# Sun™ Integrated Lights Out Manager (ILOM) 2.0 Supplement for Sun Blade ™ X6270 Server

Sun Microsystems, Inc.
www.sun.com

Part No. 820-6180-10
March 2009, Revision A

Submit comments about this document at: `http://www.sun.com/hwdocs/feedback`

Please
Recycle

# Contents

# Preface

This *Sun Integrated Lights Out Manager (ILOM) 2.0 Supplement for Sun Blade X6270 Server Module* contains information about ILOM 2.0 firmware that is specific to the Sun Blade™ X6270 Server Module. For a complete discussion of ILOM 2.0 and its capabilities, along with user procedures, see the *Sun Integrated Lights Out Manager 2.0 User's Guide* (820-1188).

## Product Updates

For product updates that you can download for the Sun Blade X6270 Server Module, visit the following web site:

`http://www.sun.com/download/`

Locate the section for Hardware Drivers and click x64 Servers & Workstations. The Sun Blade X6270 Server Module site contains updates for firmware and drivers, as well as CD-ROM ISO images.

## Related Documentation

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

`http://docs.sun.com/app/docs/prod/blade.x6270`

| Title | Content | Part Number | Format |
|---|---|---|---|
| *Sun Blade X6270 Server Module Product Notes* | Late-breaking information about the server module | 820-6179 | PDF<br>HTML |
| *Sun Blade X6270 Server Module Getting Started Guide* | Basic installation information for setting up the server module | 820-6181 | PDF<br>Print |
| *Sun Blade X6270 Server Module Installation Guide* | Detailed installation information for setting up the server module | 820-6175 | PDF<br>HTML<br>Print option |
| *Sun Blade X6270 Server Module Linux, VMware, and Solaris Operating Systems Installation Guide* | Installation instructions for the Linux, VMware, and Solaris operating systems | 820-6176 | PDF<br>HTML |
| *Sun Blade X6270 Server Module Windows Operating System Installation Guide* | Installation instructions for the Windows Server operating system | 820-6177 | PDF<br>HTML |
| *Sun Installation Assistant for Windows and Linux User's Guide* | Instructions for using the Sun Installation Assistant (SIA) when installing a Windows or Linux operating system | 820-3357 | PDF<br>HTML |
| *Sun Blade X6270 Server Module Service Manual* | Information and procedures for maintaining and upgrading the server module | 820-6178 | PDF<br>HTML |
| *x64 Servers Utilities Reference Manual* | Information for using applications and utilities common to x64 servers and server modules | 820-1120 | PDF<br>HTML |
| *Sun x64 Servers Diagnostics Guide* | Information about how to use the diagnostic software tools provided with x64 servers | 820-6750 | PDF<br>HTML |
| *Sun Integrated Lights Out Manager 2.0 User's Guide* | ILOM features and tasks that are common to servers and server modules that support ILOM | 820-1188 | PDF<br>HTML |

| Title | Content | Part Number | Format |
|---|---|---|---|
| *Sun Integrated Lights Out Manager 2.0 (ILOM) Supplement for Sun Blade X6270 Server Module* | ILOM information that is specific to the server module | 820-6180 | PDF<br>HTML |
| *Important Safety Information for Sun Hardware Systems* | Multilingual hardware safety and compliance information for all Sun hardware systems | 816-7190 | Print |
| *Safety and Compliance Guide* | Important safety and compliance information. | 820-6551 | PDF |

Translated versions of some of these documents are available at the web site described above in French, Simplified Chinese, and Japanese. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

# Documentation, Support, and Training

| Sun Function | URL |
|---|---|
| Sun 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.<br>Use `ls -a` to list all files.<br>`% You have mail.` |
| **`AaBbCc123`** | What you type, when contrasted with on-screen computer output | `% su`<br>`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*.<br>These are called *class* options.<br>You *must* be superuser to do this.<br>To delete a file, type `rm` *filename*. |

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

# Third-PartyWeb Sites

Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content,goods, or services that are available on or through such sites or resources.

# Using UNIX Commands

This document might not contain information about basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris™ Operating System documentation, which is at:

  http://docs.sun.com

# Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. You can submit your comments by going to:

http://www.sun.com/hwdocs/feedback

Please include the title and part number of your document with your feedback:

*Sun Integrated Lights Out Manager 2.0 Supplement for Sun Blade X6270 Server Module*, part number 820-6180-10.

CHAPTER 1

# ILOM 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 2.0. The following topics are discussed in this chapter:

# ILOM Overview

Integrated Lights Out Manager (ILOM) is system management firmware that is preinstalled on all x64-based 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. For general information about ILOM's use and capabilities, see the *Sun Integrated Lights Out Manager 2.0 User's Guide* (820-1188).

---

**Note –** For information about establishing a first time connection to ILOM on your server service processor (SP), see "Setting Up ILOM" in the *Sun Blade X6270 Server Module Installation Guide* (820-6175).

---

# Supported Platform Firmware

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

**TABLE 1-1** Supported Platform Firmware

| ILOM SP Version | Host BIOS Version | Applicable Hardware |
|---|---|---|
| 2.0.3.8 | 07.01.38.03 | Sun Blade X6270 Server Module |
| 2.0.3.10 | N/A[1] | Chassis monitoring module (CMM) installed on the Sun Blade 6000 and 6048 chassis systems. |

[1] N/A = Not applicable to CMM.

# Supported ILOM 2.0 Feature Set

The Sun Blade X6270 Server Module supports the entire ILOM feature set provided in ILOM 2.0. In addition, it supports platform-specific features offered in ILOM as of ILOM 2.0.3.8.

For information about the use of the ILOM 2.0 feature set, see the *Sun Integrated Lights Out Manager 2.0 User's Guide* and the *Addendum to the Sun Integrated Lights Out Manager 2.0 User's Guide* (820-4198).

# Platform-Specific Features

ILOM 2.0 operates on many platforms, supporting features that are common to all platforms. Some ILOM 2.0 features belong to a subset of platforms and not to all. This ILOM Supplement describes the features that belong to the Sun Blade X6270 Server Module, augmenting the set of features described in the *Sun Integrated Lights Out Manager 2.0 User's Guide* and its Addendum.

Chapter 2 of this Supplement provides detail information about the ILOM platform features supported on the Sun Blade X6270 Server Module.

CHAPTER 2

# ILOM Platform Features for Sun Blade X6270 Server Module

This chapter contains information about ILOM features that are specific to the Sun Blade X6270 Server Module.

The following topics are discussed in this chapter:



**Note –** The ILOM features described in the chapter for the Sun Blade X6270 Server Module are supported in addition to the common ILOM 2.0 features supported for all x64 Sun servers.

# ILOM Sideband Management

By default, you connect to the server module'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 module's Gigabit Ethernet ports (NET 0 or 1), which are in-band, or sideband ports, to send and receive ILOM commands to and from the server SP.

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

---

**Note –** 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 Sun ILOM Remote Console.

---

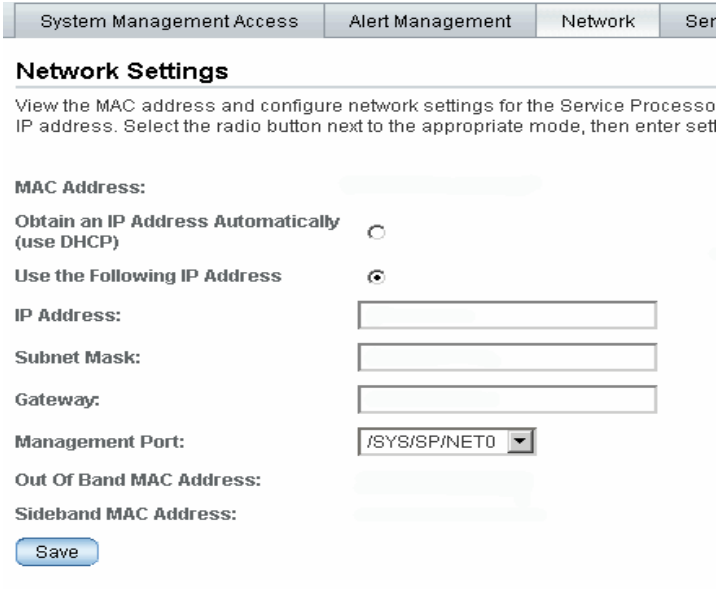
You can configure sideband management using either the web interface, the command-line interface (CLI), the BIOS, or IPMI. For instructions, see the following sections:

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

## ▼ Configure Sideband Management Using the Web Interface

1. **Log in to the ILOM web interface.**
2. **In the ILOM web interface, select Configuration --> Network.**

   The Network Settings page appears.




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

   a. **Select DHCP to acquire the IP address automatically or specify the appropriate IP address.**

   b. **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 two Gigabit Ethernet ports, /SYS/SP/NET*n*, where *n* is 0 or 1.

      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. **Do one of the following to connect to ILOM using the CLI:**
   - Connect to ILOM using the SP's serial console port.

     For instructions, see the *Sun Blade X6270 Server Module Installation Guide* or the *Integrated Lights Out Manager 2.0 User's Guide*.
   - Open a terminal window and type:

     $ **ssh root@serveripaddress**

     Password: *password*

     The default password for the root account is `changeme`.

     The ILOM CLI prompt appears (->).

2. **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.
        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 `macaddress` is the same as the `outofbandmacaddress` and the `managementport` is set to the default `/SYS/SP/NET0`.

3. **To set the SP management port to a sideband port, type:**

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

   Where *n* equals 0 or 1.

   -> **set commitpending=true**

4. **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 menus from the following interfaces:

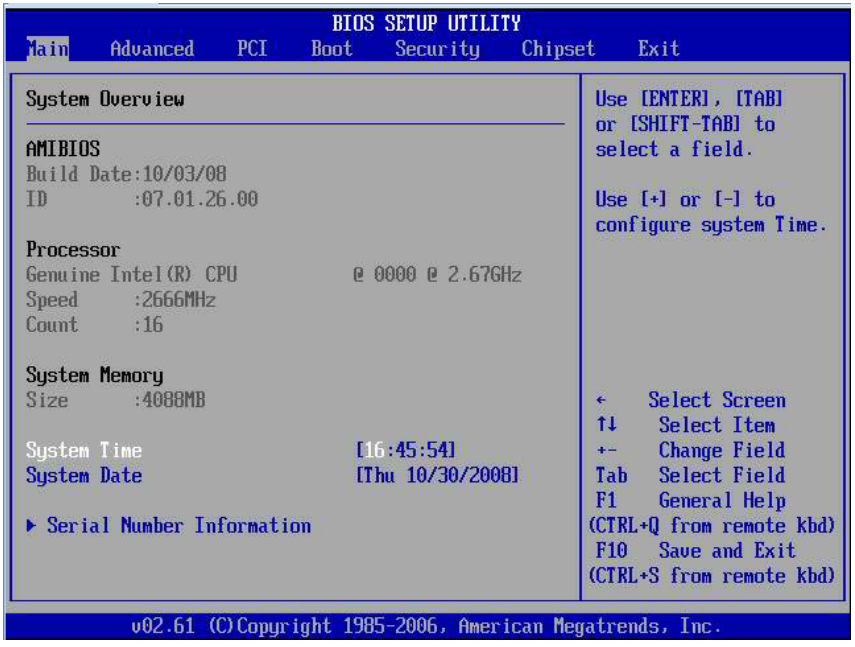
- Use a USB keyboard, mouse, and VGA monitor connected directly to the server.
- Use a terminal (or terminal emulator connected to a computer) through the serial port on the back panel of the server.
- Connect to the server using the Sun ILOM Remote Console.

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

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

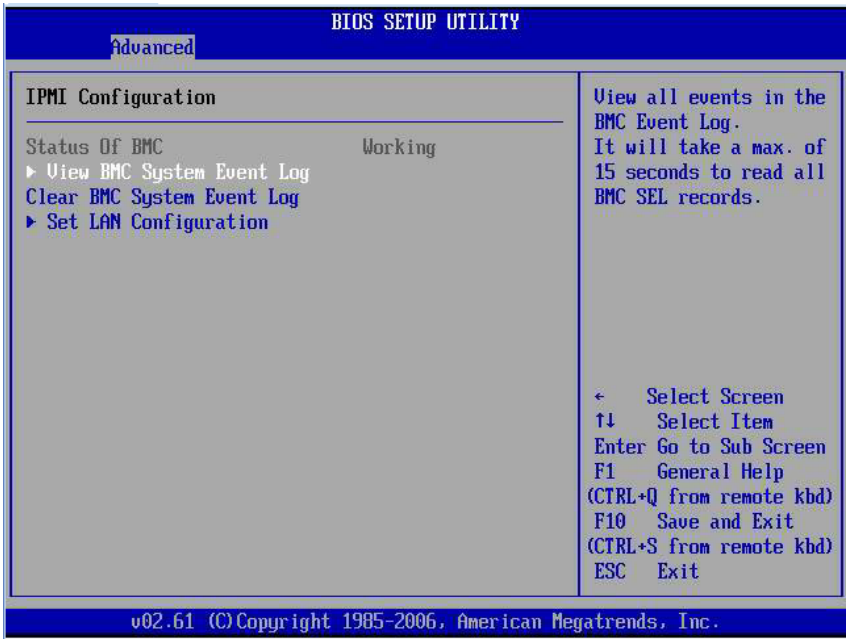
2. **To enter the BIOS Setup utility, press the F2 key while the system is performing the power-on self-test (POST).**

   The BIOS Setup utility appears.



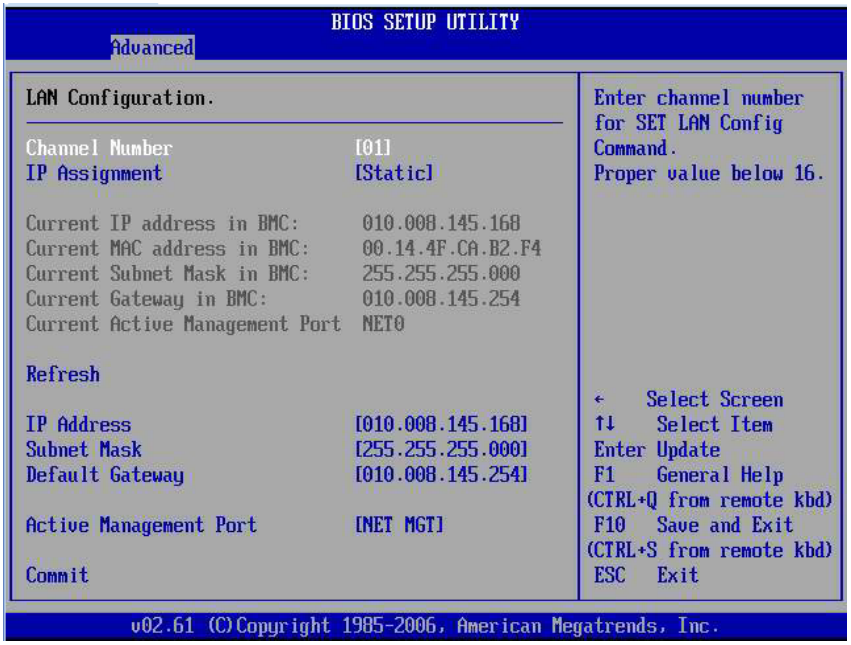

3. **In the BIOS Setup utility dialog, select Advanced --> IPMI Configuration.**

   The Advanced IPMI Configuration menu appears.




4. **In the Advanced IPMI Configuraton menu, select the Set LAN Configuration option.**

   The LAN Configuration menu appears.




5. **In the Advanced LAN Configuration menu, do the following:**

   a. **Select the option for the Active Management Port and press Enter.**

      A tab appears listing the available port settings (`Net0` and `Net1`) for Sideband Management.

   b. **In the tab, select the appropriate port setting for Sideband Management, then select Commit for the change to take effect.**

# Clear Faults Detected on Server and CMM

When a server module component fails, the server SP generates a fault that is captured by the fault management function in ILOM. The system automatically clears the server component faults when the server module is *cold-booted*.

---

**Note –** *Cold booted* refers to either: 1) when you temporarily remove power from the server module by removing it part way from its slot and then reseating it in the powered-on chassis; or 2) when the chassis containing the server module(s) is powered-on.

---

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 system. You must manually clear these type of 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.

You can use either the ILOM web interface or the command-line interface (CLI) to manually clear faults. For information on how to use the ILOM web interface or the CLI to clear faults, see the *Sun Integrated Lights Out Manager 2.0 User's Guide* (820-1188).

# Switch Serial Port Output Between SP and Host Console

You can switch the serial port output of the Sun Blade X6270 Server Module between the SP console (NET 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:

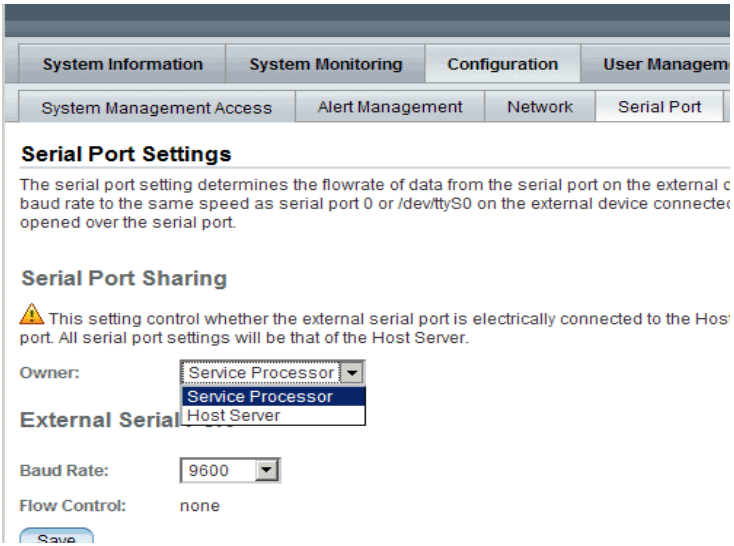
- "Switch Serial Port Output Using the Web Interface" on page 14
- "Switch Serial Port Output Using the CLI" on page 15

**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 interface or web interface to change the serial port owner back to the SP. To return the serial port owner setting to the SP, perform the procedure for restoring access to the serial port in the *Sun Blade X6270 Server Module Service Manual*.

## ▼ Switch Serial Port Output Using the Web Interface

1. **Log in to the ILOM web interface.**
2. **In the ILOM web interface, select Configuration –> Serial Port.**

   The Serial Port Settings page appears.




3. **In the Serial Port Settings page, select** `Host Server` **as the serial port owner.**

   By default, Service Processor is selected.

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

5. **Use a dongle cable to connect the serial host to the server.**

   For details on how to use a dongle cable to attach devices to the server, see the *Sun Blade X6270 Server Module Service Manual*.

## ▼ 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`.

3. **Use a dongle cable to connect a serial host to the server.**

   For details on how to use a dongle cable to attach devices to the server, see the *Sun Blade X6270 Server Module Service Manual*.

# Power Management Metrics in ILOM

The power management function in ILOM 2.0 enables you to monitor power consumption metrics from the command-line interface (CLI) or web interface. The following power management metrics are common to all Sun servers:

- **Available power** – The available power metric shown in ILOM for a server module represents the maximum amount of power guaranteed to be available to the server module by the system chassis.
- **Actual power** – The actual power metric shown in ILOM for a server module represents the amount of power consumed by the server.
- **Permitted power** – The permitted power metric shown in ILOM for a server module represents the maximum power the server guarantees it will consume at any instant.

For examples of these common power management metrics provided in ILOM 2.0, see the web interface example shown in Step 2 of the "Monitor Advanced Power Metrics Using the Web Interface" on page 17 or the command-line output shown in Step 2 of the "Monitor Advanced Power Metrics Using the CLI" on page 18.

For additional information about the common power management metrics provided for all Sun servers, see the *Addendum to the Sun Integrated Lights Out Manager 2.0 User's Guide* (820-4198) or the *Sun Integrated Lights Out Manager 2.0 User's Guide* (820-1188).

## Specific Power Consumption Metrics for Sun Blade X6270 Server Module

In addition to the common power consumption metrics provided in ILOM 2.0 for all servers, the power management function in ILOM 2.0 provides the following advanced power consumption metrics for the Sun Blade X6270 Server Module.

- **Power budget** – The power budget metric shown in ILOM identifies the maximum power value that the server guarantees it will consume at any instant.
- **Power policy** – The power policy metric shown in ILOM enables you to determine whether permission was granted by the system chassis to power on the server host. This decision is granted by the system chassis after comparing the amount of power available on the chassis to the amount of power currently being consumed by all components (server modules, NEMs, fans, and so forth) in the system chassis.

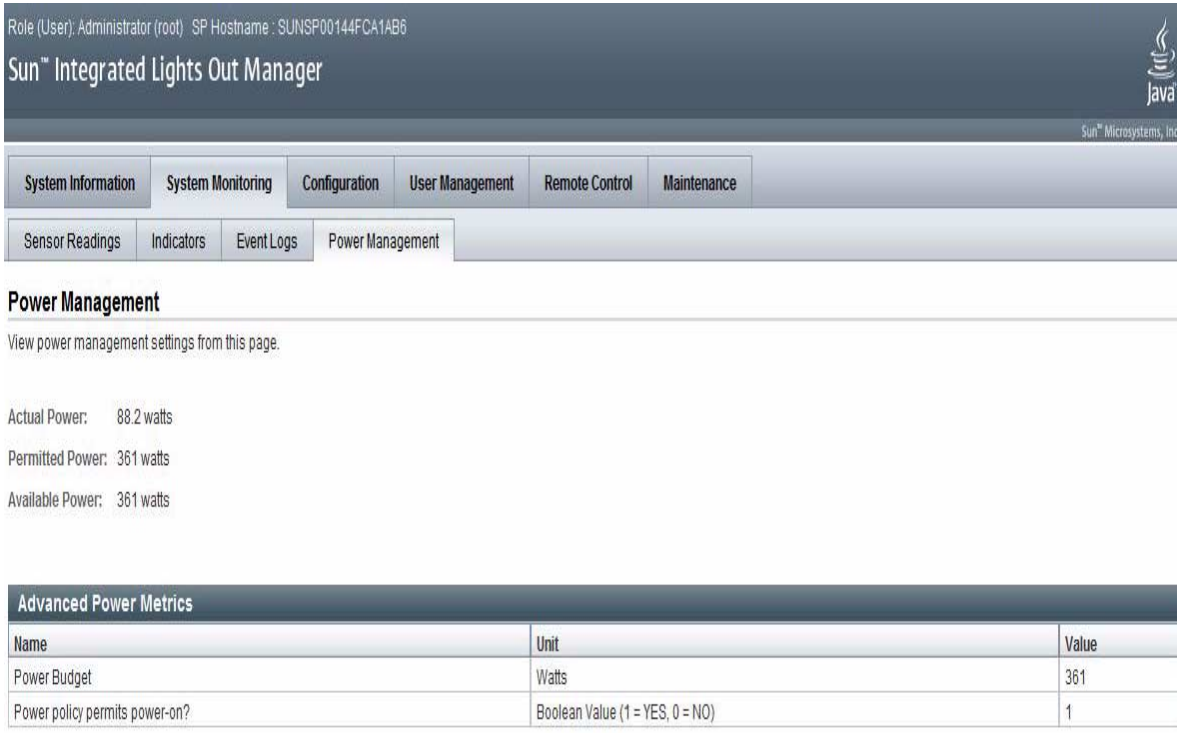
For information about how to view these advanced power consumption metrics in ILOM 2.0, see these topics:

- "Monitor Advanced Power Metrics Using the Web Interface" on page 17
- "Monitor Advanced Power Metrics Using the CLI" on page 18

## ▼ Monitor Advanced Power Metrics Using the Web Interface

1. **Log in to the ILOM web interface.**
2. **In the ILOM web interface, select System Monitoring —> Power Management.**

   The common power consumption metrics, as well as the advanced power consumption metrics for the Sun Blade X6270 Server Module appear.



## ▼ Monitor Advanced Power Metrics Using the CLI

1. **Log in to the ILOM CLI.**
2. **To display the actual power, permitted power, and available power, use the** `show` **command.**

   For example:

```
-> show /SP/powermgmt
   /SP/powermgmt
   Targets:
       advanced
   Properties:
      actual_power = 88.2
      permitted power = 366
      available power = 366
   Commands:
      cd
      show
```

3. **To display the advanced power metric properties for power budget and power policy use the** `show /SP/powermgmt/advanced/`*n* **command.**

   Where:

   *n* = 1 for power budget

   *n* = 2 for power policy

   For example:

```
-> show /SP/powermgmt/advanced/1
/SP/powermgmt/advanced/1
    Targets:
   Properties:
      name = Power Budget
      unit = Watts
      value = 361
   Commands:
      cd
      show
```

```
-> show /SP/powermgmt/advanced/2
/SP/powermgmt/advanced/2
    Targets:
   Properties:
      name = Power policy permits power-on?
      unit = Boolean Value (1 = Yes, 0 = NO)
      value = 1
   Commands:
      cd
      show
```

# Sensors and Indicators Reference Information

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

The following sections describe the sensors and indicators that ILOM monitors for the Sun Blade X6270 Server Module.



**Note –** For information about how to obtain sensor readings or to determine the state of system indicators in ILOM, see the *Sun Integrated Lights Out Manager 2.0 User's Guide* (820-1188).

# Temperature Sensors

TABLE 1 describes the environmental sensors. In the table, *n* designates numbers 0-n.

**TABLE 1** Temperature Sensors

| Sensor Name | Sensor Type | Description |
|---|---|---|
| /SYS/MB/T_AMB | Temperature | System ambient temperature sensor |

# Fan Sensors

TABLE 2 describes the fan sensors. In the table, *n* designates numbers 0-n.

**TABLE 2** Fan Sensors

| Sensor Name | Sensor Type | Description |
|---|---|---|
| /SYS/FM*n*/Fy/TACH | Speed | Fan speed sensor |
| /SYS/FM*n*/ERR | Fault | Fan module error |

# Power Supply Sensors

TABLE 3 describes the power supply sensors. In the table, *n* designates numbers 0-n.

**TABLE 3** Power Supply Unit Current, Voltage, and Power Sensors

| Sensor Name | Sensor Type | Description |
|---|---|---|
| /SYS/PS*n*/PRSNT | Presence | Power supply presence sensor |
| /SYS/PS*n*/ACn_ER | Fault | Power supply AC error sensor |
| /SYS/PS*n*/PWROKn | Fault | Power supply fail sensor |

# Presence Sensors

TABLE 4 describes the presence sensors. In the table, *n* designates numbers 0-n.

**TABLE 4** Presence Sensors

| Sensor Name | Sensor Type | Description |
|---|---|---|
| /SYS/HDD*n*/PRSNT | Entity presence | Storage device presence sensor |
| /SYS/PS*n*/PRSNT | Entity presence | Power supply presence sensor |
| /SYS/NEM*n*/PRSNT | Entity presence | Network express module presence sensor |
| /SYS/BL*n*/PRSNT | Entity presence | Blade presence sensor |
| /SYS/MB/P*n*/PRSNT | Entity presence | CPU presence sensor |
| /SYS/MB/Pn/Dy/PRSNT | Entity presence | DIMM presence sensor |
| /SYS/MB/RFEM*n*/PRSNT | Entity presence | Fabric expansion module presence sensor |
| /SYS/PEMx/PRSNT | Entity presence | PCI express module presence sensor |
| /SYS/CMM/PRSNT | Entity presence | Chassis monitoring module (CMM) presence sensor |
| /SYS/MB/REM/PRSNT | Entity presence | RAID expansion module (REM) presence sensor |

# System Indicators

TABLE 5 describes the system indicators In the table, *n* designates numbers 0-n

**TABLE 5** 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/OK2RM | Storage drive OK to remove blue LED |

**TABLE 5** System Indicators *(Continued)*

| Sensor Name | Description |
|---|---|
| /SYS/HDD/SERVICE | Storage drive service amber LED |
| /SYS/MB/P*n*/SERVICE | CPU service indicator |
| /SYS/MB/Pn/Dy/SERVICE | DIMM service indicator |

# Index