Sun™ Integrated Lights Out Manager 3.0 Supplement for Sun Fire™ X4140, X4240, and X4440 Servers

Sun Microsystems, Inc.
www.sun.com

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Contents

Preface

The *Sun Sun Integrated Lights Out Manager 3.0 Supplement for Sun Fire X4140, X4240, and X4440 Servers* contains information about ILOM 3.0 that is specific to the Sun Fire X4140, X4240, and X4440 servers. For a complete discussion of ILOM 3.0 and its capabilities along with user procedures, see the *Sun Integrated Lights Out Manager 3.0 User's Guide* (820-4597).

Related Documentation

The document set for the servers is described in the *Where To Find Servers Documentation* sheet that is packed with your system. You can also find the documentation at:

http://docs.sun.com/

- For the Sun Fire X4140, 4240, and X4440:

  http://docs.sun.com/app/docs/prod/sf.x4140~x4140#hic

- For the Sun Fire X4240:

  http://docs.sun.com/app/docs/prod/sf.x4240~x4240#hic

- For the Sun Fire X4440:

  http://docs.sun.com/app/docs/prod/sf.x4440~x4440#hic

Translated versions of some of these documents are available at http://docs.sun.com.

Select a language from the drop-down list and navigate to the Servers document collection using the Product category link. Available translations for the Servers include Simplified Chinese, Traditional Chinese, French, Japanese, and Korean.

English documentation is revised more frequently and might be more up-to-date than the translated documentation. For all Sun documentation, go to the following URL:

http://docs.sun.com/

Documentation, Support, and Training

The following table shows where to find documentation, support, and training.

TABLE P-1 Documentation, Support, and Training

Sun Function	URL	Description
Sun Documentation	http://docs.sun.com	You can navigate to the Sun Fire X4140, X4240, and X4440 Servers document page and then download PDF and view HTML documents.
Support	http://www.sun.com/support/	Obtain technical support and download patches.
Training	http://www.sun.com/training/	Learn about Sun courses.
Warranty	http://www.sun.com/service/support/warranty/index.html	Obtain specific details regarding your warranty.
Feedback	http://www.sun.com/hwdocs/feedback/	Submit your comments.

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

Sun Sun Integrated Lights Out Manager 3.0 Supplement for Sun Fire X4140, X4240, and X4440 Servers, part number 820-5550-10.

Sun Fire X4140, X4240, and X4440 Servers ILOM 3.0 Supplement

The Sun Fire X4140, X4240, and X4440 servers run ILOM 3.0. The ILOM features in this version are platform specific, however some features that are not applicable to these servers were not implemented.

This supplement describes the differences between the ILOM 3.0 platform-specific user interface provided on the Sun Fire X4140, X4240, and X4440 servers and the user interface provided by ILOM 3.0. For a description of all the features and capabilities offered by the ILOM 3.0 firmware, see the *Sun Integrated Lights Out Manager 3.0 User's Guide* (820-4597).

The following topics are covered in this supplement:

ILOM 3.0 Features Not Supported

With the exception of Policy configuration, all ILOM 3.0 firmware features are supported on the Sun Fire X4140, X4240, and X4440 servers.

For a complete list of ILOM 3.0 firmware features, see the *Sun Integrated Lights Out Manager 3.0 User's Guide* (820-4597).

TABLE 1 lists the differences between the ILOM 3.0 web interface and the ILOM 3.0 platform-specific web interface on the Sun Fire X4140, X4240, and X4440 servers.

TABLE 1 ILOM 3.0 Platform-specific Features for the Sun Fire X4140, X4240, and X4440 Servers

Web Interface Features	Supported in ILOM 3.0	Supported by ILOM 3.0 on the Sun Fire X4140, X4240, and X4440 servers
Policy Page on the **Configuration** Tab	Yes	No
Serial Port Sharing—Serial Port Page on the **Configuration** Tab has a **Serial Port Sharing** setting. This setting controls whether the external serial port accesses the Host Server or the Service Processor. If set to Host Server, ILOM has no control of the serial port. All serial port settings are that of the Host Server.	No	Yes
8-bit or 16-bit Reduction—Redirection page on the **Remote Control** tab has settings for 8-bit or 16-bit redirection. The 16-bit high-quality color redirection is for fast connections. The 8-bit lower-quality color redirection is for slower connections.	Yes	No

Running `ipmitool` From the Host Using KCS

The Keyboard Controller Style (KCS) interface enables you to use the host operating system to execute `ipmitool` commands on the ILOM service processor (SP). Using `ipmitool` commands you can perform server, initialization, monitoring, and maintenance tasks from the host operating system.

Note – The KCS interface is sometimes to referred to as the Baseboard Management Controller (BMC) interface.

The Sun Fire X4140, X4240, and X4440 servers support in-band systems management using IPMI v1.5 or 2.0 with the KCS interface and the IPMI kernel driver. IPMI is an industry-supported standard for performing autonomous platform management functions.

You can run `ipmitool` commands on Solaris, Linux, and Windows Server 2003 R2 Enterprise operating systems. For a description of the `ipmitool` commands and options, see the `ipmitool manpage` on the web at:

http://ipmitool.sourceforge.net/manpage.html

The following are a few ipmitool commands for the operating systems supported by the server.

- For Solaris and Linux:

  # **ipmitool -I** *interface* **sdr list**

  # **ipmitool -I** *interface* **sel list**

  # **ipmitool -I** *interface* **lan print 1**

  Where *interface* is bmc on Solaris systems and open on Linux systems.

- For Windows Server 2003 R2 Enterprise:

  # **ipmitool -I ms sdr list**

  # **ipmitool -I ms sel list**

  # **ipmitool -I ms lan print 1**

If you are using a Solaris or Linux operating system, refer to *Remote Monitoring of Sun X64 Systems Using IPMITOOL and IPMIEVD* (820-1011) for ipmitool installation and user instructions. This document is available on the web at:

http://www.sun.com/blueprints/0107/820-1011.pdf

If you are using a Windows Server 2003 R2 operating system, install the optional Windows Hardware Management interface driver. For instructions on how to install this driver, refer to *Hardware Management in Microsoft Windows Server 2003 R2 RC0* and perform the procedure "How to Enable the Hardware Management Feature." It is not necessary to perform any of the other procedures described this document, such as "Configuration and Security." This document is available on the web at:

http://www.microsoft.com/technet/scriptcenter/preview/wsm/enable.mspx#ECB

Additional information on IPMI, including the ipmitool manpage and detailed specifications, is available on the web at the following locations:

http://ipmitool.sourceforge.net/manpage.html

http://openipmi.sourceforge.net

http://www.intel.com/design/servers/ipmi/spec.htm

Power Consumption Management

The Sun Fire X4140, X4240, and X4440 servers support the power monitoring commands provided by the ILOM 3.0 Power Consumption Management interfaces. You can monitor power using the web interface and the command-line interface (CLI).

The following power properties are supported:

- `actual_power`
- `available_power`
- `permitted_power`

To monitor power using the web interface, open a browser, log in to the web interface, and select the **System Monitoring->Power Management** tab.

To monitor power using the CLI, log in to the CLI and type this command:

-> **`show /SP/powermgmt`**

For more information on power consumption management, see the *Sun Integrated Lights Out Manager 3.0 User's Guide* (820-4597).

ILOM Firmware Update With Delayed BIOS Update Option

The ILOM firmware upgrade process does the following:

- Upgrades the ILOM image.
- Upgrades the BIOS image if the BIOS image currently installed on the server is different from the BIOS image in the firmware upgrade package.

In order to update the BIOS image, the operating system running on the server must be shut down. Because it might be inconvenient or time consuming to shut down the operating system and the server when you complete the firmware upgrade, a new option has been added to the platform-specific ILOM 3.0 that runs on the Sun Fire X4140, X4240, and X4440 servers. This option enables you to delay upgrading the running BIOS image until the next time the server is reset.

The firmware upgrade procedure consists of the following steps:

1. **Checking the version of ILOM running on the server.**

   You should check the version of ILOM running on the server before you download the ILOM firmware to ensure that a newer version of the firmware is available for downloading.

2. **Downloading the ILOM firmware.**

3. **Upgrading the ILOM firmware.**

Refer to the following sections for detailed instructions:

▼ Checking the ILOM Firmware Version Using the CLI

1. **Log in to any user account that is assigned the Admin (a) role.**

   The CLI prompt (->) appears.

2. **To check the firmware version, type `version`.**

The current firmware version information appears.

▼ Checking the ILOM Firmware Version Using the Web Interface

1. **Log in to any user account that is assigned the Admin (a) role.**

2. **Select System Information ->Version.**

The Versions page appears displaying the current firmware version information.

▼ Downloading the ILOM Firmware

1. **Browse to:** `http://www.sun.com/download/`

   The Sun Download page appears.

2. **Select the View by Category tab, scroll down the Hardware Drivers section, and click on X64 Servers and Workstations.**

   The Sun Downloads x64 Servers & Workstations page appears.

3. **Locate the Sun Fire X4140, X4240, or X4440 server in the left column of the product list and click Download.**

   The Sun Fire X4140, X4240, or X4440 Server page appears.

4. **In the right column of the table, click Download.**

   The Sun Fire X4140/X4240/X4440 information page appears.

5. **In the Platform drop-down list, select Firmware.**

6. **In the Language drop-down list, select the desired language.**

7. **Select the I agree to the Sun Fire X4140/X4240/X4440 3.0 License Agreement check box to accept the license agreement.**

8. **Enter your user name and password and click Login and Continue.**

   The Download Sun Fire X4140/X4240/X4440 3.0 for Firmware page appears.

Note – If you do not have a user name and password, you can register free of charge by clicking **Register Now**.

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9. **Follow the on-screen instructions to download the ILOM and BIOS binary. The download file name is similar to this:** `ilom.x4140-3.0.1.1-BIOS30.pkg`**.**

▼ Upgrading the ILOM Firmware Using the CLI

1. **Log in to any user account that is assigned the Admin (**`a`**) role.**

   The CLI prompt (`->`) appears.

2. **Type the following command to upgrade ILOM firmware image:**

   ->load -source tftp://*ipaddress*/*firmwaredirectory*/*filename***.pkg**

   For example:

```
-> load -source tftp://333.22.22.222/downloads/ilom.x4140-
3.0.1.1-BIOS30.pkg

NOTE: An upgrade takes about 6 minutes to complete. ILOM
      will enter a special mode to load new firmware. No
      other tasks can be performed in ILOM until the
      firmware upgrade is complete and ILOM is reset.
```

```
        You can choose to postpone the server BIOS upgrade until the
       next server poweroff. If you do not do that, you should
       perform a clean shutdown of the server before continuing.

Are you sure you want to load the specified file (y/n)? y
```

3. **Type** `y` **to proceed with the upgrade.**

   The following prompt appears.

```
Do you want to preserve the configuration (y/n)? y
```

4. **If you want to preserve the configuration, type** `y`**; otherwise type** `n`**.**

   The following prompt appears.

```
Do you want to force the server off if BIOS needs to be upgraded
(y/n)? n
```

5. **If you want to delay the BIOS firmware upgrade and not force a server shutdown, type** `n`**; otherwise type** `y`**.**

Note – If you type `n`, the server will not be forced to shut down and the BIOS firmware will be upgraded the next time the server shuts down and restarts.

   The upgrade process begins and the following information is displayed when the upgrade is complete.

```
Firmware update is complete.
ILOM will now be restarted with the new firmware.
```

6. **The ILOM 3.0 firmware upgrade is now complete.**

▼ Upgrading the ILOM Firmware Using the Web Interface

1. **Log in to any user account that is assigned the Admin (**`a`**) role.**
2. **Select Maintenance --> Firmware Upgrade.**

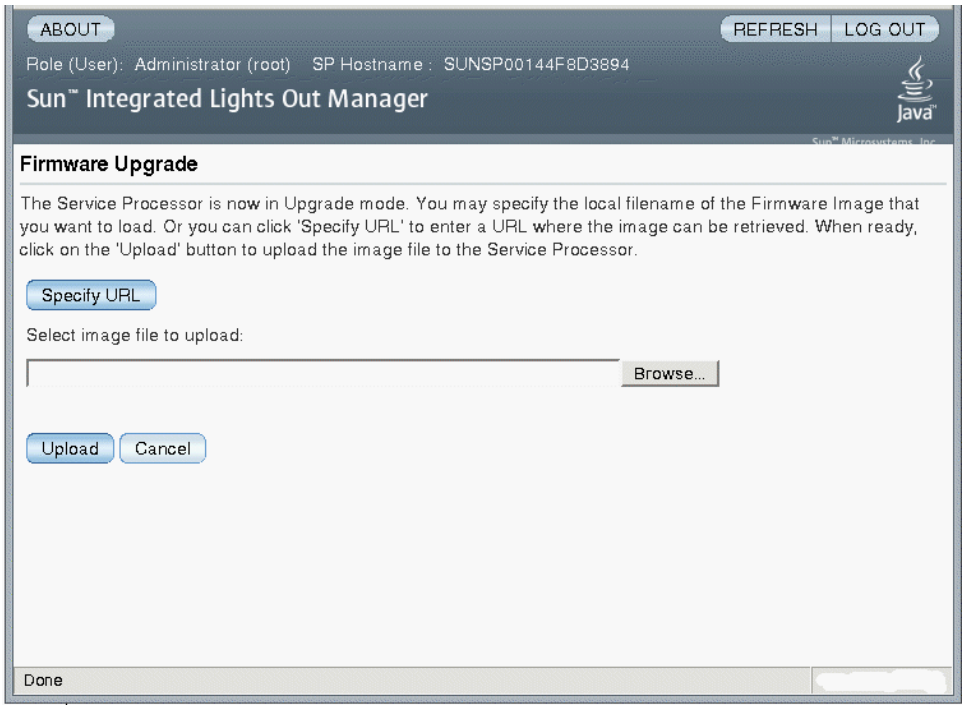
   The Firmware Upgrade page appears (see FIGURE 1).

FIGURE 1 Firmware Upgrade Page

3. **Click Enter Upgrade Mode.**

   The **Firmware Upgrade - Upload** page appears. This page provides the **Specify URL** field for specifying the location of the firmware package (see FIGURE 2).

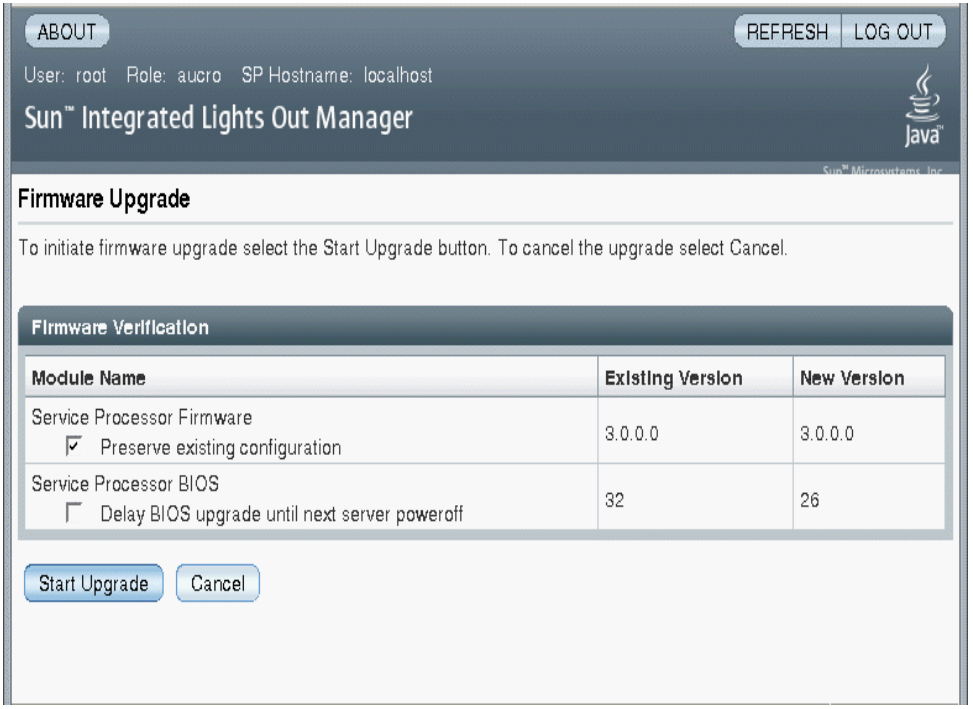
FIGURE 2 Firmware Upgrade - Upload Page



4. **To specify the location of the firmware package file, do one of the following:**
   - Click Specify URL and enter the URL for the firmware package file.
   - Click Browse and browse to the location of the firmware package file.
5. **Click Upload.**

   The **Firmware Upgrade - Start Upgrad**e page appears (see FIGURE 3).

FIGURE 3 Firmware Upgrade - Start Upgrade Page



6. **If you want to preserve the existing server configuration, select the Preserve existing configuration check box.**

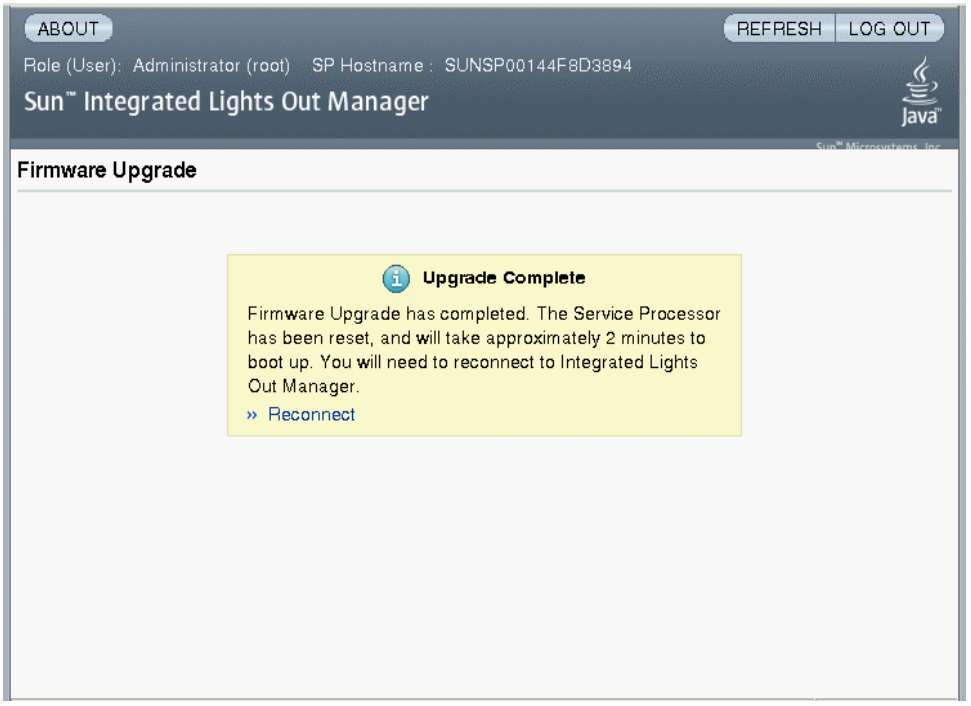
7. **If you want to delay the BIOS upgrade until the next time the server powers off and reboots, select the Delay BIOS upgrade until next server poweroff check box.**

Caution – If the server is running and you do not check the **Delay BIOS upgrade until next server poweroff** check box, the upgrade program forces a shutdown of the operating system and the server, which might result in filesystem corruption. Therefore, if you want to upgrade the BIOS firmware at the same time you upgrade the ILOM firmware, shut down the server prior to performing this upgrade procedure.

8. **Click the Start Upgrade button to upgrade the firmware.**

   When you click the Start Upgrade button, a progress screen appears and indicates that the firmware is being updated. Once the update progress reaches 100%, the Upgrade Complete page appears (see FIGURE 4) and the SP *automatically* reboots.

FIGURE 4 Firmware Upgrade - Upgrade Complete Page



9. After the SP finishes rebooting, use your browser to reconnect to ILOM.

Service Processor Lost Password Recovery Procedure

ILOM 3.0 provides two preconfigured accounts:

Root account—For initial login to ILOM. This root user account is used to log in when migrating from ILOM 2.x to ILOM 3.0.

Default user account—An ILOM 3.0 feature used for password recovery.

For more information on user accounts, see "Roles for ILOM User Accounts" *Sun Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide* (820-6410).

In ILOM 3.0, the `root` account and the `default` user account are used for initial login, creation of user accounts, and server configuration. After those tasks are performed, the `default` user account is accessible only through the serial console.

Therefore, all subsequent user account changes (creations and modifications) and configuration changes are done using specific user accounts. This requirement enables accountability to be traced to individual users who have access to specific accounts.

As mentioned, once you login to the `default` user account, subsequent access to this account is restricted to the CLI on the SP console, which connects through the serial management port. Additionally, by default, the SP requires that a "physical presence" switch be pressed on the server before the SP console can be used for this purpose. This requirement is there for security reasons as it prevents access to the `default` user account from a remote location, that is, you must have physical access to the server to use this account.

Note – The ability to negate the requirement to press the "physical presence" switch before you can access the `default` user account is provided for installations where operators do not have physical access to the server—such as data center installations. For instructions on how to negate the "physical presence" switch requirement, see the *Sun Integrated Lights Out Manager 3.0 User's Guide* (820-4597).

One of the uses of the `default` user account is lost password recovery. It is meant to be used when you cannot access the account for which the password was lost by using a different user account. User accounts assigned the user (`u`) role can be used to change and reset passwords on other user accounts. If there are no user accounts that have the ability to reset passwords, you can use the CLI on the SP console to log in to the `default` user account.

▼ Recovering a Lost Password Using the `default` User Account

1. **Connect a serial cable from the RJ-45 SER MGT port on the server's back panel to a terminal device.**

   For instructions, refer to the *Sun Fire X4140, X4240, and X4440 Servers Installation Guide* (820-2394).

2. **Ensure that the server is powered on.**

   The `localhost login` prompt appears.

3. **Log in to the `default` user account. Type:**

   ```
   localhost login: default
   ```

4. **Press the Locator button once.**

   This Locator button is on the front of the server (see FIGURE 5).

FIGURE 5 Sun Fire X4140 Locator Button

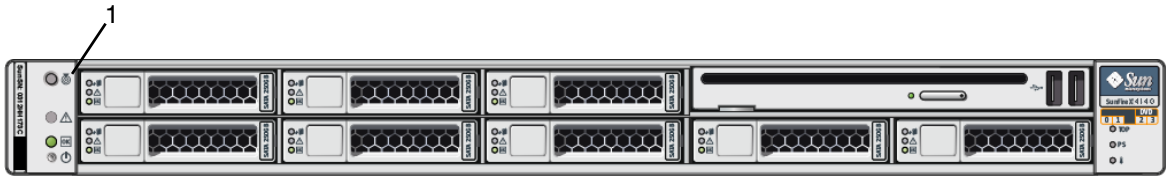


Figure Legend

1	Locator button

5. **Press the Enter key on the terminal device.**

   The SP displays the `Password` prompt.

6. **Enter the password for the `default` user account.**

   The `default` user account password is `defaultpassword` and it cannot be changed. The product serial number is printed on the server hardware or on the product purchase documentation.

   Once you have successfully logged in, the SP displays its default CLI command prompt: `->`

7. **You can now use the `default` user account to reset the passwords for user accounts for which passwords have been lost.**

   For instructions on how to use the CLI to reset user passwords, see the *Sun Integrated Lights Out Manager 3.0 User's Guide* (820-4597).

Sensors Reference Information

The server includes a number of 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 sections describes the sensors that ILOM monitors for the Sun Fire X4140, X4240, and X4440 servers.

The following types of sensors are described:

- "Temperature Sensors" on page 14
- "Processor Sensors" on page 14
- "Voltage Sensors" on page 15
- "Power Supply Fault Sensors" on page 15

Temperature Sensors

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

TABLE 2 Temperature Sensors

Sensor Name	Sensor Type	Description
/SYS/MB/P*n*/T_CORE	Temperature	CPU *n* core temperature reading.
/SYS/MB/T_AMB	Temperature	Motherboard ambient temperature sensor
/SYS/T_AMB	Temperature	System ambient temperature.
/SYS/MB/P*n*/PROCHOT	Temperature	Processor temperature sensor. Senses if the processor has reached the maximum safe operating temperature.

Processor Sensors

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

TABLE 3 Processor Sensors

Sensor Name	Sensor Type	Description
/SYS/MB/P*n*/PROCHOT	Processor	Processor temperature sensor. Senses if the processor has reached the maximum safe operating temperature.

Voltage Sensors

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

TABLE 4 Voltage Sensors

Sensor Name	Sensor Type	Description
/SYS/MB/V_BAT	Voltage	Battery Voltage Monitor
/SYS/MB/V_+1V4	Voltage	Motherboard 1.4 Volt
/SYS/MB/V_+1V5	Voltage	Motherboard 1.5 Volt
/SYS/MB/V_+5V	Voltage	Motherboard 5 Volt
/SYS/MB/V_+3V3	Voltage	Motherboard 3.3 Volt
/SYS/MB/V_+3V3STBY	Voltage	Motherboard 3.3 Volt Standby
/SYS/MB/V_+12V	Voltage	Motherboard 12 Volt
/SYS/MB/V_+1V2HT	Voltage	Motherboard 1.2 Volt HT
/SYS/MB/P*n*/V_+0V9	Voltage	Processor 0.9 Volt
/SYS/MB/P*n*/V_+1V8	Voltage	Processor 1.8 Volt
/SYS/MB/P*n*/V_VDDNB	Voltage	Processor VDDNB (North Bridge)
/SYS/MB/P*n*/V_VDDCORE	Voltage	Processor VDDCORE

Power Supply Fault Sensors

TABLE 5 describes the power supply fault sensors. In the table, *n* designates the numbers 0-n.

TABLE 5 Power Supply Sensors

Sensor Name	Sensor Type	Description
/SYS/PS*n*/PWROK	Fault	Power supply DC power ok
/SYS/PS*n*/VINOK	Fault	Power supply input voltage ok
/SYS/PS*n*/CUR_FAULT	Fault	Power supply current fault
/SYS/PS*n*/TEMP_FAULT	Fault	Power supply temperature fault
/SYS/PS*n*/VOLT_FAULT	Fault	Power supply voltage fault
/SYS/PS*n*/FAN_FAULT	Fault	Power supply fan fault

Fan and Chassis Intrusion Sensors

TABLE 6 describes the fan and chassis intrusion sensors. In the table, *n* designates numbers 0-n.

TABLE 6 Fan Sensor

Sensor Name	Sensor Type	Description
/SYS/FB*n*/FM*n*/F*n*/TACH	Speed	Fab Board *n*; Fan Module *n*; Fan *n* Tachometer
/SYS/INTSW	Physical security	Senses if the server's top cover is removed.

Power Supply Unit Current, Voltage, and Power Sensors

TABLE 7 describes the power supply unit current, voltage, and power sensors. In the table, *n* designates numbers 0-n.

TABLE 7 Power Supply Unit Current, Voltage, and Power Sensors

Sensor Name	Sensor Type	Description
/SYS/PS*n*/I_IN	Current	Power supply unit AC input current sensor
/SYS/PS*n*/V_IN	Voltage	Power supply unit AC input voltage sensor
/SYS/PS*n*/I_OUT	Current	Power supply unit DC output current sensor
/SYS/PS*n*/V_OUT	Voltage	Power supply unit AC output voltage sensor
/SYS/PS*n*/INPUT_POWER	Power	Power supply unit input power sensor
/SYS/PS*n*/OUTPUT_POWER	Power	Power supply unit output power sensor
/SYS/VPS	Power	Power supply unit virtual power sensor

Presence Sensors

TABLE 8 describes the presence sensors. In the table, *n* designates numbers 0-n.

TABLE 8 Presence Sensors

Sensor Name	Sensor Type	Description
/SYS/DBPHDD*n*/PRSNT	Entity presence	Hard drive device present monitor
/SYS/PS*n*/PRSNT	Entity presence	Power supply present monitor
/SYS/DBP/PRSNT	Entity presence	SAS Backplane present monitor
/SYS/FB*n*/FM*n*/PRSNT	Entity presence	Fan Board; Fan Module present monitor
/SYS/FB*n*/PRSNT	Entity presence	Fan Board present monitor