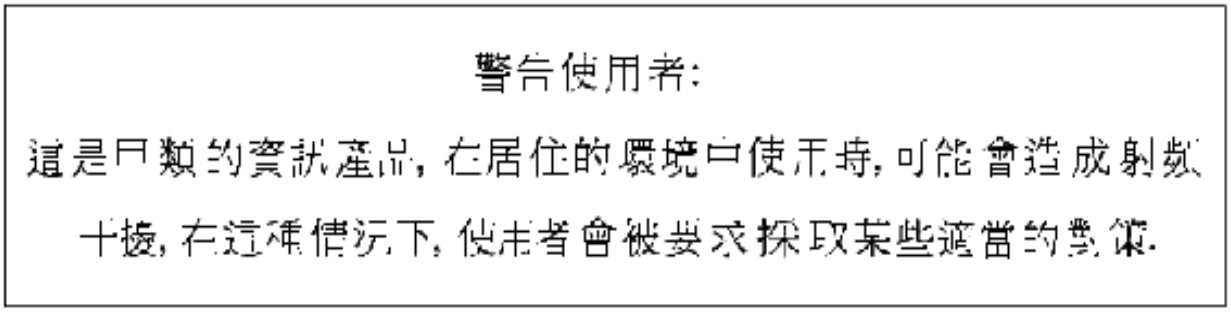
Cet appareil numérique de la classe A conforme à la norme NMB-003 du Canada.

Compliance with EN regulations

Marking by the symbol CE indicates compliance of this Network Appliance device to the EMC Directive and the Low Voltage Directive of the European Union. Such marking is indicative that this Network Appliance device meets technical standards.

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.

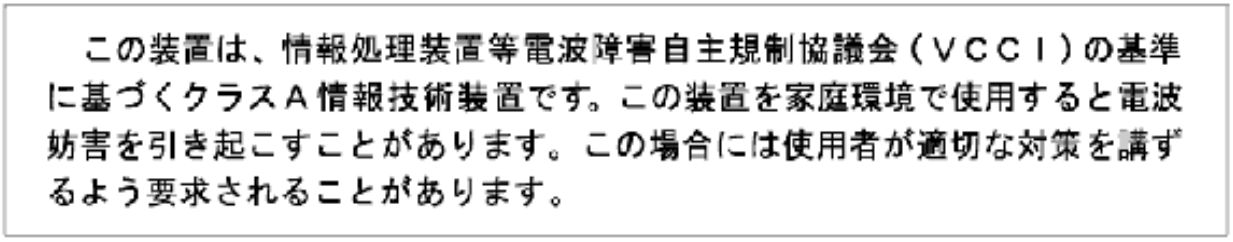
Bureau of Standards, Metrology, and Inspections notice (BSMI, Taiwan only)



Translation of the BSMI notice:

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.

Voluntary Control Council for Interference by Information Technology Equipment (VCCI, Japan)



Translation of the VCCI-A notice:

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. If

such trouble occurs, the user may be required to take corrective actions.

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Preface

About this guide

This document describes how to boot and operate the diagnostics available for Network Appliance™ storage appliances.

Audience

This guide is for qualified system administrators and service personnel who are familiar with Network Appliance storage appliances. The procedures in this guide describe replacement, upgrade, and maintenance tasks for personnel with the following skills and experience:

- Working familiarity with small computer system hardware and operation
- Basic understanding of common networking concepts and practices
- Working familiarity with accepted tools and procedures for installing and operating sensitive electronic equipment

Command conventions

You can enter storage appliance commands on the system console or from any client that can obtain access to the storage appliance using Telnet. This guide uses the command syntax and output of SunOS 4.1x in examples of commands run on a UNIX workstation. If you use a different version of UNIX, the command syntax and output might be different.

Formatting conventions

The following table lists different character formats used in this guide to offset special information.

Formatting convention	Type of information

Italic type	• Words or characters that require special attention. • Placeholders for information you must supply. For example, if the guide requires you to enter the **fctest** *adaptername* command, you enter the characters "fctest" followed by the actual name of the adapter. • Man page names. • Book titles in cross-references.
`Monospaced` font	• Command and daemon names. • Information displayed on the system console or other computer monitors. • Contents of files.
Bold monospaced font	Words or characters you type. What you type is always shown in lowercase letters, unless your program is case-sensitive and uppercase letters are necessary for it to work properly.

Keyboard conventions

This guide uses capitalization and some abbreviations to refer to the keys on the keyboard. The keys on your keyboard might not be labeled exactly as they are in this guide.

What is in this guide...	What it means...
hyphen (-)	Used to separate individual keys. **For example** Ctrl-D means holding down the Ctrl key while pressing the D key.

Enter	Used to refer to the key that generates a carriage return, although the key is named Return on some keyboards.
type	Used to mean pressing one or more keys on the keyboard.
enter	Used to mean pressing one or more keys and then pressing the *Enter* key.

Special messages

This guide contains special messages that are described as follows:

Note
A note contains important information that helps you install or operate the system efficiently.

Caution
A caution contains instructions that you must follow to avoid damage to the equipment, a system crash, or loss of data.

WARNING
A warning contains instructions that you must follow to avoid personal injury.

Release history

For release information and history, see the NOW Web site at http://now.netapp.com.

Safety Information (Sicherheitshinweise)

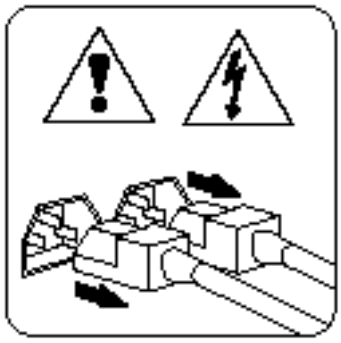
Safety Rules

All products are Class 1 laser devices. You must follow these safety rules when working with this equipment:

WARNING: Failure to follow these directions could result in bodily harm or loss of life.

- When installing a storage appliance or disk shelf into a movable cabinet or rack, install from the bottom up for best stability.
- DC-based systems must be installed in a restricted access location and the two input power terminals for the DC power supply must be connected to separate isolated branch circuits.
- To reduce the risk of personal injury or equipment damage, allow internal components time to cool before touching them and ensure that the equipment is properly supported or braced when installing options.
- This equipment is designed for connection to a grounded outlet. The grounding type plug is an important safety feature. To avoid the risk of electrical shock or damage to the equipment, do not disable this feature.
- This equipment is furnished with one or more replaceable batteries. There is danger of explosion if the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer’s instructions.

Warning for units with two power supplies



If your storage appliance or disk shelf has multiple power cords and you need to turn the unit off, heed the following warning:

WARNING: This unit has more than one power supply cord. To reduce the risk

of electrical shock, disconnect all power supply cords before servicing.

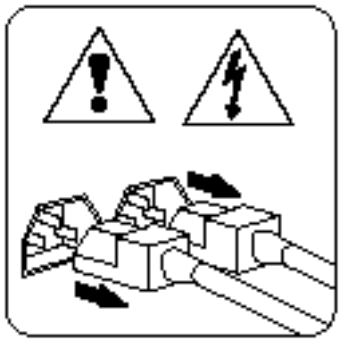
Sicherheitsvorgaben

Alle Produkte sind Lasergeräte der Klasse 1. Die folgenden Sicherheitshinweise sind beim Betreiben des Geräts unbedingt zu beachten:

VORSICHT: Nichtbeachtung dieser Anweisungen kann zu schweren Körperschäden führen oder tödlich sein.

- Bei der Montage der Diskettenregale und Archivierungsgeräte, des NearStore™-Gerät oder des NetCache™-Geräts in bewegliche Schränke oder Regale sind die Geräte von unten nach oben einzubauen, um optimale Stabilität zu gewährleisten.
- Gleichstrom-Systeme müssen an Betriebsstaette mit beschraenktem Zutritt installiert sein und die beiden Eingangsstromklemmen für das Gleichstrom-Netzteil müssen an separate und isolierte Abzweigleitungen angeschlossen sein.
- Zum Schutz vor Körperverletzung oder Sachschäden am Gerät lassen Sie die inneren Bauteile stets vor dem Berühren abkühlen. Sorgen Sie dafür, dass das Gerät richtig abgestützt ist oder fest aufrecht steht, bevor Sie neues Zubehör einbauen.
- Dieses Gerät ist für die Einspeisung aus einer geerdeten Netzverbindung ausgelegt. Der Netzstecker mit Erdungsvorrichtung ist ein wichtiger Sicherheitsschutz. Zum Schutz vor elektrischem Schlag oder Sachschäden am Gerät die Erdung nicht abschalten.
- Das Gerät ist mit einer oder mehreren auswechselbaren Batterien ausgestattet. Bei unsachgemäßem Auswechseln der Batterie besteht Explosionsgefahr. Batterien nur mit dem vom Hersteller empfohlenen Typ oder entsprechenden Typen ersetzen. Gebrauchte Batterien sind gemäß den Anweisungen des Herstellers zu entsorgen.

Warnhinweis für Geräte mit mehr-fachen Netzan-schlussleitungen



Sollte Ihr Archiviergerät, NetCache-Gerät, NearStore-Gerät oder Diskettenregal mehrfache Netzanschlussleitungen aufweisen und Sie wollen das Gerät abschalten, bitte folgenden Warnhinweis beachten.

ACHTUNG: Gerät besitzt zwei Netzanschlussleitungen. Vor Wartung alle Anschlüsse vom Netz trennen.

Overview of the Diagnostics Guide

About this section

This section gives a high-level overview of what diagnostics are and gives some examples of when to run them.

Topics in this section

This section discusses the following topics:

- About diagnostics
- Optional materials
- Booting the diagnostics program

About diagnostics

The Diagnostic Monitor

The Diagnostic Monitor is a set of diagnostics tools and tests that is used to search for and determine hardware problems. It is used as part of system troubleshooting to help isolate and identify a faulty component or to confirm that a specific component is operating properly.

When to run diagnostics

Typically, you run diagnostics after one of the following events happens on your system:

- System panic is caused by an unidentified hardware failure
- Access to a specific device becomes intermittent or the device becomes unavailable
- System response time becomes sluggish

The following scenarios are examples of when you might run diagnostics:

After the initial hardware installation

When you install your system for the first time, before you boot it, you can check the hardware components by running the `all` diagnostic. If any problems exist at the hardware level, you can learn about them before you boot the system and connect it to the network.

When the system fails

When the system fails, test the system by first running the `all` diagnostic and then running individual diagnostics to isolate the cause of the failure.

When adding or replacing hardware

When you add new hardware, such as disk shelves, or change hardware components, before you boot the system, run individual diagnostics, such as `fcal`, to make sure that the disk shelf connections are sound.

When you replace a suspect component, run an individual diagnostic on the new

component to check it before you boot the system. If the problem persists, it is not caused by the suspect component, but lies somewhere else.

If you suspect a problem in a specific hardware area

For example, you observed a lot of error messages of a specific type that point to a problem with the FC-AL connection. This should lead you to run the `fcal` comprehensive diagnostic while the system is running. If the system passes all tests except for the two tests that require a loopback plug, you might disconnect the system at an appropriate time and run the Loop integrity and Read-only bus tests in extended mode.

Another example is a CPU fan error causing Data ONTAP™ software to panic and shut down the system. When you examine the fan and see that it is spinning, a specific test of the fan might show that the fan is not spinning at the right speed. Replacing the CPU fan should solve the problem.

Optional materials

Optional tools and equipment

You might need the following tools and equipment to run diagnostics, if you plan on correcting any system or component problems you might find.

Tools and equipment	Where needed
#1 and #2 Phillips screwdriver	Opening the filer, removing cabinet components, and replacing cards and adapters in the system.
Loopback plugs	Needed by some diagnostic tests that run in extended mode. The plugs close data transmission loops of some system cards, such as Ethernet cards. Make sure that you have the appropriate loopback plugs for the specific card or adapter.
Antistatic wrist strap and grounding leash	Used for grounding yourself during equipment replacement.

Reference guides

You might need the following supporting guides to assist you in replacing system components.

Manuals	Reasons
Appropriate hardware, hardware service guide, or field service guide for your storage appliance.	These guides contain information for installing or replacing components in your storage appliance.

Booting the diagnostics program

Location of diagnostics

Depending on the platform, the diagnostics program is in one of the following places:

Platform	Location
F810, F820, F840, C3100, and C6100	FLASH PROM or diskette labeled Network Appliance Diagnostics
F87, F825, F880, R100, R150, C1200, C2100, FAS940, FAS960	PC-card
F85	Diskette labeled Network Appliance Diagnostics

Note
You can download the latest version of the diagnostics program from the NOW Web site at http://now.netapp.com.

Booting the diagnostics program

Booting from FLASH

To boot the diagnostics program, complete the following steps.

Step	Action
1	Turn off power to the system if it is on. The switch for each power supply is located on the back. You should be in one of the following situations: • The system failed due to a hardware or software error. • The system is down briefly for hardware maintenance, such as replacing a component or adding a disk shelf. • You installed the system for the first time and are ready to turn on the power source and automatically boot the system.
2	Turn on power to the system. As the system boots, interrupt the process during the memory test by pressing the Delete key. **Result** The OK prompt appears after the memory test is completed.
3	Enter the following command at the prompt: **sys-diag** **Result** The diagnostics program starts to boot. When booting is complete, the top-level user interface and the Diagnostic Monitor appear, listing all available features.

Where to go next

After the Diagnostic Monitor loads, you can begin running either all diagnostic tests or specific tests. See Running Diagnostics for more information about the specific tests you can perform with the Diagnostic Monitor.

Booting the diagnostics program

Booting from CompactFlash

For the F825, F880, R100, R150, FAS940, and FAS960

To boot the diagnostics program, complete the following steps.

Step	Action
1	Turn off power to the system if it is on. The switch for each power supply is located on the back. You should be in one of the following situations: • The system failed due to a hardware or software error. • The system is down briefly for hardware maintenance, such as replacing a component or adding a disk shelf. • You installed the system for the first time and are ready to turn on the power source and automatically boot the system.
2	Turn on power to the system. As the system boots, interrupt the process during the memory test by pressing the Delete key. **Result** The OK prompt appears after the memory test is completed.

3	Enter the following command at the prompt: **boot diags** **Result** The diagnostics program starts to boot. When booting is complete, the top-level user interface and the Diagnostic Monitor appear, listing all available features.

For the F87 and C2100

To boot the diagnostics program, complete the following steps.

Step	Action
1	Reboot the system.
2	From the startup menu, select Load Service Menu.
3	Select Network Appliance Diagnostics.

Where to go next

After the Diagnostic Monitor loads, you can begin running either all diagnostic tests or specific tests. See Running Diagnostics for more information about the specific tests you can perform with the Diagnostic Monitor.

Booting the diagnostics program

Booting from a diskette

To boot the diagnostics program from a diskette, complete the following steps.

Step	Action
1	Turn off power to the system if it is on. The switch for each power supply is located on the back. You should be in one of the following situations: • The system failed due to a hardware or software error. • The system is down briefly for hardware maintenance, such as replacing a component or adding a disk shelf. • You installed the system for the first time and are ready to turn on the power source and automatically boot the system.
2	Insert the diagnostics diskette labeled Network Appliance Diagnostics into the disk drive on the front of the system.
3	Turn on power to the system. **Result** The diagnostics program starts to boot. When booting is complete, the top-level user interface and the Diagnostic Monitor appear, listing all available features.

Where to go next

After the Diagnostic Monitor loads, you can begin running either all diagnostic tests or specific tests. See Running Diagnostics for more information about the specific tests you can perform with the Diagnostic Monitor.

Running Diagnostics

About this section

This section describes the Diagnostic Monitor and how to run diagnostics on your system.

Topics in this section

This section discusses the following topics:

- Diagnostic Monitor user interface
- Running diagnostic tests

Diagnostic Monitor user interface

About the Diagnostic Monitor

The Diagnostic Monitor is a menu-driven ASCII interface. It contains three sections:

- Diagnostics
- Commands
- Options

Diagnostic Monitor menu

Typically, you test all components at once by selecting the `all` option from this menu. You can also run individual diagnostic tests by selecting the test grouping, such as the mem test, from this menu. You can also select individual commands from the Commands section, to perform specific tasks, such as setting options. The Diagnostic Monitor also enables you to control the way certain diagnostics work, such as whether a test stops when encountering an error.

The complete Diagnostic Monitor options are as follows:

Diagnostics

`all`	`All system diagnostics`
`mb`	`Motherboard diagnostic`
`mem`	`Main memory diagnostic`
`nvram`	`NVRAM diagnostic`
`ether`	`Ethernet controller diagnostic`
`fddi`	`FDDI controller diagnostic`
`scsi`	`SCSI controller diagnostic`
`fcal`	`FCAL controller diagnostic`
`atm`	`ATM controller diagnostic`
`gbe`	`GbE controller diagnostic`

ci	Cluster interconnect diagnostic
rmc	Remote management controller diagnostics
floppy	3-1/2" floppy drive diagnostic
dafs	Emulex VI(GbE) controller diagnostic
cf-card	CompactFlash card diagnostic
stress	System wide stress diagnostic

Commands

Config	(print a list of configured PCI devices)
Default	(restore all options to default settings)
Exit	(exit diagnostics and return to firmware OK prompt)
Help	(print this commands list)
Options	(print current option settings)
Run <diag...diag>	(run selected diagnostics)

Options

Count <number>	(loop selected diagnostic<s> <number> of passes>
Loop <yes | no>	(loop selected diagnostic(s)>
Status <yes | no>	(print status messages)
Stop <yes | no>	(stop-on-error / keep running)
Xtnd <yes | no>	(extended tests / regular tests)
CPU <0 | 1>	(run diagnostic with CPU0 | run diagnostic with CPU1)

```
Mchk <auto | off | on | halt>  (machine check control)


Enter Diag, Command or Option:
```

For detailed information

The following sections describe the individual sections of the Diagnostic Monitor:

- Diagnostics menu options
- Commands menu options
- Options menu options

Diagnostic Monitor user interface

Diagnostics menu options

About the Diagnostics menu

The individual Diagnostics menu options are for the individual diagnostic tests, such as `nvram`, `mb`, and so on. Typically, these tests enable you to focus your testing on a specific process or component of a card.

Sample Diagnostics menu

The following is an example of a second-level menu for the GbE diagnostic tests:

```
GBE Diagnostic

_____________________________________

GBE cards present:

Slot 10: GBE-INTEL



1:  Comprehensive test          41: Port-port 10B test (Xtnd)

2:  Reset test                  42: Port-port 100B test (Xtnd)

3:  EEPROM test                 43: Port-port 1 G test (Xtnd)

4:  Internal lp test 1G         70: Display MAC address

5:  External lp test 1G (Xtnd)  71: Display all registers

6:  Internal lp test 10B        72: Display EEPROM
```

7: Internal lp test 100B	73: Set MAC address [Factory]
8: External lp test 10B (Xtnd)	90: GBE card selection
9: External lp test 100B (Xtnd)	91: Enable/disable looping
10: Interrupt test	92: Stop/continue on error
11: Quick Interrupt test	93: Extended/Normal test mode
40: MAC loop test	99: Exit

Select feature by number [ ]

Diagnostic Monitor user interface

Commands menu options

About the Commands menu

The following six commands are available in the Commands section of the Diagnostic Monitor.

```
Commands

Config  (print a list of configured PCI devices)

Default (restore all options to default settings)

Exit    (exit diagnostics and return to firmware OK prompt)

Help    (print this commands list)

Options (print current option settings)

Run <diag...diag> (run selected diagnostic)
```

Config command

The `config` command enables you to learn what Peripheral Component Interconnect (PCI) devices you have on your system and how they are configured.

The following example shows the `config` output for an F840 filer configuration:

```
Onboard:    (id=1166,0008)       NorthBridge

Onboard:    (id=8086,1229)       10/100 Ethernet
```

```
Onboard:    (id=1166,0200)      SIO/ISA Bridge

Slot   1:   (id=1127,0300)      Tape

Slot   2:   (id=8086,1209)      Quad 10/100 Ethernet

Slot   3:   (id=1077,2200)      Quad 10/100 Ethernet

Slot   4:   (id=1077,2200)      Gb Ethernet

Slot   5:   (id=1077,2200)      Gb Ethernet

Slot   6:   (id=1077,1280)      FCAL

Slot   7:   (id=8086,1229)      FCAL

Slot   8:   (id=10e4,0003)      FCAL

Slot   9:   (id=1011,000f)      FCAL

Slot   10:  (id=8086,1000)      Servernet

Slot   11:  (id=1275,0002)      NVRAM-3


Enter Diag, Command or Option:
```

Default and options commands

The `default` and `options` commands are closely related. They are compared in the following table.

Command	Enables you to...

`default`	Return all test option settings to default values, which are • `loop no` • `status yes` • `stop yes` • `xtnd no` • `mchk auto`

`options`	Display the current test option settings.
	
	When test options are set to default values, the system displays the following output after the default command:
	
	`--Tests will stop on error`
	`--Diagnostic looping disabled`
	`--Status messages enabled`
	`--Normal testing enabled`
	`--Automatically select action on machine checks`
	`(Halt on most machine checks)`
	
	For example, when you modify the option to the setting you want at the `Enter Diag, Command, or Option` prompt:
	
	loop yes
	
	The system response in this example shows all settings but one are set to default:
	
	`--Tests will stop on error`
	`**Diagnostic looping enabled`
	`--Status messages enabled`
	`--Normal testing enabled`
	`--Automatically select action on machine checks`
	`(Halt on most machine checks)`
	
	Note
	The asterisks before the option setting indicate a non-default value. The count option is not listed because it does not have a default setting.

Exit command

The `exit` command exits the Diagnostics program and returns you to the firmware OK prompt. Following this, you can reboot the system without power-cycling the machine.

If you need to stop a diagnostic session while it is running, you can use the `Ctrl-C` command.

Help command

Online help is available for the Diagnostic Monitor through the `help` command. The `help` command lists what is available through the `diagnostics`, `commands`, and `options` menus. It also identifies the version of Diagnostics that is being run.

Run command

The `run` command enables you to run several diagnostic sessions in sequence, using the `run` command followed by the diagnostic names you want to run. Each session runs without interactive test selection menus.

In the following example, you are running the `mb` (motherboard) diagnostic and the `memory` diagnostic:

```
run mb mem
```

Diagnostic Monitor user interface

Options menu options

About the Options menu

The six test options in the Diagnostic Monitor are as follows:

```
Options

 Count <number>   (loop selected diagnostic<s> <number> of passes)

 Loop <yes | no>  (loop selected diagnostic(s))

 Status <yes | no> (print status messages)

 Stop <yes | no>  (stop-on-error / keep running)

 Xtnd <yes | no>  (extended tests / regular tests)

 Mchk <auto | off | on | halt>  (machine check control)
```

Count and loop options

The following table describes the count and loop options.

Count and loop options	Description
`count <number>`	You can control how many loop passes are executed. The count option works only when looping is enabled. **Example** To limit an internal or external loopback test to six loop passes, you would enter: **count 6**

`loop no` (default)	Looping is disabled. Terminates session at the end of a pass. Does not continue to loop continuously.
`loop yes`	Looping is enabled. The test run loops continuously or for the specified number of loop passes, if you set the count option. Enabled looping applies to the `all` and `run` commands. When you enable looping with `loop yes`, you can also specify the number of loop passes with `count` <*number*>. **Example** To enable looping, you would enter the following command: **loop yes** `**Diagnostic looping enabled` The system response tells you looping is enabled.

Example count and loop options

The following example enables looping and sets the number of loop passes to six:

```
loop yes
**Diagnostic looping enabled
count 6
```

Status option

The following table lists the status option settings.

Status option	Description
`status yes` (default)	Displays the diagnostic status in detail.
`status no`	Displays the diagnostic status in a brief sentence.

Stop option

The following table lists the stop option settings.

Stop option	Description
`stop yes` (default)	When diagnostics discovers an error, it stops at the end of a complete loop pass. The error is logged to the console terminal. If the `stop` option is enabled, the diagnostic stops execution at the end of a complete test pass.
`stop no`	When diagnostics discovers an error, it continues running. You can run additional tests and continue to encounter additional errors.

Xtnd option

Extended mode applies only to tests that are marked with the `Xtnd` label. There are two possible settings, described in the following table.

Xtnd option	Description
`xtnd no` (default)	In this test mode, called *normal test mode*, you are testing the system component within the inner boundaries of the unit.
`xtnd yes`	In this test mode, called *extended test mode*, you are testing the physical media outside the unit. With NICs, you are required to disconnect the unit and put special loopback connectors or plugs on the card. **Note** Loopback plugs are required to run some FC-AL diagnostic tests. They are not required when the Fibre Channel loop has its own terminator.

Example of xtnd yes

This example shows `xtnd yes` and the system reminding you that you might need loopback plugs.

```
xtnd yes
**Extended testing enabled
NOTE:  Some diagnostics require loopback plugs for complete test
operation and will indicate failures without these plugs.
```

Example of a test failure

This example shows a test failure when you have done the following:

- Failed to prepare the FC-AL adapter with loopback plugs
- Failed to set the `xtnd yes` test option
- Selected 11--Loop integrity LRC test [Xtnd] in the FCAL test menu

```
ERROR DLH0020: FCAL loop is open. Check cables and associated hardware
FCAL loop test.....................................FAILED
```

See Error Messages, for a description of individual error messages.

Preparing to run a test in extended mode

To prepare for a test in extended mode that requires loopback plugs, complete the following steps.

Step	Action
1	Disconnect the system from the network and if applicable from a cluster.
2	Connect the loopback plugs to the card.
3	Enable extended mode from the Diagnostic test menu by entering its number: **93**
4	Run the comprehensive test or the specific loop test.
5	Remove the loopback plugs after the test is completed.

Mchk option

The `mchk` (machine check) option enables you to control system behavior when the hardware detects a machine check error.

The four `mchk` settings are as follows.

Mchk option	When a machine check is detected, the system...
`mchk auto` (default)	Automatically chooses the best machine check control for the diagnostic. Usually it halts the diagnostic session. You can use non-default machine check settings in certain memory testing circumstances to aid in diagnosing hardware problems.
`mchk halt`	Halts the system immediately, going into a panic state. Reboot the system to continue running diagnostics.
`mchk no`	Silently ignores the error, unless it is fatal.

`mchk yes`	Does not halt diagnostic execution if memory parity/ECC errors or similar errors are detected. The system reports the machine check and resumes the diagnostic execution. The diagnostic can continue testing and analyzing all errors in the test pass, possibly providing a more accurate callout of memory DIMM failures.

Example

In the following example, you enable machine check with the `mchk yes` option.

```
mchk yes
**Machine checks enabled
 (Display memory machine checks and continue)
```

Options you can set at test menu level

You can set the `loop`, `stop`, and `xtnd` options not only at the Diagnostic Monitor menu level, but also at the individual test menu level.

For example, when you enter `gbe` to run diagnostics on the GbE card, the GbE Diagnostic test menu appears, offering the following test options:

```
91:     Enable/disable looping

92:     Stop/continue on error

93:     Extended/Normal test mode
```

You can also enable looping on the card by entering the number for the option:

```
91
```

See Diagnostics Menus for more information about individual diagnostic test menus.

Running diagnostic tests

About the tests

The Diagnostic Monitor enables you to run tests of all components in the system or to select individual components for testing.

Tests that are labeled `[Xtnd]` often require you to install a set of appropriate loopback plugs on the tested component before you start the test.

Items that are labeled `[Factory]`, `[Mfg]`, or the like, are accessible only to Network Appliance manufacturing personnel with special password privileges.

For detailed information

The following sections describe how to run and interpret either type of test:

- Running all diagnostic tests
- Running individual diagnostic tests
- Test results

Running diagnostic tests

Running all diagnostic tests

When to run the all test

To identify a hardware problem as quickly as possible, you run diagnostics on all components using the `all` diagnostic. You should select this option only after a normal system shutdown, a new card is installed, or there is no chance to preserve customer data after a system crash.

Do not use the `all` option for the following circumstances:

- Immediately after a system crash
- If log data is stored

Using the all option

To run diagnostics on all components, complete the following step.

Step	Action
1	In the Diagnostic Monitor, after the `Enter Diag, Command, or Option` prompt, enter the following command: **all** **Results** As each test starts, its name and the test result appears on the console. By default, diagnostic testing stops when an error is encountered. The error is displayed on the screen, so you can identify the problem. See Error Messages, for more information about error messages. **Note** You can set the `all` option to run diagnostic testing without stopping when an error is detected. Use the `stop no` option from the Diagnostic Monitor. See Stop option for more information about setting this option.

Running diagnostic tests

Running individual diagnostic tests

Individual test menu structure

The hardware component that you are testing determines what appears in its test menu. However, all individual test menus share some common features:

- 1 -- You always use 1 to run a comprehensive test or all tests in the menu. This is the quickest way to learn whether you have a problem on the component.
- 99 -- You always use 99 to exit the menu.

See Diagnostics Menus, for a detailed description of the individual test menus.

The following table describes the basic organization of test menus by numbers and shared functions.

Menu number	Function
1	Runs all the tests in the main test group (2-19)
2-39	This is the main test group. Each test tests a specific part of the component.
40s	Runs additional tests, which are used to debug and narrow down the problem after you run the main test group.
70s through 80s	Displays specific information about the system component. Also lets you set specific conditions for testing. These tests are also used for initialization functions.
90s	Lets you set the `loop`, `stop`, and `xtnd` options at the test menu level and exit.

Running individual diagnostics

To run diagnostics on an individual component, complete the following steps.

Step	Action
1	In the Diagnostic Monitor, after the `Enter Diag, Command, or Option` prompt, enter the name of the diagnostic. **Example** **gbe** **Result** The Gigabit diagnostic test menu appears.
2	Enter the number of the test you want to run or enter `1` to run a comprehensive test.

Running diagnostic tests

Test results

Example test output

When you run a test, its name, results, and error messages, if any, appear on the screen and you are returned to the test menu.

In the following example, the `Comprehensive test` is selected in the GBE Diagnostic menu. The external loopback test is skipped because the GbE card was not prepared for being tested in extended mode.

```
Select feature by number [1]: 1
Performing comprehensive GBE test on slot 6
Memory test ........................PASSED
Firmware test ......................PASSED
CPU state check ....................PASSED
External loopback test(xtnd only) ..SKIPPED
*********Comprehensive GBE test .....PASSED
```

Error message output

A diagnostic can log up to 12 errors. If the test encounters too many errors, it stops execution. If the `stop` option is enabled, the diagnostic stops execution at the end of a complete test pass. After the test finishes, you can run additional tests and continue logging additional errors.

Example

The following example shows an error message you might see during a test:

```
DZH0112 Battery dead. RTC not functional!
```

Where to go next

After the Diagnostic Monitor is loaded, you can run diagnostics on all system components or individual components. See Diagnostics Menus, for a list and description of the tests you can run. See Error Messages, for a list and description

of all diagnostic error messages, along with the suggested corrective action. See Environmental Error Messages, for a list and description of all environmental error messages, along with the suggested corrective action.

Diagnostics Menus

About this section

This section lists and defines the menu options of the Diagnostic Monitor's individual diagnostic tests.

If you receive an error message during a particular test, go to Error Messages, to determine what the message means and to determine how to correct the problem encountered by the test.

Topics in this section

This section discusses the following topics.

- Motherboard diagnostics
- Main memory diagnostics
- Card diagnostics
- Floppy drive diagnostics
- CompactFlash card diagnostics
- Stress diagnostics

Motherboard diagnostics

About motherboard diagnostics

The motherboard diagnostic test the integrity of a variety of components on the motherboard or system backplane. The data you retrieve from these tests helps you determine what component is causing an error.

For example, if you want to check the PCI devices and slots on the motherboard, you select the Misc. board component menu option, then select the appropriate test from the Miscellaneous board component tests submenu.

For detailed information

For detailed information about the motherboard and backplane diagnostic menus, see the following sections:

- C1200 motherboard tests
- C2100 motherboard tests
- F85 motherboard tests
- F87 motherboard tests
- F800 series, C3100, C6100, and R100 motherboard tests
- FAS900 and R150 series motherboard tests

C1200 motherboard tests

About the C1200 motherboard tests

This section addresses the Motherboard menu and the Miscellaneous board test, the Cache test, the Onboard Ethernet test, and the Onboard SCSI test submenus for the C1200 platforms. To go to the error messages associated with the motherboard diagnostic tests, see Motherboard error messages.

For detailed information

For detailed information about the menus, see the following sections:

- Motherboard menu
- Misc. board test menu
- Cache test menu
- Onboard Ethernet test menu
- Onboard SCSI test menu
- BMC test menu

You can generate the C1200 environmental error codes by running the miscellaneous board diagnostic tests.

Motherboard menu and submenus

Motherboard menu

This section describes the Motherboard menu.

Test no	Test	Description
1	Comprehensive motherboard diag	Runs all tests in this menu in current mode.
2	Misc. board test menu	Accesses the miscellaneous motherboard test menu.
3	Cache test menu	Accesses the CPU cache tests. For more information, see Cache test menu.
4	Onboard Ethernet test menu	Accesses the onboard Ethernet adapter test menu.
5	Onboard SCSI test menu	Accesses the onboard SCSI adapter test menu.
6	BMC test	Accesses the onboard SCSI adapter test menu.
71	Show PCI configuration	Lists the contents of all adapters in the PCI slots on the motherboard.
72	Show detailed PCI info	Displays detailed information about the contents and settings of the cards in the PCI slots.
73	Initialize real-time clock	Initializes the onboard real-time clock to user-defined settings.
74	Show system info	Displays information about the system.
75	System serial info setup (Mfg)	Option not available.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.

92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Motherboard menu and submenus

Miscellaneous board test menu

This section describes the Miscellaneous board test submenu.

Test no	Test	Description
1	Run all miscellaneous tests	Runs all tests in this menu in current mode.
2	Check CPU/host bridge status	Tests the CPU host bridge chipset.
3	Check CSB5 status	Verifies that the South Bridge System I/O chipset is alive and responding normally.
4	Check PCI devices and slots	Verifies that the onboard PCI devices and slots are alive and responding normally.
5	Check memory interface	Verifies that accesses to main memory are operating correctly. Uses a sliding bits pattern.
6	Check boot flash access	Verifies access to system boot PROM. Reads and checks Programmable Read Only Memory (PROM) data.
7	Real-time clock test	Verifies and displays system clock and date.
8	Check environmental status	Checks the Environmental Status Register (ESR) for fault conditions, such as fan failure and high temperature.
9	Check Super I/O status	Verifies that the Super I/O chip is alive and responding normally.

71	Show PCI configuration	Shows the configuration of the Peripheral Component Interconnect (PCI), a peripheral bus.
72	Show detailed PCI info	Displays detailed information about the PCI.
73	Initialize real-time clock	Initializes the battery powered, real-time clock.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Cache test menu

The section describes the Cache test submenu.

Test no	Test	Description
1	Comprehensive cache test	Runs all tests in this menu in current mode.
2	Cache walking data bits test	Verifies the data path between the CPU and cache (on systems with cache).
3	Cache stuck-at faults test	Scans through all cache locations, checking for stuck bits (0 or 1).
4	Cache random read/write test	Tests by random reading or writing of cache locations.
5	Cache random data test	Tests by placing random data in every cache location. Provides good cell verification.
6	Cache random address test	Tests by generating random addresses for reading and writing. Stresses addressing.
7	Cache spill test	Tests the cache interface to main memory. Causes cache flush and reload. Provides excellent test of cache management logic.
8	Cache tag test	Tests the cache tags by reading random addresses.
9	Cache MP test	Tests the cache on an MP system.

91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Onboard Ethernet test menu

This section describes the onboard Ethernet test submenu. The Ethernet diagnostic tests can generate error messages associated with the hardware and software.

Test no	Test	Description
1	Comprehensive Ethernet test	Runs all tests in this menu in current mode.
2	Display Ethernet address	Reads and displays device address.
3	Software reset test	Verifies software reset function.
4	Internal lpbk test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX Ethernet device using on-chip loopback capability.
5	Internal lpbk test 100B	
6	Internal Phy lpbk test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX interface, using on-chip PHY (physical device) loopback capability.
7	Internal Phy lpbk test 100B	
8	External lpbk test 10Bt [Xtnd]	*Extended test mode*: Tests data transfer between memory and the Ethernet chip on the 10Base-T/100Base-TX interface, involving loopback over connected wire. Also tests overall Ethernet functionality. Requires loopback plug.
9	External lpbk test 100Bt [Xtnd]	
10	Link test	Verifies the external link condition. Requires loopback plug or Ethernet connection.

11	Interrupt test	Tests the interrupt mechanism. Checks transmit and receive interrupts, as well as timer interrupts.
12	Status check	Checks the status of the onboard Ethernet interface.
74	Show the EEPROM contents	Displays the Electrically Erasable Programmable Read Only Memory (EEPROM) contents.
90	On-board Ethernet select	Enables you to select the onboard Ethernet port for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Onboard SCSI test menu

This section describes the Onboard SCSI test submenu. The SCSI diagnostic tests can generate error messages associated with the controller and disk shelf.

Test no	Test	Description
1	Comprehensive SCSI test	Runs all tests in this menu in current mode.
2	PCI-PCI bridge test (Netapp)	Verifies the PCI configuration registers.
3	PLX 9060 test (Netapp)	Tests the configuration, self-test, and error status of the PLX9060 bridge.
4	ISP chip test	Verifies the onboard ISP SCSI chip configuration, firmware commands, mailboxes, and status and error information.
5	EEPROM data check (Netapp)	Reads and verifies the serial EEPROM data.
6	SSRAM pattern test (Qlogic)	Tests the on-chip SSRAM with fixed data patterns.
7	SSRAM random test (Qlogic)	Tests the on-chip RAM with random data patterns.
8	SSRAM/DMA pattern test (Qlogic)	Tests the DMA of fixed data patterns between SSRAM and most locations of main memory.
9	SSRAM/DMA random test (Qlogic)	Tests the DMA of random data patterns between SSRAM and most locations of main memory.
10	ISP firmware test (Qlogic)	Tests the ISP firmware (reads and verifies ISP firmware in SSRAM).
11	SCSI interrupt test	Tests the ISP SCSI adapter interrupt.

12	Read-only bus test [Xtnd]	*Extended test mode*: Tests SCSI adapter loop integrity by reading from each disk attached to the SCSI adapter.
13	Read/write bus test [Mfg]	Option not available.
14	Disk read test	Tests the SCSI adapter connection by reading from each disk attached to the SCSI interface.
15	Disk read/write test	Option not available.
42	Scan and show disks (R100)	Lists the status of all the disks on the specified SCSI adapters. Requires disks attached to the SCSI host adapter on the R100.
71	Show ISP chip info	Displays information about the ISP chip.
72	Show attached SCSI devices	Displays the SCSI devices attached to the system.
73	Show all disks (probe-scsi-all)	Displays all SCSI disks.
74	Reset SCSI adapter	Resets the SCSI adapter.
75	Show serial EEPROM data	Displays the serial EEPROM data.
76	Program serial EEPROM data [Factory]	Option not available.
77	Go to shelf Diagnostics menu	Accesses the disk shelf diagnostics submenu.
78	Set serial # and revision [Factory]	Option not available.
90	SCSI card selection	Enables you to select a specific SCSI card for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.

92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Motherboard menu and submenus

BMC menu

This section describes the BMC menu. The BMC diagnostic tests can generate error messages associated with the hardware and software.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	BMC self test	Gets the self test results of the BMC
3	Environment test	Verifies that all environmental sensors are working through the BMC.
4	SDR read test	Verifies that the sensor data repository (SDR) is readable.
5	SEL read test	Verifies that the system event log (SEL) is readable.
6	LCD exercise	Option not available.
7	BMC timer test	Verifies that the timer that timestamps SEL events is working.
41	BMC NMI test	Verifies that BMC can generate false NMIs to cause a core dump.
42	BMC front panel test	Requires the user to press the front panel button to verify that this action causes the platform to generate an NMI and a core dump.
43	SEL write test (Mfg)	Verifies that software can record events in the System Event Log (SEL).
71	Show BMC SEL time restart	Displays the current time as measured by the BMC's SEL timer.
72	Get reason for restart	Identifies the reason for the previous reboot.
73	Show device info	Displays device information about the BMC.

74	Show SDR info	Displays information held in the BMC's SDR.
75	Show SEL info	Displays information held in the BMC's SEL.
76	Clear SEL (Mfg)	Option not available.
77	Emergency shutdown (Mfg)	
78	BMC update menu (Xtnd)	
79	Dump SEL Records	Displays all the BMC SEL records in a user-readable format.
80	Dump Raw SEL Records	Displays all the BMC SEL records in the raw format.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

C2100 motherboard tests

About the C2100 motherboard tests

This section addresses the Motherboard menu and the Miscellaneous board test, the Cache test, the Onboard Ethernet test, the Onboard SCSI test and BMC test submenus for the C2100 platform. To go to the error messages associated with the motherboard diagnostic tests, see Motherboard error messages.

For detailed information

For detailed information about the menus, see the following sections:

- Motherboard menu
- Misc. board test menu
- Cache test menu
- Onboard Ethernet test menu
- Onboard SCSI test menu
- BMC test menu

You can generate the C2100 environmental error codes by running the miscellaneous board diagnostic tests.

Motherboard menu and submenus

Motherboard menu

This section describes the Motherboard menu.

Test no	Test	Description
1	Comprehensive motherboard diag	Runs all tests in this menu in current mode.
2	Misc. board test menu	Accesses the miscellaneous motherboard test menu.
3	Cache test menu	Accesses the CPU cache tests. For more information, see Cache test menu.
4	Onboard Ethernet test menu	Accesses the onboard Ethernet adapter test menu.
5	Onboard SCSI test menu	Accesses the onboard SCSI adapter test menu.
6	BMC test	Accesses the baseboard management controller test menu.
71	Show PCI configuration	Lists the contents of all adapters in the PCI slots on the motherboard.
72	Show detailed PCI info	Displays detailed information about the contents and settings of the cards in the PCI slots.
73	Initialize real-time clock	Initializes the onboard real-time clock to user-defined settings.
74	Show system info	Displays information about the system.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.

92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Motherboard menu and submenus

Miscellaneous board test menu

This section describes the Miscellaneous board test submenu.

Test no	Test	Description
1	Run all miscellaneous tests	Runs all tests in this menu in current mode.
2	Check CPU/host bridge status	Tests the CPU host bridge chipset.
3	Check CSB5 status	Verifies that the South Bridge System I/O chipset is alive and responding normally.
4	Check PCI devices and slots	Verifies that the onboard PCI devices and slots are alive and responding normally.
5	Check memory interface	Verifies that accesses to main memory are operating correctly. Uses a sliding bits pattern.
6	Check boot flash access	Verifies access to system boot PROM. Reads and checks Programmable Read Only Memory (PROM) data.
7	Real-time clock test	Verifies and displays system clock and date.
8	Check environmental status	Checks the Environmental Status Register (ESR) for fault conditions, such as fan failure and high temperature.
9	Check Super I/O status	Verifies that the Super I/O chip is alive and responding normally.

71	Show PCI configuration	Shows the configuration of the Peripheral Component Interconnect (PCI), a peripheral bus.
72	Show detailed PCI info	Displays detailed information about the PCI.
73	Initialize real-time clock	Initializes the battery powered, real-time clock.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Cache test menu

The section describes the Cache test submenu.

Test no	Test	Description
1	Comprehensive cache test	Runs all tests in this menu in current mode.
2	Cache walking data bits test	Verifies the data path between the CPU and cache (on systems with cache).
3	Cache stuck-at faults test	Scans through all cache locations, checking for stuck bits (0 or 1).
4	Cache random read/write test	Tests by random reading or writing of cache locations.
5	Cache random data test	Tests by placing random data in every cache location. Provides good cell verification.
6	Cache random address test	Tests by generating random addresses for reading and writing. Stresses addressing.
7	Cache spill test	Tests the cache interface to main memory. Causes cache flush and reload. Provides excellent test of cache management logic.
8	Cache tag test	Tests the cache tags by reading random addresses.
9	Cache MP test	Tests the cache on an MP system.

91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Onboard Ethernet test menu

This section describes the onboard Ethernet test submenu. The Ethernet diagnostic tests can generate error messages associated with the hardware and software.

Test no	Test	Description
1	Comprehensive Ethernet test	Runs all tests in this menu in current mode.
2	Display Ethernet address	Reads and displays device address.
3	Software reset test	Verifies software reset function.
4	Internal lpbk test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX Ethernet device using on-chip loopback capability.
5	Internal lpbk test 100B	
6	Internal Phy lpbk test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX interface, using on-chip PHY (physical device) loopback capability.
7	Internal Phy lpbk test 100B	
8	External lpbk test 10Bt [Xtnd]	*Extended test mode*: Tests data transfer between memory and the Ethernet chip on the 10Base-T/100Base-TX interface, involving loopback over connected wire. Also tests overall Ethernet functionality. Requires loopback plug.
9	External lpbk test 100Bt [Xtnd]	
11	Interrupt test	Tests the interrupt mechanism. Checks transmit and receive interrupts, as well as timer interrupts.

12	Status check	Checks the status of the onboard Ethernet interface.
74	Show the EEPROM contents	Displays the Electrically Erasable Programmable Read Only Memory (EEPROM) contents.
75	Show revision	Displays the revision number.
90	On-board Ethernet select	Enables you to select the onboard Ethernet port for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Onboard SCSI test menu

This section describes the Onboard SCSI test submenu. The SCSI diagnostic tests can generate error messages associated with the controller and disk shelf.

Test no	Test	Description
1	Comprehensive SCSI test	Runs all tests in this menu in current mode.
2	PCI-PCI bridge test (Netapp)	Verifies the PCI configuration registers.
3	PLX 9060 test (Netapp)	Tests the configuration, self-test, and error status of the PLX9060 bridge.
4	ISP chip test	Verifies the onboard ISP SCSI chip configuration, firmware commands, mailboxes, and status and error information.
5	EEPROM data check (Netapp)	Reads and verifies the serial EEPROM data.
6	SSRAM pattern test (Qlogic)	Tests the on-chip SSRAM with fixed data patterns.
7	SSRAM random test (Qlogic)	Tests the on-chip RAM with random data patterns.
8	SSRAM/DMA pattern test (Qlogic)	Tests the DMA of fixed data patterns between SSRAM and most locations of main memory.
9	SSRAM/DMA random test (Qlogic)	Tests the DMA of random data patterns between SSRAM and most locations of main memory.
10	ISP firmware test (Qlogic)	Tests the ISP firmware (reads and verifies ISP firmware in SSRAM).
11	SCSI interrupt test	Tests the ISP SCSI adapter interrupt.

12	Read-only bus test [Xtnd]	*Extended test mode*: Tests SCSI adapter loop integrity by reading from each disk attached to the SCSI adapter.
13	Read/write bus test [Mfg]	Option not available.
14	Disk read test	Tests the SCSI adapter connection by reading from each disk attached to the SCSI interface.
15	Disk read/write test	Option not available.
42	Scan and show disks (R100)	Lists the status of all the disks on the specified SCSI adapters. Requires disks attached to the SCSI host adapter on the R100.
71	Show ISP chip info	Displays information about the ISP chip.
72	Show attached SCSI devices	Displays the SCSI devices attached to the system.
73	Show all disks (probe-scsi-all)	Displays all SCSI disks.
74	Reset SCSI adapter	Resets the SCSI adapter.
75	Show serial EEPROM data	Displays the serial EEPROM data.
76	Program serial EEPROM data [Factory]	Option not available.
77	Go to shelf Diagnostics menu	Accesses the disk shelf diagnostics submenu.
78	Set serial # and revision [Factory]	Option not available.
90	SCSI card selection	Enables you to select a specific SCSI card for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.

92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Motherboard menu and submenus

BMC menu

This section describes the BMC menu. The BMC diagnostic tests can generate error messages associated with the hardware and software.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	BMC self test	Gets the self test results of the BMC
3	Environment test	Verifies that all environmental sensors are working through the BMC.
4	SDR read test	Verifies that the sensor data repository (SDR) is readable.
5	SEL read test	Verifies that the system event log (SEL) is readable.
6	LCD exercise	Option not available.
7	BMC timer test	Verifies that the timer that timestamps SEL events is working.
41	BMC NMI test	Verifies that BMC can generate false NMIs to cause a core dump.
42	BMC front panel test	Requires the user to press the front panel button to verify that this action causes the platform to generate an NMI and a core dump.
43	SEL write test (Mfg)	Verifies that software can record events in the System Event Log (SEL).
71	Show BMC SEL time restart	Displays the current time as measured by the BMC's SEL timer.
72	Get reason for restart	Identifies the reason for the previous reboot.
73	Show device info	Displays device information about the BMC.

74	Show SDR info	Displays information held in the BMC's SDR.
75	Show SEL info	Displays information held in the BMC's SEL.
76	Clear SEL (Mfg)	Option not available.
77	Emergency shutdown (Mfg)	
78	BMC update menu (Xtnd)	
79	Dump SEL Records	Displays all the BMC SEL records in a user-readable format.
80	Dump Raw SEL Records	Displays all the BMC SEL records in the raw format.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

F85 motherboard tests

About the F85 motherboard tests

This section addresses the Motherboard menu and the Miscellaneous board test, the Cache test, and the Onboard Ethernet test submenus for the F85 platform. To go to the error messages associated with the motherboard diagnostic tests, see Motherboard error messages.

For detailed information

For detailed information about the menus, see the following sections:

- Motherboard menu
- Misc. board test menu
- Cache test menu
- Onboard Ethernet test menu

You can generate the F85 environmental error codes by running the miscellaneous board diagnostic tests.

Motherboard menu and submenus

Motherboard menu

This section describes the Motherboard menu.

Test no	Test	Description
1	Comprehensive motherboard diag	Runs all tests in this menu in current mode.
2	Misc. board test menu	Accesses the miscellaneous motherboard test menu.
3	Cache test menu	Accesses the CPU cache tests. For more information, see Cache test menu.
4	Onboard Ethernet test menu	Accesses the onboard Ethernet adapter test menu.
71	Show PCI configuration	Lists the contents of all adapters in the PCI slots on the motherboard.
72	Show detailed PCI info	Displays detailed information about the contents and settings of the cards in the PCI slots.
73	Initialize real-time clock	Initializes the onboard real-time clock to user-defined settings.
74	Show system info	Displays information about the system.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Motherboard menu and submenus

Miscellaneous board test menu

This section describes the Miscellaneous board test submenu.

Test no	Test	Description
1	Run all miscellaneous tests	Runs all tests in this menu in current mode.
2	Check CPU/host bridge status	Tests the CPU host bridge chipset.
3	Check SIO (OSB4) status	Verifies that the South Bridge System I/O chipset is alive and responding normally.
4	Check PCI devices and slots	Verifies that the onboard PCI devices and slots are alive and responding normally.
5	Check memory interface	Verifies that accesses to main memory are operating correctly. Uses a sliding bits pattern.
6	Check boot flash access	Verifies access to system boot PROM. Reads and checks Programmable Read Only Memory (PROM) data.
7	Real-time clock test	Verifies and displays system clock and date.
8	Check Environmental status	Checks the Environmental Status Register (ESR) for fault conditions, such as fan failure and high temperature.
9	Check Super I/O status	Verifies that the Super I/O chip is alive and responding normally.

11	Front panel LED exercise	Exercises the front panel LEDs by changing patterns in the displays. You need to observe the LEDs blinking to verify that they are working.
71	Show PCI configuration	Shows the configuration of the Peripheral Component Interconnect (PCI), a peripheral bus.
72	Show detailed PCI info	Displays detailed information about the PCI.
73	Initialize real-time clock	Initializes the battery powered, real-time clock.
74	Show system info	Displays information about the system.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Cache test menu

The section describes the Cache test submenu.

Test no	Test	Description
1	Comprehensive cache test	Runs all tests in this menu in current mode.
2	Cache walking data bits test	Verifies the data path between the CPU and cache (on systems with cache).
3	Cache stuck-at faults test	Scans through all cache locations, checking for stuck bits (0 or 1).
4	Cache random read/write test	Tests by random reading or writing of cache locations.
5	Cache random data test	Tests by placing random data in every cache location. Provides good cell verification.
6	Cache random address test	Tests by generating random addresses for reading and writing. Stresses addressing.
7	Cache spill test	Tests the cache interface to main memory. Causes cache flush and reload. Provides excellent test of cache management logic.
8	Cache tag test	Tests the cache tags by reading random addresses.
9	Cache MP test	Tests the cache on an MP system.

91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Onboard Ethernet test menu

This section describes the onboard Ethernet test submenu. The Ethernet diagnostic tests can generate error messages associated with the hardware and software.

Test no	Test	Description
1	Comprehensive Ethernet test	Runs all tests in this menu in current mode.
2	Display Ethernet address	Reads and displays device address.
3	Software reset test	Verifies software reset function.
4	Internal lpbk test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX Ethernet device using on-chip loopback capability.
5	Internal lpbk test 100B	
6	Internal Phy lpbk test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX interface, using on-chip PHY (physical device) loopback capability.
7	Internal Phy lpbk test 100B	
8	External lpbk test 10Bt [Xtnd]	*Extended test mode*: Tests data transfer between memory and the Ethernet chip on the 10Base-T/100Base-TX interface, involving loopback over connected wire. Also tests overall Ethernet functionality. Requires loopback plug.
9	External lpbk test 100Bt [Xtnd]	
10	Link test	Verifies the external link condition. Requires loopback plug or Ethernet connection.

11	Interrupt test	Tests the interrupt mechanism. Checks transmit and receive interrupts, as well as timer interrupts.
12	Status check	Checks the status of the onboard Ethernet interface.
74	Show the EEPROM contents	Displays the Electrically Erasable Programmable Read Only Memory (EEPROM) contents.
75	Show revision	Displays the revision number.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

F87 motherboard tests

About the F87 motherboard tests

This section addresses the Motherboard menu and the Miscellaneous board test, the Cache test, the Onboard Ethernet test, and the Onboard SCSI test submenus for the F87 platform. To go to the error messages associated with the motherboard diagnostic tests, see Motherboard error messages.

For detailed information

For detailed information about the menus, see the following sections:

- Motherboard menu
- Misc. board test menu
- Cache test menu
- Onboard Ethernet test menu
- Onboard SCSI test menu

You can generate the F87 environmental error codes by running the miscellaneous board diagnostic tests.

Motherboard menu and submenus

Motherboard menu

This section describes the Motherboard menu.

Test no	Test	Description
1	Comprehensive motherboard diag	Runs all tests in this menu in current mode.
2	Misc. board test menu	Accesses the miscellaneous motherboard test menu.
3	Cache test menu	Accesses the CPU cache tests. For more information, see Cache test menu.
4	Onboard Ethernet test menu	Accesses the onboard Ethernet adapter test menu.
5	Onboard SCSI test menu	Accesses the onboard SCSI adapter test menu.
71	Show PCI configuration	Lists the contents of all adapters in the PCI slots on the motherboard.
72	Show detailed PCI info	Displays detailed information about the contents and settings of the cards in the PCI slots.
73	Initialize real-time clock	Initializes the onboard real-time clock to user-defined settings.
74	Show system info	Displays information about the system.
75	Serial info setup menu [Factory only]	Option not available.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.

92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Motherboard menu and submenus

Miscellaneous board test menu

This section describes the Miscellaneous board test submenu.

Test no	Test	Description
1	Run all miscellaneous tests	Runs all tests in this menu in current mode.
2	Check CPU/host bridge status	Tests the CPU host bridge chipset.
3	Check SIO (OSB4) status	Verifies that the South Bridge System I/O chipset is alive and responding normally.
4	Check PCI devices and slots	Verifies that the onboard PCI devices and slots are alive and responding normally.
5	Check memory interface	Verifies that accesses to main memory are operating correctly. Uses a sliding bits pattern.
6	Check boot flash access	Verifies access to system boot PROM. Reads and checks Programmable Read Only Memory (PROM) data.
7	Real-time clock test	Verifies and displays system clock and date.
8	Check Environmental status	Checks the Environmental Status Register (ESR) for fault conditions, such as fan failure and high temperature.

9	Check Super I/O status	Verifies that the Super I/O chip is alive and responding normally.
10	Com port #2 test [Xtnd]	*Extended test mode*: Tests the debug port. Requires a loopback connector.
11	Front panel LED exercise	Exercises the front panel LEDs by changing patterns in the displays. You need to observe the LEDs blinking to verify that they are working.
71	Show PCI configuration	Shows the configuration of the Peripheral Component Interconnect (PCI), a peripheral bus.
72	Show detailed PCI info	Displays detailed information about the PCI.
73	Initialize real-time clock	Initializes the battery powered, real-time clock.
74	Show system info	Displays information about the system.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Cache test menu

The section describes the Cache test submenu.

Test no	Test	Description
1	Comprehensive cache test	Runs all tests in this menu in current mode.
2	Cache walking data bits test	Verifies the data path between the CPU and cache (on systems with cache).
3	Cache stuck-at faults test	Scans through all cache locations, checking for stuck bits (0 or 1).
4	Cache random read/write test	Tests by random reading or writing of cache locations.
5	Cache random data test	Tests by placing random data in every cache location. Provides good cell verification.
6	Cache random address test	Tests by generating random addresses for reading and writing. Stresses addressing.
7	Cache spill test	Tests the cache interface to main memory. Causes cache flush and reload. Provides excellent test of cache management logic.
8	Cache tag test	Tests the cache tags by reading random addresses.
9	Cache MP test	Tests the cache on an MP system.

91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Onboard Ethernet test menu

This section describes the onboard Ethernet test submenu. The Ethernet diagnostic tests can generate error messages associated with the hardware and software.

Test no	Test	Description
1	Comprehensive Ethernet test	Runs all tests in this menu in current mode.
2	Display Ethernet address	Reads and displays device address.
3	Software reset test	Verifies software reset function.
4	Internal lpbk test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX Ethernet device using on-chip loopback capability.
5	Internal lpbk test 100B	
6	Internal Phy lpbk test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX interface, using on-chip PHY (physical device) loopback capability.
7	Internal Phy lpbk test 100B	
8	External lpbk test 10Bt [Xtnd]	*Extended test mode*: Tests data transfer between memory and the Ethernet chip on the 10Base-T/100Base-TX interface, involving loopback over connected wire. Also tests overall Ethernet functionality. Requires loopback plug.
9	External lpbk test 100Bt [Xtnd]	
10	Link test	Verifies the external link condition. Requires loopback plug or Ethernet connection.

11	Interrupt test	Tests the interrupt mechanism. Checks transmit and receive interrupts, as well as timer interrupts.
12	Status check	Checks the status of the onboard Ethernet interface.
74	Show the EEPROM contents	Displays the Electrically Erasable Programmable Read Only Memory (EEPROM) contents.
75	Show revision	Displays the revision number.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Onboard SCSI test menu

This section describes the Onboard SCSI test submenu. The SCSI diagnostic tests can generate error messages associated with the controller and disk shelf.

Test no	Test	Description
1	Comprehensive SCSI test	Runs all tests in this menu in current mode.
2	PCI-PCI bridge test (Netapp)	Verifies the PCI configuration registers.
3	PLX 9060 test (Netapp)	Tests the configuration, self-test, and error status of the PLX9060 bridge.
4	ISP chip test	Verifies the onboard ISP SCSI chip configuration, firmware commands, mailboxes, and status and error information.
5	EEPROM data check (Netapp)	Reads and verifies the serial EEPROM data.
6	SSRAM pattern test (Qlogic)	Tests the on-chip SSRAM with fixed data patterns.
7	SSRAM random test (Qlogic)	Tests the on-chip RAM with random data patterns.
8	SSRAM/DMA pattern test (Qlogic)	Tests the DMA of fixed data patterns between SSRAM and most locations of main memory.
9	SSRAM/DMA random test (Qlogic)	Tests the DMA of random data patterns between SSRAM and most locations of main memory.
10	ISP firmware test (Qlogic)	Tests the ISP firmware (reads and verifies ISP firmware in SSRAM).
11	SCSI interrupt test	Tests the ISP SCSI adapter interrupt.

12	Read-only bus test [Xtnd]	*Extended test mode*: Tests SCSI adapter loop integrity by reading from each disk attached to the SCSI adapter.
13	Read/write bus test [Mfg]	Option not available.
14	Disk read test	Tests the SCSI adapter connection by reading from each disk attached to the SCSI interface.
15	Disk read/write test	Option not available.
42	Scan and show disks (R100)	Lists the status of all the disks on the specified SCSI adapters. Requires disks attached to the SCSI host adapter on the R100.
71	Show ISP chip info	Displays information about the ISP chip.
72	Show attached SCSI devices	Displays the SCSI devices attached to the system.
73	Show all disks (probe-scsi-all)	Displays all SCSI disks.
74	Reset SCSI adapter	Resets the SCSI adapter.
75	Show serial EEPROM data	Displays the serial EEPROM data.
76	Program serial EEPROM data [Factory]	Option not available.
77	Go to shelf Diagnostics menu	Accesses the disk shelf diagnostics submenu.
78	Set serial # and revision [Factory]	Option not available.
90	SCSI card selection	Enables you to select a specific SCSI card for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.

92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

F800 series/C3100/C6100/R100 motherboard tests

About the F800 series/C3100/C6100/R100 motherboard tests

This section addresses the Motherboard menu and the Miscellaneous board test, the Cache test, the Onboard Ethernet test, and the Onboard SCSI test submenus for the F800 series/C3100/C6100/ R100 platform. To go to the error messages associated with the motherboard diagnostic tests, see Motherboard error messages.

For detailed information

For detailed information about the menus, see the following sections:

- Motherboard menu
- Misc. board test menu
- Cache test menu
- Onboard Ethernet test menu

The following table identifies the environmental error messages that you can generate by running the miscellaneous board diagnostic tests for the motherboards in the F800 series/C3100/C6100/R100 appliances.

Miscellaneous Board Tests run on...	See...
F810 motherboard	F810 environmental error codes
F820/C3100 motherboard	F820/C3100 environmental error codes
F825 motherboard	F825 environmental error codes
F840/C6100 motherboard	F840/C6100 environmental error codes
F880 motherboard	F880 environmental error codes
R100 motherboard	R100 environmental error codes

Motherboard menu and submenus

Motherboard menu

This section describes the Motherboard menu.

Test no	Test	Description
1	Comprehensive motherboard diag	Runs all tests in this menu in current mode.
2	Misc. board test menu	Accesses the miscellaneous motherboard test menu.
3	Cache test menu	Accesses the CPU cache tests. For more information, see Cache test menu.
4	Onboard Ethernet test menu	Accesses the onboard Ethernet adapter test menu.
71	Show PCI configuration	Lists the contents of all adapters in the PCI slots on the motherboard.
72	Show detailed PCI info	Displays detailed information about the contents and settings of the cards in the PCI slots.
73	Initialize real-time clock	Initializes the onboard real-time clock to user-defined settings.
74	Show system info	Displays information about the system.
75	Serial info setup menu [Factory only]	Option not available.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.

93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Motherboard menu and submenus

Miscellaneous board test menu

This section describes the Miscellaneous board test submenu.

Test no	Test	Description
1	Run all miscellaneous tests	Runs all tests in this menu in current mode.
2	Check CPU/host bridge status	Tests the CPU host bridge chipset.
3	Check OSB4 status	Verifies that the South Bridge System I/O chipset is alive and responding normally.
4	Check PCI devices and slots	Verifies that the onboard PCI devices and slots are alive and responding normally.
5	Check memory interface	Verifies that accesses to main memory are operating correctly. Uses a sliding bits pattern.
6	Check boot flash access	Verifies access to system boot PROM. Reads and checks Programmable Read Only Memory (PROM) data.
7	Real-time clock test	Verifies and displays system clock and date.
8	Check Environmental status	Checks the Environmental Status Register (ESR) for fault conditions, such as fan failure and high temperature.
9	Check Super I/O status	Verifies that the Super I/O chip is alive and responding normally.

10	Com port #2 test [Xtnd]	*Extended test mode*: Tests the debug port. Requires a loopback connector.
11	Front panel LED exercise	Exercises the front panel LEDs by changing patterns in the displays. You need to observe the LEDs blinking to verify that they are working.
12	Front panel LCD exercise	Exercises front panel LCDs by changing patterns in the displays. You need to observe the LCD patterns changing to verify that they are working.
13	Test PCI slots [Factory]	Option not available.
14	Check onboard 8K NVRAM	Reads and writes data to the onboard 8K NVRAM.
15	Check watchdog interrupt	Verify level-1 watchdog interrupt.
16	CIOB Revision Test	Verify that the correct CIOB revision is present.
71	Show PCI configuration	Shows the configuration of the Peripheral Component Interconnect (PCI), a peripheral bus.
72	Show detailed PCI info	Displays detailed information about the PCI.
73	Initialize real-time clock	Initializes the battery powered, real-time clock.
74	Show system info	Displays information about the system.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.

93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Cache test menu

The section describes the Cache test submenu.

Test no	Test	Description
1	Comprehensive cache test	Runs all tests in this menu in current mode.
2	Cache walking data bits test	Verifies the data path between the CPU and cache (on systems with cache).
3	Cache stuck-at faults test	Scans through all cache locations, checking for stuck bits (0 or 1).
4	Cache random read/write test	Tests by random reading or writing of cache locations.
5	Cache random data test	Tests by placing random data in every cache location. Provides good cell verification.
6	Cache random address test	Tests by generating random addresses for reading and writing. Stresses addressing.
7	Cache spill test	Tests the cache interface to main memory. Causes cache flush and reload. Provides excellent test of cache management logic.
8	Cache tag test	Tests the cache tags by reading random addresses.
9	Cache MP test	Tests the cache on an MP system.

91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Onboard Ethernet test menu

This section describes the onboard Ethernet test submenu. The Ethernet diagnostic tests can generate error messages associated with the hardware and software.

Test no	Test	Description
1	Comprehensive Ethernet test	Runs all tests in this menu in current mode.
2	Display Ethernet address	Reads and displays device address.
3	Software reset test	Verifies software reset function.
4	Internal lpbk test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX Ethernet device using on-chip loopback capability.
5	Internal lpbk test 100B	
6	Internal Phy lpbk test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX interface, using on-chip PHY (physical device) loopback capability.
7	Internal Phy lpbk test 100B	
8	External lpbk test 10Bt [Xtnd]	*Extended test mode*: Tests data transfer between memory and the Ethernet chip on the 10Base-T/100Base-TX interface, involving loopback over connected wire. Also tests overall Ethernet functionality. Requires loopback plug.
9	External lpbk test 100Bt [Xtnd]	
10	Link test	Verifies the external link condition. Requires loopback plug or Ethernet connection.

11	Interrupt test	Tests the interrupt mechanism. Checks transmit and receive interrupts, as well as timer interrupts.
12	Status check	Checks the status of the onboard Ethernet interface.
74	Show the EEPROM contents	Displays the Electrically Erasable Programmable Read Only Memory (EEPROM) contents.
75	Show revision	Displays the revision number.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

FAS900/R150 motherboard tests

About the FAS900 series/R150 motherboard tests

This section addresses the Motherboard menu and the Miscellaneous board test, the Cache test, the Onboard Ethernet test, the Onboard SCSI test, and the BMC test submenus for the FAS900 series/R150 platforms. To go to the error messages associated with the motherboard diagnostic tests, see Motherboard error messages.

For detailed information

For detailed information about the menus, see the following sections:

- Motherboard menu
- Misc. board test menu
- Cache test menu
- Onboard Ethernet test menu
- BMC test menu

The following table identifies the environmental error messages that you can generate by running the miscellaneous board diagnostic tests for the motherboards in the FAS900 series appliances.

Miscellaneous Board Tests run on...	See...
FAS940 motherboard	FAS940 environmental error codes
FAS960 motherboard	FAS960 environmental error codes
R150 motherboard	R150 environmental error codes

Motherboard menu and submenus

Motherboard menu

This section describes the Motherboard menu.

Test no	Test	Description
1	Comprehensive motherboard diag	Runs all tests in this menu in current mode.
2	Misc. board test menu	Accesses the miscellaneous motherboard test menu.
3	Cache test menu	Accesses the CPU cache tests. For more information, see Cache test menu.
4	Onboard Ethernet test menu	Accesses the onboard Ethernet adapter test menu.
5	BMC test	Accesses the baseboard management controller test menu.
71	Show PCI configuration	Lists the contents of all adapters in the PCI slots on the motherboard.
72	Show detailed PCI info	Displays detailed information about the contents and settings of the cards in the PCI slots.
73	Initialize real-time clock	Initializes the onboard real-time clock to user-defined settings.
74	Show system info	Displays information about the system.
75	System serial info setup (Mfg)	Option not available.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.

93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Motherboard menu and submenus

Miscellaneous board test menu

This section describes the Miscellaneous board test submenu.

Test no	Test	Description
1	Run all miscellaneous tests	Runs all tests in this menu in current mode.
2	Check CPU/host bridge status	Tests the CPU host bridge chipset.
3	Check South Bridge status	Verifies that the South Bridge System I/O chipset is alive and responding normally.
4	Check PCI devices and slots	Verifies that the onboard PCI devices and slots are alive and responding normally.
5	Check memory interface	Verifies that accesses to main memory are operating correctly. Uses a sliding bits pattern.
6	Check boot flash access	Verifies access to system boot PROM. Reads and checks Programmable Read Only Memory (PROM) data.
7	Real-time clock test	Verifies and displays system clock and date.
8	Check environmental status	Checks the Environmental Status Register (ESR) for fault conditions, such as fan failure and high temperature.
9	Check Super I/O status	Verifies that the Super I/O chip is alive and responding normally.

10	Com port #2 test [Xtnd]	*Extended test mode*: Tests the debug port. Requires a loopback connector.
11	Front panel LED exercise	Exercises the front panel LEDs by changing patterns in the displays. You need to observe the LEDs blinking to verify that they are working.
12	Front panel LCD exercise	Exercises the front panel LCD by changing patterns in the display. You need to observe the LCDs to verify that they are working.
13	Test PCI devices	Option is unavailable.
14	Check on-board 8K nvsram	Verifies that the onboard 8K NVSRAM is working correctly.
41	Check watchdog interrupt	Checks that the watchdog interrupt is working.
71	Show PCI configuration	Shows the configuration of the Peripheral Component Interconnect (PCI), a peripheral bus.
72	Show detailed PCI info	Displays detailed information about the PCI.
73	Initialize real-time clock	Initializes the battery powered, real-time clock.
74	Show system info	Displays information about the system.
74	Margins menu (Mfg)	Option is unavailable.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.

93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Cache test menu

The section describes the Cache test submenu.

Test no	Test	Description
1	Comprehensive cache test	Runs all tests in this menu in current mode.
2	Cache walking data bits test	Verifies the data path between the CPU and cache (on systems with cache).
3	Cache stuck-at faults test	Scans through all cache locations, checking for stuck bits (0 or 1).
4	Cache random read/write test	Tests by random reading or writing of cache locations.
5	Cache random data test	Tests by placing random data in every cache location. Provides good cell verification.
6	Cache random address test	Tests by generating random addresses for reading and writing. Stresses addressing.
7	Cache spill test	Tests the cache interface to main memory. Causes cache flush and reload. Provides excellent test of cache management logic.
8	Cache tag test	Tests the cache tags by reading random addresses.
9	Cache MP test	Tests the cache on an MP system.

91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

Onboard Ethernet test menu

This section describes the onboard Ethernet test submenu. The Ethernet diagnostic tests can generate error messages associated with the hardware and software.

Test no	Test	Description
1	Comprehensive Ethernet test	Runs all tests in this menu in current mode.
2	Reset test	Verifies reset function.
3	EEPROM test	Verifies EEPROM checksum.
4	Internal lp test 1G	Tests data movement between main memory and the Ethernet chip on the 1Gigabit Ethernet device using on-chip loopback capability.
5	Interrupt test 1G	Tests the interrupt mechanism. Transmit and receive interrupts are checked, as well as timer interrupts.
6	Internal lp test 10B	Tests data movement between main memory and the Ethernet chip on the 10Base-T/100Base-TX Ethernet device using on-chip loopback capability.
7	External lp test 10B [Xtnd]	*Extended test mode*: Tests data transfer between memory and the Ethernet chip on the 10Base-T/100Base-TX interface, involving loopback over connected wire. Also tests overall Ethernet functionality. Requires loopback plug.
8	Internal lp test 100B [Xtnd]	
9	External lp test 100B [Xtnd]	
10	Interrupt test	Tests the interrupt mechanism. Checks transmit and receive interrupts, as well as

11	Quick interrupt test	timer interrupts.
70	Display MAC address	Displays the MAC address of the onboard Ethernet interface.
71	Display status register	Checks the status of the onboard Ethernet interface registers.
72	Display EEPROM (Intel)	Displays the onboard Electrically Erasable Programmable Read Only Memory (EEPROM) contents.
73	Display all registers	Lists information for all registers associated with the onboard Ethernet interface.
74	Program MAC (Mfg)	Option not available.
90	On-board Ethernet select	Enables you to select the onboard Ethernet port for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Return to main menu	Returns you to the main Diagnostics menu.

Motherboard menu and submenus

BMC menu

This section describes the BMC menu. The BMC diagnostic tests can generate error messages associated with the hardware and software.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	BMC self test	Gets the self test results of the BMC
3	Environment test	Verifies that all environmental sensors are working through the BMC.
4	SDR read test	Verifies that the sensor data repository (SDR) is readable.
5	SEL read test	Verifies that the system event log (SEL) is readable.
6	LCD exercise	Exercises the LCD panel controlled by the BMC.
7	BMC timer test	Verifies that the timer that timestamps SEL events is working.
41	BMC NMI test	Verifies that BMC can generate false NMIs to cause a core dump.
42	BMC front panel test	Requires the user to press the front panel button to verify that this action causes the platform to generate an NMI and a core dump.
43	SEL write test (Mfg)	Verifies that software can record events in the System Event Log (SEL).
71	Show BMC SEL time restart	Displays the current time as measured by the BMC's SEL timer.
72	Get reason for restart	Identifies the reason for the previous reboot.
73	Show device info	Displays device information about the BMC.

<table>
<tr><td>74</td><td>Show SDR info</td><td colspan="2">Displays information held in the BMC's SDR.</td></tr>
<tr><td>75</td><td>Show SEL info</td><td colspan="2">Displays information held in the BMC's SEL.</td></tr>
<tr><td>76</td><td>Clear SEL (Mfg)</td><td colspan="2" rowspan="2">Option not available.</td></tr>
<tr><td>77</td><td>Emergency shutdown (Mfg)</td></tr>
<tr><td rowspan="3">78</td><td rowspan="3">BMC update menu</td><td colspan="2">Displays the following submenu:</td></tr>
<tr><td>1. Update BMC firmware</td><td rowspan="2">Use this option to update the system with the new information.

Caution
Do not reboot the system during the updates.</td></tr>
<tr><td>2. Update BMC SDR</td></tr>
<tr><td>79</td><td>Dump SEL Records</td><td colspan="2">Displays all the BMC SEL records in a user-readable format.</td></tr>
<tr><td>80</td><td>Dump Raw SEL Records</td><td colspan="2">Displays all the BMC SEL records in the raw format.</td></tr>
<tr><td>91</td><td>Enable/disable looping</td><td colspan="2">Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.</td></tr>
<tr><td>92</td><td>Stop/continue looping on error</td><td colspan="2">Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.</td></tr>
<tr><td>93</td><td>Extended/normal test mode</td><td colspan="2">Enables or disables extended mode on tests where extended mode is an available option.</td></tr>
<tr><td>99</td><td>Exit</td><td colspan="2">Exits diagnostics.</td></tr>
</table>

Motherboard error messages

The following table identifies the error messages that can be generated when you run the motherboard group of diagnostic tests.

Diagnostic tests run on...	Error messages generated by...	
	Hardware	Software
Hardware bridges	DBH0301 through DBH0403	DBS0307
Baseboard management controller	DTH0001 through DTH0037	DTS0010
Memory, onboard DIMMs, and SIMMs	DMH0001 through DMH0352	DMS0060 through DMS0061
Motherboard and backplane adapters	DZH0101 through DZH2002	DZS0430

Card diagnostics

About card diagnostics

The card diagnostics are a collection of tests of the different cards that you can install in your storage appliance.

For detailed information

To run diagnostic tests on the cards and adapters in the system, see the following sections:

- ATM diagnostics
- Cluster interconnect diagnostics
- DAFS diagnostics
- Ethernet diagnostics
- FC-AL diagnostics
- FDDI diagnostics
- Gigabit diagnostics
- NVRAM diagnostics
- RMC diagnostics
- SCSI diagnostics

ATM diagnostics

About the ATM diagnostic tests

The ATM group of diagnostic tests the functioning of the ATM cards that are in your system. The tests range from a status check and heartbeat of the card through the testing of data movement through the system while the ATM card is being accessed. The ATM diagnostic tests can generate error messages associated with the hardware, software, and user input.

ATM diagnostic test menu

The following table describes the ATM diagnostic tests.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	Status check	Checks the error status of the ATM card.
3	Software reset test	Verifies the software reset function, checks the SAIL registers after reset, and verifies default values of all internal registers.
4	Heartbeat test (OC3)	Checks the onboard processor heartbeat.
5	Memory test	Tests card RAM using a variety of fixed and random data patterns.
6	Internal loop test (OC12)	Tests the integrity of the internal ATM loop.
7	External loop test [Xtnd]	*Extended test mode*: Tests card memory, functionality, and data movement between memory and ATM cable. Requires loopback plugs.
70	MAC address	Checks and displays the MAC address of the card.
71	Show all registers	Displays all memory registers on the card.
90	ATM card selection	Enables you to select a specific ATM card for testing.

91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Cluster interconnect diagnostics

About the cluster interconnect diagnostic test menu

The cluster interconnect group of diagnostics test the functioning of the cluster interconnect card that is in your system. The tests range from a status check of the adapter to the testing of data movement through the adapter.

Types of cluster interconnect cards tested

Type of cluster interconnect card	Platforms using the card	Types of error messages generated
SNET (Servernet)	F820, F840	This diagnostic test can generate error messages associated with the hardware and user input.
TRK (Troika)	F800 series	This diagnostic test can generate error messages associated with the hardware and user input.
IB (Infiniband)	F800 and FAS900 series	This diagnostic test can generate error messages associated with the hardware and user input.

SNET diagnostics

The following table describes the tests in the SNET diagnostic test menu.

Note: Tests that are labeled `[Xtnd]` often require loopback plugs for complete test operation and will indicate failures without these plugs.

Caution: Do not run `[Xtnd]` mode diagnostics on network adapter cards with live network connections. Disconnect all network connections prior to running network diagnostics in `[Xtnd]` mode. Running with attached networks can adversely affect other attached devices. Type **`xtnd n`** to cancel Extended test mode.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	PCI register test	Verifies the PCI configuration registers.
3	Software reset test	Verifies the software reset function, checks the SAIL registers after reset, and verifies default values of all internal registers.
4	Interrupt test	Tests the interrupt mechanism. Transmit and receive interrupts are checked, as well as timer interrupts.
5	Link test [Xtnd]	*Extended test mode:* Verifies external link signals. Requires loopback plug.
6	Internal loopback BTE0	Tests data movement between main memory and the SNET card, using on-chip loopback capability.
7	Internal loopback BTE1	Tests data movement between main memory and the SNET card, using the on-chip loopback capability. Checks data transfers.
8	External loopback BTE0 [Xtnd]	*Extended test mode*: Tests data movement between main memory and the SNET card and through the two external interface ports (X and Y). Checks short data transfers. Requires loopback plug.
9	External loopback BTE1 [Xtnd]	
71	Display chip info	Displays information about the chip.

72	Cable check [Xtnd]	*Extended test mode*: Checks the cable connection to the card. Requires loopback plug.
90	SNET card selection	Enables selection of the SNET card for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

TRK diagnostics

The following table describes the tests in the TRK diagnostic test menu.

Note: Tests that are labeled `[Xtnd]` often require loopback plugs for complete test operation and will indicate failures without these plugs.

Caution: Do not run `[Xtnd]` mode diagnostics on network adapter cards with live network connections. Disconnect all network connections prior to running network diagnostics in `[Xtnd]` mode. Running with attached networks can adversely affect other attached devices. Type **`xtnd n`** to cancel Extended test mode.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	Software reset test	Verifies the software reset function.
3	SRAM self test	Tests the onboard Static Random Access Memory (SRAM).
4	Doorbell self test	Tests the doorbell functionality.
5	Link self test (Xtnd)	*Extended test mode*: Verifies external link signals. Requires loopback plug.
6	Int loopback test	Tests data movement between main memory and the TRK card, using on-chip loopback capability.
7	Ext loopback test (Xtnd)	*Extended test mode*: Tests data movement between main memory and the TRK card through the external board interface.
8	SDRAM test	Tests the onboard SDRAM.
9	Interrupt test	Tests the following interrupts: message, OMR0, OMR1, completion, FCS, VI, and RRID.
10	TX SRAM test	Tests the onboard SRAM for transmit.
11	RX SRAM test	Tests the onboard SRAM for receive.
71	Display stats	Displays TRK card statistics.
90	TRK card selection	Enables selection of the TRK card for testing.

91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/Continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/Normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

IB diagnostics

The following table describes the tests in the IB diagnostic test.

Note: Tests that are labeled `[Xtnd]` often require loopback plugs for complete test operation and will indicate failures without these plugs.

Caution: Do not run `[Xtnd]` mode diagnostics on network adapter cards with live network connections. Disconnect all network connections prior to running network diagnostics in `[Xtnd]` mode. Running with attached networks can adversely affect other attached devices. Type **`xtnd n`** to cancel Extended test mode.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	Controller chip test	Test controller chip register access.
3	EEPROM CRC check	Reads and verifies the EEPROM CRC data.
4	Onchip RAM test	Test ERP RAM on the controller chip.
5	Interrupt test	Tests the interrupt mechanism.
6	Internal loopback test	Test data transfer between host memory and IB card, using onchip loopback.
7	Link test [Xtnd]	*Extended test mode*: Verify external link status. Point to point cable needed.
8	External loopback test [Xtnd]	*Extended test mode*: Test data transfer between host memory and IB card, using external loopback. Point to point cable needed.
70	Display card information	Display card vendor ID, device ID, Revision ID, class code and GUID base.
71	Reset chip	Resets the controller chip.
90	IB card selection	Enables the selection of IB card for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.

92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

DAFS diagnostics

About the DAFS diagnostic tests

DAFS diagnostics tests the functioning of the DAFS cards in your system. The tests range from EEPROM check through the testing of data movement through the system. The DAFS diagnostic tests can generate error messages associated with the hardware and software.

DAFS diagnostic test menu

The following table describes the tests in the DAFS diagnostic test menu.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	EEPROM verify	Verifies EEPROM checksum.
3	MAC loopback	Internal MAC loopback. Transmitted data loopback at MAC level and travel across the PCI bus in the opposite direction.
4	SERDES loopback	Internal serializer/deserializer (SERDES) loopback test. Transmitted packets loop back at the SERDES and travel across the PCI bus in the opposite direction.
5	External loopback [Xtnd]	Off board loopback test. Transmitted packets loop back at the external cable.
6	Interrupt test	Tests the interrupt mechanism.
7	DMA diag	Off board loopback test. Transmitted packets loop back at the external cable.
8	Stress MAC	Host PCI bus and internal MAC loopback stress test.
9	Stress SERDES	Host PCI bus and serializer/deserializer loopback stress test.
10	Stress External [Xtnd]	Checks and displays the MAC address of the card.
11	Warm reset card	Host PCI bus and off board loopback stress test.

70	Display MAC address	Displays the MAC address of the card.
71	Display EEPROM	Displays the onboard Electrically Erasable Programmable Read Only Memory (EEPROM) contents.
72	Display HBA clock frequency	Displays onboard clock frequency.
73	Display card information	Displays card serial number, MAC address, part number, card revision ID, and firmware revision.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Continue/stop looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
95	Long/Short loopback test mode	Enables or disables long loopback test mode. Long loopback test usually runs for several hours and is mainly used by manufacturing to stress the card.
99	Exit	Exits diagnostics.

Ethernet diagnostics

About the Ethernet diagnostic tests

The Ethernet group of diagnostic tests the functioning of the Ethernet cards that are in your system. The tests range from testing PCI connectivity through data transfer and data registers. The Ethernet diagnostic tests can generate error messages associated with the hardware and software.

Ethernet diagnostic test menu

The following table describes the tests in the Ethernet diagnostic menu.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	PCI-PCI bridge test	Checks the local PCI-PCI bridge chip on a quad card.
3	Status check	Checks card error status.
4	Display Ethernet address	Reads and displays controller device addresses.
5	Software reset test	Verifies the software reset function, checks the SAIL registers after reset, and verifies default values of all internal registers.
7	Interrupt test	Tests the interrupt mechanism. Checks transmit and receive interrupts, as well as timer interrupts.
8	Link integrity test	Verifies external link condition of physical layer (PHY). Requires loopback plug or Ethernet connection.
9	Internal loopback test	Tests data movement between main memory and the Ethernet chip, using on-chip loopback capability.
10	External loopback test [Xtnd]	*Extended test mode*: Tests card functionality and data movement between memory and Ethernet cable. Requires loopback plug.

11	Mode switch test [Xtnd] (DEC)	*Extended test mode*: Tests external loopbacks and mode switching between 10Base-T and 100Base-TX on DEC Ethernet cards.
12	Int Phy loop test (Intel)	Tests data movement between main memory and the Ethernet chip on the Intel Ethernet card.
13	Timer test (DEC)	Tests the timer on DEC Ethernet cards.
14	Verify SROM (DEC 21143)	Verifies function of system SROM.
40	Port test (Intel) [Xtnd]	*Extended test mode*: Tests the Ethernet port on the Intel Ethernet card. Requires a loopback connector.
41	VLAN test (Intel) [Xtnd]	*Extended test mode*: Tests the VLAN on the Intel Ethernet card. Requires a loopback connector.
71	Show all registers (DEC)	Displays all memory registers on DEC Ethernet cards.
72	Show revision number	Displays the revision number of the Ethernet card.
73	Display SROM [Factory]	Option not available.
90	Ethernet card selection	Enables the selection of a specific Ethernet card in the system.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

FC-AL diagnostics

About the FC-AL diagnostic tests

The FC-AL (Fibre Channel Arbitrated Loop) group of diagnostic tests the functioning of the Fibre Channel arbitrated loop adapters that are in your system. The tests range from EEPROM data verification through data transfer integrity testing. The FC-AL diagnostic tests can generate error messages associated with the adapter and disk shelf.

Note
Altering disks or cabling in a loop adapter requires you to perform either Test 41 or Test 42 before running any FC-AL test. If you change a multiple loop adapter, run Test 41. If you change a single loop adapter, run Test 42.

FC-AL diagnostic test menu

The following table describes the available tests in the FC-AL diagnostic menu.

Test no	Test	Description
1	Comprehensive FCAL test	Runs all tests in this menu in current mode.
2	ISP 2X00 chip test	Verifies FC-AL chip configuration, firmware commands, mailboxes, and status and error information.
3	EEPROM data check	Reads and verifies the serial EEPROM data.
4	ISP POST test	Tests the ISP power-on self-test (POST).
5	SSRAM test	Tests the on-chip SSRAM with fixed and random patterns.
6	SSRAM/DMA test	Tests the SSRAM/DMA of fixed and random patterns between SSRAM and most locations of main memory.

7	ISP firmware test	Reads and verifies ISP firmware in SSRAM.
8	ISP interrupt test	Tests the ISP interrupt mechanism.
9	22/23xx 10Bit Int loop test	Tests data movement between main memory and the FC-AL 10Base-T/100Base-TX chip, using on-chip loopback capability.
10	22/23xx 1Bit Int loop test	
11	Loop integrity/LRC test [Xtnd]	*Extended test mode*: Tests the FC-AL loop integrity and LRC functionality.
12	22/23xx Ext loop test [Xtnd]	*Extended test mode:* Tests the functionality and data movement between memory and FC-AL cable. Requires loopback plug.
13	Read-only bus test	Tests the FC-AL loop integrity by reading from each disk attached to the FC-AL interface.
14	Read/write bus test [Mfg]	Option not available.
15	Disk read test	Tests the FC-AL adapter loop integrity by reading from each disk attached to the FC-AL onboard interface. This test has optional parameters. Requires disks attached to the FC host adapter.
16	Disk read/write test [Mfg]	Option not available.
41	Scan all disks on all FC-AL adapters	Lists the status of all the disks on all FC-AL adapters on the filer. Requires disks attached to the FC host adapter.
42	Scan and show disks on selected FC-AL adapters	Lists the status of all the disks on the specified FC-AL adapters. Requires disks attached to the FC host adapter.
44	Perform drive self diagnostic test	Tests the external LEDs on the ISP 2200 card.

45	LED test	Invokes the internal disk diagnostic test and verifies the test result.
46	Read drive defect list	Displays primary and grown defect list. This test has optional parameters. Requires disks attached to the FC host adapter.
71	Show ISP FC chip info	Displays information about the ISP Fibre Channel chip.
72	Show attached FC-AL devices	Displays all devices attached to a specific FC-AL adapter.
73	Show all disks	Lists disk information for all disks attached to the system.
74	Reset FC-AL adapter	Resets the selected FC-AL adapter to its original state.
75	Show serial EEPROM data	Displays the serial EEPROM data.
76	Go to test patterns menu [Mfg]	Option not available.
77	Go to shelf diagnostics menu	Accesses the disk shelf diagnostics submenu.
90	FC-AL card selection	Enables you to select a specific FC-AL card for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Card diagnostics

Disk shelf diagnostics submenu

The following table describes the disk shelf diagnostics submenu for the FC-AL or SCSI card.

Test no	Test	Description
1	Turn shelf LED on	Turns on the drive LEDs on the target disk shelf.
2	Turn shelf LED off	Turns off the drive LEDs on the target disk shelf.
3	Get trunk information	Displays the list of disk shelves and their firmware revisions on the target FC-AL card.
4	Get shelf drive map	Displays the list of drives on the disk shelves of the target FC-AL card.
5	Get shelf environment information	Displays the environmental parameters for the disk shelves on the target FC-AL card.
6	Check SES temperature sensors	Check SES temperature sensors against threshold value.
7	Check SES FANs	Check SES fan status.
8	Check SES Power Supply	Check SES Power Supply status.
9	Check SES ESH (HUB)	Check SES HUB status on the ESH.
10	Check all SES elements	Check status of all SES elements in the shelf.
11	Loop integrity/LRC test [Xtnd]	*Extended test mode*: Tests the FC-AL loop integrity and LRC functionality.
12	Show HUB status	Display status of each port in the HUB for each ESH module.
70	Display sector size for FC-AL devices	Displays the sector size for the drives on the disk shelves.

93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit this menu	Returns the user to the main FC-AL menu.

FDDI diagnostics

About the FDDI diagnostic tests

The FDDI group of diagnostic tests the functioning of the FDDI cards that are in your system. The tests range from a status check of the card through the testing of data movement through the system while the FDDI card is being used. The FDDI diagnostic tests can generate error messages associated with the hardware.

FDDI diagnostic test menu

The following table describes the tests in the FDDI diagnostic menu.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	Status check	Checks card error status.
3	Display network address	Reads and displays card device.
4	Display SMT information	Checks and displays SMT information, such as media type.
5	Internal loop test	Tests data movement between main memory and the FDDI controller, using onboard loopback capability.
6	External loop test [Xtnd]	*Extended test mode*: Tests FDDI controller functionality and data movement between memory and FDDI cable. Requires loopback plug.
71	Show PDQ revision	Displays PDQ revision of the card.
72	Show firmware revision	Displays the firmware running on the card.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.

93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Gigabit diagnostics

About the Gigabit diagnostic tests

The Gigabit group of diagnostic tests the functioning of the Gigabit Ethernet (GbE) cards that are in your system. The tests range from a status check of the card to the testing of data movement through the system while the GbE card is being used. The GbE diagnostic tests can generate error messages associated with the hardware and software.

GbE diagnostic test menu

The following table describes the GbE diagnostic tests.

Test no	Test	Description
1	Comprehensive GBE test	Runs all tests in this menu in current mode.
2	Reset test	Runs a test that resets the Intel GbE card to its original state.
3	EEPROM test	Runs a series of tests that reads and verifies EEPROM data on the GbE card.
4	Internal lp test 1G	Tests data movement between main memory and the GbE card, using onboard loopback capability. **Note** If your system is running an Copper GbE card, this test is not supported.
5	External lp test 1G (Xtnd)	*Extended test mode*: Tests card functionality and data movement between memory and the Ethernet cable. Requires loopback plug.
6	Internal lp test 10B	Tests data movement between main memory and the GbE card, using onboard loopback capability.
7	Internal lp test 100B	
8	External lp test 10B (Xtnd)	*Extended test mode*: Tests card functionality and data movement between

9	External lp test 100B (Xtnd)	memory and the Ethernet cable. Requires loopback plug.
10	Interrupt test	Performs the internal loopback test in Interrupt mode to tests and verify that the DMA/data transfers work in Interrupt mode.
11	Quick Interrupt test	Tests and verifies that all the device interrupts are working. Data is not transfered during this test.
40	MAC loop test	Tests movement of data through the MAC on the Intel GbE card. **Note** If your system is running an Intel Copper GbE card, it requires a loopback plug.
41	Port-port 10B test (Xtnd)	This test tests the data path from one channel to another for the dual channel NICS, requires a twisted pair network cable to be connected between the 2 ports.
42	Port-port 100B test (Xtnd)	
43	Port-port 1 G test (Xtnd)	
70	Display MAC address	Verifies and displays the MAC address of the card.
71	Display all registers	Displays all the card memory registers.
72	Display EEPROM	Displays the EEPROM data on the GbE card.
73	Set MAC address [Factory]	This is test is unavailable.
90	GbE card selection	Enables the selection of a specific GbE card in the system.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.

99	Exit	Exits diagnostics.

NVRAM diagnostics

About the NVRAM diagnostic test menu

The NVRAM group of diagnostics test the functioning of the NVRAM cards in the system, including PCI connectivity, data transfer, and data registers. In addition, the NVRAM diagnostics, together with other tests, run a set of memory tests on the NVRAM board. These memory tests focus on the memory module strips plugged into the cards. The NVRAM diagnostic tests can generate error messages associated with the hardware and user input.

Types of NVRAM cards tested

Type of NVRAM card	Platforms using the card	Description
NVRAM4	F87, FAS940, FAS960	Provides up to 256 MB of battery backed-up SDRAM in one bank.
NVRAM3	F85, F800 series filers, C3100, C6100, R100	Provides up to 128 MB of battery backed-up SDRAM in one bank.

NVRAM4 diagnostics

The following table describes the NVRAM4 test menu.

Test no	Test	Description
1	Comprehensive NVRAM test	Runs all tests in current mode.
2	Config test	Compares NVRAM memory size and part number against what is expected for the model.
3	Compact flash menu	This option is usable on systems with a compact flash-enabled NVRAM card. Select this option to enter the compact flash menu.
4	Front panel menu	This option is usable on systems with a front panel-enabled NVRAM card. Currently, only C2100 Netcache appliance uses a front panel-enabled NVRAM card. Select this option to enter the front panel menu.
5	Environmental Test	Tests NVRAM environmental sensors and states.
6	Charger test	Tests the voltage of the battery charger and determines if the voltage is a good value for the current states of the charger and battery.
7	PCI bridge test	Tests basic NVRAM communication.
8	Memory self test	Tests NVRAM and its ability to manage memory.
9	Address pattern test	Runs address pattern test on memory addresses.
10	Memory data walking test	Runs quick test of data lines.
11	Memory address walking test	Runs quick test of all address lines to verify address paths in NVRAM memory.
12	Partial-word load/store test	Tests intermixed data sizes.

13	Memory random data test	Runs longer test by writing and reading random data to all NVRAM locations.
14	Memory random address test	Runs longer test using random addresses.
15	ECC test	Tests ability to fix ECC errors.
16	DMA test	Tests the data moving capabilities and DMA error correction (ECC) capabilities of the NVRAM card.
72	Micro Menu [Mfg only]	Menu not available.
74	Fill for power cycle test, DMA write	Fills NVRAM memory with data patterns for power cycle test, which does DMA writes.
75	Fill for power cycle test, burst write	Fills NVRAM memory with data patterns for power cycle test, which does burst writes.
76	Fill for power cycle test, burst read	Fills NVRAM memory with data patterns for power cycle test, which does burst reads.
77	Fill for power cycle test	Fills NVRAM memory with data patterns for power cycle test.
78	Verify data retention	Checks the retention of data in NVRAM after a power cycle. Data comes from data patterns entered in Test 75.
79	Single byte read/write	Tests single location for read and write capability.
80	Show serial # and revision	Displays serial number and revision of the NVRAM.
81	Set serial #, rev, and part# [Mfg]	Option not available.
82	Display from given address	Displays the contents of a memory address location.
83	Display service area by address	Dump special NVRAM memory locations.
85	Memory read/write	Tests memory for read and write capability.
86	Service area read/write [Mfg]	Option not available.

87	Flash write [Xtnd]	Rewrites the firmware of the NVRAM card. Use this option if the card's firmware is outdated. The card's firmware version is printed in the NVRAM menu header. The up-to-date firmware version is 0115.
90	NVRAM card selection	Enables the selection of a specific NVRAM card for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

NVRAM3 diagnostics

Rules for running NVRAM on systems with the NVRAM3 card

Observe the following rules when you run the `nvram` diagnostic on systems with the NVRAM3 card:

- Do not run this diagnostic immediately after a system crash.
- Before you run `nvram` diagnostics, reboot and shut down the system.
- Be aware that `nvram` diagnostics overwrite all contents of NVRAM.

You might need to back up the data on the NVRAM before you start `nvram` diagnostics, because it might not be possible to recover user data from NVRAM after the diagnostic.

You are alerted to be very careful by the following warning:

WARNING! `Do not run the NVRAM diagnostic immediately after a system crash or if there is a possibility that log data is stored. Run only on new boards, or after a normal system shutdown, or if there is no chance of preserving customer data.`

NVRAM3 test menu

The following table describes the NVRAM3 test menu.

Test no	Test	Description
1	Comprehensive NVRAM test	Runs all tests in current mode.
2	Check contents of EEPROM	Verifies contents of onboard EEPROM.
3	Battery voltage check	Checks and displays battery voltage.
4	Memory data walking test	Runs quick test of data lines.

5	Memory address walking test	Runs quick test of all address lines to verify address paths in NVRAM memory.
6	Partial-word load/store test	Tests intermixed data sizes.
7	Memory random data test	Runs longer test by writing and reading random data to all NVRAM locations.
8	Memory random address test	Runs longer test using random addresses.
9	Random 64-bit data test	Runs test on 64-bit random data patterns.
10	ECC data-bits test	Runs ECC data-bits test.
11	ECC check-bits test	Runs ECC check-bits test.
41	Address pattern test	Runs address pattern test on memory addresses.
42	Charger test [Mfg]	Option not available.
71	Show DIMM size	Displays the capacity and size of the DIMMs.
76	Fill for power cycle test, burst read	Fills NVRAM memory with data patterns for power cycle test, which does burst reads.
77	Fill for power cycle test	Fills NVRAM memory with data patterns for power cycle test.
78	Verify data retention	Checks the retention of data in NVRAM after a power cycle. Data comes from data patterns entered in Test 75.
79	Memory read/write	Tests memory for read and write capability.
80	Show serial # and revision	Displays serial number and revision of the NVRAM.
81	Set serial # and revision [Mfg]	Option not available.
82	Display memory by address	Displays the contents of a memory address location.
83	Display onboard EEPROM	Displays information about the onboard EEPROM.

84	Display memory EEPROM	Displays information about the EEPROM dedicated to memory.
85	Show internal registers	Shows the location of the internal memory registers.
86	Set a register [Mfg]	Option not available.
90	NVRAM card selection	Enables the selection of a specific NVRAM card for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Remote Management Card (RMC) diagnostics

About the RMC diagnostic tests

The RMC diagnostic tests the functioning of the remote management card that is in your system. The RMC diagnostic tests can generate error messages associated with the hardware, software, and user.

RMC diagnostic test menu

The following table describes the tests in the RMC diagnostic test menu.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	RMC Self Test	Forces the RMC to do a self- test and then reports the result of the test.
3	I2C Cable Status Test	Checks to see if the I2C cable connecting the RMC to the BMC is in place.
4	SEL Access Test	Checks to see if the RMC can read the BMC's System Event Log.
5	External Power Test [Xtnd]	Checks to see if an external power source has been connected to the RMC.
6	LAN Cable Status Test [Xtnd]	Checks to see if a LAN cable has been connected to the RMC.
71	Show RMC Status	Displays the current status of the RMC card.
72	Show RMC Firmware Revision	Displays the version of the RMC firmware.
73	Update RMC Firmware [Mfg]	Option is unavailable.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Continue/stop looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.

93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

SCSI diagnostics

About the SCSI diagnostic tests

The Small Computer System Interface (SCSI) group of diagnostic tests the functioning of the SCSI adapters that are in your system. The tests range from checking firmware versions and disk access through Static Read Random Access Memory (SSRAM) and data transfer integrity. The SCSI diagnostic tests can generate error messages associated with the adapter and disk shelf.

SCSI Controller diagnostic test menu

The following table describes the tests in the SCSI Controller diagnostic test.

Test no	Test	Description
1	Comprehensive SCSI test	Runs all tests in this menu in current mode.
2	PCI-PCI bridge test (Netapp)	Verifies the PCI configuration registers.
3	PLX 9060 test (Netapp)	Tests the configuration, self-test, and error status of the PLX9060 bridge.
4	ISP chip test	Verifies the onboard ISP SCSI chip configuration, firmware commands, mailboxes, and status and error information.
5	EEPROM data check (Netapp)	Reads and verifies the serial EEPROM data.
6	SSRAM pattern test (Qlogic)	Tests the on-chip SSRAM with fixed data patterns.
7	SSRAM random test (Qlogic)	Tests the on-chip RAM with random data patterns.
8	SSRAM/DMA pattern test (Qlogic)	Tests the DMA of fixed data patterns between SSRAM and most locations of main memory.

9	SSRAM/DMA random test (Qlogic)	Tests the DMA of random data patterns between SSRAM and most locations of main memory.
10	ISP firmware test (Qlogic)	Tests the ISP firmware (reads and verifies ISP firmware in SSRAM).
11	SCSI interrupt test	Tests the ISP SCSI adapter interrupt.
12	Read-only bus test [Xtnd]	*Extended test mode*: Tests SCSI adapter loop integrity by reading from each disk attached to the SCSI adapter.
13	Read/write bus test [Mfg]	Option not available.
14	Disk read test	Tests the SCSI adapter connection by reading from each disk attached to the SCSI interface.
15	Disk read/write test	Option not available.
42	Scan and show disks (R100)	Lists the status of all the disks on the specified SCSI adapters. Requires disks attached to the SCSI host adapter on the R100.
71	Show ISP chip info	Displays information about the ISP chip.
72	Show attached SCSI devices	Displays the SCSI devices attached to the system.
73	Show all disks (probe-scsi-all)	Displays all SCSI disks.
74	Reset SCSI adapter	Resets the SCSI adapter.
75	Show serial EEPROM data	Displays the serial EEPROM data.
76	Program serial EEPROM data [Factory]	Option not available.
77	Go to shelf Diagnostics menu	Accesses the disk shelf diagnostics submenu.
78	Set serial # and revision [Factory]	Option not available.

90	SCSI card selection	Enables you to select a specific SCSI card for testing.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Card diagnostics

Disk shelf diagnostics submenu

The following table describes the disk shelf diagnostics submenu for the FC-AL or SCSI card.

Test no	Test	Description
1	Turn shelf LED on	Turns on the drive LEDs on the target disk shelf.
2	Turn shelf LED off	Turns off the drive LEDs on the target disk shelf.
3	Get trunk information	Displays the list of disk shelves and their firmware revisions on the target FC-AL card.
4	Get shelf drive map	Displays the list of drives on the disk shelves of the target FC-AL card.
5	Get shelf environment information	Displays the environmental parameters for the disk shelves on the target FC-AL card.
6	Check SES temperature sensors	Check SES temperature sensors against threshold value.
7	Check SES FANs	Check SES fan status.
8	Check SES Power Supply	Check SES Power Supply status.
9	Check SES ESH (HUB)	Check SES HUB status on the ESH.
10	Check all SES elements	Check status of all SES elements in the shelf.
11	Loop integrity/LRC test [Xtnd]	*Extended test mode*: Tests the FC-AL loop integrity and LRC functionality.
12	Show HUB status	Display status of each port in the HUB for each ESH module.
70	Display sector size for FC-AL devices	Displays the sector size for the drives on the disk shelves.

93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit this menu	Returns the user to the main FC-AL menu.

Main memory diagnostics

About the main memory diagnostic menu

The tests in the main memory diagnostic menu test main memory DIMMs, analyze errors, and attempt to identify a failing DIMM component for all platforms. All but the first 12 MB of memory can be tested. The times listed for these tests are examples and might vary, depending on the platform type and amount of memory in the system. The main memory diagnostic tests can generate error messages associated with the hardware and software.

Main memory diagnostic menu

The following table describes the tests in the menu.

Test no	Test	Description
1	Comprehensive memory test (350 sec)	Runs all tests in this menu in current mode.
2	Walking data bits test (1 sec)	Verifies the data path between the CPU and memory. Runs a quick check of all data lines.
3	Walking address test (1 sec)	Verifies address paths in memory. Runs a quick test of all address lines, up to size of memory.
4	Stuck faults test (64 sec)	Scans memory to check for stuck bits, either 1 or 0.
5	Walking data words test (1 sec)	Runs a short test, walking a byte of ones through a field of 64 words of zeros. Test is repeated with complemented data.

6	Walking data bytes test (8 sec)	Runs a short test, walking a byte of ones through a field of 64 words of zeros. Test is repeated with complemented data.
7	Partial words test	Tests intermixed words, half-words, and bytes to verify ability of memory/CPU to merge data.
8	Byte patterns test (1 sec)	Spins through all 256 possible data patterns within each byte of a long word, one byte at a time.
9	RAS/CAS corners test (1 sec)	Runs a quick test between several locations that cause maximum change in the Row Address, Column Address, and RAS/CAS line.
10	Random read/write test (72 sec)	Randomly reads or writes memory locations and tests memory controller sequencing.
11	Alternating address test (48 sec)	Tests even and odd addresses, stressing PC byte marks.
12	Random data test (80 sec)	Runs a longer test, placing random data in every location. Tests DRAM cell verification.
13	Random address test (72 sec)	Runs a longer test, generating random addresses for reading and writing. Stresses DRAM addressing. Longer option also available for a test that quietly reads all memory locations.
14	MP memory test (71 sec)	Multiprocessor memory test.

15	Large memory VM test (xx sec)	A fixed pattern test that is performed and verified on platforms with memory equal to or greater than 4 GB.
42	Fill memory with data pattern	Enables you to input data pattern and memory range.
43	Check memory with data	Verifies the data pattern and memory range specified in Test 42.
44	Log2 patterns test (223 sec)	Runs a longer test of a set of log2-based (binary) data patterns.
45	Parity/ECC bits test (716 sec)	Runs a longer test to verify that each bit of a byte can propagate into the parity/ECC term.
71	Read all locations	Reads through all memory locations, looking for errors. Gives a checksum at the end. You can run this test twice to compare the checksums.
72	Dump from specified address	Enables you to set hexadecimal base addresses for the memory tests. You can repeat this test to confirm whether checksums for both tests are the same.
73	Set test address range	Enables you to set the memory range for testing. The default range is the entire testable address space.

74	Show memory size and test range	Displays memory size and test range.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
95	Enable/disable cache	Enables or disables caching on the system.
99	Exit	Exits diagnostics.

Floppy drive diagnostics

About the floppy drive diagnostics

This section describes the diagnostic tests for the 3 1/2" floppy drive that is in your system. The floppy drive diagnostic tests can generate error messages associated with the hardware.

Floppy drive 3 1/2" diagnostic menu

The following table describes the menu numbers and tests in the Floppy drive 3 1/2" diagnostic test menu.

Test no	Test	Description
1	Comprehensive drive test	Runs all tests in this menu in current mode.
2	Check drive status	Runs stress diagnostics on the selected devices.
3	Long read verify	Displays all testable system devices.
4	Short read verify	Displays the devices selected for testing.
5	Recalibrate	Enables you to select which system device for the stress test.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.

99	Exit	Exits diagnostics.

CF card diagnostics

About the CF card diagnostic tests

The CF (CompactFlash) card group of diagnostic tests the functionality of CompactFlash card that is in your system. Use these diagnostics for testing and verifying card data. The CF card diagnostic tests can generate error messages associated with the hardware.

CF card diagnostic test menu

The following table describes the tests in the CF card diagnostic test menu.

Test no	Test	Description
1	Comprehensive test	Runs all tests in this menu in current mode.
2	Reset test	Verifies the reset functionality of the CF card.
3	Self test	Runs the internal self- test supported by the CF card.
4	Read test	Verifies data read transfers from the CF card.
5	Sector read	Verifies the read from a specific sector that the user selects.
70	Display drive info	Displays CF card information.
71	Display registers	Displays the contents of specific registers.
72	Display sector	Displays the contents of individual sectors that the user selects.
73	Display checksum	Displays the value of checksum info.
91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue looping on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.

99	Exit	Exits diagnostics.

Stress diagnostics

About the stress diagnostics

This section describes the stress diagnostic tests. They simulate heavy traffic on the filer to identify malfunctioning components or those that might malfunction in the near future. The stressable devices displayed depend on the cards in the system.

System stress diagnostic menu

The following table describes the menu numbers and tests in the system stress diagnostic test menu.

Test no	Test	Description
1	Stress all devices	Runs all tests in this menu in current mode.
2	Stress selected devices	Runs stress diagnostics on the selected devices.
3	Interrupt stress all devices	Interrupts all tests in this menu in current mode.
4	Interrupt stress selected devices	Interrupts stress diagnostics on the selected devices.
71	Show all devices	Displays all testable system devices.
72	Show selected devices	Displays the devices selected for testing.
90	Select devices	Enables you to select a system device for the stress test.

91	Enable/disable looping	Enables or disables continuous running of a diagnostic test. The test is stopped when Ctrl-C is pressed or when an error is encountered if option 92 is active.
92	Stop/continue on error	Starts or stops running a diagnostic test on an error. If looping is enabled, as set by option 91, looping continues after an error is encountered.
93	Extended/normal test mode	Enables or disables extended mode on tests where extended mode is an available option.
99	Exit	Exits diagnostics.

Error Messages

About this section

This section defines the coding conventions used, lists and defines the error messages generated by the diagnostic tests, and recommends the corrective action to address errors you encounter.

Topics in this section

The error messages are documented alphabetically and are described in the following sections.

- Error message coding conventions
- DAH0001 through DAH0387
- DAS0014 through DAS0015
- DAU0004
- DBH0301 through DBH0501
- DBS0307
- DEH0001 through DEH0216
- DES0007 through DES0022
- DFH0001 through DFH0032
- DGH0001 through DGH0285
- DGS0006
- DHH0001
- DLH0001 through DLH0100
- DMH0001 through DMH0352
- DMS0060 through DMS0061
- DNH0101 through DNH0550
- DNU0002 through DNU0106
- DOH0001 through DOH0012
- DPH0001 through DPH0029
- DRH0001 through DRH0012
- DRS0010
- DRU0009
- DSH0001 through DSH1015
- DTH0001 through DTH0037
- DTS0010

- DUH0002 through DUH0224
- DUS0001
- DZH0101 through DZH2002
- DZS0430

Error message coding conventions

How to determine error message type

When a diagnostic test encounters an error, the diagnostic tool generates an error message. The type of message that is generated and displayed on your console helps you determine what failed during the diagnostic test.

Error messages are composed of four components. The alphabetic portion of the error message code helps you identify the system generating the error, the module generating the error, and the type of error encountered.

The numeric portion of the error code uniquely identifies the error for the module reporting the error. The numeric identifier is followed by a colon and the error message text. The following is an example of error message syntax.

Example:

"SMTnnnn: The XYZ card failed to reset"

System code

The system code identifies the kernel for which the error is generated.

The types of system codes are shown in the following table.

System code letter	System generating the error
C	Data ONTAP kernel critical problem
D	Diagnostic kernel error
E	Data ONTAP kernel error
F	Firmware error
W	Data ONTAP kernel warning message

Note
Error codes of the type "ENVxxxxxx" indicate that an environmental error code was generated. These codes, along with the corrective action, are listed in Environmental Error Messages.

DAH0001 through DAH0387

Message type

This error message grouping covers hardware errors associated with the ATM cards that are in the filer. The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DAH0001	Self test for the card failed	ATM card failed its internal self test.
DAH0002	In FW startup, i960 is not ready	Failed to download the firmware correctly to the card.
DAH0004	fa_download: CP not running, bstat=*hex_value*, value	Failed to download the firmware correctly to the card. Cell processor was not initialized correctly.
DAH0006	fa_init_pexp_buf: ALLOC ERR.	Incorrect allocation of data for the device ROM.
DAH0009	Failed during initialization (phase2)	Failed Step 2 of initialization. Firmware was downloaded correctly but the card failed to start up.
DAH0010	Failed during initialization (pexp)	Failed to receive data from the ROM after the card initialized.
DAH0011	fa_download: INIT status *hex_value*	Failed during Step 2 of initialization. Status register is displayed.
DAH0012	Failed during initialization	Failed to receive data from the ROM after card initialized.
DAH0013	Series 200 could not activate vci	Failed to activate the virtual circuit interface for the loopback test.

DAH0016	Data send - *hex_value* data receive-*hex_value* packet - *dec_value*	Failed to receive the correct data. The data sent and received is displayed.
DAH0017	Series 200 could not activate vci	Failed to activate the Virtual Component Interface (vci) on second try.
DAH0018	Activate_connection not free, stat *hex_value*	Failed to activate a virtual connection. Status is displayed.
DAH0019	No commands in check queue	Noncommands present in the command. The command queue failed the command queue check during the loopback test.
DAH0022	*dec_value* transform failed	Failed to correctly initialize the transmit buffers.
DAH0024	Transmit queue full	Transmit queue is full and was not initialized correctly.
DAH0027	Status not complete	ATM card status check encountered a problem and was not completed.
DAH0029	*dec_value* PDU receive error	Failed to receive data. Receive unit failed.
DAH0030	*dec_value* connection not open for VPVC = *hex_value*	Required virtual interface is not open to receive data.
DAH0033	*dec_value* transform_mbuf bad nseg=*dec_value*, coalesce	Failed to correctly initialize the transmit data.
DAH0037	Heartbeat is *hex_value*, fp->last_heartbeat.	Failed the Heartbeat test. The heartbeat read is displayed, followed by the heartbeat error read.
DAH0038	Heartbeat - Flat line	Heartbeat failed.
DAH0039	Heartbeat - Unexpected host interrupt	Interrupt originated from the card. Card does not support this.
DAH0040	Heartbeat - Unexpected network interrupt	Interrupt occurred from the network status chip to the i960.

DAH0041	Heartbeat - Unexpected HBus interrupt	Card took a bus error.
DAH0042	Heartbeat - Unexpected LBus interrupt	Card accessed illegal memory.
DAH0043	Heartbeat - Unexpected bad interrupt	Resulting unexpected condition is not supported.
DAH0044	Heartbeat - Marker stuck1	DMA fifo is not properly drained of data.
DAH0045	Heartbeat - Marker stuck2	DMA timed out.
DAH0046	Heartbeat - Unexpected AAL	Resulting unexpected condition is not supported.
DAH0047	Heartbeat - SUNI initialization failed	Card failed to initialize.
DAH0048	Failed to transmit	Failed to transmit data out.
DAH0049	Failed to receive	Failed to receive data in.
DAH0050	fa_download incorrect firmware version or rev ID	Firmware version is incorrect.
DAH0200	Unknown ATM product ID *ASCII_value*	Incorrect ATM product type.
DAH0201	Unknown bus type	Incorrect bus type detected.
DAH0202	Failed to initialize the hardware	Hardware initialization failed.
DAH0203	No memory for ATM-HE card	Memory is incorrectly set up for the OC-12.
DAH0204	Invalid card type detected	Incorrect card type detected.
DAH0205	Data send *hex_value* data recv *hex_value*	Mismatch on data compare.
DAH0206	FAILS TX memory offset *hex_value*	Memory test failed on the transmit memory region.
DAH0207	FAILS RX memory offset *hex_value*	Memory test failed on the receive memory region.
DAH0208	Failed to reset the board	Board failed to reset.
DAH0209	Could not activate a virtual circuit	Could not set up the virtual circuit.
DAH0210	Failed on transmit	Failed to transmit the data.
DAH0211	Failed on receive	Failed to receive the data.
DAH0212	*dec_value* detected *ASCII_value*	Displays the type of interrupt that failed the interrupt test.

DAH0213	Failed to get TX RX device interrupts	Failed to get the transmit and receive interrupts.
DAH0214	Could not get the system interrupt	Could not get the system level interrupt.
DAH0325	Failed to initialize the Baracuda	Hardware initialization failed.
DAH0326	Failed to initialize the HSP	Failed to initialize or set up the host status page.
DAH0327	Failed to initialize the TX side	Failed to set up the transmit hardware.
DAH0328	Failed to initialize the RX side	Failed to set up the receive hardware.
DAH0329	Failed to initialize the INTRQ	Failed to set up the interrupt device.
DAH0330	Failed to initialize the TPD	Failed to set up the transmit page descriptor.
DAH0331	Failed to get the configuration	Failed to set the device configuration information.
DAH0350	Did not see transmit completed	Did not receive a transmit complete status message.
DAH0351	Transmit not complete transmitted *dec_value*	Did not receive a transmit complete status message.
DAH0352	Failed to allocate a TPD page	Transmit page descriptor failed to set up.
DAH0354	Failed to set up the transmit	Transmit setup process failed.
DAH0355	Failed to set up the TX cache	Cache failed to set up properly for transmit.
DAH0356	Failed to set up the TPDRQ	Failed to set up the queues for transmit.
DAH0357	Failed to set up the TBRQ	Failed to set up the queues for transmit.
DAH0375	Failed to initialize the RX memory	Failed to initialize the receive memory.
DAH0376	Failed to initialize the RX group properties	Failed to initialize the receive groups.
DAH0377	Failed to initialize the RBPQs	Failed to initialize the receive queues.

DAH0378	Failed to initialize the RBRQs	Failed to initialize the receive queues.
DAH0379	Invalid receive address	Invalid address received.
DAH0380	Failed to allocate the receive buffers	Could not allocate receive buffers.
DAH0381	Invalid base address	Base address is not correct.
DAH0382	Buffer error in buffer *dec_value*	Detected an error in the receive buffer indicated in the message.
DAH0383	Buffer *dec_value* incorrect length *hex_value*	Detected an error in the receive buffer, incorrect message length.
DAH0384	Length error	Incorrect message length received.
DAH0385	Unknown error type	Error of unknown type detected during message receive.
DAH0386	Offset *dec_value* data recv 0 *hex_value* data send *hex_value*	Sent data does not match received data.
DAH0387	CRC error	Cyclical Redundancy Check error detected.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action

DAH0001-DAH0002 DAH0004, DAH0006 DAH0009-DAH0013 DAH0017-DAH0019 DAH0022, DAH0024 DAH0029-DAH0030 DAH0033 DAH0037-DAH0047 DAH0050 DAH0200-DAH0210 DAH0212-DAH0214 DAH0325-DAH0331 DAH0350-DAH0352 DAH0354-DAH0357 DAH0375-DAH0385 DAH0387	Replace the ATM card or contact Network Appliance Technical Support.
DAH0016	First check that the ATM card has the required loopback plugs. If it has the required loopback plugs and the card still fails, call Network Appliance Technical Support.
DAH0027 DAH0048-DAH0049 DAH0211, DAH0386	Check that the external loopback plug is connected. If it is connected and the ATM card still fails, call Network Appliance Technical Support.

DAS0014 through DAS0015

Message type

This error message grouping covers software errors associated with the ATM cards that are in the filer.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DAS0014	Failed to initialize the small buffers	Failed to allocate the small buffers for data.
DAS0015	Failed to initialize the large buffers	Failed to allocate the large buffers for data.

Corrective action

To correct the displayed error, contact Network Appliance Technical Support.

DAU0004

Message type

This error message grouping covers user errors associated with the ATM cards that are in the filer.

Error message description

The following message can be generated for this message group.

Error code	Sample message	Description
DAU0004	Maximum number of cards that can be tested is 4	The number of installed cards exceeds the maximum.

Corrective action

To correct the error, remove the extra cards. Do not install more than four ATM cards in the filer.

DBH0301 through DBH0501

Message type

This error message grouping covers errors associated with the bridge cards that are in the filer. These errors are generated when you run the Option 2: Check CPU/Hostbridge CNB20HE status option and Option 3: Check SIO (OSb4) status option from the Motherboard Diagnostics menu. The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DBH0301	Vendor ID incorrect	This error message can appear with a variety of cards. Check the test that yielded this error message to determine which bridge is faulty.
DBH0302	Device ID incorrect	Incorrect bridge chip device ID found during testing.
DBH0303	Base class incorrect	Incorrect bridge chip base class detected during testing.
DBH0304	Subclass incorrect	Incorrect bridge chip subclass detected during testing.
DBH0305	Incorrect revision number	Incorrect bridge chip revision number detected during testing.
DBH0306	Bridge at bus *hex_value*, slot *hex_value* has error	Might indicate an error in the bridge chip, or more likely, a problem with a device on the bus managed by the bridge.
DBH0308	The following bridge error bits could not be located	Internal bridging software error detected during testing.
DBH0501	No CIOB found on motherboard.	The motherboard does not have the CIOB.

Corrective action

To correct the displayed error, replace the card or contact Network Appliance Technical Support.

DBS0307

Message type

This error message grouping covers software errors associated with the bridge cards that are in the filer. These errors are generated when you run the Option 2: Check CPU/Hostbridge CNB20HE status option and Option 3: Check SIO (OSb4) status option from the Motherboard menu.

Error message description

The following message can be generated for this message group.

Error code	Sample message	Description
DBS0307	No error bits selected to clear	Card memory was not cleared before the diagnostic was run.

Corrective action

Report this error to Network Appliance Technical Support for analysis.

DEH0001 through DEH0216

Message type

This error message grouping covers hardware errors associated with Ethernet cards that are in the filer. The following cards are tested:

Type of Ethernet card	Error code range
Generic Ethernet cards	DEH0001 through DEH0022
Intel® Ethernet card	DEH0100 through DEH0126
DEC21143 Ethernet card	DEH0200 through DEH0216

DEH0001 through DEH0022

Error message description

The following messages can be generated for this message group. The corrective action for this error message grouping is below the error message description.

Error code	Sample message	Description
DEH0001	Verify failed	Test failed to verify the SROM contents because the SROM was not programmed correctly.
DEH0003	Unknown PHY type *hex_value hex_value*	Physical layer of the device is not the correct supported version or type.
DEH0004	Reg(offset-*hex_value*) = *hex_value*(*hex_value*)	Expected and actual register values for the software reset test are displayed.
DEH0006	Setup frame timeout status (*hex_value*)	Card could not set up the frame for transmit
DEH0009	Receiving error (status - *hex_value*)	Error type on the receive is displayed.
DEH0010	Too many retries	Number of retries on the Ethernet receiver exceeded the maximum set for the card.
DEH0011	Frame *dec_value* receive (*hex_value*), transmit (*hex_value*) *dec_value*	Transmitted and received data do not match. The data at the mismatch location is displayed.
DEH0012	Status - *hex_value*	Displays the status register at which the error was reported.

DEH0013	Invalid device selected	Selected card does not exist. This error message is for MAC address programming in case the motherboard has multiple MAC devices.
DEH0014	Invalid address	Entered MAC address for the card is not valid.
DEH0015	Device *dec_value* invalid address	MAC address for the quad Ethernet card is not valid for the specified port.
DEH0016	Bad status	Card received a bad status from the PCI status register.
DEH0017	10Base-T failed	The 10Base-T card failed the external loopback test. Check the loopback plugs.
DEH0018	100Base-TX failed	The 100Base-TX card failed the external loopback test. Check the loopback plugs.
DEH0019	(mode switch) 10Base-T failed	The 10Base-T card failed the external loopback test. Check the mode switch.
DEH0020	(mode switch) 100Base-TX failed	The 100Base-TX card failed the external loopback test. Check the mode switch.
DEH0021	10Base-T test internal loopback failed	The 10Base-T card failed the internal loopback test.
DEH0022	Did not transmit	Card did not transmit the test data to the network.

Corrective action for DEH0001 through DEH0022

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DEH0001-DEH0004 DEH0006 DEH0009-DEH0016 DEH0018-DEH0021	Replace the Ethernet card or contact Network Appliance Technical Support.
DEH0017, DEH0022	1. Check that the external loopback plug is connected. 2. If it is connected and the Ethernet card still fails, call Network Appliance Technical Support.

DEH0100 through DEH0126

Error message description

The following messages can be generated for this message group. The corrective action for this error message grouping is below the error message description.

Error code	Sample message	Description
DEH0100	Bad vendor ID	Card was programmed with an incorrect vendor ID.
DEH0101	Bad device ID	PCI bus master bit was not set correctly. This indicates that the software is forcing the mode.
DEH0102	Enabling bus mastering	PCI bus master bit was not set correctly. This indicates that the software is forcing the mode.
DEH0103	Memory mapped mode not available	Memory mapped mode is not set for the card.
DEH0104	Invalid CSR memory mapped base address	Base address read for the card is invalid.
DEH0105	Bad revision ID	Revision ID is incorrect. This verifies that the card is 82559-based.
DEH0106	Configuration read failed	Test failed to correctly read the PCI configuration parameters.
DEH0107	Receiving error frame *dec_value* status *hex_value*	Card failed on the receive side. The frame and error status are displayed.
DEH0109	EEPROM corrupted	Contents of the EEPROM are corrupted and not readable.
DEH0110	Bad node address	Node address that was reported is not correct.
DEH0111	EEPROM checksum == *hex_value*	Calculated checksum for the EEPROM is displayed.

DEH0112	Could not write configure block	Test failed to initialize the command block, where various modes are set. Test failed to set up the registers correctly.
DEH0113	Setup of IAA address failed	Test failed to write the MAC address to the card.
DEH0114	Transmit was not completed successfully status *hex_value*	Test failed on the transmit side. Transmit status is displayed.
DEH0115	Transmit failed	No data was transmitted by the card during this test.
DEH0116	Could not start the receive unit	Test failed to initialize the card receive unit, which must be initialized for the card to transmit.
DEH0117	Transmit failed	Card failed to transmit data.
DEH0118	Receive failed	Card failed to receive data.
DEH0119	(Interrupt test) Receive unit failed	Card receive unit failed to receive data with interrupts enabled.
DEH0120	(Interrupt test) Transmit failed	Card failed to transmit data with interrupts enabled.
DEH0121	(Interrupt test) Receive failed	Card failed to receive data with interrupts enabled.
DEH0122	Could not get the transmit/receive interrupts	Test could not get the transmit and receive interrupts.
DEH0123	*ASCII_value* loopback *ASCII_value* failed	Loopback test failed. Medium type (10Base-T or 100Base-TX) is indicated.
DEH0126	Invalid Ethernet MAC address	MAC address format is not correct.

Corrective action

Replace the card or contact Network Appliance Technical Support.

DEH0200 through DEH0216

Error message description

The following messages can be generated for this message group. The corrective action for this error message grouping is below the error message description.

Error code	Sample message	Description
DEH0200	Invalid mode set	Mode set is incorrect for the loopback operation.
DEH0201	(21143) Receiving error (status - *hex_value*) (packet - *dec_value*)	Loopback test detected an error on the receive side. The error status and the packet where the error was detected are displayed.
DEH0202	(21143) Transmit error (status -*hex_value*) (packet - *dec_value*)	Loopback test detected an error on the transmit side. The error status and the packet where the error was detected are displayed.
DEH0203	(21143) Did not receive	Card did not receive any data packets.
DEH0204	(21143) Incorrect receive buffer	Incorrect ID received by the buffer.
DEH0205	(21143) Incorrect buffer length -*dec_value* status - *hex_value*	Incorrect size received by the buffer.
DEH0206	(21143) Frame *dec_value* receive (*hex_value*) transmit(*hex_value*)	Sent and received data do not match. The data mismatch is displayed.
DEH0207	(21143) Setup frame timeout status (*hex_value*)	Frame could not be set up for transmit.
DEH0208	(21143) Failed to transmit status - *hex_value* packet - *dec_value*	Card failed to transmit. The transmit error status is displayed.
DEH0209	(21143) Transmit failed	Card failed to transmit.

DEH0210	10Base-T internal loop failed	The 10Base-T card failed the internal loopback test.
DEH0211	100Base-TX internal loop failed	The 100Base-TX card failed the internal loopback test.
DEH0212	10Base-T external loop failed	The 10Base-T card failed the external loopback test.
DEH0213	100Base-TX external loop failed	The 100Base-TX card failed the external loopback test.
DEH0214	Timer interrupt failed	Card could not get any timer interrupts.
DEH0215	Loopback failed during interrupt test	Internal loopback test failed with the interrupts enabled.
DEH0216	Transmit-receive interrupt failed	Card does not get any transmit receive interrupts.

Corrective action for DEH0200 through DEH0216

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DEH0200-DEH0201 DEH0203-DEH0216	Replace the Ethernet card or contact Network Appliance Technical Support.
DEH0202	1. Check that the external loopback plug is connected. 2. If it is connected and the Ethernet card still fails, call Network Appliance Technical Support.

DES0007 through DES0022

Message type

This error message grouping covers software errors associated with Ethernet cards that are in the filer.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DES0007	Stop RX and TX process timeout	Card could not successfully execute the stop transmit receive command.
DES0016	No Ethernet in slot *dec_value*	No Ethernet card is installed in the selected slot.
DES0021	No Ethernet in slot *dec_value*	No Ethernet card is installed in the selected slot.
DES0022	Counted *dec_value* ether cards but original scan found *dec_value*	Stress test reports that the initialized cards do not match the cards found in the system.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DES0007	1. Check that the external loopback plug is connected. 2. If it is connected and the card still fails, call Network Appliance Technical Support.
DES0016, DES0021-DES0022	Replace the Ethernet card or contact Network Appliance Technical Support.

DFH0001 through DFH0032

Message type

This error message grouping covers hardware errors associated with FDDI cards that are in the filer. The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DFH0001	Card hung waiting to reset	Reset for the card failed.
DFH0002	FDDI_dma_cmd_exec status - *dec_value*	FDDI DMA command failed. It displays the command status.
DFH0003	Status - *hex_value*	Displays the failure status.
DFH0004	Timeout - adapter not responding	Card did not respond to the command in the specified time.
DFH0005	Port control command failed	Command for the port setup failed.
DFH0006	Timeout - adapter not responding	Card did not respond to the command in the specified time.
DFH0007	Command failed	Expected action to the command did not take place.
DFH0008	Unknown error	Error is not of the listed error types or is unidentifiable.
DFH0009	Initialize FDDI descriptor failed	Initialization failed to set up the descriptors.
DFH0010	Timeout - adapter not responding	Card did not respond in the expected time.

DFH0011	Command failed	Expected action to the command did not take place.
DFH0012	Timeout - adapter not responding	Card did not respond in the expected time.
DFH0013	Command failed	Card did not respond in the expected time or did not execute the test properly.
DFH0014	Unknown error	Error is not of the listed error types or is unidentifiable.
DFH0015	Start command failed	Failed to start the card.
DFH0016	Verify (*hex_value* - *hex_value*)	Verify the command status.
DFH0017	Setup loopback mode failed (*hex_value*)	Failed to set the card in the loopback mode.
DFH0018	Check connection	Check the loopback connection.
DFH0019	Invalid machine state (*dec_value*)	Card detected an invalid state.
DFH0020	Failed during initialization of the descriptors	Failure occurred during the initialization of the descriptors.
DFH0021	Failed during setup loopback mode (*dec_value*)	Failure occurred during the setup of the loopback.
DFH0022	Setup connection policy failed (*hex_value*)	Could not set up the connection.
DFH0023	Start failed	Failed to start the card.
DFH0024	Reading network address failed	Could not get the MAC address.
DFH0025	Failed unlink	Did not remove the link.
DFH0026	Timeout - adapter not responding	Card does not respond in the expected time.
DFH0027	Port control command failed	Could not send the command to the port.

DFH0028	Invalid PDQ revision	Card revision is not supported.
DFH0029	Timeout - adapter not responding	Card does not respond in the expected time.
DFH0030	Port control command failed	Could not send the command to the port.
DFH0031	No FDDI in slot *dec_value*	No card is present in the selected slot.
DFH0032	Found 3 FDDI cards but original scan found *dec_value*	Cards found in the diagnostics do not match the actual number of cards detected.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DFH0001-DFH0017 DFH0019-DFH0032	Replace the FDDI card or contact Network Appliance Technical Support.
DFH0018	1. Check that the external loopback plug is connected. 2. If it is connected and the card still fails, call Network Appliance Technical Support.

DGH0001 through DGH0285

Message type

This error message grouping covers hardware errors associated with GbE cards that are in the filer. The following GbE cards are tested:

Type of GbE card	Error code range
Alteon cards	DGH0001 through DGH0022
Intel® cards	DGH0140 through DGH0149
DAFS cards	DGH0250 through DGH0285

DGH0001 through DGH0022

Error message description

The following messages can be generated for this message group. The corrective action for this error message grouping is below the error message description.

Error code	Sample message	Description
DGH0001	GbE_InitNICmem failed *dec_value*	Failed to initialize memory for the NIC.
DGH0002	GbE_InitNICph1 failed *dec_value*	Failed to initialize the NIC hardware.
DGH0003	GbE_InitNICph2 failed *dec_value*	Failed to load the firmware.
DGH0004	Got event type *hex_value* before firmware_operational event	This firmware event appears when the firmware started and the firmware event is received. This message confirms that another event has not occurred.
DGH0005	Data send - *hex_value*, data receive - *hex_value*	Data sent does not match data received.
DGH0007	Write to the memory failed	Failed to write to the NIC memory.
DGH0008	Data send - *hex_value* data receive - *hex_value* count - *dec_value*	Displays the data sent, received, and packet count.
DGH0009	Failed to send data out	Failed on the transmit.
DGH0010	Failed count - *dec_value* unit - *dec_value* pattern - *dec_value*	Displays the fail count and the pattern at which the test failed.
DGH0011	CPU in reset state	Shows error detected on the CPU.
DGH0012	CPU ROM failed	
DGH0013	CPU halted	
DGH0014	CPU invalid instruction	

DGH0015	Invalid data fetch	
DGH0016	Invalid instruction fetch	
DGH0017	Bad memory alignment	
DGH0018	CPU in unknown state	
DGH0020	No GbE in slot *dec_value*	Selected slot does not have a GbE card.
DGH0021	Found *dec_value* GbE cards but original scan found *dec_value*	Number of cards initialized does not match those found. Reported by the stress diagnostics.
DGH0022	Failed to initialize the card	Initialization of the card failed.

Corrective action

Replace the GbE card or contact Network Appliance Technical Support.

DGH0140 through DGH0159

Error message description

The following messages can be generated for this message group. The corrective action for this error message grouping is below the error message description.

Error code	Sample message	Description
DGH0140	GbE revision *dec_value* not supported	Listed card firmware revision is not supported. Only revision 3 is supported.
DGH0141	Bad EEPROM node address	EEPROM has an incorrect node address.
DGH0142	Could not initialize the registers	Failed to initialize the device registers.
DGH0143	Could not allocate the memory	Failed to allocate memory for the card.
DGH0144	Register *ASCII_value*, expected *hex_value*, actual *hex_value*	Registers do not contain the expected default values. Existing and expected values are displayed.
DGH0145	Did not receive	Failed to receive packets.
DGH0146	Sent *hex_value* received *hex_value* offset *dec_value*	Data sent does not match the data received. Sent and received data is displayed.
DGH0147	Did not transmit	Failed to transmit packets.
DGH0148	Could not get the interrupts	Failed to get interrupts.
DGH0149	Checksum read *hex_value* expected *hex_value*\n, checksum, EEPROM_SUM	Read and expected (default) checksums do not match.
DGH0152	Receive data error descriptor *dec_value*	An error was received with the given value.
DGH0153	Receive carrier extension error descriptor *dec_value*	
DGH0154	Receive sequence error descriptor *dec_value*	

DGH0155	Receive symbol error descriptor *dec_value*	
DGH0156	Receive CRC or alignment error descriptor *dec_value*	
DGH0157	Transmit error underrun	Transmit error.
DGH0158	Transmit error late collision	
DGH0159	Transmit error excess collisions	

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DGH0140-DGH0146 DGH0148-DGH0149	Replace the GbE card or contact Network Appliance Technical Support.
DGH0147	1. Check that the external loopback plug is connected. 2. If it is connected and the GbE card still fails, call Network Appliance Technical Support.

DGH0250 through DGH0285

Error message description

The following messages can be generated for this message group. The corrective action for this error message grouping is below the error message description.

Error code	Sample message	Description
DGH0250	The control register offset is out of bounds	Outbound message register does not have the correct value.
DGH0251	Failed to set up command queue	Failed to allocate memory and initialize the command queue.
DGH0252	Failed to set up interrupt queue	Failed to allocate memory and initialize the interrupt queue.
DGH0253	Failed to reset NIC	Failed to reset the card.
DGH0254	NIC in wrong state	After reset, the card is not in standby state.
DGH0255	Queue not found	Return interrupt queue is empty.
DGH0256	Interrupt bit not set	Card did not set the interrupt bit after executing the command, and timed out.
DGH0257	Invalid parameter	Return error status from the card.
DGH0258	Invalid state	
DGH0259	Resource error	
DGH0260	EEPROM checksum mismatch	Read and expected checksum do not match.
DGH0261	Invalid command	Return error code from card.
DGH0262	Unknown error *hex_value*	
DGH0263	Reply message expected	Host was expecting a reply message, but did not get it.
DGH0264	Notify message expected	Host was expecting a notify message, but did not get it.
DGH0265	Loopback start failure	Return error code from card during loopback test and DMA test.
DGH0266	Set loopback failure	

DGH0267	Allocate packet failure	
DGH0268	Data mismatch	
DGH0269	Packet not received	
DGH0270	Reset loopback failure	
DGH0271	Link could not be established	
DGH0272	Loopback packet not sent	
DGH0273	DMA test fail	
DGH0274	Could not get the interrupt	Host was waiting for interrupt, but timed out.
DGH0275	Card failed to reboot	Card failed to reboot during warm reset.
DGH0276	DRAM data bus failure	Return error code from card during warm reset.
DGH0277	DRAM address bus stuck high failure	
DGH0278	DRAM address bus stuck low failure	
DGH0279	DRAM address bus shorted failure	
DGH0280	Memory test report device failure	
DGH0281	Flash checksum mismatch	
DGH0282	Could not initialize the registers	Failed to initialize device registers.
DGH0283	Flash manufacture ID and device ID do not match	Read out manufacture ID and device ID of the flash are not what was expected.
DGH0284	8M PCI memory, i960 switches 1 & 2 must be on	Unless 16M is mapped in, switches 1 and 2 are not set to On.
DGH0285	*hex_value* PCI memory should be 16M	16M should be mapped in.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action

DGH0250-DGH0268 DGH0270-DGH0285	Replace the GbE card or contact Network Appliance Technical Support.
DGH0269	1. Check that the external loopback plug is connected. 2. If it is connected and the GbE card still fails, call Network Appliance Technical Support.

DGS0006

Message type

This error message grouping covers software errors associated with GbE cards that are in the filer.

Error message description

The following message can be generated for this message group.

Error code	Sample message	Description
DGS0006	Couldn't fill recv ring	Failed to initialize the receive rings.

Corrective action

Replace the card or contact Network Appliance Technical Support.

DHH0001

Message type

This error message grouping covers hardware errors associated with the disk shelves that are connected to the filer or with the Fibre Channel or SCSI cards that are in the filer.

Error message description

The following message can be generated for this message group.

Error code	Sample message	Description
DHH0001	SES Admin failed to obtain SES structure; aborting operation	System is aborting the operation because the SCSI enclosure services (SES) administrator failed to access the correct target disk shelf ID.

Corrective action

To correct this error, complete the following steps.

Step	Action
1	Make sure that the drive bays for SES monitoring on the target disk shelf have disk drives.
2	Check the FC-AL or SCSI connection.
3	If the connection is good, replace the FC-AL or SCSI adapter.
4	Contact Network Appliance Technical Support.

DLH0001 through DLH0100

Message type

This error message grouping covers hardware errors associated with Fibre Channel cards that are in the filer. The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DLH0001	Could not reset ISP on adapter *ASCII_value*	Card failed to reset the chip.
DLH0003	Mailbox timeout	Card failed to finish the given mailbox command.
DLH0004	Mailbox command returned with a failure note	During execution of the mailbox command, the value put on the incoming mailbox does not match the value that was received in the outgoing mailbox.
DLH0005	ISP VID is *hex_value* but should be *hex_value*	Card has an unrecognized vendor ID (not ISP2100 or ISP2200).
DLH0006	ISP DID is *hex_value* but should be either *hex_value* or *hex_value*	Card has an unrecognized device ID (not ISP2100 or ISP2200).
DLH0007	RISC status was *hex_value*, but should be *hex_value*	After reset, the card does not come back alive.
DLH0009	ISP firmware simple command	Card failed to execute a simple command (NOP operation).

DLH0010	ISP firmware bad command test	Card failed to execute an invalid command.
DLH0011	ISP firmware wraparound failed	Card failed to execute a wraparound mailbox command.
DLH0012	ISP firmware wraparound	The data transmitted to and received by the mailbox does not match.
DLH0013	Expected *dec_value* ISP2100 controllers, but only found 1	Card received an unexpected number of ISP chips.
DLH0014	Copy to SSRAM on channel *dec_value* failed	Card failed to write to Synchronous Static Random Access Memory (SSRAM).
DLH0015	Read from SSRAM on channel *dec_value* failed	Card failed to read from SSRAM.
DLH0016	Data mismatch at SSRAM word *dec_value*, channel *dec_value*, read *hex_value*, expected *hex_value*, dest *hex_value*, source *hex_value*	Read and written data do not match. **Note** The word is the address offset from the starting address in the word.
DLH0019	RISC checksum failed	Card failed when verifying the checksum of the downloaded firmware code.
DLH0020	FCAL loop is open, channel *dec_value*	Card failed to reconnect to the loop. Check the cable, disk, and terminator plug.
DLH0021	Could not save new ISP 2100 settings to EEPROM; giving up after 2 retries	Card failed to download the EEPROM.
DLH0023	Unable to execute firmware: error code 0004	Card failed to execute the downloaded firmware.

DLH0025	FCAL loop is open, channel *dec_value*	Card failed to reconnect to the loop. Check the cable, disk, and terminator plug.
DLH0026	No FCAL in slot *dec_value*	No card was found in designated slot.
DLH0030	isp2100_diag_reset_isp: while resetting ISP, ISP never came ready on adapter *dec_value*	Card failed to come back after reset.
DLH0032	FCAL ISP POST test failed: error code *dec_value*, count *dec_value* failing FIFO: *hex_value*, FIFO addr: *hex_value*	Card failed to execute the POST code given by the FC-AL vendor.
DLH0033	NOP command failed execution	Card failed to execute the NOP command.
DLH0034	Unexpected number of ISP 2100s; found *dec_value*	Chip number is incorrect.
DLH0035	The HCCR_INTR bit was not reset	Test failed to flush the previous command.
DLH0036	FCAL interrupt test failed, the interrupt test never got set	Card/test failed to set the interrupt bit to the main CPU.
DLH0037	FCAL interrupt bit either never got reset or it regenerated an interrupt	Test either failed to flush the previous command or the interrupt bit was reset.
DLH0038	There is a link failure or loss of sync or invalid CRC	System failed to receive the link status from the Fibre Channel chip.
DLH0039	FCTEST confidence factor is < 95	The fctest has a confidence factor of < 95%.
DLH0040	ISP internal loop test 10 bit failed during mail, channel *dec_value*	*Applies to ISP2200 card only:* Card failed to execute the internal loop test (before the serial transceiver).
DLH0041	ISP internal loop test 1 bit failed during mail, channel *dec_value*	

DLH0042	ISP external loop test failed during mail, channel *dec_value*	*Applies to ISP2200 card only:* Card failed to execute the external loop test.
DLH0043	Data mismatch doing *dec_value* at word *dec_value*, channel *dec_value*, received *hex_value*, send *hex_value*	Card has a data mismatch when executing an internal or external loop test.
DLH0044	ISP failed to get device link status at channel *dec_value*, device # *dec_value*	Card failed to get device link status before the fctest.
DLH0045	ISP failed to get adapter link status at channel *dec_value*	Card failed to get adapter link status before the fctest.
DLH0046	ISP failed to execute fctest at channel *dec_value*	Card failed to execute the fctest.
DLH0047	ISP failed to get device link status at channel *dec_value*, device # *dec_value*	Card failed to get device link status after the fctest.
DLH0070	Unrecognized signature	The save EEPROM data has an invalid signature.
DLH0071	Invalid NVRAM minimum version	The save EEPROM data has an invalid NVRAM version.
DLH0072	EEPROM data checksum error	The save EEPROM data has an invalid checksum.
DLH0073	Serial number in EEPROM is not equal to the one in FLASH	Serial numbers saved in EEPROM and in FLASH do not match.
DLH0074	Never saw LIP occur after executing internal loopback test	Card never saw the loop initialization process (LIP) back up after executing the internal loopback test.
DLH0100	LED test failed	LED test failed.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DLH0001-DLH0007 DLH0009-DLH0016 DLH0019, DLH0021 DLH0023 DLH0026-DLH0030 DLH0032-DLH0041 DLH0070-DLH0074 DLH0100	Replace the FC-AL card or contact Network Appliance Technical Support.
DLH0020, DLH0025 DLH0042-DLH0043	1. Check the external connection. 2. If the FC-AL card still fails, replace the card or contact Network Appliance Technical Support.
DLH0044-DLH0047	1. Check the external connection, disk, and disk shelf. 2. If the FC-AL card still fails, replace the card or contact Network Appliance Technical Support.

DMH0001 through DMH0352

Message type

This error message grouping covers hardware errors associated with the storage appliance onboard memory.

When the memory diagnostics encounter errors, or if recoverable ECC errors occur, the diagnostics attempt to analyze the error and identify the failing SIMMs.

The following table lists the bank part number for the SIMMs by platform.

Platform	Bank part number
F700/C700 series	J27:J30
F800 series/C3100/C6100/D140/R100	J40:J45

Bank part numbers are silk-screened on the motherboard, adjacent to the SIMM sockets.

Cache SRAM chips might also be called out. The following table lists the labeling for the cache components by platform.

Platform	Bank part number
F700/C700 series	U30:U37

Example

When an error is encountered, the diagnostics display an error message similar to the following:

```
ERROR: Addr=04b1329e: Exp=55aa55aa, Act=55af55aa, Diff=00050000
** DIMM banks indicating errors: U101
** Cache SRAMs indicating errors: E44
```

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DMH0001-DMH0059	Addr=*hex_value*: Exp=*hex_value*, Act=*hex_value*, Diff=*hex_value* ** SIMM banks indicating errors: *hex_value*	Data might be corrupted and a specific DIMM is bad. Read/write error.
DMH0101-DMH0106 DMH0301-DMH0352	Addr=*hex_value* Exp=*hex_value*, Act=*hex_value*, Diff=*hex_value*	An error in cache memory is found and identified. Cache errors require replacement of the motherboard.

Corrective action for DMH0001 through DMH0352

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DMH0001-DMH0059	Replace the DIMM/SIMM for DIMM/SIMM errors. Call Network Appliance Technical Support for cache errors.
DMH0101-DMH0352	1. Replace the motherboard 2. Call Network Appliance Technical Support if the error is not corrected.

DMS0060 through DMS0061

Message type

This error message grouping covers software errors associated with the onboard memory in the storage appliance.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DMS0060	Unknown platform type = *dec_value*!	The storage appliance type cannot be determined by the test.
DMS0061	Invalid memory configuration, dimmMap = *hex_value*	The test encountered an invalid memory configuration for the storage appliance. One or more DIMMs might be malfunctioning, inaccessible, or missing.

Corrective action

Contact Network Appliance Technical Support.

DNH0101 through DNH0550

Message type

This error message grouping covers hardware errors associated with the NVRAM in the filer. The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DNH0101	No NVRAM card found	No NVRAM found in the system.
DNH0102	NVRAM3 card not initialized by firmware	Configuration data for the card is not as expected by the test.
DNH0103	No NVRAM in slot *dec_value*	NVRAM card was not found in the correct slot.
DNH0104	Data mismatch at *hex_value* on slot *dec_value*, *dec_value* bytes from cardbase at *hex_value* pass *dec_value* read *hex_value*, expected *hex_value*	A read/write error occurred.
DNH0110	No NVRAM memory found	No memory was found on the NVRAM card.
DNH0145	Majority vote for address not reached (*hex_value*, *hex_value*, *hex_value*)	Indicates that the address of the location being written to when power was lost could not be obtained.

DNH0106-DNH0109 DNH0112-DNH0143 DNH0301-DNH0302 DNH0311-DNH0312	Addr=*hex_value* Exp=*hex_value*, Act=*hex_value*, Diff=*hex_value*	A read/write error was encountered.
DNH0321	Soft error register value is not correct: Exp=*dec_value*, Act=*dec_value*	Test forced an ECC error. Status register is not correct.
DNH0322	Soft error count not generated	The status register did not count the errors.
DNH0323-DNH0324	No ACK received	I2C write failed.
DNH0325	EEPROM byte=*dec_value*, val=*hex_value*, exp=*hex_value*	An EEPROM read/write error occurred.
DNH0326	Soft error register value shows error = *hex_value*	Status register shows an unexpected error.
DNH0327	Cannot clear soft error register = *hex_value*	Test could not clear the status register bit.
DNH0328	Hard error register value shows error = *hex_value*	Status register shows an unexpected error.
DNH0329	Cannot clear hard error register = *hex_value*	Test could not clear the status register bit.
DNH0330	NVRAM battery needs to be charged	NVRAM battery voltage is low and needs charging or replacing.
DNH0331	NVRAM battery voltage too high	NVRAM adapter is bad, incorrect voltage read.
DNH0332	NVRAM battery in the chassis is *missing or dead*	NVRAM battery is missing or discharged.
DNH0333	Low NVRAM battery charger voltage	Battery charger is broken on the NVRAM III adapter.
DNH0334	NVRAM battery is connected	Bad NVRAM III card (manufacturing-only diagnostic).

DNH0335	Low NVRAM battery charger voltage (*dec_value* mVolts)	NVRAM III card is not functioning because the charger is not working.
DNH0402	Command status reads as busy	Previous command was not completed.
DNH0416	Expected interrupt *hex_value* did not occur	Missing interrupt.
DNH0417	Unexpected interrupt *hex_value*	Unexpected interrupt occurred.
DNH0423	Clear command did not clear memory	Memory was supposed to be cleared, but was not.
DNH0424	Incorrect number of unlogged ECC corrections *dec_value*	Log data shows memory errors, or expected errors not logged.
DNH0425	ECC log 0 incorrect mask=*hex_value*, addr=*hex_value*	
DNH0426	ECC log 1 incorrect mask=*hex_value*, addr=*hex_value*	
DNH0435	Unable to read the flash ID	Flash that stores NVRAM microcode is not responding properly.
DNH0436	Flash write error address = *hex_value*	A sector of flash memory that stores NVRAM microcode could not be written to.
DNH0440	Invalid nvram serial number *dec_value*	Test encountered an invalid serial number for the filer type or NetCache appliance.
DNH0441	Invalid nvram revision number *hex_value*	The test encountered an invalid revision number for the filer type or NetCache appliance.
DNH0442	Board part number (*hex_value*) does not match DIMM size	The test encountered an invalid memory size for the filer type or NetCache appliance.

DNH0443	ECC PCI correction	Memory errors read from the NVRAM card have not been corrected.
DNH0444	ECC silent correction Loc=*hex_value,* Exp=*hex_value*, Act=*hex_value*	Single-bit ECC error not corrected.
DNH0445	Wrong size DIMM (*dec_value* MB) for this platform	NVRAM installed with wrong memory size.
DNH0446	A front panel is *hex_value* detected on this system	Unable to communicate with the NVRAM flash.
DNH0447	Unrecognized part number (string-value)	NVRAM programmed with a bad part number, or unable to read part number.
DNH0448	ECC unlogged correction Adr=*hex_value,* Exp=*hex_value*, Act=*hex_value*	Unlogged ECC correction is incorrect.
DNH0449	ECC odd cacheline correction Addr=*hex_value,* Exp=*hex_value*, Act=*hex_value*	Odd ECC cacheline correction is incorrect.
DNH0450	Battery is dead *dec_value* and charger is not charging *dec_value*	NVRAM 4 battery is dead, and the charger is turned off.
DNH0451	Battery is low *dec_value* and charger is not charging *dec_value*	
DNH0452	Battery is good *dec_value* and charger is off *dec_value*	NVRAM 4 battery requires charging, but charger is not on.
DNH0453	Battery is over full *dec_value* and charger is active *dec_value*	NVRAM 4 charger is stuck on, causing the battery to overcharge.
DNH0461	DMA failed: Engine=*dec_value*, Ctrl=*hex_value* Addr=*hex_value*, Exp=*hex_value*, Act=*hex_value*, Diff=*hex_value*	DMA memory transfer shows unexpected data
DNH0462	DMA ECC: Engine=*dec_value*, Exp=*hex_value*, *hex_value*, *hex_value*, *hex_value* Act=*hex_value*, *hex_value*, *hex_value*, *hex_value*	

DNH0463	DMA time out: Engine=*dec_value*, Desc Exp=*hex_value*, Desc Act=*hex_value*	
DNH0471	Vendor ID incorrect - Expected *hex_value*, Actual *hex_value*	This card has a different vendor than what testing reads.
DNH0472	Device ID incorrect - Expected *hex_value*, Actual *hex_value*	This card is of a different type than what testing reads.
DNH0473	Class incorrect - Expected *hex_value*, Actual *hex_value*	This card is of a different class than what testing reads.
DNH0474	Completion buffer timeout	Command issued to NVRAM, but NVRAM did not reply.
DNH0490	NVRAM front panel EEPROM wrote *hex_value*, read *hex_value*	EEPROM read and/or write failed.
DNH0550	Timeout waiting for ECC correction	ECC errors not corrected or not recorded in logs.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DNH0101-DNH0330 DNH0471-DNH0473	1. Replace the NVRAM adapter. 2. Call Network Appliance Technical Support if the error is not corrected.
DNH0331-DNH0332 DNH0430, DNH0432	Replace the NVRAM battery.

DNH0333, DNH0335 DNH0402-DNH0426 DNH0435-DNH0436 DNH0442 DNH0445-DNH0446 DNH0473, DNH0550	Replace the NVRAM adapter.
DNH0334	Need to disconnect the battery to test the charger.
DNH0440-DNH0441 DNH0447	Replace the storage appliance head.
DNH0443 DNH0461-DNH0463	1. Replace the NVRAM adapter 2. Replace the storage appliance head
DNH0450-DNH0453	1. Replace the NVRAM battery 2. Replace the NVRAM adapter
DNH0490	Replace the NVRAM adapter and the attached front panel.

DNU0002 through DNU0106

Message type

This error message grouping covers user errors associated with the NVRAM in the filer.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DNU0002	Might be missing last bank of SIMMs	Test cannot verify the existence of the last bank of SIMMs.
DNU0106	Might be missing last bank of SIMMs	Test cannot find the last bank of SIMMs.

Corrective action

Check the filer for the last bank of SIMMs. If it is there, verify that it is seated properly, then rerun the diagnostic test. If the same error occurs, call Network Appliance Technical Support.

DOH0001 through DOH0012

Message type

This error message grouping covers user errors associated with the 3.25-inch diskette drive. The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DOH0001	Bad status=*hex_value, hex_value, hex_value*	Floppy controller reported a general error.
DOH0002	Unable to read from controller	Floppy controller failed such that a read failed.
DOH0003	Controller waiting for data	Floppy controller timed out waiting for data to arrive.
DOH0004	Can't write to controller	Floppy controller did not allow a command to be issued.
DOH0005	Drive's error signal is active	Floppy controller signaled a general error.
DOH0006	Drive is not ready	Floppy drive is busy or unavailable.
DOH0007	Primary IDE (A:) is not selected	Secondary floppy drive (B drive) is selected.
DOH0008	Unable to read floppy	A general failure occurred while attempting to read from the diskette.
DOH0009	Can't read floppy disk	

DOH0010	CRC1=*hex_value*, CRC2=*hex_value*	Two separate reads of identical data resulted in different values.
DOH0011	Can't find cylinder zero	Recalibration command failed to find cylinder zero on the disk.
DOH0012	Drive not ready, status *hex_value*	Floppy controller reported a general error.

Corrective action

Replace the diskette drive. Call Network Appliance Technical Support.

DPH0001 through DPH0029

Message type

This error message grouping covers user errors associated with the CompactFlash unit. The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DPH0001	Incorrect status *hex_value*	Status value shows error.
DPH0002	Invalid model	Model number not supported.
DPH0003	Incorrect size *dec_value*, current cylinders *dec_value*, current heads *dec_value*, current sectors per track *dec_value*	Card shows size not supported or incorrectly programmed.
DPH0004	BSY status bit not cleared	Busy bit is not cleared.
DPH0005	DRQ status bit not cleared	Data request is not cleared.
DPH0006	Command error	Command is not executed.
DPH0009	Drive not ready	Drive is not ready to respond.
DPH0010	Write complete error	Did not complete write command.
DPH0013	First read failed for sector *hex_value*	Could not read on first try.
DPH0014	Second read failed for sector *hex_value*	Could not read on second try.
DPH0015	Sector *dec_value* conflicting CRCs CRC1=*dec_value*, CRC2=*dec_value*	CRC error on read.
DPH0016, DPH0017	Invalid sector selected	Sector selected is not correct.
DPH0018	Read failed for sector *hex_value*	Failed on read command.

DPH0019	Mismatch; wrote *hex_value*, read *hex_value*	Read data does not match what was written.
DPH0020	Invalid sector selected	Sector selected is not correct.
DPH0021	Reset failed	Failed to reset card.
DPH0023	Formatter device error	Formatter device is incorrect.
DPH0024	Sector buffer error	Buffer type error is detected.
DPH0025	ECC circuitry error	ECC circuitry type error is detected.
DPH0026	Controlling MP error	Multiprocessor type error is detected.
DPH0029	Slave failed status *hex_value*	Failed to read slave device.
DPH0028	Read failed for sector *hex_value*	Failed on read command.
DPH0029	No compact flash on NVRAM 4	Failed to detect the presence of the CompactFlash™ card.

Corrective action

Error message group	Corrective action
DPH0001-DPH0028	Replace CompactFlash card. Call Network Appliance Technical Support.
DPH0029	Insert CompactFlash card.

DRH0001 through DRH0012

Message type

This error message grouping covers errors associated with the remote management card that is in the filer. The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DRH0001	Failed to Reset the RMC Card	The remote management card could not be reset.
DRH0002	RMC Self Test Error	The remote management card failed its self-test.
DRH0003	No External Power Source detected for the RMC Card	The remote management card did not detect any external power sources.
DRH0004	RMC I2C Cable connection not detected	The remote management card did not detect the cable connecting it to the motherboard.
DRH0005	RMC card failed to access the BMC SEL	The remote management card failed to read the baseboard management controller System Event Log.
DRH0006	Failed to access the BMC SEL. This is a BMC error	The baseboard management controller failed to read its System Event Log.
DRH0007	Incorrect or corrupt SEL data retrieved by the RMC	The remote management card did not retrieve correct System Event Log data.
DRH0008	No LAN cable connection detected for the RMC card	The remote management card did not detect a LAN cable connection.
DRH0011	Failed to get the RMC Firmware revision	The remote management card failed to read its firmware version.
DRH0012	Failed to update the RMC Firmware	The remote management card failed to update its firmware.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DRH0001-DRH0002 DRH0005 DRH0007 DRH0011-DRH0012	Replace the remote management card.
DRH0003	1. Check the external power source. 2. Replace the remote management card.
DRH0004	1. Check the cable connecting the remote management card to the motherboard. 2. Replace the remote management card.
DRH0006	Replace the motherboard.
DRH0008	1. Check the LAN cable. 2. Replace the remote management card.

DRS0010

Message type

This error message grouping covers software errors associated with the remote management card (RMC).

Error message description

The following message can be generated for this message group.

Error code	Sample message	Description
DRS0010	The RMC has incorrect firmware. Please update the firmware.	The remote management card has incorrect firmware.

Corrective action

1. Update the remote management card firmware.
2. Replace the remote management card.

DRU0009

Message type

This error message grouping covers user errors associated with the remote management card (RMC) in the filer.

Error message description

The following message can be generated for this message group.

Error code	Sample message	Description
DRU0009	Too many RMC cards in the system. Only one card is allowed.	The system has an unsupported number of remote management cards. Only one is allowed.

Corrective action

1. Make sure there is only one remote management card in the system.
2. Replace the remote management card.

DSH0001 through DSH1015

Message type

This error message grouping covers hardware errors associated with the SCSI cards in the filer. The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DSH0001	Not a NetApp Dual SCSI card; bridge test skipped	SCSI card found is not a NetApp Dual SCSI card.
DSH0002	PLX VID is *hex_value* but should be *hex_value* or *hex_value*	Test found the wrong PLX VID.
DSH0003	PLX DID is *hex_value* but should be *hex_value*, *hex_value*, *hex_value*	Test found an unexpected PLX DID.
DSH0004	PLX revision is *hex_value*; illegal *dec_value*	Revision found is illegal.
DSH0005	Base class is *hex_value* but should be *hex_value*	Test found an incorrect SCSI base class.
DSH0006	SubClass is *hex_value* but should be *hex_value*	Test found an incorrect subclass.
DSH0007	Interrupt pin is *hex_value* but should be *hex_value*	Test found an incorrect interrupt pin on the SCSI cable.
DSH0008	PLX selftest failed	Test failed to run the PLX self test.
DSH0009	EEPROM data error	Test found an invalid EEPROM value in one of the bits.
DSH0010	Could not reset ISP	SCSI adapter cannot reset itself.
DSH0011	ISP VID is *hex_value* but should be *hex_value*	Test found the wrong SCSI VID.
DSH0012	ISP DID is *hex_value* but should be *hex_value* or *hex_value*	Test found the wrong SCSI DID.

DSH0013	ISP revision is *hex_value*; illegal *dec_value*	Test found the wrong SCSI revision.
DSH0014	RISC status was *hex_value* but should be *hex_value*	SCSI adapter never came back alive.
DSH0015	MBOX register 1 was *hex_value* but should be *hex_value*	SCSI adapter returned a different product ID word.
DSH0016	ISP firmware simple command test failed	SCSI adapter failed to execute NOP operation.
DSH0017	ISP firmware bad command test failed	Invalid command entered; the SCSI adapter responds with invalid return status.
DSH0018	ISP firmware wraparound failed	SCSI adapter failed to execute the wraparound mailbox command.
DSH0019	ISP firmware wraparound mailbox # *dec_value*: read *hex_value*, expected *hex_value*	During execution of the wraparound mailbox command, the value put on the incoming mailbox does not match the value that was received in the outgoing mailbox.
DSH0020	Expected *dec_value* ISP controllers, but found *dec_value*	Number of ISP chips found does not match the number recorded.
DSH0021	Copy to SSRAM on slot *dec_value* failed	SCSI adapter failed to copy DMA data to the SSRAM.
DSH0022	Read from SSRAM on slot *dec_value* failed	SCSI failed to read DMA data to the host.
DSH0023	Data mismatch at SSRAM word # *dec_value*, slot *dec_value*, read *hex_value*, expected *hex_value*, dest *hex_value*, source *hex_value*	Value read from SSRAM does not match the value written to SSRAM.
DSH0024	Read of firmware from SSRAM failed	SCSI adapter failed to dump the firmware value written to the host.
DSH0025	Firmware data mismatch at word # *dec_value*, read *hex_value*, expected *hex_value*	Firmware data written to SSRAM does not match the firmware data that was read from SSRAM.
DSH0026	Firmware checksum failed	SCSI adapter failed the firmware checksum.

DSH0027	The HCCR_INTR bit was not reset	HCCR interrupt bit has not cleared existing data.
DSH0028	SCSI interrupt test failed, the interrupt test never got set	SCSI adapter interrupt is not set.
DSH0029	SCSI interrupt bit either never got reset or it regenerated	SCSI adapter interrupt is not set or the interrupt was set again.
DSH0030	Unable to execute firmware: error code *hex_value*	SCSI adapter failed to execute the loaded firmware.
DSH0031	Expected vendor *hex_value*, device *dec_value* saw vendor *hex_value*, device *dec_value*	Vendor ID numbers on the device and in the device database do not match.
DSH0032	No SCSI in slot *dec_value*	Cannot find SCSI adapter in the specified slot.
DSH0033	Copy of firmware to SSRAM failed	SCSI adapter failed to copy the firmware to SSRAM.
DSH0034	Copy of stress Qlogic code to SSRAM failed	SCSI adapter failed to copy the Qlogic stress code to SSRAM.
DSH0035	Qlogic stress code checksum failed	SCSI adapter failed when doing a checksum for a given Qlogic stress code.
DSH0036	Unable to execute Qlogic stress code	Cannot execute Qlogic stress code.
DSH0037	Read from SSRAM on slot *dec_value* failed	SCSI device failed to read the SSRAM in the identified slot.
DSH0038	Read from firmware from SSRAM in slot *dec_value* failed	SCSI device failed to read the SSRAM in the identified slot during the firmware test.
DSH0039	Failed to reset adapter card	Failed to reset SCSI adapter card.
DSH0040	Failed to reset ISP	Failed to reset SCSI chip.
DSH0041	Data mismatch at SSRAM word *hex_value*, slot *dec_value*, read *hex_value*, expected *hex_value*	Value read from SSRAM does not match the value written to SSRAM.
DSH0042	Firmware data mismatch at word *dec_value*, read *hex_value*, expected *hex_value*	Firmware data written to SSRAM does not match the firmware data that was read from SSRAM.

DSH0050	Failed to flush previous pending mailbox command	SCSI adapter failed to flush the previous pending mailbox command.
DSH0051	Mailbox command failed to finish	SCSI adapter found a timeout when executing a mailbox command.
DSH1000	SCSI adapter in slot *dec_value*, port *dec_value* is dead	Adapter is marked dead.
DSH1001	SCSI adapter in slot *dec_value*, port *dec_value* is currently in OSM event mode	Adapter is busy executing the OSM event and cannot be disturbed.
DSH1002	Failed to initialize SCSI adapter in slot *dec_value*, port *dec_value*	Adapter failed to do hardware initialization.
DSH1003	Timeout when initializing SCSI adapter in slot *dec_value*, port *dec_value*	A timeout occurred during the hardware initialization.
DSH1004	Failed to reset SCSI adapter in slot *dec_value*, port *dec_value*	Resetting of the SCSI adapter failed.
DSH1005	Timeout when resetting SCSI adapter in slot *dec_value*, port *dec_value*	A timeout occurred while the SCSI adapter was being reset.
DSH1006	Failed to reset SCSI adapter bus in slot *dec_value*, port *dec_value*	Adapter failed to do a bus reset.
DSH1007	Timeout when resetting SCSI adapter bus in slot *dec_value*, port *dec_value*	A timeout occurred while the adapter bus was being reset.
DSH1008	Failed to reset target in slot *dec_value*, port *dec_value*	Adapter failed to do specific disk reset.
DSH1009	Timeout when resetting target in slot *dec_value*, port *dec_value*	A timeout occurred while a specific disk was being reset.
DSH1010	Failed to rescan SCSI adapter in slot *dec_value*, port *dec_value*	Adapter failed to do a rescan.
DSH1011	Timeout when rescanning SCSI adapter in slot *dec_value*, port *dec_value*	A timeout occurred during rescanning.
DSH1012	Timeout from SCSI during disk init in slot *dec_value*, port *dec_value*	A timeout occurred during disk initialization through this adapter.

DSH1013	OSM event happened for SCSI card in slot *dec_value*, port *dec_value* and failed to handle it	An OSM event happened during the task and the adapter failed to handle it.
DSH1014	ISP VID is 0x%x but should be 0x%x	Wrong vendor ID.
DSH1015	ISP DID is 0x%x but should be 0x%x	Wrong device ID.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DSH0001-DSH0038 DSH0040-DSH0051 DSH1000-DSH1007 DSH1013-DSH1015	Replace the SCSI card or contact Network Appliance Technical Support.
DSH0039	1. Check that the external loopback plug is connected. 2. If it is connected, and the SCSI card still fails, call Network Appliance Technical Support.
DSH1008	Replace the bad disk. Call Network Appliance Technical Support.
DSH1009-DSH1012	1. Replace the bad disk. 2. Replace the SCSI card. 3. Call Network Appliance Technical Support.

DTH0001 through DTH0053

Message type

This error message grouping covers hardware errors associated with baseboard management controller (BMC). The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DTH0001	Failed to get the Version Info for current BMC Firmware	Could not get the version information for the current BMC firmware.
DTH0004	Failed to Enter BMC Firmware Transfer Mode. Retrying!	Could not enter BMC firmware transfer mode to start writing the Flash.
DTH0005	Failed to Write BMC Firmware. Retrying!	Could not write the BMC firmware to the FLASH.
DTH0006	Failed to Read BMC Firmware	Could not read BMC firmware from the FLASH.
DTH0007	Failed to Verify newly programmed Firmware! Restarting!	Could not verify newly programmed firmware in the FLASH.
DTH0008	BMC Firmware is corrupted. Restarting programming!	BMC firmware is corrupted.
DTH0009	Failed to get the Current SDR Version Information	Could not get the current version information for the sensor data repository.
DTH0011	Failed to Clear the SDR Repository! Retrying!	Could not clear the sensor data repository.
DTH0012	Failed to Add a SDR record! Retrying!	Could not add a sensor data repository record.
DTH0013	Failed to Verify the newly added SDR records! Restarting!	Could not verify the newly added sensor data repository records.

DTH0014	Failed to Read a Sensor Record	Could not read a sensor record from the sensor data repository.
DTH0015	Failed to Read the Sensor Repository Information	Could not read the sensor repository information.
DTH0016	Failed to Reserve the Sensor Repository	Could not reserve the sensor repository.
DTH0017	Failed to Read the System Event Log Information	Could not read the system event log information.
DTH0018	Failed to Read a System Event Log record	Could not read a system event log record.
DTH0019	Failed to Add a System Event Log record	Could not add a system event log record.
DTH0020	Failed to Reserve the System Event Log	Could not reserve the system event log.
DTH0021	Failed to Set the System Event Log timer	Could not set the system event log timer's time.
DTH0022	Failed to Get the System Event Log timer	Could not get the system event log timer's time.
DTH0023	Failed to Verify the newly written record in the Event Log	Could not verify the newly written record in the event log.
DTH0024	The BMC Timer is not running at the right speed	The BMC timer is not running at the right speed.
DTH0025	Failed to get the RTC Time. This is not a BMC Error.	The real- time clock time could not be read.
DTH0026	Failed to Set the BMC Watchdog Timer	Could not set the BMC watchdog timer.
DTH0027	Failed to Start the BMC Watchdog Timer	Could not start the BMC watchdog timer.
DTH0028	Failed to Enable the BMC's NMI generation capability	Could not enable the BMC's NMI generation capability.
DTH0029	BMC should have generated an NMI but did not	BMC should have generated an NMI but did not.
DTH0030	Failed to Get the BMC's Device ID	Could not get the BMC's device identification.
DTH0031	Failed to Get the reason for System Restart	Could not get the reason for system restart.

DTH0032	Failed to Display text successfully on the LCD	Could not display text successfully on the LCD.
DTH0033	Failed to Retrieve the BMC's Self Test Information	Could not retrieve the BMC's self test information.
DTH0034	Failed to Get the System GUID	Could not get the system GUID.
DTH0035	Failed to Set the System GUID	Could not set the system GUID.
DTH0036	BMC does not support a Self Test option	BMC does not support a self test option.
DTH0037	Sensor Data Repository Empty	Sensor data repository was found to be empty.
DTH0039	BMC Boot Firmware Code is Corrupted.	The BMC Boot firmware was found to be corrupted
DTH0040	BMC FRU internal use area is Corrupted.	The BMC internal FRU area was found to be corrupted
DTH0041	Sensor Data Repository is Corrupted.	The Sensor Data Repository was found to be corrupted
DTH0042	System Event Log is Corrupted.	The System Event Log was found to be Corrupted.
DTH0043	Platform Information Area is Corrupted.	The BMC Platform Information Area was found to be corrupted.
DTH0044	BMC FRU device is Inaccessible.	The BMC FRU device could not be accessed
DTH0045	BMC Sensor Data Repository is Inaccessible.	BMC Sensor Data Repository could not be accessed.
DTH0046	BMC System Event Log is Inaccessible.	BMC System Event Log could not be accessed
DTH0047	IPMB Signal Error.	There was a Signal Error on the BMC Private Bus
DTH0048	BMC RAM test error.	BMC RAM had errors during self test
DTH0049	BMC fatal hardware error.	The BMC had a fatal internal hardware error.
DTH0050	Management controller error.	The BMC had a Management controller error during Self Test
DTH0051	Private I2C bus error.	A BMC Private I2C bus had an error.

DTH0052	BMC internal exception.	The BMC had an internal error.
DTH0053	BMC A/D timeout error.	The BMC analog to digital converter failed to respond

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DTH0001	1. Update the BMC firmware. 2. Replace the motherboard.
DTH0009	1. Update the BMC sensor data repository. 2. Replace the motherboard.
DTH0004-DTH0008 DTH0011-DTH0053	Replace the motherboard or contact Network Appliance Technical Support.

DTS0002 through DTS0010

Message type

This error message grouping covers software errors associated with the baseboard management controller (BMC).

Error message description

The following message can be generated for this message group.

Error code	Sample message	Description
DTH0002	Failed to Find a new BMC Firmware image	Could not find a new BMC firmware image.
DTH0003	Failed to Find a new Valid BMC Firmware image	Could not find a new BMC firmware image with valid checksums.
DTS0010	Failed to get the New SDR Version Information	Could not get the new sensor data repository version information from the BMC.

Corrective action

Replace the CompactFlash card.

DUH0002 through DUH0224

Message type

This error message grouping covers hardware errors associated with the cluster interconnect adapter in the filer. The following cards are tested:

Error code range	Type of cluster card
DUH0002 through DUH0014	Servernet (SNET)cluster interconnect card
DUH0101 through DUH0185	Troika (TRK) cluster interconnect card
DUH0200 through DUH0224	Infiniband (IB) cluster interconnect card

DUH0002 through DUH0014

Error message description

The following messages can be generated for this message group. The corrective action for this error message grouping is below the error message description.

Error code	Sample message	Description
DUH0002	SAIL SC selftest event detected; the self test for the card failed	Card did not successfully complete the self-test, as indicated by the self-check registers.
DUH0003	SAIL IIF selftest event detected	Self-test for the card failed. Card did not successfully complete the self-test for the I-960 interface.
DUH0004	Register *ASCII_value hex_value* default *hex_value* read *hex_value*	Registers not set correctly with the expected default specified values (displays the register and the expected value and the actual value present).
DUH0005	Transmit (BTE1) interrupt not detected	Card failed to generate transmit interrupts for the interrupt test.
DUH0006	Interrupt cause register did not clear	Card failed to clear the interrupt status after the interrupt was generated.
DUH0007	Transfer failed *dec_value*-recv *hex_value* send *hex_value*	Data sent does not match the data received. This message shows the data actually received and the data that was sent out.
DUH0008	Link exception X *hex_value* Y *hex_value*	Link was not detected. Shows the status of the link registers for both the X and Y ports.
DUH0009	Chip has wrong revision ID *hex_value*	Chip revision does not match the supported chip revision.
DUH0010	Chip has wrong value in command register *hex_value*	Card is not configured correctly by the system.

DUH0011	Chip has wrong value in status register *hex_value*	Card is not configured correctly by the system.
DUH0012	Chip has wrong value in latency timer register *hex_value*	Card is not configured correctly by the system.
DUH0013	No SNET in slot *hex_value*	Cluster interconnect adapter was not found in the expected slot.
DUH0014	Found *dec_value* snet cards but original scan found *dec_value*	Cluster interconnect adapter was found (or not found). However, the quantity found is more or less than the original scan for the card.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DUH0002-DUH0006 DUH0008-DUH0014	Replace the card or contact Network Appliance Technical Support.
DUH0007	1. Check that the external loopback plug is connected. 2. If it is connected, and the card still fails, call Network Appliance Technical Support.

DUH0101 through DUH0185

Error message description

The following messages can be generated for this message group. The corrective action for this error message grouping is below the error message description.

Error code	Sample message	Description
DUH0101	Could not allocate inbound buffers	Card could not allocate inbound buffers.
DUH0102	Could not allocate outbound buffers	Card could not allocate outbound buffers.
DUH0103	Failed to initialize msg-status *hex_value* error code *hex_value*	Failed to set up the message command.
DUH0104	RR_INVALID_NUM_ENTRIES *hex_value*	Failed to set up the correct number of entries.
DUH0105	RR_FAILED_MEMORY_ALLOC x *hex_value*	Failed to set up memory allocation.
DUH0106	RR_INVALID_INCLUDE_FILE x *hex_value*	Firmware file is invalid.
DUH0107	Invalid error *hex_value*	Failed as a result of an invalid status address.
DUH0108	Invalid addressing	The setup for the memory address is incorrect.
DUH0109	Invalid base address	The setup for the memory base address in incorrect.
DUH0110	Executive message buffer allocation failed	Failed to set up the executive message buffer allocation.

DUH0111	Troika comm init failed.	Failed to initialize communication with the card.
DUH0112	Buffer Q is empty	Buffer queue is empty.
DUH0113	Failed to allocate the buffers	Failed to allocate the buffers.
DUH0114	Did not generate msg interrupt	Did not generate message interrupt.
DUH0115	Incorrect buffer address	Buffer address is incorrect.
DUH0116	Incorrect buffer number	Buffer number is incorrect.
DUH0117	FCS initialization failed	Setup for Fibre Channel services (FCS) failed.
DUH0118	No link detected	Link is not detected.
DUH0119	Node not setup	Node is not set up.
DUH0120	Register nodes failed!	Register nodes failed.
DUH0121	Link recovery failed!	Link recovery failed.
DUH0122	No link recovery	Link recovery failed.
DUH0123	Non-Troika device VID *hex_value* DID *hex_value*	Card read invalid vendor and device identification numbers.
DUH0124	rr_init failed.	RR setup failed.
DUH0125	Could not associate the doorbell	Failed to set up the doorbell command.
DUH0126	Incorrect doorbell	The doorbell command is incorrect.
DUH0127	Failed to set the doorbell	Failed to set up the doorbell command.
DUH0128	Incorrect descriptor address	Setup for the descriptor address is incorrect.

DUH0129	recv desc error: *hex_value*	Status of the receive descriptor is incorrect.
DUH0130	Did not receive status *hex_value*	Status of the receive data is incorrect.
DUH0131	Invalid recv descriptor allocated	Status of the receive descriptor is invalid.
DUH0132	Incorrect send address	Send address is incorrect.
DUH0133	Send desc error: *hex_value*	Setup for the send descriptor is incorrect.
DUH0134	Did not transmit status *hex_value*	Transmit data failed.
DUH0135	Invalid send descriptor allocated	Status of the send descriptor is invalid.
DUH0136	Miscompare send *hex_value* recv *hex_value* offset *dec_value*	Send data does not match receive data at the offset decimal value.
DUH0137	Failed to set up the ulp	Failed to register the card.
DUH0138	rr_stats not cleared	RR status register is not cleared.
DUH0139	Cannot create the send command Q	Failed to create the send command queue.
DUH0140	Cannot create the recv command Q	Failed to create the receive command queue.
DUH0141	Cannot create the completion Q	Failed to create the completion queue.
DUH0142	Cannot set up ulp with nic	Failed to register the card.
DUH0143	Cannot set up send completion Q	Failed to set up the send completion queue.

DUH0144	Cannot set up recv completion Q	Failed to set up the receive completion queue.
DUH0145	Cannot set up completion Q	Failed to set up the completion queue.
DUH0146	Mem failed message received	Memory initialization failed.
DUH0147	Cmd *dec_value* status *hex_value*	Diagnostic command and status do not match.
DUH0148	Diag status *hex_value*	Self-test status is incorrect.
DUH0149	Invalid diag cmd *hex_value* response	Diagnostic command status is invalid.
DUH0150	Invalid status *hex_value*	SRAM test status is invalid.
DUH0151	Invalid status *hex_value*	SDRAM signature is invalid.
DUH0152	Invalid status *hex_value*	SDRAM test status is invalid.
DUH0153	Invalid message received *hex_value*	Data for the message received is invalid.
DUH0154	No message to deQueue	There is no message to remove from the queue.
DUH0155	RRID_MB_MC_REGISTER_MEM. Status = *dec_value*	Failed to register memory.
DUH0156	VI NIC init failed	Failed to set up virtual interface (VI).
DUH0157	VIA send init failed	Failed to set up the send virtual interface (VI).
DUH0158	VIA desc init failed	Failed to set up the virtual interface (VI) descriptor.
DUH0159	Failed to initialize VI	Failed to set up the virtual interface (VI).

DUH0160	Failed to create VI	Failed to set up the virtual interface (VI).
DUH0161	Failed to connect the VI	Failed to connect the virtual interface (VI).
DUH0162	No VI connection detected	Failed to connect the virtual interface (VI).
DUH0163	Failed to initialize the card for loopback	Failed to set up the card for loopback.
DUH0164	Failed to post recv version num descriptor	Failed to post the version number of the receive descriptor.
DUH0165	Failed to write to SRAM offset *dec_value*	Failed to write to the SRAM at the offset decimal value.
DUH0166	Failed to read from SRAM offset *dec_value*	Failed to read to the SRAM at the offset decimal value.
DUH0167	Invalid signature *hex_value*	Dignature data is invalid.
DUH0168	Failed to set the SDRAM to r/w mode	Failed to set the SDRAM to read/write mode.
DUH0169	Mismatch; wrote *hex_value*read *hex_value* count *dec_value*	Write data does not match the read data at the offset decimal value.
DUH0170	Failed to initialize the card	Failed to set up the card.
DUH0171	Did not generate pci interrupt for *ASCII_value* interrupt	Failed to generate an interrupt for the ASCII value.
DUH0172	Did not get doorbell interrupt state *hex_value*	Failed to get doorbell commans for FCS interrupt test.
DUH0173	Did not get doorbell interrupt state *hex_value*	Failed to get doorbell command for VI interrupt test.

DUH0174	Did not get doorbell interrupt state *hex_value*	Failed to get doorbell command for RRID interrupt test
DUH0175	Invalid interrupt type	Interrupt type is invalid.
DUH0176	Interrupt *ASCII_value* not generated	Interrupt data was not generated.
DUH0177	*ASCII_value* interrupt test failed	Interrupt test failed for the ASCII value interrupt.
DUH0178	Invalid test selected	Selected test is invalid.
DUH0179	Incorrect message dequeued	Message to remove from queue is incorrect.
DUH0180	Failed to initialize the card	Failed to set up the card.
DUH0181	No TROIKA in slot *dec_value*	There is no cluster interconnect card in the selected slot.
DUH0185	No link detected for lpbk	The card failed to detect a link for the test.
	Failed to init the card for Link test	

Corrective action

1. Replace the card or contact Network Appliance Technical Support.
2. If the tests were run in `Xtnd` mode, check for loopback cables.

DUH0200 through DUH0224

Error message description

The following messages can be generated for this message group. Corrective action for this error message grouping is below the error message description.

Error code	Sample message	Description
DUH0200	Failed getting device property	Software failed to get the device properties.
DUH0201	Failed MT21108 chip gateway access	Accessing controller chip register through gateway failed.
DUH0202	Data read differs of data written	Register data read back is not the same as data written.
DUH0203	Failed MT21108 register access	Accessing controller chip register failed.
DUH0204	Link/phy state for port is down, be sure this port is connected	Link/Physical state for this port is down.
DUH0205	Port does not change state to arm	Current port does not change its status to arm.
DUH0206	Port does not change state to active	Current port does not change its status to active.
DUH0207	Failed to set up receive channel	Failed to set up receive channel for communication.
DUH0208	Failed to create descriptor pool	Failed to create descriptor pool for data transfer.
DUH0209	Failed to get descriptor	Failed to initialize descriptor array.
DUH0210	Failed to post dbuff	Failed to post descriptors to send queue.
DUH0211	No complete queue coming back	A complete queue is not returned.
DUH0212	Receive data not correct	Data received is not the same as data sent.
DUH0213	After reset, DID and VID wrong	After reset, device ID and Vendor ID are incorrect.

DUH0214	Interrupt didn't happen	Expected interrupt did not occur.
DUH0215	Fail to create complete queue	Failed to create a complete queue.
DUH0216	Fail to create send queue	Failed to create a send queue.
DUH0217	Fail to configure send queue	Failed to configure a send queue.
DUH0218	Fail to enable send queue	Failed to enable a send queue.
DUH0219	Fail to complete EEPROM loading	Failed to complete the loading of the EEPROM.
DUH0220	Fail EEPROM CRC check	Failed the EEPROM CRC check
DUH0221	Fail to stop the ERP	Failed to stop the embedded risc processor.
DUH0222	Fail to erase ERP code	Failed to erase the embedded risc processor's code.
DUH0223	Fail to read ERP RAM	Failed to read the embedded risc processor's random access memory.
DUH0224	Fail to write ERP RAM	Failed to write to the embedded risc processor's random access memory.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action
DUH0200-DUH0203 DUH0205-DUH0224	Replace the card or contact Network Appliance Technical Support.
DUH0204	1. Check there is cable connected between port0 and port1. 2. If it is connected, and the card still fails, replace the card or call Network Appliance Technical Support.

DUS0001

Message type

This error message grouping covers software errors associated with the cluster interconnect adapter in the filer.

Error message description

The following message can be generated for this message group.

Error code	Sample message	Description
DUS0001	Init called for a non-SNET device	Device found was not a cluster interconnect card, but is an invalid card not supported by the system.

Corrective action

Call Network Appliance Technical Support.

DZH0101 through DZH2002

Message type

This error message grouping covers hardware errors associated with the motherboard or backplane of the filer. The corrective action for this error message grouping is below the error message description.

Error message description

The following messages can be generated for this message group.

Error code	Sample message	Description
DZH0101	Unexpected GPR value of = *hex_value*, expected range = *hex_value*	Invalid register read.
DZH0104	Conflicting CRCs; CRC1 = *hex_value*, CRC2 = *hex_value*	Bad boot ROM/FLASH encountered.
DZH0105	First CRC has garbage: CRC1=*hex_value*	Bad boot ROM/FLASH encountered.
DZH0106	Second CRC has garbage: CRC2=*hex_value*	Bad boot ROM/FLASH encountered.
DZH0123	Noisy com port # *dec_value*	Motherboard was not ready to receive data from the serial port.
DZH0124	Com port # *dec_value* hung; never saw <receive ready>	
DZH0125	Com port # *dec_value* data received does not match data sent	A data mismatch was received from the serial port.
DZH0126	Burst data transfer hung	Motherboard was not ready to receive data from the serial port.
DZH0127	Com port # *dec_value* burst data received does not match data sent	A data mismatch was received from the serial port.
DZH0136	Unable to read motherboard SEEPROM, error code = *dec_value*	Failed to read motherboard SEEPROM.
DZH0137	Can't program backplane SEEPROM, error code = *dec_value*	Failed to program backplane SEEPROM.

DZH0138	Can't program motherboard SEEPROM, error code = *dec_value*	Failed to program motherboard SEEPROM.
DZH0150	Super I/O config error; config = *hex_value*, expected *hex_value*	An invalid device ID was read from the Super I/O.
DZH0154	Unable to read backplane SEEPROM, error code = *dec_value*	Failed to read backplane SEEPROM.
DZH0155		
DZH0160		
DZH0161		
DZH0162		
DZH0163		
DZH0164		
DZH0165	Unable to read motherboard SEEPROM, error code = *dec_value*	Failed to read motherboard SEEPROM.
DZH0166		
DZH0167		
DZH0168		
DZH0169	Can't program backplane SEEPROM, error code = *dec_value*	Failed to program backplane SEEPROM.
DZH0170	Unrecognized device (ID = *hex_value*, *hex_value*) in slot *dec_value*	Unrecognized PCI device.
DZH0171	No card detected in slot *dec_value*	No PCI device found in indicated slot.
DZH0172	Card detected in (nonexistent) slot *dec_value*	Invalid PCI card found in indicated slot.
DZH0175	Unable to read backplane SEEPROM, error code = *dec_value*	Failed to read backplane SEEPROM.
DZH0195	Invalid CPU *dec_value* installed	Invalid CPU slot installed.
DZH0196	Incorrect sensor *ASCII_value*	An incorrect sensor type was found.
DZH0197	Unsupported sensor type *dec_value*	Sensor type found is unsupported.
DZH0215	Invalid CPU *dec_value* microcode revision	CPU has unsupported microcode.
DZH0216	Invalid CPU microcode revision	
DZH0218	Invalid CPU *dec_value* MHz	CPU speed is unsupported.

DZH0219	UNKNOWN model	Model number is incorrect (for example, filer or NetCache model number).
DZH0301	21071 - CA GCR register wrong	Invalid register read.
DZH0302	21071 - CA TENR register wrong	
DZH0303	21071 - DA DCSR register wrong	
DZH0304	21071 - DA PCI base address register wrong	
DZH0305	21071 - DA PCI mask register wrong	
DZH0306	21071 - DA host address extension register 0 wrong	
DZH0307	21071 - CA error detected - *hex_value*	Error in reading the register.
DZH0308	Host chipset errors detected	Chipset error is detected.
DZH0309	Corrected 1-bit ECC error	1-bit ECC error is detected.
DZH0310	Uncorrectable ECC error	Unknown ECC error is detected.
DZH0311	System bus parity error	System bus error is detected.
DZH0312	Attempt to access nonexistent memory	Memory access out of bounds.
DZH0313	PCI bus system error	PCI bus error is detected.
DZH0314	PCI bus data parity error	PCI bus data parity error is detected.
DZH0315	PCI bus address parity error	PCI bus address parity error is detected.
DZH0316	PCI master abort	PCI bus master abort is detected.
DZH0317	PCI target abort	PCI bus target abort is detected.
DZH0318	Invalid PTE on scatter-gather	Invalid PTE on scatter-gather access is detected.
DZH0319	FLASH not write enabled error	Could not write the FLASH.
DZH0320	I/O timeout occurred (R/W > 1)	One-second I/O timeout occurred.
DZH0321	Correctable ECC error occurred while error register locked	Correctable ECC error with error register locked.

DZH0322	Uncorrectable ECC error occurred	Uncorrectable ECC error with error register locked.
DZH0323	System bus parity error occurred	System bus parity error with error register locked.
DZH0324	Access to nonexistent memory occurred	Memory access out of bounds with error register locked.
DZH0325	PCI bus system error occurred while error register locked	PCI bus system error with error register locked.
DZH0326	PCI bus address parity error occurred	PCI bus address parity error with error register locked.
DZH0327	PCI master abort occurred while error register locked	PCI bus master abort with error register locked.
DZH0328	PCI target abort occurred while error register locked	PCI bus target abort with error register locked.
DZH0329	Invalid PTE error on scatter/gather occurred	Invalid PTE on scatter-gather access with error register locked.
DZH0330	FLASH not write-enabled error	Cannot write FLASH error with error register locked.
DZH0331	I/O timeout occurred while error register locked	One-second I/O timeout with error register locked.
DZH0332	An error occurred while error register locked	Errors occurred while the error register was locked.
DZH0333	Tsunami error detected P0 - *hex_value*	Chipset error occurred.
DZH0334	Tsunami error detected P1 - *hex_value*	Error in chipset register.
DZH0335	Unknown system; cannot check ISA bridge	Invalid system type.
DZH0336	Unknown system; cannot check PCI bridge	
DZH0337	Conflicting CRCs (FLASH half = *dec_value*)	Incorrect CRC.
DZH0338	First CRC has garbage (FLASH half = *dec_value*)	CRC in first half is incorrect.
DZH0339	Second CRC has garbage (FLASH half = *dec_value*)	CRC in second half is incorrect.

DZH0340	Conflicting CRCs; CRC1 = *hex_value*, CRC2 = *hex_value*	Incorrect CRC.
DZH0341	First CRC has garbage CRC1 = *hex_value*	CRC in first half is incorrect.
DZH0342	Second CRC has garbage CRC2 = *hex_value*	CRC in second half is incorrect.
DZH0343	Conflicting CRCs (FLASH half = *dec_value*)	Incorrect CRC.
DZH0344	First CRC has garbage (FLASH half = *dec_value*)	CRC in first half is incorrect.
DZH0345	Second CRC has garbage (FLASH half = *dec_value*)	CRC in second half is incorrect.
DZH0346	System info checksum error	Checksum is not correct.
DZH0347	System information missing	System information is not programmed correctly.
DZH0348	Cache size (*hex_value*) mismatch with model (*ASCII_value*)	Incorrect cache size found.
DZH0349	Conflicting CRCs (FLASH half = *dec_value*)	Incorrect CRC.
DZH0350	First CRC has garbage (FLASH half = *dec_value*)	CRC in first half is incorrect.
DZH0351	Second CRC has garbage (FLASH half = *dec_value*)	CRC in second half is incorrect.
DZH0352	Conflicting CRCs; CRC1 = *hex_value*, CRC2 = *hex_value*	Incorrect CRC.
DZH0353	CRC has garbage; CRC = *hex_value*	
DZH0354	R/W test, address = *hex_value* expected = *hex_value*	Onboard NVRAM has an incorrect value.
DZH0355	Readback, address = *hex_value* expected = *hex_value*	Incorrect value read back from NVRAM.
DZH0356	Conflicting CRCs; CRC1 = *hex_value*, CRC3 = *hex_value*	Incorrect CRC.
DZH0357	Conflicting CRCs; CRC1 = *hex_value*, CRC2 = *hex_value*	
DZH0358	CRC has garbage; CRC = *hex_value*	

DZH0359	R/W test; address = *hex_value* expected = *hex_value*	Onboard NVRAM has an incorrect value.
DZH0360	Readback; address = *hex_value* expected = *hex_value*	Incorrect value read back from onboard NVRAM.
DZH0361	Conflicting CRCs; CRC1 = *hex_value*, CRC3 = *hex_value*	Incorrect CRC.
DZH0362	Battery dead; RTC not functional	RTC battery is not working.
DZH0363	Update-busy signal never cleared	Signal refresh did not take place.
DZH0364	Seconds not counting properly	RTC seconds value is incorrect.
DZH0365	Day-of-week not in proper range	RTC day of week is incorrect.
DZH0366	Tiny NVRAM; address = *hex_value* expected = *hex_value*	Onboard NVRAM test failed on data mismatch.
DZH0367	Tiny NVRAM; address = *hex_value* expected = *hex_value*	NVRAM failed the data compare check.
DZH0368	Super I/O config reg 0 error	Incorrect register configuration.
DZH0369	Super I/O config reg 1 error	
DZH0370	Super I/O config reg 2 error	
DZH0371	Invalid super I/O chip ID; Read = *hex_value*, expected = *hex_value*	
DZH0372	Super I/O device ID error	Incorrect device ID.
DZH0373	Super I/O revision error	Incorrect revision.
DZH0374	Super I/O power control error	Incorrect power control settings.
DZH0375	Noisy com port # *dec_value*	Comm port signal error detected.
DZH0376	Com Port # *dec_value* hung	Comm port stuck.
DZH0377	Com Port # *dec_value* data received does not match	Comm port failed on data mismatch.
DZH0378	Burst data transfer hung	Comm port failed on data transfer.
DZH0379	Com Port # *dec_value* burst data received does not match	Comm port failed on data comparison.

DZH0415	Expected overtemp signal missing (sensor)	No over-temperature signal detected.
DZH0416	Can't write FLASH	Cannot program the FLASH.
DZH0419		
DZH0428	Unrecognized device (ID = *hex_value*, *hex_value*) in slot *dec_value*	Incorrect device is detected.
DZH0431	No card detected in slot *dec_value*	No card is in the selected slot.
DZH0432	Card detected in (nonexistent) slot *dec_value*	A card is found in a slot that does not exist.
DZH0435	Expected overtemp interrupt A did not occur	Expected interrupt signal did not occur.
DZH0436	Expected overtemp interrupt B did not occur	
DZH0437	Expected overtemp interrupt C did not occur	
DZH0438	Bad CRC in PS_*dec_value*; got *hex_value*, expected *hex_value*	Incorrect CRC on power supply EEPROM.
DZH0446	Backplane over temperature	Backplane temperature is beyond range.
DZH0447	Read i2c failed	i2c cannot be read.
DZH0448	Write EEPROM failed	Cannot write to the EEPROM.
DZH0449		
DZH0450	Read EEPROM failed	Cannot read from the EEPROM.
DZH0451	Failed to read PS status remove Jumper J1 (backplane)	Need to remove the jumper to read the power supply status.
DZH0452	Conflicting CRCs; CRC1 = *hex_value*, CRC2 = *hex_value*	Incorrect CRC.
DZH0453	CRC has garbage; CRC = %08x	
DZH0454	R/W test; address = *hex_value* expected = *hex_value*, actual = *hex_value*\n	Onboard NVRAM read/write test failed.
DZH0455	Readback; address = *hex_value* expected = *hex_value*, actual = *hex_value*	Onboard NVRAM test failed on data comparison.

DZH0456	Conflicting CRCs; CRC1 = *hex_value*, CRC3 = *hex_value*	Incorrect CRC.
DZH0507	MP table checksum bad	Cache data error.
DZH0508		
DZH0601	Data error in cache tag test	Unexpected data read.
DZH0602	MP cache test CPU *dec_value* is too slow	CPU failed MP cache test.
DZH0801	Expected *ASCII_value* (i.e., voltage) overvoltage interrupt did not occur	Expected voltage interrupt did not occur.
DZH0802	Expected *ASCII_value* (i.e., voltage) undervoltage interrupt did not occur	
DZH2000	Unable to write Xfiler PEF Table entry	Unable to add the Platform Event Filter entry into the table, which controls the watchdog functionality.
DZH2001	Watchdog did not bite	The expected watchdog interrupt did not occur.
DZH2002	Incorrect CIOB installed. The motherboard requires revision %d, but revision %d was found.	The wrong revision of CIOB was found on the motherboard.

Corrective action

The following table lists the error message groupings and corrective action that can be taken for the error message group.

Error message group	Corrective action

DZH0101-DZH0106 DZH0123-DZH0127 DZH0136-DZH0138 DZH0150 DZH0154-DZH0168 DZH0194 DZH0301-DZH0308 DZH0319 DZH0330 DZH0354-DZH0355 DZH0359 DZH0366-DZH0379 DZH0416, DZH0419 DZH0454-DZH0455	Motherboard error, call Network Appliance Technical Support.
DZH0415 DZH0435-DZH0437 (interrupt) DZH0446	1. Check that the fans are running. Replace the defective fans. 2. Check that the air vents are clear of dirt or debris. Clean the vents if clogged. 3. Replace the motherboard if the fans are working and the vents are clear. 4. Call Network Appliance Technical Support if the error is not corrected.
DZH0195 DZH0309-DZH0312 DZH0318 DZH0320-DZH0324 DZH0329 DZH0330-DZH0353 DZH0356-DZH0358 DZH0360-DZH0365 DZH0447-DZH0450 DZH0452-DZH0453 DZH0456	Call Network Appliance Technical Support.

DZH0170-DZH0172 DZH0313-DZH0317 DZH0325-DZH0328	1. Check that the correct PCI device is in the correct slot. 2. Replace the PCI device. 3. Replace the motherboard if the PCI device is not working. 4. Call Network Appliance Technical Support if the error is not corrected.
DZH0394-DZH0398 DZH0438	1. Check that the power supplies are connected and running. Replace the defective power supply. 2. Replace the motherboard if power supplies are good. 3. Call Network Appliance Technical Support for instructions if the error is not corrected.
DZH0442-DZH0445	1. Check the battery connections. 2. Replace the battery if connections are good. 3. Call Network Appliance Technical Support for instructions if the error is not corrected.
DZH0215-DZH0216	1. Replace the CPU. 2. If the CPU is good, replace the motherboard. 3. Call Network Appliance Technical Support if the error is not corrected.
DZH0218-DZH0219 DZH0507-DZH0508 DZH0601-DZH0602 DZH2000-DZH2002	1. Replace the motherboard. 2. Call Network Appliance Technical Support if the error is not corrected.
DZH0428 DZH0431-DZH0432	1. Check the device at the indicated slot and replace it with the correct device. 2. If the device is correct, replace the motherboard. 3. Call Network Appliance Technical Support if the error is not corrected.

DZH0451	1. Check the jumper location and move it to the correct location. 2. If this does not solve the error, call Network Appliance Technical Support.
DZH0801-DZH0802	1. Check power supplies and replace defective units. 2. Call Network Appliance Technical Support if the error is not corrected.

DZS0430

Message type

This error message grouping covers software errors associated with the motherboard and backplane.

Error message description

The following message can be generated for this message group.

Error code	Sample message	Description
DZS0430	Unexpected platform type = *dec_value*	Platform type is not correct.

Corrective action

Call Network Appliance Technical Support.

Module code

The module code identifies the software driver, hardware adapter, or firmware for which the error is generated. Typically, the hardware error messages generated by the diagnostic tool are associated with the diagnostic kernel system code.

Also generated by the diagnostics are Data ONTAP kernel and firmware error messages. Only the diagnostic kernel messages are documented in this section.

The types of diagnostic kernel module codes are shown in the following table.

Module code letter	Module generating the error
A	ATM
B	Hardware bridges
D	Disk errors
E	Ethernet adapters
F	FDDI adapters
G	GbE adapters
H	Disk shelf
L	FC-AL adapters
M	Memory and onboard SIMMs
N	NVRAM
O	Floppy drive
P	CompactFlash unit
R	Remote management card (RMC)
S	SCSI adapters
T	Baseboard management controller
U	Cluster interconnect adapters
Z	Motherboard and backplane adapters

Type code

The last letter of the error message code identifies the probable error type; what caused the error to be generated.

The types of probable type codes are shown in the following table.

Type code letter	Type generating the error
H	Hardware card or adapter
S	Software error
U	User error

Message variable conventions

In the online message text, you see values displayed for conditions found on the system. These values change as conditions in the system change.

In error messages in this guide, these values are displayed in italics. The following table illustrates this convention.

Convention	Definition
ASCII_value	This denotes that an ASCII code is displayed.
dec_value	This denotes that a decimal value is displayed.
hex_value	This denotes that a hexadecimal value is displayed.

Environmental Error Messages

About this section

This section lists and defines the environmental error messages generated by running the environmental status test in the miscellaneous motherboard test menu. It also lists the Corrective action for each error message grouping that you can take to address errors you encounter.

Topics in this section

The error messages are listed according to the platform in which the motherboard and any related daughterboard resides are described in the following sections according to the type of sensor which is reporting the error condition:

- C1200 environmental error codes
- C2100 environmental error codes
- F85 environmental error codes
- F87 environmental error codes
- F810 environmental error codes
- F820/C3100 environmental error codes
- F825 environmental error codes
- F840/C6100 environmental error codes
- F880 environmental error codes
- FAS940 environmental error codes
- FAS960 environmental error codes
- R100 environmental error codes
- R150 environmental error codes

C1200 environmental error codes

Message type

The C1200 NetCache appliance environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- System fan sensors

C1200 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the temperature sensors on the motherboard.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00584x	Motherboard temperature (baseboard temp).
ENV00585x	Front panel ambient temperature (FntPnl Amb temp).
ENV00586x	Processor 1 temperature (processor1 temp).
ENV00587x	Hot swap temperature (hot swap temp).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action

Replace the motherboard.

C1200 environmental error codes

Voltage power sensors

Voltage power sensors error message description

Error messages can be generated by the voltage power sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00575x	Baseboard 1.25 Volt.
ENV00576x	Baseboard 2.5 Volt.
ENV00577x	Baseboard 3.3 Volt.
ENV00578x	Baseboard 3.3 Volt south bridge (Baseboard 3.3 VSB).
ENV00579x	Baseboard 5.0 Volt.
ENV00580x	Baseboard +12 Volt.
ENV00581x	Baseboard -12 Volt.
ENV00582x	Baseboard battery voltage (Baseboard VBAT).
ENV00583x	Baseboard voltage regulation module (Baseboard VRM).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the nine voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.

3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

Replace the motherboard.

C2100 environmental error codes

System fan sensors

System fan sensors error message description

Error messages can be generated by the following chassis fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00570x	Baseboard fan 5.
ENV00571x	Baseboard fan 4.
ENV00572x	Baseboard fan 3.
ENV00573x	Baseboard fan 2.
ENV00574x	Baseboard fan 1.

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the two fan sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

1. Replace the fan.
2. If the problem persists, replace the motherboard.
3. If the problem still persists, call Network Appliance Technical Support.

C2100 environmental error codes

Message type

The C2100 NetCache appliance appliance environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- System fan sensors
- Power supply sensors

C2100 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the temperature sensors on the motherboard.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00474x	Motherboard temperature (baseboard temp).
ENV00475x	Front panel ambient temperature (FntPnl Amb temp).
ENV00476x	Processor 1 temperature (processor1 temp).
ENV00477x	Power distribution board temperature (PwrDstBd temp).
ENV00478x	Hot swap temperature (hot swap temp).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.

7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action

Replace the motherboard.

C2100 environmental error codes

Voltage power sensors

Voltage power sensors error message description

Error messages can be generated by the voltage power sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00465x	Baseboard 1.25 Volt.
ENV00466x	Baseboard 2.5 Volt.
ENV00467x	Baseboard 3.3 Volt.
ENV00468x	Baseboard 3.3 Volt south bridge (Baseboard 3.3 VSB).
ENV00469x	Baseboard 5.0 Volt.
ENV00470x	Baseboard +12 Volt.
ENV00471x	Baseboard -12 Volt.
ENV00472x	Baseboard battery voltage (Baseboard VBAT).
ENV00473x	Baseboard voltage regulation module (Baseboard VRM).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the nine voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.

3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

Replace the motherboard.

C2100 environmental error codes

System fan sensors

System fan sensors error message description

Error messages can be generated by the following chassis fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00460x	Power distribution board fan (PwrDstBd#1).
ENV00461x	System fan 3.
ENV00462x	System fan 2.
ENV00463x	System fan 1.
ENV00464x	Processor fan 1 (proc Fan 1).

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the two fan sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the fan sensors.

Error message	Corrective action
ENV004611-ENV004637	Replace the motherboard.
ENV004601-ENV004607 ENV004641-ENV004647	1. Check for fans spinning. If they are not, Replace the fans. 2. If the problem remains, replace the motherboard.

C2100 environmental error codes

Power supply sensors

Power supply sensors error message description

Error messages can be generated by sensors for indicating the existence and status the power supplies. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Sensors indicating the existence of power supplies

Error messages can be generated by sensors to indicate the existence of power supplies.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00479x	PS1.
ENV00486x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.

Status sensors for power supplies

Error messages can be generated on the status of the sensors for the power supplies.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00482x	Power supply 1: Predictive fail.
ENV00483x	Power supply 1: AC lost.
ENV00484x	Power supply 1: AC lost or out of range.
ENV00485x	Power supply 1: AC out of range.
ENV00489x	Power supply 2: Predictive fail.
ENV00490x	Power supply 2: AC lost.
ENV00491x	Power supply 2: AC lost or out of range.
ENV00492x	Power supply 2: AC out of range.

Note: "[d]" in the sample error message represents the status of one of the eight sensors monitoring the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is malfunctioning.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the power supply sensors.

Error message	Corrective action
ENV004791-ENV004792 ENV004861-ENV004862	1. Install the power supply. 2. If the problem remains, replace the power supply. 3. If the problem remains, replace the motherboard.
ENV004821-ENV004852 ENV004891-ENV004922	1. Replace the power supply. 2. If the problem remains, replace the motherboard.

F85 environmental error codes

Message type

The F85 filer environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Connectivity sensors
- Motherboard battery sensor
- Chassis fan sensors
- Power supply sensors

F85 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the temperature sensors on the motherboard or the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00290x	CPU0.
ENV00291x	Motherboard planar.
ENV00319x	Backplane_top (bp_ top).
ENV00320x	Backplane_bottom (bp_ bottom).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard and SCSI backplane card. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] temperature sensor.
2	[d] is in critical high state	[d] temperature sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] temperature exceeds warning high threshold.
4	[d] is in warning low state	[d] temperature falls below warning low threshold.
5	[d] is in critical low state	[d] temperature falls below critical low threshold.

6	[d] expected high interrupt did not occur	Missing interrupt when the [d] temperature exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] temperature falls below warning low threshold.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the temperature sensors.

Error message	Corrective action
ENV002901, ENV002911	1. Replace the motherboard. 2. If the problem remains, replace the CPU.
ENV002902-ENV002907 ENV002912-ENV002917	1. Check that the fans are spinning. If they are not, replace the fans. 2. If the problem remains, replace the CPU. 3. If the problem remains, replace the motherboard.
ENV003191, ENV003201	1. Replace the SCSI backplane card. 2. If the problem remains, replace the motherboard.
ENV003192-ENV003197 ENV003202-ENV003207	1. Check that the fans are spinning. If they are not, replace the fans. 2. If the problem remains, replace the SCSI backplane card. 3. If the problem remains, replace the motherboard.

F85 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00292x	Core voltage0 (cpu0).
ENV00293x	5 Volt.
ENV00294x	+12 Volt.
ENV00295x	3.3 Volt.
ENV00296x	2.5 Volt.
ENV00297x	gtl.
ENV00321x	Backplane 5 Volt (bp_5 Volt).
ENV00322x	Backplane +12 Volt (bp_+12 Volt).
ENV00323x	Backplane board (bp_board).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the nine voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.

3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the voltage power sensors.

Error message	Corrective action
ENV002921-ENV002977	1. Replace the power supply. 2. If the problem remains, replace the motherboard.
ENV003211, ENV003221, ENV003231	1. Replace the SCSI backplane card. 2. If the problem remains, replace the power supply. 3. If the problem remains, replace the motherboard.
ENV003212-ENV003217 ENV003222-ENV003227 ENV003232-ENV003237	1. Replace the power supply. 2. If the problem remains, replace the SCSI backplane card. 3. If the problem remains, replace the motherboard.

F85 environmental error codes

Connectivity sensors

Connectivity sensors error message description

Error messages can be generated by the connectivity sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00324x	Backplane termination A external (bp_termAext).
ENV00325x	Backplane termination A internal (bp_termAint).

The following table lists the error messages that can be generated by the connectivity sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the two connectivity sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.

7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the connectivity sensors.

Error message	Corrective action
ENV003241-ENV003245 ENV003251-ENV003255	1. Check the SCSI cable connection. 2. If the problem remains, replace the SCSI card. 3. If the problem remains, replace the motherboard.
ENV003246-ENV003247 ENV003256-ENV003257	1. Check the SCSI cable connection. 2. If the problem remains, replace the motherboard.

F85 environmental error codes

Motherboard battery sensors

Motherboard battery sensor error message description

Error messages can be generated by the motherboard battery sensor.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00298x	Motherboard battery (mb-battery).

The following table lists the error messages that can be generated by the motherboard battery sensor. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents the motherboard battery sensor.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

Replace the motherboard.

F85 environmental error codes

Chassis fan sensors

Chassis fan sensor error message description

Error messages can be generated by the following chassis fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00299x	Fan-front (fan #1).
ENV00300x	Fan-back (fan #2).

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the two fan sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

1. Replace the fans.
2. If the problem remains, replace the motherboard.

F85 environmental error codes

Power supply sensors

Power supply sensors error message description

Error messages can be generated by sensors for indicating the existence and status the power supplies. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Sensors indicating the existence of power supplies

Error messages can be generated by sensors to indicate the existence of power supplies.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00301x	PS1.
ENV00302x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.

Status sensors for power supplies

Error messages can be generated on the status of the sensors for the power

supplies.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00303x	Ps1-installed.
ENV00304x	Ps1-powered.
ENV00305x	Ps1-fan.
ENV00306x	Ps2-installed.
ENV00307x	Ps2-powered.
ENV00308x	Ps2-fan.
ENV00309x	PS1_Ac (power supply 1 input).
ENV00310x	PS1_Switch (turns on the DC voltages).
ENV00311x	PS1_Pok (power supply "ok" sensor).
ENV00312x	Ps1-Ps (power supply present sensor).
ENV00313x	Ps1-psdb (power supply present sensor).
ENV00314x	PS2_Ac (power supply 2 input).
ENV00315x	PS2_Switch (turns on the DC voltages).
ENV00316x	PS2_Pok (power supply "ok" sensor).
ENV00317x	Ps2-Ps (power supply present sensor).
ENV00318x	Ps2-psdb (power supply distribution board sensor).

Note: "[d]" in the sample error message represents the status of one of the four sensors monitoring the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is not functioning.
3	[d] expected interrupt-to-bad did not occur	The interrupt indicating that [d] sensor is malfunctioning failed to occur.
4	[d] expected interrupt-to-normal did not occur	The interrupt indicating that [d] sensor is back to normal failed to occur.

Corrective action

1. Verify the power supply is installed and powered on.
2. If the problem remains, replace the power supply.
3. If the problem persists, replace the motherboard.

F87 environmental error codes

Message type

The F87 filer environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Connectivity sensors
- Motherboard battery sensor
- Chassis fan sensors
- Power supply sensors

F87 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the temperature sensors on the motherboard or the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00360x	CPU0.
ENV00361x	Motherboard planar.
ENV00406x	Backplane_top (bp_ top).
ENV00407x	Backplane_bottom (bp_ bottom).
ENV00412x	Secondary backplane_top (sbp_ top).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard and the SCSI backplane card. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the five temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] temperature sensor.
2	[d] is in critical high state	[d] temperature sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] temperature exceeds warning high threshold.
4	[d] is in warning low state	[d] temperature falls below warning low threshold.
5	[d] is in critical low state	[d] temperature falls below critical low threshold.

6	[d] expected high interrupt did not occur	Missing interrupt when the [d] temperature exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] temperature falls below warning low threshold.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the temperature sensors.

Error message	Corrective action
ENV003601-ENV003607, ENV003611-ENV003617	1. Replace the motherboard. 2. If the problem remains, replace the CPU.
ENV004061-ENV004067, ENV004071-ENV004077	1. Replace the SCSI backplane card. 2. If the problem remains, replace the motherboard.
ENV004121-ENV004127	1. Replace secondary the SCSI backplane card. 2. If the problem remains, replace the motherboard.

F87 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00362x	Core voltage0 (cpu0).
ENV00363x	5 Volt.
ENV00364x	+12 Volt.
ENV00365x	3.3 Volt.
ENV00366x	2.5 Volt.
ENV00408x	Backplane 5 Volt (bp_5 Volt).
ENV00409x	Backplane +12 Volt (bp_+12 Volt).
ENV00411x	Backplane 3.3 Volt (bp_5 Volt).
ENV00413x	Secondary backplane 5 Volt (sbp_5 Volt).
ENV00414x	Secondary backplane +12 Volt (bp_+12 Volt).
ENV00415x	Secondary backplane board (sbp_board).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the eleven voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.

2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

Error message	Corrective action
ENV003621-ENV003667	1. Replace the power supply. 2. If the problem remains, replace the motherboard.
ENV004081-ENV004087 ENV004091-ENV004097 ENV004111-ENV004117	1. Replace the SCSI backplane card. 2. If the problem remains, replace the power supply. 3. If the problem remains, replace the motherboard.
ENV004131-ENV004137 ENV004141-ENV004147 ENV004151-ENV004157	1. Replace the secondary SCSI backplane card. 2. If the problem remains, replace the power supply. 3. If the problem remains, replace the motherboard.

F87 environmental error codes

Connectivity sensors

Connectivity sensors error message description

Error messages can be generated by the connectivity sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00410x	Backplane termination A external (bp_termAext).
ENV00416x	Secondary backplane termination A external (sbp_termAext).
ENV00417x	Secondary backplane termination A internal (sbp_termAint).

The following table lists the error messages that can be generated by the connectivity sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the three connectivity sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.

6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the connectivity sensors.

Error message	Corrective action
ENV004101-ENV004105 ENV004161-ENV004165 ENV004171-ENV004175	1. Check the SCSI cable connection. 2. If the problem remains, replace SCSI card. 3. If the problem remains, replace the motherboard.
ENV004106-ENV004107 ENV004166-ENV004167 ENV004176-ENV004177	1. Check the SCSI cable connection. 2. If the problem remains, replace the motherboard.

F87 environmental error codes

Motherboard battery sensors

Motherboard battery sensor error message description

Error messages can be generated by the motherboard battery sensor.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00368x	Motherboard battery (mb-battery).

The following table lists the error messages that can be generated by the motherboard battery sensor. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents the motherboard battery sensor.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

Replace the motherboard.

F87 environmental error codes

Chassis fan sensors

Chassis fan sensor error message description

Error messages can be generated by the following chassis fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00369x	Fan 1(fan #1).
ENV00370x	Fan 2 (fan #2).
ENV00371x	Fan 3 (fan #3).
ENV00372x	Fan 4 (fan #4).

The following table lists the error messages that can be generated by the chassis fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the four fan sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.

7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

1. Replace the fans.
2. If the problem remains, replace the motherboard.

F87 environmental error codes

Power supply sensors

Power supply sensors error message description

Error messages can be generated by sensors for indicating the existence and status the power supplies. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Sensors indicating the existence of power supplies

Error messages can be generated by sensors to indicate the existence of power supplies.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00373x	PS1.
ENV00374x	PS2.
ENV00375x	PS3.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.

Status sensors for power supplies

Error messages can be generated on the status of the sensors for the power supplies.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00378x	Ps1-fan.
ENV00379x	PS1_Ac (power supply 1 input).
ENV00380x	PS1_Switch (turns on the DC voltages).
ENV00381x	PS1_Pok (power supply "ok" sensor).
ENV00382x	Ps1-Ps (power supply present sensor).
ENV00383x	PS1_OT (power supply over temperature sensor).
ENV00384x	Ps1_FS (power supply fan speed sensor).
ENV00385x	Ps1-psdb (power supply present sensor).
ENV00386x	Ps2-installed.
ENV00387x	Ps2-powered.
ENV00388x	Ps2-fan.
ENV00389x	PS2_Ac (power supply 1 input).
ENV00390x	PS2_Switch (turns on the DC voltages).
ENV00391x	PS2_Pok (power supply "ok" sensor).
ENV00392x	Ps2-Ps (power supply present sensor).
ENV00393x	PS2_OT (power supply over temperature sensor).
ENV00394x	Ps2_FS (power supply fan speed sensor).
ENV00395x	Ps2-psdb (power supply present sensor).
ENV00396x	Ps3-installed.
ENV00397x	Ps3-powered.
ENV00398x	Ps3-fan.
ENV00399x	PS3_Ac (power supply 1 input).
ENV00400x	PS3_Switch (turns on the DC voltages).
ENV00401x	PS3_Pok (power supply "ok" sensor).
ENV00402x	Ps3-Ps (power supply present sensor).
ENV00403x	PS3_OT (power supply over temperature sensor).
ENV00404x	Ps3_FS (power supply fan speed sensor).

ENV00405x	Ps3-psdb (power supply present sensor).

Note: "[d]" in the sample error message represents the status of one of the twenty-eight sensors monitoring the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is malfunctioning.

Corrective action

1. Verify the power supply is installed and powered on.
2. If the problem remains, replace the power supply.
3. If the problem persists, replace the motherboard.

F810 environmental error codes

Message type

The F810 filer environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Battery sensors
- Chassis and CPU fan sensors
- Power supply sensors

F810 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the following temperature sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00098x	Temperature sensor A (Temp_Unit_ A).
ENV00099x	Temperature sensor B (Temp_Unit_B).
ENV00100x	Temperature sensor C (Temp_Unit_C).
ENV00101x	Temperature sensor D (Temp_Unit_D).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d].
2	[d] is in critical high state	[d] exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action

1. Check to see if the chassis/CPU fans are working properly (from the Diagnostics menu, as well as by physically looking at them).
2. If the fans are bad, replace the fans.
3. If the fans are good, replace the motherboard.

F810 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00090x	2.5 Volt rail (2.5V_rail).
ENV00091x	3.3 Volt rail (3.3V_rail).
ENV00092x	5 Volt rail (5V_rail).
ENV00093x	+12 Volt rail (+12V_rail).
ENV00094x	HE Core (HE_Core).
ENV00095x	1.5 Volt (1.5V_VTT).
ENV00097x	CPU1 Core (CPU1_Core).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the seven voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.

5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

F810 environmental error codes

Battery sensors

Battery sensor error message description

Error messages can be generated by the following battery sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV001142	Battery Low (NVRAM battery sensor).
ENV00113x	Real time clock battery (RTC_batt).

The following table lists the error messages that can be generated by the real time clock sensor on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents the status of the sensor monitoring the real time clock battery on the motherboard.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is not functioning.
3	[d] expected interrupt-to-bad did not occur	The interrupt indicating that [d] sensor is malfunctioning failed to occur.
4	[d] expected interrupt-to-normal did not occur	The interrupt indicating that [d] sensor is back to normal failed to occur.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the battery sensors.

Error message	Corrective action
ENV001142	1. Replace the NVRAM battery. 2. If the problem remains, replace the NVRAM card. 3. If the problem still remains, call Network Appliance Technical Support.
ENV001131-ENV001137	1. Replace the motherboard battery. 2. If the problem remains, replace the motherboard.

F810 environmental error codes

Chassis and CPU fan sensors

Chassis and CPU fan sensor error message description

Error messages can be generated by the following chassis and CPU fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00106x	Backplane fan #1 (Backplane_Fan_1).
ENV00107x	Backplane fan #2 (Backplane_Fan_2).
ENV00104x	Backplane fan #3 (Backplane_Fan_3).
ENV00105x	Backplane fan #4 (Backplane_Fan_4).
ENV00102x	Backplane fan #5 (Backplane_Fan_5).
ENV00103x	Backplane fan #6 (Backplane_Fan_6).
ENV00108x	CPU fan (CPU1_Fan).

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the six backplane fan sensors or the CPU fan sensor.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.

5	[d] is in critical low state	[d] speed read exceeds critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

Replace the fans.

F810 environmental error codes

Power supply sensors

Power supply sensor error message description

Error messages can be generated by the power supply sensors for existence and status. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Power supply sensors for existence

Error messages can be generated by the power supply sensors for existence.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for existence
ENV00115x	PS1.
ENV00116x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.
4	[d] is powered on, conflicting with hardware setup	[d] occurs when PS2 is powered on and is recognized as the wrong power supply for the hardware setup.

Power supply sensors for status

Error messages can be generated by the power supply sensors for status.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for status
ENV00109x	PS_1_Good.
ENV00110x	PS_1_Present.
ENV00111x	PS_2_Good.
ENV00112x	PS_2_Present.
ENV00117x	PS1_Good.
ENV00118x	PS1_Present.
ENV00119x	PS2_Good.
ENV00120x	PS2_Present.

Note: "[d]" in the sample error message represents one of the eight sensors indicating the status of the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] is not responding.
2	[d] is in bad state	[d] is not functioning.
3	[d] expected interrupt-to-bad did not occur	Missing interrupt when [d] goes to bad state.
4	[d] expected interrupt-to-normal did not occur	Missing interrupt when [d] goes to normal state.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

F820/C3100 environmental error codes

Message type

The F820 filer/C3100 NetCache appliance environmental error messages is according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Battery sensors
- Chassis and CPU fan sensors
- Power supply sensors

F820/C3100 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the following temperature sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00138x	Temperature sensor A (Temp_Unit_ A).
ENV00139x	Temperature sensor B (Temp_Unit_B).
ENV00140x	Temperature sensor C (Temp_Unit_C).
ENV00141x	Temperature sensor D (Temp_Unit_D).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d].
2	[d] is in critical high state	[d] exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action

1. Check to see if the chassis/CPU fans are working properly (from the Diagnostics menu, as well as by physically looking at them).
2. If the fans are bad, replace the fans.
3. If the fans are good, replace the motherboard.

F820/C3100 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00130x	2.5 Volt rail (2.5V_rail).
ENV00131x	3.3 Volt rail (3.3V_rail).
ENV00132x	5 Volt rail (5V_rail).
ENV00133x	+12 Volt rail (+12V_rail).
ENV00134x	HE Core (HE_Core).
ENV00135x	1.5 Volt (1.5V_VTT).
ENV00137x	CPU1 Core (CPU1_Core).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the seven voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.

5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

F820/C3100 environmental error codes

Battery sensors

Battery sensor error message description

Error messages can be generated by the following battery sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV001542	Battery Low (NVRAM battery sensor)
ENV00153x	Real time clock battery (RTC_batt).

The following table lists the error messages that can be generated by the real time clock sensor on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents the status of the sensor monitoring the real time clock battery on the motherboard.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is not functioning.
3	[d] expected interrupt-to-bad did not occur	The interrupt indicating that [d] sensor is malfunctioning failed to occur.
4	[d] expected interrupt-to-normal did not occur	The interrupt indicating that [d] sensor is back to normal failed to occur.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the battery sensors.

Error message	Corrective action
ENV001542	1. Replace the NVRAM battery. 2. If the problem remains, replace the NVRAM card. 3. If the problem still remains, call Network Appliance Technical Support.
ENV001531-ENV001537	1. Replace the motherboard battery. 2. If the problem remains, replace the motherboard.

F820/C3100 environmental error codes

Chassis and CPU fan sensors

Chassis and CPU fan sensor error message description

Error messages can be generated by the following chassis and CPU fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00146x	Backplane fan #1 (Backplane_Fan_1).
ENV00147x	Backplane fan #2 (Backplane_Fan_2).
ENV00144x	Backplane fan #3 (Backplane_Fan_3).
ENV00145x	Backplane fan #4 (Backplane_Fan_4).
ENV00142x	Backplane fan #5 (Backplane_Fan_5).
ENV00143x	Backplane fan #6 (Backplane_Fan_6).
ENV00148x	CPU fan (CPU1_Fan).

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the six backplane fan sensors or the CPU fan sensor.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.

6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

Replace the fans.

F820/C3100 environmental error codes

Power supply sensors

Power supply sensor error message description

Error messages can be generated by the power supply sensors for existence and status. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Power supply sensors for existence

Error messages can be generated by the power supply sensors for existence.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for existence
ENV00155x	PS1.
ENV00156x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.

Power supply sensors for status

Error messages can be generated by the power supply sensors for status.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for status
ENV00149x	PS_1_Good.
ENV00150x	PS_1_Present.
ENV00151x	PS_2_Good.
ENV00152x	PS_2_Present.
ENV00157x	PS1_Good.
ENV00158x	PS1_Present.
ENV00159x	PS2_Good.
ENV00160x	PS2_Present.

Note: "[d]" in the sample error message represents one of the eight sensors indicating the status of the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] is not responding.
2	[d] is in bad state	[d] is not functioning.
3	[d] expected interrupt-to-bad did not occur	Missing interrupt when [d] goes to bad state.
4	[d] expected interrupt-to-normal did not occur	Missing interrupt when [d] goes to normal state.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

F825 environmental error codes

Message type

The F825 filer environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Battery sensors
- Chassis and CPU fan sensors
- Power supply sensors

F825 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the following temperature sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00538x	Temperature sensor A (Temp_Unit_ A).
ENV00539x	Temperature sensor B (Temp_Unit_B).
ENV00540x	Temperature sensor C (Temp_Unit_C).
ENV00541x	Temperature sensor D (Temp_Unit_D).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d].
2	[d] is in critical high state	[d] exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action

1. Check to see if the chassis/CPU fans are working properly (from the Diagnostics menu, as well as by physically looking at them).
2. If the fans are bad, replace the fans.
3. If the fans are good, replace the motherboard.

F825 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00530x	2.5 Volt rail (2.5V_rail).
ENV00531x	3.3 Volt rail (3.3V_rail).
ENV00532x	5 Volt rail (5V_rail).
ENV00533x	+12 Volt rail (+12V_rail).
ENV00534x	HE Core (HE_Core).
ENV00535x	1.5 Volt (1.5V_VTT).
ENV00537x	CPU1 Core (CPU1_Core).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the seven voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.

5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

F825 environmental error codes

Battery sensors

Battery sensor error message description

Error messages can be generated by the following battery sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV005542	Battery Low (NVRAM battery sensor)
ENV00553x	Real time clock battery (RTC_batt).

The following table lists the error messages that can be generated by the real time clock sensor on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents the status of the sensor monitoring the real time clock battery on the motherboard.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is not functioning.
3	[d] expected interrupt-to-bad did not occur	The interrupt indicating that [d] sensor is malfunctioning failed to occur.
4	[d] expected interrupt-to-normal did not occur	The interrupt indicating that [d] sensor is back to normal failed to occur.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the battery sensors.

Error message	Corrective action
ENV005542	1. Replace the NVRAM battery. 2. If the problem remains, replace the NVRAM card. 3. If the problem still remains, call Network Appliance Technical Support.
ENV005531-ENV005537	1. Replace the motherboard battery. 2. If the problem remains, replace the motherboard.

F825 environmental error codes

Chassis and CPU fan sensors

Chassis and CPU fan sensor error message description

Error messages can be generated by the following chassis and CPU fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00546x	Backplane fan #1 (Backplane_Fan_1).
ENV00547x	Backplane fan #2 (Backplane_Fan_2).
ENV00544x	Backplane fan #3 (Backplane_Fan_3).
ENV00545x	Backplane fan #4 (Backplane_Fan_4).
ENV00542x	Backplane fan #5 (Backplane_Fan_5).
ENV00543x	Backplane fan #6 (Backplane_Fan_6).
ENV00548x	CPU fan (CPU1_Fan).

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the six backplane fan sensors or the CPU fan sensor.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.

4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

Replace the fans.

F825 environmental error codes

Power supply sensors

Power supply sensor error message description

Error messages can be generated by the power supply sensors for existence and status. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Power supply sensors for existence

Error messages can be generated by the power supply sensors for existence.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00555x	PS1.
ENV00556x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.

Power supply sensors for status

Error messages can be generated by the power supply sensors for status.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00549x	PS_1_Good.
ENV00550x	PS_1_Present.
ENV00551x	PS_2_Good.
ENV00552x	PS_2_Present.
ENV00557x	PS1_Good.
ENV00558x	PS1_Present.
ENV00559x	PS2_Good.
ENV00560x	PS2_Present.

Note: "[d]" in the sample error message represents one of the eight sensors indicating the status of the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] is not responding.
2	[d] is in bad state	[d] is not functioning.
3	[d] expected interrupt-to-bad did not occur	Missing interrupt when [d] goes to bad state.
4	[d] expected interrupt-to-normal did not occur	Missing interrupt when [d] goes to normal state.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

F840/C6100 environmental error codes

Message type

The F840 filer/C6100 NetCache appliance environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Battery sensors
- Chassis and CPU fan sensors
- Power supply sensors

F840/C6100 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the following temperature sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00178x	Temperature sensor A (Temp_Unit_ A).
ENV00179x	Temperature sensor B (Temp_Unit_B).
ENV00180x	Temperature sensor C (Temp_Unit_C).
ENV00181x	Temperature sensor D (Temp_Unit_D).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d].
2	[d] is in critical high state	[d] exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action

1. Check to see if the chassis/CPU fans are working properly (from the Diagnostics menu, as well as by physically looking at them).
2. If the fans are bad, replace the fans.
3. If the fans are good, replace the motherboard.

F840/C6100 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00170x	2.5 Volt rail (2.5V_rail).
ENV00171x	3.3 Volt rail (3.3V_rail).
ENV00172x	5 Volt rail (5V_rail).
ENV00173x	+12 Volt rail (+12V_rail).
ENV00174x	HE Core (HE_Core).
ENV00175x	1.5 Volt (1.5V_VTT).
ENV00177x	CPU1 Core (CPU1_Core).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the seven voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.

5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

F840/C6100 environmental error codes

Battery sensors

Battery sensor error message description

Error messages can be generated by the following battery sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV001942	Battery Low (NVRAM battery sensor).
ENV00193x	Real time clock battery (RTC_batt).

The following table lists the error messages that can be generated by the real time clock sensor on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents the status of the sensor monitoring the real time clock battery on the motherboard.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is not functioning.
3	[d] expected interrupt-to-bad did not occur	The interrupt indicating that [d] sensor is malfunctioning failed to occur.
4	[d] expected interrupt-to-normal did not occur	The interrupt indicating that [d] sensor is back to normal failed to occur.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the battery sensors.

Error message	Corrective action
ENV001942	1. Replace the NVRAM battery. 2. If the problem remains, replace the NVRAM card. 3. If the problem still remains, call Network Appliance Technical Support.
ENV001931-ENV001937	1. Replace the motherboard battery. 2. If the problem remains, replace the motherboard.

F840/C6100/D140 environmental error codes

Chassis and CPU fan sensors

Chassis and CPU fan sensor error message description

Error messages can be generated by the following chassis and CPU fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00186x	Backplane fan #1 (Backplane_Fan_1).
ENV00187x	Backplane fan #2 (Backplane_Fan_2).
ENV00184x	Backplane fan #3 (Backplane_Fan_3).
ENV00185x	Backplane fan #4 (Backplane_Fan_4).
ENV00182x	Backplane fan #5 (Backplane_Fan_5).
ENV00183x	Backplane fan #6 (Backplane_Fan_6).
ENV00188x	CPU fan (CPU1_Fan).

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the six backplane fan sensors or the CPU fan sensor.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.

5	[d] is in critical low state	[d] speed read exceeds critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

Replace the fans.

F840/C6100/D140 environmental error codes

Power supply sensors

Power supply sensor error message description

Error messages can be generated by the power supply sensors for existence and status. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Power supply sensors for existence

Error messages can be generated by the power supply sensors for existence.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00195x	PS1.
ENV00196x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.

Power supply sensors for status

Error messages can be generated by the power supply sensors for status.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00189x	PS_1_Good.
ENV00190x	PS_1_Present.
ENV00191x	PS_2_Good.
ENV00192x	PS_2_Present.
ENV00197x	PS1_Good.
ENV00198x	PS1_Present.
ENV00199x	PS2_Good.
ENV00200x	PS2_Present.

Note: "[d]" in the sample error message represents one of the eight sensors indicating the status of the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] is not responding.
2	[d] is in bad state	[d] is not functioning.
3	[d] expected interrupt-to-bad did not occur	Missing interrupt when [d] goes to bad state.
4	[d] expected interrupt-to-normal did not occur	Missing interrupt when [d] goes to normal state.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

F880 environmental error codes

Message type

The F880 filer environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Battery sensors
- Chassis and CPU fan sensors
- Power supply sensors

F880 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the following temperature sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00258x	Temperature sensor A (Temp_Unit_ A).
ENV00259x	Temperature sensor B (Temp_Unit_B).
ENV00260x	Temperature sensor C (Temp_Unit_C).
ENV00261x	Temperature sensor D (Temp_Unit_D).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d].
2	[d] is in critical high state	[d] exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action

- Check to see if the chassis/CPU fans are working properly (from the Diagnostics menu, as well as by physically looking at them).
- If the fans are bad, replace the fans.
- If the fans are good, replace the motherboard.

F880 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00250x	2.5 Volt rail (2.5V_rail).
ENV00251x	3.3 Volt rail (3.3V_rail).
ENV00252x	5 Volt rail (5V_rail).
ENV00253x	+12 Volt rail (+12V_rail).
ENV00254x	HE Core (HE_Core).
ENV00255x	1.5 Volt (1.5V_VTT).
ENV00257x	CPU1 Core (CPU1_Core).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the seven voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.

5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

F880 environmental error codes

Battery sensors

Battery sensor error message description

Error messages can be generated by the following battery sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV002742	Battery Low (NVRAM battery sensor).
ENV00273x	Real time clock battery (RTC_batt).

The following table lists the error messages that can be generated by the real time clock sensor on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents the status of the sensor monitoring the real time clock battery on the motherboard.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is not functioning.
3	[d] expected interrupt-to-bad did not occur	The interrupt indicating that [d] sensor is malfunctioning failed to occur.
4	[d] expected interrupt-to-normal did not occur	The interrupt indicating that [d] sensor is back to normal failed to occur.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the battery sensors.

Error message	Corrective action
ENV002742	1. Replace the NVRAM battery. 2. If the problem remains, replace the NVRAM card. 3. If the problem still remains, call Network Appliance Technical Support.
ENV002731-ENV002737	1. Replace the motherboard battery. 2. If the problem remains, replace the motherboard.

F880 environmental error codes

Chassis and CPU fan sensors

Chassis and CPU fan sensor error message description

Error messages can be generated by the following chassis and CPU fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00266x	Backplane fan #1 (Backplane_Fan_1).
ENV00267x	Backplane fan #2 (Backplane_Fan_2).
ENV00264x	Backplane fan #3 (Backplane_Fan_3).
ENV00265x	Backplane fan #4 (Backplane_Fan_4).
ENV00262x	Backplane fan #5 (Backplane_Fan_5).
ENV00263x	Backplane fan #6 (Backplane_Fan_6).

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the six backplane fan sensors or the CPU fan sensor.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.

6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

Replace the fans.

F880 environmental error codes

Power supply sensors

Power supply sensor error message description

Error messages can be generated by the power supply sensors for existence and status. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Power supply sensors for existence

Error messages can be generated by the power supply sensors for existence.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00275x	PS1.
ENV00276x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.
4	[d] is powered on, conflicting with hardware setup	[d] occurs when PS2 is powered on and is recognized as the wrong power supply for the hardware setup.

5	[d] is powered off, conflicting with hardware setup	[d] occurs when PS2 is powered off but is recognized as the wrong power supply for the hardware setup.

Power supply sensors for status

Error messages can be generated by the power supply sensors for status.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00269x	PS_1_Good.
ENV00270x	PS_1_Present.
ENV00271x	PS_2_Good.
ENV00272x	PS_2_Present.
ENV00277x	PS1_Good.
ENV00278x	PS1_Present.
ENV00279x	PS2_Good.
ENV00280x	PS2_Present.

Note: "[d]" in the sample error message represents one of the eight sensors indicating the status of the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] is not responding.
2	[d] is in bad state	[d] is not functioning.
3	[d] expected interrupt-to-bad did not occur	Missing interrupt when [d] goes to bad state.
4	[d] expected interrupt-to-normal did not occur	Missing interrupt when [d] goes to normal state.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

FAS940 environmental error codes

Message type

The FAS940 environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Battery sensors
- Chassis and CPU fan sensors
- Power supply sensors

FAS940 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the following temperature sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00630x	Front panel temperature (Front panel temp).
ENV00631x	Motherboard temperature (baseboard temp).
ENV00632x	Processor 1 temperature (processor 1 temp).
ENV00651x	Memory board temperature (MemoryBrd temp).
ENV00674x	Power distribution board 1 temperature (PwrDstBd 1 temp).
ENV00675x	Power distribution board 2 temperature (PwrDstBd 2 temp).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d].
2	[d] is in critical high state	[d] exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.

6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action Top

- Check to see if the chassis/CPU fans are working properly (from the Diagnostics menu, as well as by physically looking at them).
- If the fans are bad, replace the fans.
- If the fans are good, replace the motherboard.

FAS940 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard, the memory board, and the power supplies.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00634x	CIOB +2.5 Volt.
ENV00635x	Baseboard 3.3 Volt.
ENV00636x	3.3 Volt Standby.
ENV00637x	Baseboard 5.0 Volt.
ENV00638x	Baseboard +12 Volt.
ENV00639x	Baseboard -12 Volt.
ENV00640x	Processor VCCP
ENV00652x	CMIC +2.5 Volt.
ENV00653x	CCSB5 +2.5 Volt.
ENV00654x	MemoryBrd +2.5 Volt (Memory board 2.5 Volt).
ENV00655x	MB 5.0 Volt Standby (Memory board 5.0 Volt standby).
ENV00656x	PS 1 3.3 Volt (power supply 1 3.3 Volt).
ENV00657x	PS 2 3.3 Volt (power supply 2 3.3 Volt).
ENV00658x	PS 1 5.0 Volt (power supply 1 5.0 Volt).
ENV00659x	PS 2 5.0 Volt (power supply 2 5.0 Volt).
ENV00660x	PS 1 12 Volt (power supply 1 12 Volt).
ENV00661x	PS 2 12 Volt (power supply 2 12 Volt).
ENV00662x	PS 1 AC (power supply 1 alternating current).
ENV00663x	PS 2 AC (power supply 2 alternating current).
ENV00664x	PS 1 Crnt 3.3 Volt (power supply 1 3.3 Volt).

ENV00665x	PS 2 Crnt 3.3 Volt (power supply 2 3.3 Volt).
ENV00666x	PS 1 Crnt 5.0 Volt (power supply 1 5.0 Volt).
ENV00667x	PS 2 Crnt 5.0 Volt (power supply 2 5.0 Volt).
ENV00668x	PS 1 Crnt 12 Volt (power supply 1 12 Volt).
ENV00669x	PS 2 Crnt 12 Volt (power supply 2 12 Volt).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the seven voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

FAS940 environmental error codes

Battery sensors

Battery sensor error message description

Error messages can be generated by the following battery sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00650x	Real time clock battery (RTC_batt).

The following table lists the error messages that can be generated by the real time clock sensor on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents the status of the sensor monitoring the real time clock battery on the motherboard.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is not functioning.
3	[d] expected interrupt-to-bad did not occur	The interrupt indicating that [d] sensor is malfunctioning failed to occur.
4	[d] expected interrupt-to-normal did not occur	The interrupt indicating that [d] sensor is back to normal failed to occur.

Corrective action

1. Replace the motherboard battery.
2. If the problem remains, replace the motherboard.

FAS940 environmental error codes

Hotswap, baseboard, and power supply fan sensors

Baseboard and power supply fan sensor error message description

Error messages can be generated by the following chassis and CPU fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00641x	Hotswap Fan 1.
ENV00642x	Hotswap Fan 2.
ENV00643x	Hotswap Fan 3.
ENV00644x	Baseboard Fan 1.
ENV00645x	Baseboard Fan 2.
ENV00646x	Baseboard Fan 3.
ENV00647x	Baseboard Fan 4.
ENV00648x	Baseboard Fan 5.
ENV00649x	Baseboard Fan 6.
ENV00670x	PS Fan 1 (Power supply fan 1).
ENV00671x	PS Fan 2 (Power supply fan 2).
ENV00672x	PS Fan 3 (Power supply fan 3).
ENV00673x	PS Fan 4 (Power supply fan 4).

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the six backplane fan sensors or the CPU fan sensor.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

Replace the fans.

FAS940 environmental error codes

Power supply sensors

Power supply sensor error message description

Error messages can be generated by the power supply sensors for existence and status. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Power supply sensors for existence

Error messages can be generated by the power supply sensors for existence.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for existence
ENV00676x	PS1.
ENV00677x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.
4	[d] is powered on, conflicting with hardware setup	[d] occurs when PS2 is powered on and is recognized as the wrong power supply for the hardware setup.

5	[d] is powered off, conflicting with hardware setup	[d] occurs when PS2 is powered off but is recognized as the wrong power supply for the hardware setup.

Power supply sensors for status

Error messages can be generated by the power supply sensors for status.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for status
ENV00678x	Power supply 1: Removed
ENV00679x	Power supply 1: Failure
ENV00680x	Power supply 1: AC (alternating current lost)
ENV00681x	Power supply 2: Removed
ENV00682x	Power supply 2: Failure
ENV00683x	Power supply 2: AC (alternating current lost)

Note: "[d]" in the sample error message represents one of the eight sensors indicating the status of the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] is not responding.
2	[d] is in bad state	[d] is not functioning.
3	[d] expected interrupt-to-bad did not occur	Missing interrupt when [d] goes to bad state.
4	[d] expected interrupt-to-normal did not occur	Missing interrupt when [d] goes to normal state.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

FAS960 environmental error codes

Message type

The FAS960 environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Battery sensors
- Chassis and CPU fan sensors
- Power supply sensors

FAS960 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the following temperature sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00690x	Front panel temperature (Front panel temp).
ENV00691x	Motherboard temperature (baseboard temp).
ENV00692x	Processor 1 temperature (processor 1 temp).
ENV00693x	Processor 2 temperature (Processor 2 temp).
ENV00711x	Memory board temperature (MemoryBrd temp).
ENV00734x	Power distribution board 1 temperature (PwrDstBd 1 temp).
ENV00735x	Power distribution board 2 temperature (PwrDstBd 2 temp).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d].
2	[d] is in critical high state	[d] exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.

6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action

- Check to see if the chassis/CPU fans are working properly (from the Diagnostics menu, as well as by physically looking at them).
- If the fans are bad, replace the fans.
- If the fans are good, replace the motherboard.

FAS960 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard, the memory board, and the power supplies.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00694x	CIOB +2.5 Volt.
ENV00695x	Baseboard 3.3 Volt.
ENV00696x	3.3 Volt Standby.
ENV00697x	Baseboard 5.0 Volt.
ENV00698x	Baseboard +12 Volt.
ENV00699x	Baseboard -12 Volt.
ENV00700x	Processor VCCP
ENV00712x	CMIC +2.5 Volt.
ENV00713x	CCSB5 +2.5 Volt.
ENV00714x	MemoryBrd +2.5 Volt (Memory board 2.5 Volt).
ENV00715x	MB 5.0 Volt Standby (Memory board 5.0 Volt standby).
ENV00716x	PS 1 3.3 Volt (power supply 1 3.3 Volt).
ENV00717x	PS 2 3.3 Volt (power supply 2 3.3 Volt).
ENV00718x	PS 1 5.0 Volt (power supply 1 5.0 Volt).
ENV00719x	PS 2 5.0 Volt (power supply 2 5.0 Volt).
ENV00720x	PS 1 12 Volt (power supply 1 12 Volt).
ENV00721x	PS 2 12 Volt (power supply 2 12 Volt).
ENV00722x	PS 1 AC (power supply 1 alternating current).
ENV00723x	PS 2 AC (power supply 2 alternating current).
ENV00724x	PS 1 Crnt 3.3 Volt (power supply 1 3.3 Volt).

ENV00725x	PS 2 Crnt 3.3 Volt (power supply 2 3.3 Volt).
ENV00726x	PS 1 Crnt 5.0 Volt (power supply 1 5.0 Volt).
ENV00727x	PS 2 Crnt 5.0 Volt (power supply 2 5.0 Volt).
ENV00728x	PS 1 Crnt 12 Volt (power supply 1 12 Volt).
ENV00729x	PS 2 Crnt 12 Volt (power supply 2 12 Volt).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the seven voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

FAS960 environmental error codes

Battery sensors

Battery sensor error message description

Error messages can be generated by the following battery sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00710x	Real time clock battery (RTC_batt).

The following table lists the error messages that can be generated by the real time clock sensor on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents the status of the sensor monitoring the real time clock battery on the motherboard.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is not functioning.
3	[d] expected interrupt-to-bad did not occur	The interrupt indicating that [d] sensor is malfunctioning failed to occur.
4	[d] expected interrupt-to-normal did not occur	The interrupt indicating that [d] sensor is back to normal failed to occur.

Corrective action

1. Replace the motherboard battery.
2. If the problem remains, replace the motherboard.

FAS960 environmental error codes

Hotswap, baseboard, and power supply fan sensors

Baseboard and power supply fan sensor error message description

Error messages can be generated by the following chassis and CPU fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00701x	Hotswap Fan 1.
ENV00702x	Hotswap Fan 2.
ENV00703x	Hotswap Fan 3.
ENV00704x	Baseboard Fan 1.
ENV00705x	Baseboard Fan 2.
ENV00706x	Baseboard Fan 3.
ENV00707x	Baseboard Fan 4.
ENV00708x	Baseboard Fan 5.
ENV00709x	Baseboard Fan 6.
ENV00730x	PS Fan 1 (Power supply fan 1).
ENV00731x	PS Fan 2 (Power supply fan 2).
ENV00732x	PS Fan 3 (Power supply fan 3).
ENV00733x	PS Fan 4 (Power supply fan 4).

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the six backplane fan sensors or the CPU fan sensor.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

Replace the fans.

FAS960 environmental error codes

Power supply sensors

Power supply sensor error message description

Error messages can be generated by the power supply sensors for existence and status. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Power supply sensors for existence

Error messages can be generated by the power supply sensors for existence.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for existence
ENV00736x	PS1.
ENV00737x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.
4	[d] is powered on, conflicting with hardware setup	[d] occurs when PS2 is powered on and is recognized as the wrong power supply for the hardware setup.

5	[d] is powered off, conflicting with hardware setup	[d] occurs when PS2 is powered off but is recognized as the wrong power supply for the hardware setup.

Power supply sensors for status

Error messages can be generated by the power supply sensors for status.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for status
ENV00738x	Power supply 1: Removed
ENV00739x	Power supply 1: Failure
ENV00740x	Power supply 1: AC (alternating current lost)
ENV00741x	Power supply 2: Removed
ENV00742x	Power supply 2: Failure
ENV00743x	Power supply 2: AC (alternating current lost)

Note: "[d]" in the sample error message represents one of the eight sensors indicating the status of the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] is not responding.
2	[d] is in bad state	[d] is not functioning.
3	[d] expected interrupt-to-bad did not occur	Missing interrupt when [d] goes to bad state.
4	[d] expected interrupt-to-normal did not occur	Missing interrupt when [d] goes to normal state.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

R100 environmental error codes

Message type

The R100 NearStore appliance chassis environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Battery sensors
- Chassis and CPU fan sensors
- Power supply sensors

R100 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the following temperature sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00428x	Temperature sensor A (Temp_Unit_ A).
ENV00429x	Temperature sensor B (Temp_Unit_B).
ENV00430x	Temperature sensor C (Temp_Unit_C).
ENV00431x	Temperature sensor D (Temp_Unit_D).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d].
2	[d] is in critical high state	[d] exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action

1. Check to see if the chassis/CPU fans are working properly (from the Diagnostics menu, as well as by physically looking at them).
2. If the fans are bad, replace the fans.
3. If the fans are good, replace the motherboard.

R100 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard and the SCSI backplane card.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00420x	2.5 Volt rail (2.5V_rail).
ENV00421x	3.3 Volt rail (3.3V_rail).
ENV00422x	5 Volt rail (5V_rail).
ENV00423x	+12 Volt rail (+12V_rail).
ENV00424x	HE Core (HE_Core).
ENV00425x	1.5 Volt (1.5V_VTT).
ENV00427x	CPU1 Core (CPU1_Core).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the seven voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.

5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

R100 environmental error codes

Battery sensors

Battery sensor error message description

Error messages can be generated by the following battery sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV004442	Battery Low (NVRAM battery sensor).
ENV00443x	Real time clock battery (RTC_batt).

The following table lists the error messages that can be generated by the real time clock sensor on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents the status of the sensor monitoring the real time clock battery on the motherboard.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] sensor is not responding.
2	[d] is in bad state	[d] sensor is not functioning.
3	[d] expected interrupt-to-bad did not occur	The interrupt indicating that [d] sensor is malfunctioning failed to occur.
4	[d] expected interrupt-to-normal did not occur	The interrupt indicating that [d] sensor is back to normal failed to occur.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the battery sensors.

Error message	Corrective action
ENV002742	1. Replace the NVRAM battery. 2. If the problem remains, replace the NVRAM card. 3. If the problem still remains, call Network Appliance Technical Support.
ENV002731-ENV002737	1. Replace the motherboard battery. 2. If the problem remains, replace the motherboard.

R100 environmental error codes

Chassis and CPU fan sensors

Chassis and CPU fan sensor error message description

Error messages can be generated by the following chassis and CPU fan sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00436x	Backplane fan #1 (Backplane_Fan_1).
ENV00437x	Backplane fan #2 (Backplane_Fan_2).
ENV00434x	Backplane fan #3 (Backplane_Fan_3).
ENV00435x	Backplane fan #4 (Backplane_Fan_4).
ENV00432x	Backplane fan #5 (Backplane_Fan_5).
ENV00433x	Backplane fan #6 (Backplane_Fan_6).

The following table lists the error messages that can be generated by the chassis and CPU fan sensors. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the six backplane fan sensors or the CPU fan sensor.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.

6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

Corrective action

Replace the fans.

R100 environmental error codes

Power supply sensors

Power supply sensor error message description

Error messages can be generated by the power supply sensors for existence and status. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Power supply sensors for existence

Error messages can be generated by the power supply sensors for existence.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for existence
ENV00445x	PS1.
ENV00446x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.
4	[d] is powered on, conflicting with hardware setup	[d] occurs when PS2 is powered on and is recognized as the wrong power supply for the hardware setup.

5	[d] is powered off, conflicting with hardware setup	[d] occurs when PS2 is powered off but is recognized as the wrong power supply for the hardware setup.

Power supply sensors for status

Error messages can be generated by the power supply sensors for status.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for status
ENV00439x	PS_1_Good.
ENV00440x	PS_1_Present.
ENV00441x	PS_2_Good.
ENV00442x	PS_2_Present.
ENV00447x	PS1_Good.
ENV00448x	PS1_Present.
ENV00449x	PS2_Good.
ENV00450x	PS2_Present.

Note: "[d]" in the sample error message represents one of the eight sensors indicating the status of the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] is not responding.
2	[d] is in bad state	[d] is not functioning.
3	[d] expected interrupt-to-bad did not occur	Missing interrupt when [d] goes to bad state.
4	[d] expected interrupt-to-normal did not occur	Missing interrupt when [d] goes to normal state.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.

R150 environmental error codes

Message type

The R150 environmental error messages are tabulated according to the sensors that generate them:

- Temperature sensors
- Voltage power sensors
- Chassis and CPU fan sensors
- Power supply sensors

R150 environmental error codes

Temperature sensors

Temperature sensor error message description

Error messages can be generated by the following temperature sensors.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00750x	Front panel temperature (Front panel temp).
ENV00751x	Motherboard temperature (baseboard temp).
ENV00752x	Processor 1 temperature (processor 1 temp).
ENV00753x	Processor 2 temperature (Processor 2 temp).
ENV00771x	Memory board temperature (MemoryBrd temp).
ENV00794x	Power distribution board 1 temperature (PwrDstBd 1 temp).
ENV00795x	Power distribution board 2 temperature (PwrDstBd 2 temp).

The following table lists the error messages that can be generated by the temperature sensors on the motherboard. The corrective action for this error message grouping is below the error message description.

Note: "[d]" in the sample error message represents one of the four temperature sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d].
2	[d] is in critical high state	[d] exceeds critical high threshold.
3	[d] is in warning high state	[d] exceeds warning high threshold.
4	[d] is in warning low state	[d] falls below warning low threshold.
5	[d] is in critical low state	[d] falls below critical low threshold.

6	[d] expected high interrupt did not occur	Missing interrupt when the [d] exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] falls below warning low threshold.

Corrective action

- Check to see if the chassis/CPU fans are working properly (from the Diagnostics menu, as well as by physically looking at them).
- If the fans are bad, replace the fans.
- If the fans are good, replace the motherboard.

R150 environmental error codes

Voltage power sensors

Voltage power sensor error message description

Error messages can be generated by the voltage power sensors on the motherboard, the memory board, and the power supplies.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00754x	CIOB +2.5 Volt.
ENV00755x	Baseboard 3.3 Volt.
ENV00756x	3.3 Volt Standby.
ENV00757x	Baseboard 5.0 Volt.
ENV00758x	Baseboard +12 Volt.
ENV00759x	Baseboard -12 Volt.
ENV00760x	Processor VCCP
ENV00770x	Real time clock battery (RTC_batt).
ENV00772x	CMIC +2.5 Volt.
ENV00773x	CCSB5 +2.5 Volt.
ENV00774x	MemoryBrd +2.5 Volt (Memory board 2.5 Volt).
ENV00775x	MB 5.0 Volt Standby (Memory board 5.0 Volt standby).
ENV00776x	PS 1 3.3 Volt (power supply 1 3.3 Volt).
ENV00777x	PS 2 3.3 Volt (power supply 2 3.3 Volt).
ENV00778x	PS 1 5.0 Volt (power supply 1 5.0 Volt).
ENV00779x	PS 2 5.0 Volt (power supply 2 5.0 Volt).
ENV00780x	PS 1 12 Volt (power supply 1 12 Volt).
ENV00781x	PS 2 12 Volt (power supply 2 12 Volt).
ENV00782x	PS 1 AC (power supply 1 alternating current).
ENV00783x	PS 2 AC (power supply 2 alternating current).
ENV00784x	PS 1 Crnt 3.3 Volt (power supply 1 3.3 Volt).

ENV00785x	PS 2 Crnt 3.3 Volt (power supply 2 3.3 Volt).
ENV00786x	PS 1 Crnt 5.0 Volt (power supply 1 5.0 Volt).
ENV00787x	PS 2 Crnt 5.0 Volt (power supply 2 5.0 Volt).
ENV00788x	PS 1 Crnt 12 Volt (power supply 1 12 Volt).
ENV00789x	PS 2 Crnt 12 Volt (power supply 2 12 Volt).

The following table lists the error messages that can be generated by the voltage power sensors. The corrective action for these error messages is below the error message description.

Note: "[d]" in the sample error message represents one of the seven voltage power sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] power sensor.
2	[d] is in critical high state	[d] power sensor exceeds critical high threshold.
3	[d] is in warning high state	[d] power exceeds warning high threshold.
4	[d] is in warning low state	[d] power falls below warning low threshold.
5	[d] is in critical low state	[d] power falls below critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] power exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] power falls below warning low threshold.

Corrective action

The following table lists the corrective action that can be taken for error messages generated by the voltage power and battery sensors.

Error message	Corrective action
ENV00770x	1. Replace the motherboard battery. 2. If the problem remains, replace the motherboard.

ENV00694x-ENV00700x ENV00772x-ENV00789x	1. Replace the power supply. 2. If the problem remains, replace the motherboard.

R150 environmental error codes

Fan sensors

Fan sensor error message description

Error messages can be generated by the fan sensors for existence and status. The corrective action for all fan sensor error messages is below all the error message descriptions.

Fan sensors for existence

Error messages can be generated by the hotswap fan sensors to indicate the existence of the fan module within the chassis.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00761x	Hotswap Fan 1.
ENV00762x	Hotswap Fan 2.
ENV00763x	Hotswap Fan 3.

The following table lists the error messages that can be generated by the fan module sensors.

Note: "[d]" in the sample error message represents one of the three fan module sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] module is not responding.
2	[d] is in bad state	[d] module is missing.

Fan sensors for status

Status error messages can be generated by the following baseboard fans within each fan module and the power supply fans within each power supply module.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description
ENV00764x	Baseboard Fan 1.
ENV00765x	Baseboard Fan 2.
ENV00766x	Baseboard Fan 3.
ENV00767x	Baseboard Fan 4.
ENV00768x	Baseboard Fan 5.
ENV00769x	Baseboard Fan 6.
ENV00790x	PS Fan 1 (Power supply fan 1).
ENV00791x	PS Fan 2 (Power supply fan 2).
ENV00792x	PS Fan 3 (Power supply fan 3).
ENV00793x	PS Fan 4 (Power supply fan 4).

The following table lists the error messages that can be generated by the baseboard and power supply fan sensors.

Note: "[d]" in the sample error message represents one of the six baseboard fan sensors or one of the four power supply fan sensors.

If "x" is...	Sample error message	Description
1	[d] does not read	Cannot read [d] sensor.
2	[d] is in critical high state	[d] speed read exceeds critical high threshold.
3	[d] is in warning high state	[d] speed read exceeds warning high threshold.
4	[d] is in warning low state	[d] speed read exceeds warning low threshold.
5	[d] is in critical low state	[d] speed read exceeds critical low threshold.
6	[d] expected high interrupt did not occur	Missing interrupt when the [d] speed exceeds warning high threshold.
7	[d] expected low interrupt did not occur	Missing interrupt when the [d] speed exceeds warning low threshold.

8	[d] can’t be speeded up	[d] cannot be speeded up by the system.
9	[d] can’t be slowed down	[d] cannot be slowed down by the system.

Corrective action

Replace the fans.

R150 environmental error codes

Power supply sensors

Power supply sensor error message description

Error messages can be generated by the power supply sensors for existence and status. The corrective action for all power supply sensor error messages is below all the error message descriptions.

Power supply sensors for existence

Error messages can be generated by the power supply sensors for existence.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for existence
ENV00796x	PS1.
ENV00797x	PS2.

The following table lists the error messages that can be generated for the power supply existence sensors.

Note: "[d]" in the sample error message represents one of the two sensors indicating the existence of the power supplies.

If "x" is...	Sample error message	Description
2	[d] is not installed	[d] is missing.
3	[d] is installed, but powered off	[d] is off.

Power supply sensors for status

Error messages can be generated by the power supply sensors for status.

Note: The "x" in the code represents the actual error condition.

Platform and sensor code	Sensor description for status
ENV00798x	Power supply 1: Removed
ENV00799x	Power supply 1: Failure
ENV00800x	Power supply 1: AC (alternating current lost)
ENV00801x	Power supply 2: Removed
ENV00802x	Power supply 2: Failure
ENV00803x	Power supply 2: AC (alternating current lost)

Note: "[d]" in the sample error message represents one of the eight sensors indicating the status of the power supplies.

If "x" is...	Sample error message	Description
1	[d] does not read	[d] is not responding.
2	[d] is in bad state	[d] is not functioning.
3	[d] expected interrupt-to-bad did not occur	Missing interrupt when [d] goes to bad state.
4	[d] expected interrupt-to-normal did not occur	Missing interrupt when [d] goes to normal state.

Corrective action

1. Replace the power supply.
2. If the problem remains, replace the motherboard.