Oracle® Integrated Lights Out Manager (ILOM) 3.0

Supplement for Sun Blade X6270 M2 Server Module

Part No. 821-0501-11
October 2010, Revision A

Please
Recycle

Contents

Using This Documentation

This Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement document contains information about ILOM 3.0 firmware that is specific to the Sun Blade X6270 M2 Server Module.

For a complete discussion of ILOM 3.0 and its functionality, along with procedures to complete system management tasks, see the ILOM 3.0 Documentation Collection. These documents are listed in "Related Documentation" on page vii, and are available at: http://docs.sun.com/app/docs/prod/int.lights.mgr30#hic

Note – Oracle Integrated Lights Out Manager formerly was called Sun Integrated Lights Out Manager.

Product Information

For information about the Sun Blade X6270 M2 Server Module, go to the following web site:

http://www.oracle.com/goto/x6270m2

At that site, you can find links and navigate to the following information and downloads:

- Product information and specifications
- Supported operating systems
- Software and firmware downloads
- Supported option cards
- Supported Network Express Modules
- External storage options

Software Downloads

To download the latest product software, go to the following web site:

http://www.oracle.com/us/products/servers-storage/servers/blades/index.html

At that site, click the Download Drivers and Firmware link. Navigate to your server page, then select the appropriate firmware image to download.

Related Documentation

The documents listed in the following table are available online at:

http://docs.sun.com/app/docs/prod/blade.x6270m2#hic

Title	Content	Part Number	Format
Sun Blade X6270 M2 Server Module Product Notes	Late-breaking information about the server module	821-0496	PDF HTML
Sun Blade X6270 M2 Server Module Getting Started Guide	Basic installation information for setting up the server module	821-0494	PDF Print
Sun Blade X6270 M2 Server Module Installation Guide	Detailed installation information for setting up the server module	821-0495	PDF HTML Print option
Sun Blade X6270 M2 Server Module Installation Guide for Linux, Virtual Machine Software, and Oracle Solaris Operating Systems	Installation instructions for the Linux, Oracle VM, VMware, and Oracle Solaris operating systems	821-0497	PDF HTML
Sun Blade X6270 M2 Server Module Installation Guide for Windows Operating Systems	Installation instructions for the Windows Server operating systems	821-0498	PDF HTML
Sun Installation Assistant 2.3 through 2.4 User's Guide for x64 Systems	Instructions for using the Oracle Hardware Installation Assistant when installing a Windows or Linux operating system	821-0694	PDF HTML
Sun Blade X6270 M2 Server Module Service Manual	Information and procedures for maintaining and upgrading the server module	821-0499	PDF HTML
Sun Server CLI Tools and IPMItool 2.0 User's Guide	Information about how to install, configure, and work with CLI tools and IPMItool	821-1600	PDF HTML
Sun x86 Servers Diagnostics Guide	Information about how to use the diagnostic software tools provided with Oracle's x86 servers	820-6750	PDF HTML

Title	Content	Part Number	Format
Oracle Integrated Lights Out Manager (ILOM) 3.0 Documentation Collection (formerly called *Sun Integrated Lights Out Manager Documentation Collection*)	Documents covering ILOM features and tasks that are common to servers and server modules that support ILOM 3.0	820-5523 820-6410 820-6411 820-6412 820-6413 820-7329 820-0052	PDF HTML
Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for Sun Blade X6270 M2 Server Module	ILOM information that is specific to the Sun Blade X6270 M2 server module	821-0501	PDF HTML
Important Safety Information for Sun Hardware Systems	Multilingual hardware safety and compliance information for all Sun hardware systems	821-1590	Print

Translated versions of some of these documents are available at the web site listed above this table. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

Documentation, Support, and Training

These web sites provide additional resources:

- Documentation `http://docs.sun.com/`
- Support `http://www.sun.com/support/`
- Training `http://www.sun.com/training/`

Typographic Conventions

Typeface*	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
`AaBbCc123`	What you type, when contrasted with on-screen computer output	`% su` `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this. To delete a file, type `rm` *filename*.

* The settings on your browser might differ from these settings.

Documentation Feedback

Submit comments about this document by clicking the Feedback[+] link at: `http://docs.sun.com`.

Include the title and part number of your document with your feedback:

Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for Sun Blade X6270 M2 Server Module, part number 821-0501-11.

CHAPTER 1

ILOM 3.0 Feature Sets

This chapter provides a brief overview about ILOM, as well as defines the purpose of ILOM's common and platform features offered in ILOM 3.0. The following topics are discussed in this chapter:

ILOM Overview

Oracle Integrated Lights Out Manager (ILOM) is system management firmware that is preinstalled on all of Oracle's x86-based servers and some SPARC servers. ILOM enables you to actively manage and monitor components installed in your server. ILOM provides a browser-based interface and a command-line interface, as well as SNMP and IPMI interfaces.

ILOM 3.0 Common Feature Set and Server Specific Features

Oracle's Sun Blade X6270 M2 Server Module supports the entire ILOM feature set provided in ILOM 3.0. In addition, it also supports ILOM features that are specific to the Sun Blade X6270 M2 Server Module.

For details on how to use the features that are common to all server platforms, refer to the ILOM 3.0 Documentation Collection. For descriptions of the ILOM guides, see "ILOM 3.0 Common Feature Set Documentation Collection" on page 2.

For details on how to use the ILOM features that are specific to the Sun Blade X6270 M2 Server Module, see Chapter 2.

ILOM 3.0 Common Feature Set Documentation Collection

TABLE 1-1 identifies the guides in the Oracle Integrated Lights Out Manager (ILOM) 3.0 Documentation Collection (formerly called Sun Integrated Lights Out Manager 3.0 Documentation Collection). Refer to these guides for information about using ILOM features that are common to all server platforms.

TABLE 1-1 ILOM 3.0 Common Feature Set Documentation Collection

Title	Content	Part Number
Oracle Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes	For each point release after ILOM 3.0, this guide provides information about: • New ILOM 3.0.x features • Known issues and workarounds • Fixed issues	820-7329
Oracle Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide	This guide provides easy-to-use setup and configuration procedures that enable you to start using ILOM.	820-5523
Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide	This guide provides conceptual information for all common features available in ILOM 3.0.	820-6410
Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide	This guide provides procedural information for all common web-based features available in ILOM 3.0.	820-6411
Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide	This guide provides procedural information for all common command-line features available in ILOM 3.0.	820-6412
Oracle Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide	This guide provides information about accessing ILOM functions when using management protocols such as: • Simple Network Management Protocol (SNMP) • Intelligent Platform Management Interface (IPMI) • Web Service Management (WS-Man) and Common Information Model (CIM)	820-6413
Oracle Integrated Lights Out Manager (ILOM) 3.0 CMM Administration Guide for Sun Blade 6000 and Sun Blade 6048 Modular System	This guide provides instructions for managing the Sun Blade Modular System chassis using a modified version of ILOM called the chassis monitoring module (CMM) ILOM.	820-0052

You can view and download the ILOM 3.0 Documentation Collection at:
http://docs.sun.com/app/docs/prod/int.lights.mgr30#hic

CHAPTER 2

ILOM Platform Features for the Sun Blade X6270 M2 Server Module

ILOM 3.0 operates on many platforms, supporting features that are common to all platforms. Some ILOM 3.0 features belong to a subset of platforms and not to all. This chapter describes the features that are specific to the Sun Blade X6270 M2 Server Module.

For detailed information about ILOM features that are common to all server platforms, see the ILOM 3.0 Documentation Collection, as described in "ILOM 3.0 Common Feature Set Documentation Collection" on page 2.

ILOM features discussed in this chapter, which are specific to the Sun Blade X6270 M2 Server Module, are as follows:

Supported Server Firmware

TABLE 2-1 identifies the ILOM and BIOS firmware versions that are supported on the Sun Blade X6270 M2 Server Module.

TABLE 2-1 Supported Platform Firmware

ILOM SP Version	Host BIOS Version	ILOM Chassis Monitoring Module (CMM) Firmware	Applicable Hardware
3.0.14.12	08.05.01.14	C10CMM-SW3.2.2-WEB (r57573-3.0.10.15.b-build2010_29) or SW4.0 (r58226-3.0.12.10-build2010_33)	Sun Blade X6270 M2 Server Module
3.0.9.15.a	08.02.01.05	3.0.6.11.b (r48988) (or subsequent release)	Sun Blade X6270 M2 Server Module

For information about how to update the firmware on your server, refer to the ILOM 3.0 Common Feature Set Documentation Collection at:

`http://docs.sun.com/app/docs/prod/int.lights.mgr30#hic`

Hardware Management Pack for Single Server Management

The Sun Server Hardware Management Pack (Hardware Management Pack) from Oracle provides tools to help you manage and configure your Oracle servers from the host operating system. To use these tools, you must install the Hardware Management Pack software on your server. After installing the Hardware Management Pack software, you will be able to perform the following server management tasks described in TABLE 2-2.

TABLE 2-2 Hardware Management Pack – Server Management Tasks

Server Management Task From Host OS*	Hardware Management Pack Implementation	Tool
Monitor Oracle hardware with host IP address	Use the Hardware Management Agent and the associated Simple Network Management Protocol (SNMP) Plugins at the operating-system level to enable in-band monitoring of your Oracle hardware. This in-band monitoring functionality enables you to use your host operating system IP address to monitor your Oracle servers without the need of connecting the ILOM management port to your network.	Host OS-level management tool
Monitor storage devices, including RAID arrays	Use the Server Storage Management Agent at the operating-system level to enable in-band monitoring of the storage devices configured on your Oracle servers. The Server Storage Management Agent provides an operating-system deamon that gathers information about your server's storage devices such as hard disk drives (HDDs) and RAID arrays, and sends this information to the ILOM service processor. The Storage Monitoring features in ILOM enable you to view and monitor the information provided by the Server Storage Management Agent. You can access the Storage Monitoring features in ILOM from the command-line interface (CLI).	ILOM 3.0 CLI Storage Monitoring features
Configure BIOS CMOS settings, device boot order, and some SP settings	Use the biosconfig CLI tool from the host operating system to configure your Oracle x86 servers BIOS CMOS settings, device boot order, and some service processor (SP) settings.	Host OS-level biosconfig CLI
Query, update, and validate firmware versions on supported SAS storage devices	Use the fwupdate CLI tool from the host operating system to query, update, and validate firmware versions on supported storage devices such as SAS host bus adapters (HBAs), embedded SAS storage controllers, LSI SAS storage expanders, and disk drives (spinning media and flash drives).	Host OS-level fwupdate CLI

*Supported host operating systems include: Oracle Solaris, Linux, Windows, and VMware

TABLE 2-2 Hardware Management Pack – Server Management Tasks *(Continued)*

Server Management Task From Host OS*	Hardware Management Pack Implementation	Tool
Restore, set, and view ILOM configuration settings	Use the ilomconfig CLI tool from the host operating system to restore ILOM configuration settings, as well as to view and set ILOM properties that are associated with network management, clock configuration, and user management.	Host OS-level ilomconfig CLI
View or create RAID volumes on storage drives	Use the raidconfig CLI tool from the host operating system to view and create RAID volumes on storage drives that are attached to RAID controllers, including storage arrays.	Host OS-level raidconfig CLI
Use IPMItool to access and manage Oracle servers	Use the open source command-line IPMItool from the host operating system to access and manage your Oracle servers via the IPMI protocol.	Host OS-level command-line IMPItool

*Supported host operating systems include: Oracle Solaris, Linux, Windows, and VMware

View Support Matrix and Download Hardware Management Pack Software

Refer to the following table to view the support matrix for the Hardware Management Pack software or to download the Hardware Management Pack software.

Description	URL
View operating system and hardware support for the Hardware Management Pack	http://www.sun.com/systemmanagement/managementpack_supportmatrix.jsp
Download the Hardware Management Pack software	http://www.sun.com/systemmanagement/managementtools.jsp#management

Hardware Management Pack Documentation

For instructions for installing the management pack software or using its components, see the following Hardware Management Pack documentation:

- *Sun Server Hardware Management Pack 2.0 User's Guide* (821-1609)
- *Sun Server Management Agent 2.0 User's Guide* (821-1601)
- *Sun Server CLI Tools and IPMItool 2.0 User's Guide* (821-1600)

For additional details about how to use the Storage Monitoring features in ILOM, see Chapter 4 of the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes* (820-7329).

For additional details about accessing and managing your server via SNMP or IPMI, see the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide* (820-6413).

ILOM Sideband Management

By default, you connect to the server's service processor (SP) using the out-of-band network management port (NET MGT). The ILOM sideband management feature enables you to select either the NET MGT port or one of the server's Gigabit Ethernet ports (NET 0, 1, 2, 3), which are in-band ports, to send and receive ILOM commands to and from the server SP. In-band ports are also called sideband ports.

The advantage of using a sideband management port to manage the server's SP is that one fewer cable connection and one fewer network switch port is needed. In configurations where numerous servers are being managed, such as data centers, sideband management can represent a significant savings in hardware and network utilization.

You can configure sideband management using either the web interface, the command-line interface (CLI), the BIOS, or IPMI. For special considerations and configuration instructions, see the following sections:

- "Special Considerations for Sideband Management" on page 7
- "Configure Sideband Management Using the Web Interface" on page 8
- "Configure Sideband Management Using the CLI" on page 9
- "Configure Sideband Management Using the Host BIOS Setup Utility" on page 11

Special Considerations for Sideband Management

When sideband management is enabled in ILOM, the following conditions might occur:

- Connectivity to the server SP might be lost when the SP management port configuration is changed while you are connected to the SP using a network connection, such as SSH, web, or ILOM Remote Console.

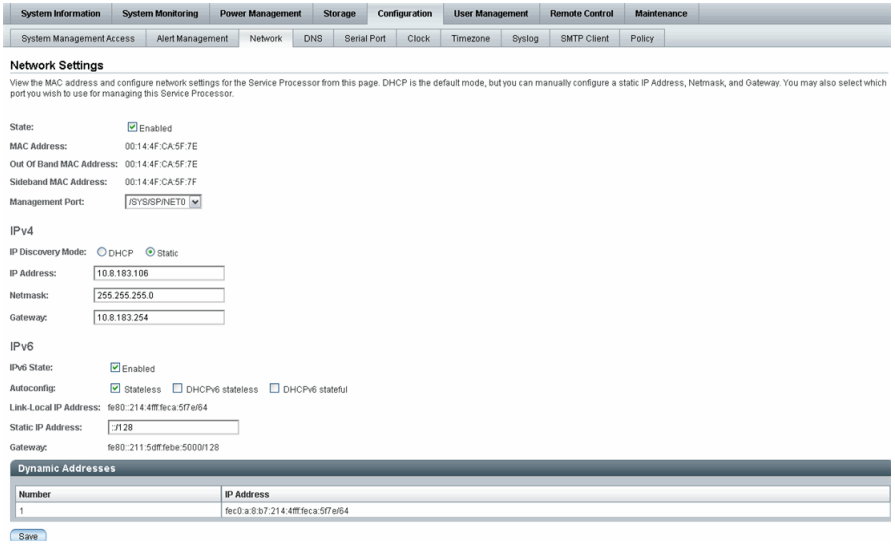
- In-chip connectivity between the SP and the host operating system might not be supported by the on-board host Gigabit Ethernet controller. If this condition occurs, use a different port or route to transmit traffic between the source and destination targets instead of using L2 bridging/switching.
- Server host power cycles might cause a brief interruption of network connectivity for server Gigabit Ethernet ports (NET 0, 1, 2, 3) that are configured for sideband management. If this condition occurs, configure the adjacent switch/bridge ports as host ports.

Note – If the ports are configured as switch ports and participate in the Spanning Tree Protocol (STP), you might experience longer outages due to spanning tree recalculation.

▼ Configure Sideband Management Using the Web Interface

1. **Log in to the ILOM web interface.**
2. **Select Configuration --> Network.**

   The Network Settings page appears.



3. **In the Network Settings page, do the following:**

   a. **Select the dual-stack IPv4 and IPv6 network settings to obtain and IP address. Refer to the** *Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide* **(820-6411) for information about assigning IPv4 and IPv6 network addresses**.

   b. **To select a sideband management port, click the Management Port drop-down list and select the desired management port.**

      The drop-down list enables you to change to any one of the four Gigabit Ethernet ports, `/SYS/MB/NET`*n*, where *n* is 0 to 3. The SP NET MGT port, `/SYS/SP/NET0`, is the default.

   c. **Click Save for the changes to take effect.**

▼ Configure Sideband Management Using the CLI

1. **Log in to ILOM using the CLI.**

Note – Using a serial connection for this procedure eliminates the possibility of losing connectivity during sideband management configuration changes.

---

2. **If you logged in using the serial port, you can assign a static IPv4 and IPv6 network address.**

   For instructions, see the information about assigning an IP address in the *Sun Blade X6270 M2 Server Module Installation Guide* (821-0495) or the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide* **(820-6411)**.

3. **To show the current port settings, type:**

   -> **show /SP/network**

   The network properties appear. For example:

```
/SP/network
    Targets:
    Properties:
        commitpending = (Cannot show property)
        dhcp_server_ip = none
        ipaddress = xx.xx.xx.xx
        ipdiscovery = static
        ipgateway = xx.xx.xx.xx
        ipnetmask = xx.xx.xx.xx
        macaddress = 11.11.11.11.11.86
        managementport = /SYS/SP/NET0
        outofbandmacaddress = 11.11.11.11.11.86
        pendingipaddress = xx.xx.xx.xx
        pendingipdiscovery = static
        pendingipgateway =  xx.xx.xx.xx
        pendingipnetmask =  xx.xx.xx.xx
        pendingmanagementport = /SYS/SP/NET0
        sidebandmacaddress = 11.11.11.11.11.87
        state = enabled
```

   In the above output the current active `macaddress` is the same as the SP's `outofbandmacaddress` and the current active `managementport` is set to the default (`/SYS/SP/NET0`).

4. **To set the SP management port to a sideband port, type the following commands:**

   -> **set /SP/network pendingmanagementport=/SYS/MB/NET***n*

   Where *n* equals 0, 1, 2, or 3.

   -> **set commitpending=true**

5. **To view the change, type:**

   -> **show /SP/network**

   The network properties appear and show that the change has taken effect. For example:

```
/SP/network
    Targets:
    Properties:
        commitpending = (Cannot show property)
        dhcp_server_ip = none
        ipaddress = xx.xx.xx.xx
        ipdiscovery = static
        ipgateway = xx.xx.xx.xx
        ipnetmask = xx.xx.xx.xx
        macaddress = 11.11.11.11.11.87
        managementport = /SYS/MB/NETn
        outofbandmacaddress = 11.11.11.11.11.86
        pendingipaddress = xx.xx.xx.xx
        pendingipdiscovery = static
        pendingipgateway =  xx.xx.xx.xx
        pendingipnetmask =  xx.xx.xx.xx
        pendingmanagementport = /SYS/MB/NETn
        sidebandmacaddress = 11.11.11.11.11.87
        state = enabled
```

   In the above output the `macaddress` matches the `sidebandmacaddress`, and the `managementport` matches the `pendingmanagementport`.

▼ Configure Sideband Management Using the Host BIOS Setup Utility

You can access the BIOS Setup Utility screens from the following interfaces:

- Use a USB keyboard, mouse, and VGA monitor connected directly to the server.
- Use a terminal (or terminal emulator connected to a computer) through the serial port on the back panel of the server.
- Connect to the server using the ILOM Remote Console. To use this interface, you must know the IP address of the server.

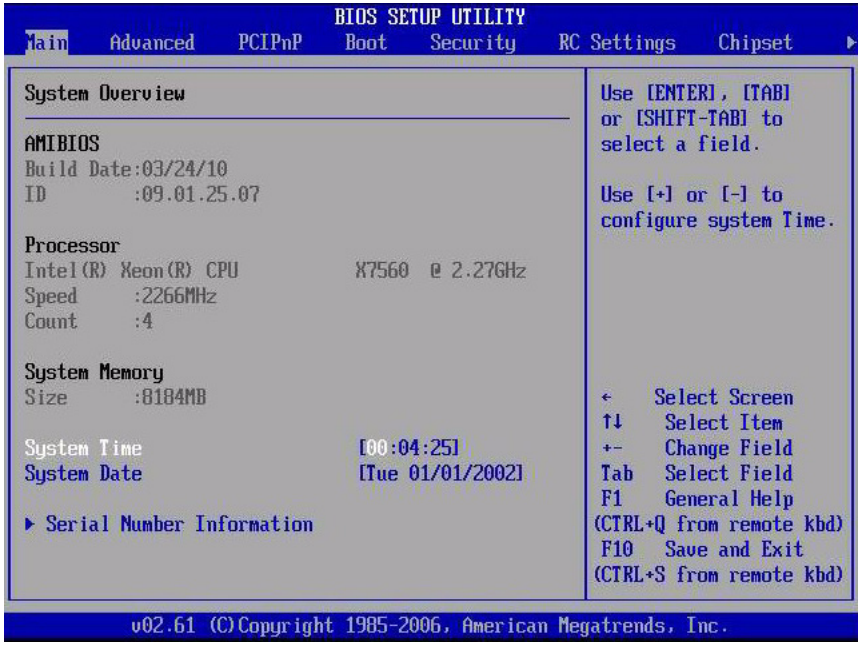
To configure sideband management using the host BIOS Setup Utility, perform the following steps:

1. **Power on or power cycle the server.**

2. **To enter the BIOS Setup Utility, press the F2 key while the system is performing the power-on self-test (POST).**

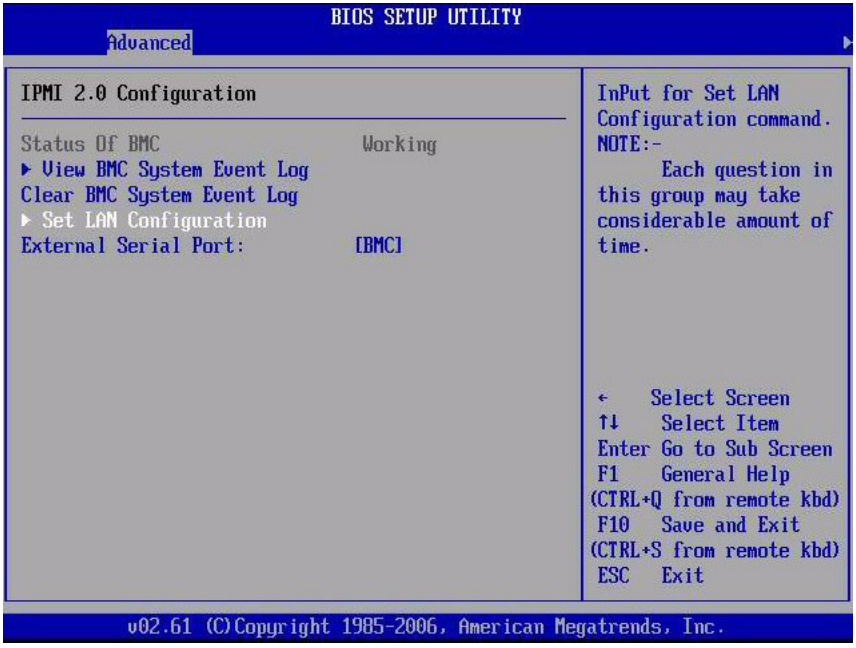
```
Initializing USB Controllers .. Done.
Press F2 to run Setup (CTRL+E on Remote Keyboard)
Press F8 for BBS POPUP  (CTRL+P on Remote Keyboard)
Press F12 to boot from the network (CTRL+N on Remote Keyboard)
```

When BIOS is started, the main BIOS Setup Utility top-level screen appears. This screen provides seven menu options across the top of the screen.

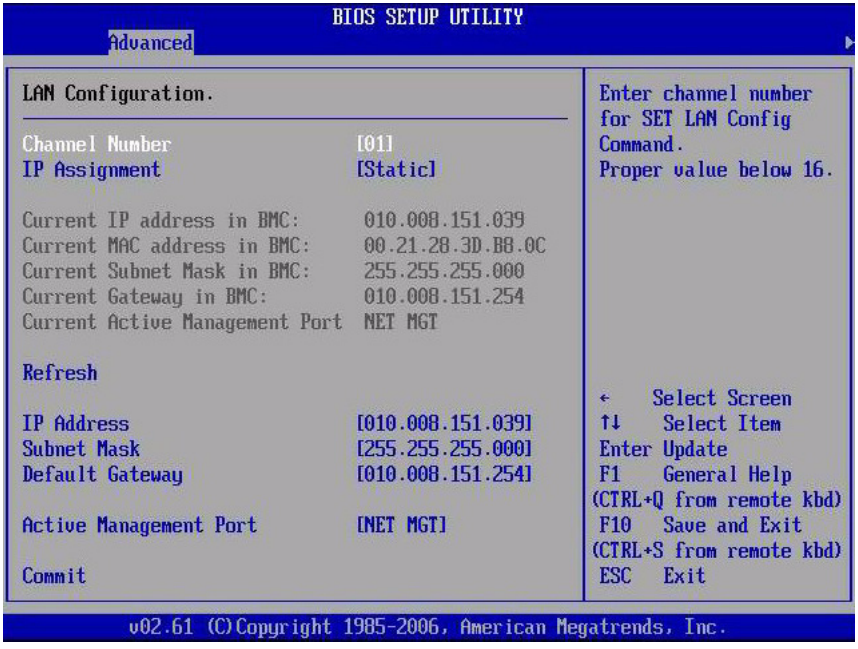


3. **In the main screen, select Advanced --> IPMI Configuration.**

The IPMI 2.0 Configuration screen appears.



4. **In the IPMI 2.0 Configuration screen, select the Set LAN Configuration option.**
   The LAN Configuration screen appears.



5. **In the LAN Configuration screen, do the following:**

   a. **Use the left and right arrow keys to select the IP Assignment option and set it to DHCP.**

   b. **Use the left and right arrow keys to select the Active Management Port option and set the port to a sideband management port (NET0, NET1, NET2, NET3).**

      The NET MGT port is the default.

   c. **Select Commit for the change to take effect.**

Switch Serial Port Output Between SP and Host Console

You can switch the serial port output of the Sun Blade X6270 M2 Server Module between the SP console (SER MGT) and the host console (COM1). By default, the SP console is connected to the system serial port. This feature is beneficial for Windows kernel debugging, as it enables you to view non-ASCII character traffic from the host console.

You can switch serial port output using either the ILOM web interface or the ILOM command-line interface (CLI). For instructions, see the following sections:

- "Switch Serial Port Output Using the Web Interface" on page 15
- "Switch Serial Port Output Using the CLI" on page 16

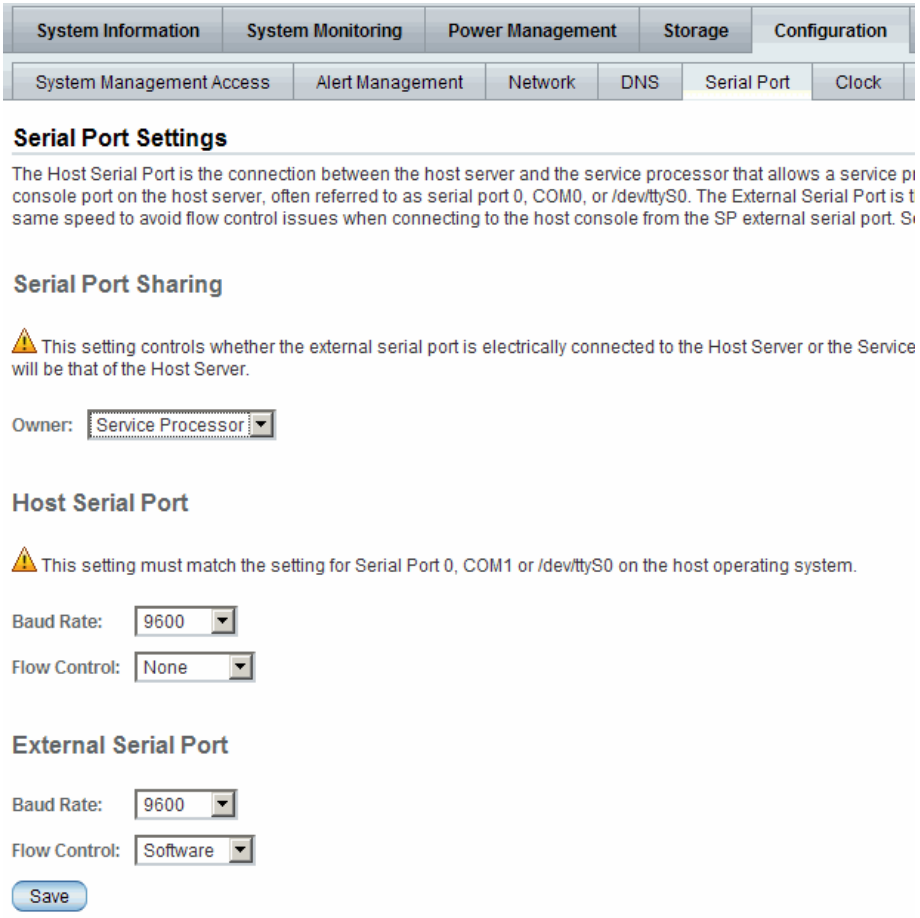
Caution – You should set up the network on the SP before attempting to switch the serial port owner to the host server. If a network is not set up, and you switch the serial port owner to the host server, you will be unable to connect using the CLI or web interface to change the serial port owner back to the SP. To change the serial port owner back to the SP, you must use the ILOM Preboot Menu to restore access to the serial port over the network. For more information see the ILOM Preboot Menu information in the *Sun Blade X6270 M2 Server Module Service Manual* (821-0499).

▼ Switch Serial Port Output Using the Web Interface

1. **Log in to the ILOM web interface.**

2. **Select Configuration --> Serial Port.**

   The Serial Port Settings page appears.



3. **To select a serial port owner, click the Owner drop-down list and select the desired serial port owner.**

   The drop-down list enables you to select either `Service Processor` or `Host Server`.

   By default, `Service Processor` is selected.

4. **Click Save for your change to take effect.**

▼ Switch Serial Port Output Using the CLI

1. **Log in to the ILOM CLI.**
2. **To set the serial port owner, type:**

   -> **set /SP/serial/portsharing/owner=host**

   By default, `owner=SP`.

Clear Server and CMM Faults

When a server component fails, the server generates a component-specific fault that is captured by the ILOM SP. Some faults are cleared automatically when the failed component is replaced, but faults generated for components that are *not* hot-serviceable have to be cleared manually. You can use either the ILOM web interface or the command-line interface (CLI) to manually clear faults.

For the Sun Blade X6270 M2 Server Module, the following types of faults must be cleared manually after the faulty component is replaced:

- Fabric Expansion Module (FEM) faults
- CPU faults
- Motherboard faults (when motherboard is not replaced)

Other faults captured by the fault management function in ILOM include faults generated by the chassis monitoring module (CMM). These faults occur when other components in the chassis fail, for example:

- CMM faults
- Fan faults
- Power supply faults
- NEM faults

Chassis related faults are not automatically cleared by the system. You must manually clear these faults in the Fault Management function on the ILOM CMM. After you have cleared the faults reported by the CMM, the chassis related faults are then automatically cleared by the system in the Fault Management function on the ILOM SP.

When clearing faults, give consideration to the following:

- When clearing faults for memory DIMMs, note that the DIMM faults can be either system wide (`/SYS/MB`) or on a per DIMM basis (`/SYS/MB/P`*n*`/D`*n*).
- PCIe faults include `/SYS/MB/NET`*n*.

The procedure for clearing a fault differs depending on the type of fault:

- To clear the `fault.security.integrity-compromised@/sys/sp` fault, replace the server's top cover and reboot the server's SP.
- To clear DIMM, CPU, motherboard, and PCIe faults, access the server's ILOM SP and clear the fault for the failed component.

For information on how to use the ILOM web interface or the CLI to clear server faults, see the Oracle ILOM 3.0 Common Feature Set Documentation Collection at:

`http://docs.sun.com/app/docs/prod/int.lights.mgr30#hic`

Sensors and Indicators Reference Information

The server includes several sensors that report on hardware conditions. Many of the sensor readings are used to adjust the fan speeds and perform other actions, such as illuminating LEDs and powering off the server.

This section describes the sensors that ILOM monitors for the Sun Blade X6270 M2 Server Module.

The following types of sensors are described:

Note – For information about how to obtain sensor readings or to determine the state of system indicators in ILOM, see the *Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide* (820-6412) and the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide* (820-6411).

Temperature Sensors

TABLE 2-3 describes the environmental sensors.

TABLE 2-3 Temperature Sensors

Sensor Name	Sensor Type	Description
/SYS/MB/T_AMB	Temperature	Motherboard ambient temperature sensor
/SYS/T_AMB	Temperature	Mirror of /SYS/MB/T_AMB
/SYS/MB/RFEM0/T_AMB	Temperature	Temperature sensor on FEM

Fan Sensors

TABLE 2-5 describes the fan sensors.

TABLE 2-4 Fan Sensors

Sensor Name	Sensor Type	Description
/SYS/FM[0-5]/F[0-1]/TACH	Speed	Fan speed sensor
/SYS/FM[0-5]/ERR	Fault	Fan module error

FEM Sensor

TABLE 2-5 describes the Fabric Expansion Module (FEM) sensor.

TABLE 2-5 FEM Sensor

Sensor Name	Sensor Type	Description
/SYS/MB/RFEM[0-1]/FAULT	Fault	Asserts when the FEM fails

Power Supply Sensors

TABLE 2-6 describes the power supply sensors.

TABLE 2-6 Power Supply Unit Current, Voltage, and Power Sensors

Sensor Name	Sensor Type	Description
/SYS/PS[0-1]/PRSNT	Presence	Power supply presence sensor
/SYS/PS[0-1]/S[0-1]/V_IN_ERR	Fault	Power supply input voltage sensor
/SYS/PS[0-1]/S[0-1]/V_OUT_OK	Fault	Power supply output voltage fault sensor
/SYS/VPS	Fault	Voltage and current monitor

Entity Presence Sensors

TABLE 2-7 describes the entity presence sensors. In the table, *n* designates numbers 0-n.

TABLE 2-7 Presence Sensors

Sensor Name	Sensor Type	Description
/SYS/HDD[0-3]/PRSNT	Entity presence	Storage device presence sensor
/SYS/PS[0-1]/PRSNT	Entity presence	Power supply presence sensor
/SYS/PEM[0-1]/PRSNT	Entity presence	PCI ExpressModule presence sensor
/SYS/NEM[0-1]/PRSNT	Entity presence	Network Express Module (NEM) presence sensor
/SYS/CMM/PRSNT	Entity presence	Chassis Monitoring Module (CMM) presence sensor
/SYS/BL[0-9]/PRSNT	Entity presence	Blade presence sensor
/SYS/SLOTID	Entity presence	Blade's slot ID
/SYS/MB/P[0-1]/PRSNT	Entity presence	CPU presence sensor
/SYS/MB/P[0-1]/D[0-8]/PRSNT	Entity presence	DIMM presence sensor
/SYS/MB/RFEM[0-1]/PRSNT	Entity presence	Fabric Expansion Module (FEM) presence sensor
/SYS/MB/REM/PRSNT	Entity presence	RAID Expansion Module (REM) presence sensor

System Indicators

TABLE 2-8 describes the system indicators.

TABLE 2-8 System Indicators

Sensor Name	Description
/SYS/OK	Front panel OK/Power green LED
/SYS/LOCATE	Front panel Locate white LED
/SYS/SERVICE	Front panel Service amber LED
/SYS/OK2RM	Front panel OK To Remove blue LED
/SYS/HDD[0-3]/OK2RM	Storage drive OK To Remove blue LED
/SYS/HDD[0-3]/SERVICE	Storage drive Service amber LED
/SYS/RFEM[0-1]/SERVICE	Storage drive RFEM Service indicator
/SYS/MB/P[0-1]/SERVICE	CPU Service indicator
/SYS/MB/P[0-1]/D[0-8]/SERVICE	DIMM Service indicator

SNMP and PET Message Reference Information

This section describes Simple Network Management Protocol (SNMP) and Platform Event Trap (PET) messages that are generated by devices being monitored by ILOM.

SNMP Traps

SNMP Traps are generated by the SNMP agents that are installed on the SNMP devices being managed by ILOM. ILOM receives the SNMP Traps and converts them into SNMP event messages that appear in the event log. For more information about the SNMP event messages that might be generated on your system, see TABLE 2-9.

TABLE 2-9 SNMP Event Messages

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
Memory SNMP Events			
sunHwTrapMemoryFault	fault.memory.channel.misconfigured	Major; A memory component is suspected of causing a fault	/SYS/MB/P/D
sunHwTrapMemoryFault Cleared	fault.memory.channel.misconfigured	Informational; A memory component fault has been cleared	/SYS/MB/P/D
sunHwTrapComponentFault	fault.memory.intel.dimm.none	Major; A memory component is suspected of causing a fault	/SYS/MB
	fault.memory.conroller.input-invalid		
	fault.memory.controller.init-failed		
	fault.memory.intel.dimm.population-invalid		

TABLE 2-9 SNMP Event Messages *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapComponentFault Cleared	fault.memory.intel.dimm.none	Informational; A memory component fault has been cleared	/SYS/MB
	fault.memory.conroller.input-invalid		
	fault.memory.controller.init-failed		
	fault.memory.intel.dimm.population-invalid		
sunHwTrapMemoryFault	fault.memory.intel.dimm.incompatible	Major; A memory component is suspected of causing a fault	/SYS/MB/P/D
	fault.memory.intel.dimm.incompatible-maxranks		
	fault.memory.intel.dimm.incompatible-quadrank		
sunHwTrapMemoryFault Cleared	fault.memory.intel.dimm.incompatible	Informational; A memory component fault has been cleared	/SYS/MB/P/D
	fault.memory.intel.dimm.incompatible-maxranks		
	fault.memory.intel.dimm.incompatible-quadrank		
Environmental SNMP Events			
sunHwTrapPowerSupplyFault	fault.chassis.env.power.loss	Major; A power supply component is suspected of causing a fault	/SYS/PS
sunHwTrapPowerSupplyFault Cleared	fault.chassis.env.power.loss	Informational; A power supply component fault has been cleared	
sunHwTrapComponentFault	fault.chassis.env.temp.over-fail	Major; A component is suspected of causing a fault	/SYS/
sunHwTrapComponentFault Cleared	fault.chassis.env.temp.over-fail	Informational; A component fault has been cleared	

TABLE 2-9 SNMP Event Messages *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapTempCritThreshold Exceeded	Lower critical threshold exceeded	Major; A temperature sensor has reported that its value has gone above an upper critical threshold setting or below a lower critical threshold setting	/SYS/DBP/T_A MB
sunHwTrapTempCritThreshold Deasserted	Lower critical threshold no longer exceeded	Informational; A temperature sensor has reported that its value is in the normal operating range	
sunHwTrapTempNonCrit ThresholdExceeded	Upper noncritical threshold exceeded	Minor; A temperature sensor has reported that its value has gone above an upper critical threshold setting or below a lower critical threshold setting	
sunHwTrapTempOk	Upper noncritical threshold no longer exceeded	Informational; A temperature sensor has reported that its value is in the normal operating range	
sunHwTrapTempFatalThreshol dExceeded	Lower fatal threshold exceeded	Critical; A temperature sensor has reported that its value has gone above an upper fatal threshold setting or below a lower fatal threshold setting	
sunHwTrapTempFatalThreshol dDeasserted	Lower fatal threshold no longer exceeded	Informational; A temperature sensor has reported that its value has gone below an upper fatal threshold setting or above a lower fatal threshold setting	

TABLE 2-9 SNMP Event Messages *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapTempFatalThresholdExceeded	Upper fatal threshold exceeded	Critical; A temperature sensor has reported that its value has gone above an upper fatal threshold setting or below a lower fatal threshold setting	/SYS/T_AMB
sunHwTrapTempCritThresholdExceeded	Upper critical threshold exceeded	Major; A temperature sensor has reported that its value has gone above an upper critical threshold setting or below a lower critical threshold setting	
sunHwTrapTempCritThresholdDeasserted	Upper critical threshold no longer exceeded	Informational; A temperature sensor has reported that its value is in the normal operating range	
sunHwTrapTempFatalThresholdDeasserted	Upper fatal threshold no longer exceeded	Informational; A temperature sensor has reported that its value has gone below an upper fatal threshold setting or above a lower fatal threshold setting	

TABLE 2-9 SNMP Event Messages *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapComponentError	Assert	Major; A power supply sensor has detected an error	/SYS/HOT /SYS/PS*n*/S*n*/V_OUT_OK
sunHwTrapComponentOk	Deassert	Informational; A power supply sensor has returned to its normal state	/SYS/PS*n*/S*n*/V_OUT_OK /SYS/PS*n*/S*n*/V_OUT_OK /SYS/PS*n*/S*n*/V_OUT_OK /SYS/PS*n*/S*n*/V_OUT_OK /SYS/PS*n*/S*n*/V_OUT_OK
Device SNMP Events			
sunHwTrapComponentFault	fault.chassis.device.missing	Major; A component is suspected of causing a fault	/SYS/
sunHwTrapComponentFault Cleared	fault.chassis.device.missing	Informational; A component fault has been cleared	
sunHwTrapComponentFault	fault.chassis.device.fail	Major; A component is suspected of causing a fault	/SYS/CMM
sunHwTrapComponentFault Cleared	fault.chassis.device.fail	Informational; A component fault has been cleared	
sunHwTrapIOFault	fault.chassis.device.fail	Major; A component in the IO subsystem is suspected of causing a fault	/SYS/NEM
sunHwTrapIOFaultCleared	fault.chassis.device.fail	Informational; An IO subsystem component fault has been cleared	
Power Supply SNMP Events			

TABLE 2-9 SNMP Event Messages *(Continued)*

SNMP Trap Message	ILOM Event Message	Severity and Description	Sensor Name
sunHwTrapPowerSupplyError	Assert	Major; A power supply sensor has detected an error	/SYS/PWRBS
sunHwTrapPowerSupplyOk	Deassert	Informational; A power supply sensor has returned to its normal state	
sunHwTrapPowerSupplyFault	fault.chassis.env.power.loss	Major; A power supply component is suspected of causing a fault	/SYS/PS /SYS/PS
sunHwTrapPowerSupplyFault Cleared	fault.chassis.env.power.loss	Informational; A power supply component fault has been cleared	

PET Event Messages

PET event messages are generated by systems with Alert Standard Format (ASF) or an IPMI baseboard management controller. The PET events provide advance warning of possible system failures. For more information about the PET event messages that might occur on your system, see TABLE 2-10.

TABLE 2-10 PET Event Messages

PET Event Message	ILOM Event Message	Severity and Description	Sensor Name
System Power Events			
petTrapPowerUnitState DeassertedAssert	PowerSupply sensor ASSERT	Critical; A run-time power fault has occurred	/SYS/PWRBS
petTrapPowerSupplyStat eAssertedAssert	PowerSupply sensor DEASSERT	Informational; Power supply is connected to AC Power	
Entity Present Events			

TABLE 2-10 PET Event Messages *(Continued)*

PET Event Message	ILOM Event Message	Severity and Description	Sensor Name
petTrapProcessorPresence DetectedDeassert	EntityPresence Insert	Critical; A processor is absent or has been removed.	/SYS/HOSTPOWER /SYS/CMM/PRSNT /SYS/MB/REM/PRSNT /SYS/MB/RFEM0/PRSNT /SYS/MB/RFEM1/PRSNT /SYS/PEM0/PRSNT /SYS/PEM1/PRSNT /SYS/MB/P0/PRSNT /SYS/MB/P1/PRSNT /SYS/MB/P0/D0/PRSNT /SYS/MB/P0/D1/PRSNT /SYS/MB/P0/D2/PRSNT /SYS/MB/P0/D3/PRSNT /SYS/MB/P0/D4/PRSNT /SYS/MB/P0/D5/PRSNT /SYS/MB/P0/D6/PRSNT /SYS/MB/P0/D7/PRSNT /SYS/MB/P0/D8/PRSNT /SYS/MB/P1/D0/PRSNT /SYS/MB/P1/D1/PRSNT /SYS/MB/P1/D2/PRSNT /SYS/MB/P1/D3/PRSNT /SYS/MB/P1/D4/PRSNT /SYS/MB/P1/D5/PRSNT /SYS/MB/P1/D6/PRSNT /SYS/MB/P1/D7/PRSNT /SYS/MB/P1/D8/PRSNT /SYS/HDD0/PRSNT /SYS/HDD1/PRSNT /SYS/HDD2/PRSNT /SYS/HDD3/PRSNT>

TABLE 2-10 PET Event Messages *(Continued)*

PET Event Message	ILOM Event Message	Severity and Description	Sensor Name
petTrapProcessorPresence DetectedDeassert (*continued*)			/SYS/NEM0/PRSNT /SYS/NEM1/PRSNT /SYS/BL0/PRSNT /SYS/BL1/PRSNT /SYS/BL2/PRSNT /SYS/BL3/PRSNT /SYS/PS0/PRSNT /SYS/PS1/PRSNT /SYS/PS2/PRSNT /SYS/PS3/PRSNT
petTrapEntityPresenceDe viceInsertedAssert	EntityPresence Remove	Informational; A device is present or has been inserted	/SYS/HOSTPOWER /SYS/CMM/PRSNT /SYS/MB/REM/PRSNT /SYS/MB/RFEM0/PRSNT /SYS/MB/RFEM1/PRSNT /SYS/PEM0/PRSNT /SYS/PEM1/PRSNT /SYS/MB/P0/PRSNT /SYS/MB/P1/PRSNT /SYS/MB/P0/D0/PRSNT /SYS/MB/P0/D1/PRSNT /SYS/MB/P0/D2/PRSNT /SYS/MB/P0/D3/PRSNT /SYS/MB/P0/D4/PRSNT /SYS/MB/P0/D5/PRSNT /SYS/MB/P0/D6/PRSNT /SYS/MB/P0/D7/PRSNT /SYS/MB/P0/D8/PRSNT /SYS/MB/P1/D0/PRSNT /SYS/MB/P1/D1/PRSNT /SYS/MB/P1/D2/PRSNT /SYS/MB/P1/D3/PRSNT /SYS/MB/P1/D4/PRSNT /SYS/MB/P1/D5/PRSNT /SYS/BL0/PRSNT

TABLE 2-10 PET Event Messages *(Continued)*

PET Event Message	ILOM Event Message	Severity and Description	Sensor Name
petTrapEntityPresenceDeviceInsertedAssert (*continued*)	EntityPresence Remove	Informational; A device is present or has been inserted	/SYS/MB/P1/D6/PRSNT /SYS/MB/P1/D7/PRSNT /SYS/MB/P1/D8/PRSNT /SYS/HDD0/PRSNT /SYS/HDD1/PRSNT /SYS/HDD2/PRSNT /SYS/HDD3/PRSNT /SYS/NEM0/PRSNT /SYS/NEM1/PRSNT /SYS/BL1/PRSNT /SYS/BL2/PRSNT /SYS/BL3/PRSNT /SYS/PS0/PRSNT /SYS/PS1/PRSNT /SYS/PS2/PRSNT /SYS/PS3/PRSNT
Environmental Events			
petTrapTemperatureStateDeassertedDeassert	Temperature sensor ASSERT	Informational; Temperature event occured	/SYS/HOT
petTrapTemperatureStateDeassertedDeassert	Temperature sensor DEASSERT	Critical; Temperature event occured	

TABLE 2-10 PET Event Messages *(Continued)*

PET Event Message	ILOM Event Message	Severity and Description	Sensor Name
petTrapTemperatureUpperNonRecoverableGoingLowDeassert	Temperature Upper non-critical threshold has been exceeded	Major; Temperature has decreased below upper non-recoverable threshold	/SYS/MB/T_AMB
petTrapTemperatureStateAssertedAssert	Temperature Upper non-critical threshold no longer exceeded	Critical; Temperature event occured. Possible cause: CPU is too hot.	
petTrapTemperatureUpperCriticalGoingHigh	Temperature Lower fatal threshold has been exceeded	Major; Temperature has increased above upper critical threshold	
petTrapTemperatureUpperCriticalGoingLowDeassert	Temperature Lower fatal threshold no longer exceeded	Warning; Temperature has decreased below upper critical threshold	
petTrapTemperatureLowerNonCriticalGoingLow	Temperature Lower critical threshold has been exceeded	Warning; Temperature has decreased below lower non-critical threshold	
petTrapTemperatureLowerNonCriticalGoingHighDeassert	Temperature Lower critical threshold no longer exceeded	Informational; Temperature has returned to normal	
petTrapTemperatureUpperNonCriticalGoingHigh	Temperature Upper critical threshold has been exceeded	Warning; Temperature has increased above upper non-critical threshold	
petTrapTemperatureUpperNonCriticalGoingLowDeassert	Temperature Upper critical threshold no longer exceeded	Informational; Temperature has returned to normal	
petTrapTemperatureLowerCriticalGoingLow	Temperature Lower fatal threshold has been exceeded	Major; Temperature has decreased below lower critical threshold	
petTrapTemperatureLowerCriticalGoingHighDeassert	Temperature Lower fatal threshold no longer exceeded	Warning; Temperature has increased above lower critical threshold	
petTrapTemperatureLowerNonRecoverableGoingHighDeassert	Temperature Lower non-critical threshold has been exceeded	Major; Temperature has increased above lower non-recoverable threshold	
petTrapTemperatureUpperNonRecoverableGoingHigh	Temperature Lower non-critical threshold no longer exceeded	Critical; Temperature has increased above upper non-recoverable threshold	
Component, Device, and Firmware Events			

TABLE 2-10 PET Event Messages *(Continued)*

PET Event Message	ILOM Event Message	Severity and Description	Sensor Name
petTrapOEMStateDeassertedAssert	OEMReserved sensor ASSERT	Informational; A fault has occurred (OEM State Deasserted assert)	/SYS/MB/RFEM*n*/FAULT
petTrapOEMPredictiveFailureAsserted	OEMReserved sensor DEASSERT	Major; OEM Predictive Failure Asserted	
petTrapOEMPredictiveFailureDeasserted	OEMReserved reporting Predictive Failure	Informational; OEM Predictive Failure Deasserted	/SYS/CMM/ERR /SYS/NEM*n*/ERR /SYS/NEM*n*/ERR /SYS/BL*n*/ERR /SYS/BL*n*/ERR /SYS/BL*n*/ERR /SYS/BL*n*/ERR
petTrapSystemFirmwareError	OEMReserved Return to normal	Informational; System Firmware Error reported	
petTrapModuleBoardTransitionToRunningAssert	Module Transition to Running assert	Informational	/SYS/NEM*n*/STATE /SYS/NEM*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE
petTrapModuleBoardTransitionToInTestAssert	Module Transition to In Test assert	Informational	/SYS/NEM*n*/STATE /SYS/NEM*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE
petTrapModuleBoardTransitionToPowerOffAssert	Module Transition to Power Off assert	Informational	/SYS/NEM*n*/STATE /SYS/NEM*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE
petTrapModuleBoardTransitionToOnLineAssert	Module Transition to On Line assert	Informational	/SYS/NEM*n*/STATE /SYS/NEM*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE

TABLE 2-10 PET Event Messages *(Continued)*

PET Event Message	ILOM Event Message	Severity and Description	Sensor Name
Undocumented PET 1378820	Module Transition to Off Line assert	Informational	/SYS/NEM*n*/STATE /SYS/NEM*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE
petTrapModuleBoardTransitionToOffDutyAssert	Module Transition to Off Duty assert	Informational	/SYS/NEM*n*/STATE /SYS/NEM*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE
petTrapModuleBoardTransitionToDegradedAssert	Module Transition to Degraded assert	Informational	/SYS/NEM*n*/STATE /SYS/NEM*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE
petTrapModuleBoardTransitionToPowerSaveAssert	Module Transition to Power Save assert	Informational	/SYS/NEM*n*/STATE /SYS/NEM*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE
petTrapModuleBoardInstallErrorAssert	Module Install Error assert	Informational	/SYS/NEM*n*/STATE /SYS/NEM*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE /SYS/BL*n*/STATE
Power Supply Events			
petTrapVoltageStateDeassertedDeassert	Voltage sensor ASSERT	Informational; Voltage event occured	/SYS/PS*n*/V_OUT_OK /SYS/PS*n*/V_OUT_OK
petTrapVoltageStateAssertedDeassert	Voltage sensor DEASSERT		/SYS/PS*n*/V_OUT_OK /SYS/PS*n*/V_OUT_OK

TABLE 2-10 PET Event Messages *(Continued)*

PET Event Message	ILOM Event Message	Severity and Description	Sensor Name
Undocumented PET 132097	Voltage reporting Predictive Failure	Informational	/SYS/PS*n*/V_IN_ERR /SYS/PS*n*/V_IN_ERR /SYS/PS*n*/V_IN_ERR /SYS/PS*n*/V_IN_ERR
Undocumented PET 132096	Voltage Return to normal	Informational	
Fan Events			
petTrapFanPredictiveFailureDeasserted	Fan reporting Predictive Failure	Informational; Fan Predictive Failure state has been cleared	/SYS/FM*n*/ERR /SYS/FM*n*/ERR /SYS/FM*n*/ERR /SYS/FM*n*/ERR
petTrapFanLowerNonRecoverableGoingLow	Fan Return to normal	Critical; Fan speed has decreased below lower non-recoverable threshold. Fan failed or removed.	

Index