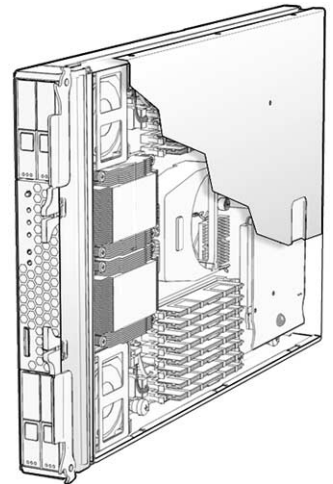


Sun Integrated Lights Out Manager 3.0 Supplement for Sun Blade™ X6250 Server Module



Sun Microsystems, Inc.
www.sun.com

Part No. 821-0001-11
November 2009, Revision A

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

Copyright © 2009 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A. All rights reserved.

This distribution may include materials developed by third parties.

Sun, Sun Microsystems, the Sun logo, Java, Netra, Solaris, Sun Ray, Sun™ ONE Studio, Sun Blade X6250 Server Module, Sun StorageTek™ RAID Manager software and Sun company logo are trademarks or registered trademarks of Sun Microsystems, Inc., or its subsidiaries, in the U.S. and other countries.

Intel® is a trademark or registered trademark of Intel Corporation or its subsidiaries in the United States and other countries. Intel® Xeon® is a trademark or registered trademark of Intel Corporation or its subsidiaries in the United States and other countries. Intel Inside® is a trademark or registered trademark of Intel Corporation or its subsidiaries in the United States and other countries.

Use of any spare or replacement CPUs is limited to repair or one-for-one replacement of CPUs in products exported in compliance with U.S. export laws. Use of CPUs as product upgrades unless authorized by the U.S. Government is strictly prohibited.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright © 2009 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, Etats-Unis. Tous droits réservés.

Cette distribution peut comprendre des composants développés par des tierces parties.

Sun, Sun Microsystems, le logo Sun, Java, Netra, Solaris, Sun Ray, Sun™ ONE Studio, Sun Blade X6250 Server Module, Sun StorageTek™ RAID Manager software et Sun company logo sont des marques de fabrique ou des marques déposées de Sun Microsystems, Inc., ou ses filiales, aux Etats-Unis et dans d'autres pays.

Intel® est une marque de fabrique ou une marque déposée de Intel Corporation ou de sa filiale aux Etats-Unis et dans d'autres pays. Intel® Xeon® est une marque de fabrique ou une marque déposée de Intel Corporation ou de sa filiale aux Etats-Unis et dans d'autres pays. Intel Inside® est une marque de fabrique ou une marque déposée de Intel Corporation ou de sa filiale aux Etats-Unis et dans d'autres pays.

L'utilisation de pieces detachees ou d'unites centrales de remplacement est limitee aux reparations ou a l'echange standard d'unites centrales pour les produits exportes, conformement a la legislation americaine en matiere d'exportation. Sauf autorisation par les autorites des Etats-Unis, l'utilisation d'unites centrales pour proceder a des mises a jour de produits est rigoureusement interdite.

LA DOCUMENTATION EST FOURNIE "EN L'ETAT" ET TOUTES AUTRES CONDITIONS, DECLARATIONS ET GARANTIES EXPRESSES OU TACITES SONT FORMELLEMENT EXCLUES, DANS LA MESURE AUTORISEE PAR LA LOI APPLICABLE, Y COMPRIS NOTAMMENT TOUTE GARANTIE IMPLICITE RELATIVE A LA QUALITE MARCHANDE, A L'APTITUDE A UNE UTILISATION PARTICULIERE OU A L'ABSENCE DE CONTREFAÇON.



Please
Recycle



Adobe PostScript

Contents

Preface	v
1. Introduction	1
ILOM 3.0 Features Supported	1
2. Firmware Update Procedures	3
Overview	3
Using the SP to Update Firmware	4
Clearing CMOS Settings (Optional)	5
Recovering the BIOS Firmware	5
Recovering the ILOM Firmware	6
3. Sensor Definitions	9
Server Module Sensors	10
System Sensors	12
Server Modules by Slot ID (<i>BLn</i>)	12
Chassis Management Module Sensors	13
Fan Sensors	13
Network Expansion Modules and PCIe Express Modules	14
Power Supply Sensors	14
Fabric Expansion Modules Sensor and Raid Expansion Module Sensors	15

Preface

The *Sun Integrated Lights Out Manager 3.0 Supplement for Sun Blade X6250 Server Module* contains information about Integrated Lights Out Manager (ILOM) 3.0 that is specific to the Sun Blade™ X6250 server module.

The ILOM 3.0 documentation collection and the *Sun Blade X6250 Server Module Product Notes* describe ILOM 3.0, and provide user procedures.

Related Documentation

The document set for the Sun Blade X6250 server module is described in the *Where To Find Sun Blade X6250 Server Module Server Documentation* sheet that is packed with your system. You can also find the documentation at <http://docs.sun.com>.

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 your document collection using the Product category link. Available translations include French, Simplified Chinese, Traditional Chinese, Korean, and Japanese.

English documentation is revised more frequently and might be more up-to-date than the translated documentation. For all Sun documentation, go to <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 3.0 Supplement for Sun Blade X6250 Server Module, part number 821-0001-11.

Introduction

This supplement provides platform-specific information related to ILOM 3.0 running on the Sun Blade X6250 server module.

The following topics are covered in this supplement:

- [Chapter 2, Firmware Update Procedures](#)
- [Chapter 3, Sensor Definitions](#)

ILOM 3.0 Features Supported

The Sun Blade X6250 server module supports the entire ILOM 3.0 feature set except the following:

- Features specific to rack-mounted systems. For example, there is no intrusion detection.
- For ILOM 3.0.3 it does not support:
 - Power consumption history.
 - Clear faults after replacement of faulted component.
- For ILOM 3.0.6, it does not support storage monitoring for HDDs and RAID controllers (also known as Storage Viewer).

Please refer to your ILOM documentation collection for information about ILOM features:

<http://docs.sun.com/app/docs/coll/ilom3.0>

Firmware Update Procedures

Overview

This chapter provides procedures for updating (flashing) the firmware that resides on:

- The server itself (BIOS)
- The server's Service Processor (ILOM)

It also provides procedures for recovering the BIOS or ILOM images.

[TABLE 2-1](#) shows the tasks, the methods used, and the sections that describe them.

TABLE 2-1 Tasks, Methods, and Sections

To Do This Task	Use This Method	Described in This Section
BIOS Upgrade	SP CLI or web interface	"Using the SP to Update Firmware" on page 4
BIOS Recovery	DOS boot with Afudos (updates BIOS only)	"Recovering the BIOS Firmware" on page 5
ILOM Upgrade	SP CLI or web interface	"Using the SP to Update Firmware" on page 4
ILOM Recovery	SOCFLASH	"Recovering the ILOM Firmware" on page 6

Note – The ILOM is also known as the service processor (SP), and it is sometimes referred to in the user interface as the BMC.

To ensure proper operation, it is recommended that you synchronize your firmware updates, so that if you update one, you should update the others as well.

- Using the SP (ILOM) updates both the ILOM and BIOS firmware, and the CPLD.
- If you recover the ILOM using `SOCFLASH`, or if you recover the BIOS using `Afudos`, after the recovery, you should run the SP update procedure to synchronize the ILOM and the BIOS firmware.

Using the SP to Update Firmware

This section describes how to use the service processor to update the ILOM, the BIOS, and the CPLD. This section can be used when you need to:

- Recover the BIOS
- Update the BIOS
- Update the ILOM



Caution – ILOM enters a special mode to load new firmware. No other tasks can be performed in ILOM until the firmware upgrade is complete and the ILOM is reset. To ensure a successful update, do not attempt to modify the ILOM configuration, or use other ILOM Web, CLI, SNMP, or IPMI interfaces, during the update process. Wait until after the update succeeds before making further ILOM configuration changes. The update requires a system server and takes about 20 minutes.

Note – You can also use the Sun xVM Ops Center if it is available. Online documentation for Sun xVM Ops Center can be found at:
<http://wikis.sun.com/display/xvmOC1dot1/Home>

The procedures for updating the ILOM, BIOS, and CPLD are provided in the ILOM 3.0 documentation collection. The following manuals contain variations on these procedures:

- *Sun Integrated Lights out Manager (ILOM) 3.0 Getting Started Guide*
- *Sun Integrated Lights out Manager (ILOM) 3.0 Web Interface Procedures Guide*
- *Sun Integrated Lights out Manager (ILOM) 3.0 CLI Procedures Guide*

Clearing CMOS Settings (Optional)

If you cannot get output to your serial console after the upgrade, you might have to clear CMOS settings. This is because your default CMOS settings might have been changed by the new BIOS upgrade.

To clear CMOS settings, use the following commands (in this example, the default username, `root`, and the default password, `changeme`, are used):

```
ipmitool -U root -P changeme -H SP-IP chassis power off
ipmitool -U root -P changeme -H SP-IP chassis bootdev disk clear-cmos=yes
```

where *SP-IP* is the IP address of the service processor.

Note – The `-P` option might not be available on the Windows and Solaris versions of IPMItool. Instead, IPMItool prompts for a password.

Recovering the BIOS Firmware

Use the following procedure to recover the BIOS firmware, for example if the BIOS image becomes corrupt, or if the update process fails..

1. Copy the following files to a bootable USB flash device.

```
Afudos.exe
S90-3B11.ROM
```

2. Connect the USB flash device to the USB connector on the dongle.

3. Reset the server module.

4. Press F8 to enter display a list of bootable devices.

5. Select the USB flash device from the list.

6. Run the following command from the DOS prompt.

```
Afudos S90-3B11.ROM /P /B /K /C /X
```

The BIOS is updated and the server module restarts.

Recovering the ILOM Firmware

Use the following procedure to recover the ILOM firmware, for example, if the upgrade fails, or if the firmware image becomes corrupt.

1. **Copy all the files from the Sun Download area, or Tools and Drivers CD, to a bootable USB flash device.**

The files are located in the `BMCrecovery` directory, on the Tools and Drivers CD. They consist of:

- `SOCFLASH.EXE`
- `DOS4GW`
- `ilom.X6250-number.bin`

Where *number* is a build number, for example `2.0.3.6-r36158`.

Note – Use the binary (`.bin`) file, not a `.pkg` file.

2. **Set up your server module to respond to POST messages and boot prompts.**
3. **Remove AC power from the system to be updated.**
4. **Insert the bootable flash drive into the USB port.**
5. **Connect AC power, and power on the system.**
 - a. **A message appears stating that the BMC was not found.**

The system takes up to five minutes to boot.
 - b. **Press F8 to get a list of boot devices.**
 - c. **Choose the flash device to boot from.**
6. **Once the flash device is booted, run the following commands:**

```
socflash -p 1 -f sp-binary-file
```

7. **After a successful update use the `-r` option to reset the SP:**

```
socflash -r
```

8. **Access the BIOS Setup Utility to confirm that the BIOS does not report that the BMC was not found.**

Notes:

- If the backup is selected (`-b backup-filename`), sufficient free space to store the SP binary backup file must be present on the USB flash device.

- The BIOS is not upgraded by this emergency recovery procedure. Perform a second ILOM-based upgrade to update the BIOS version.
- This emergency recovery procedure returns the SP to the default configuration.
- The ILOM `SPBIOS.pkg` file format (for example, `ilom.X6250-2.0.3.6-r36158.pkg`) cannot be used for emergency recovery. Use the `ilom2026.bin` recovery image instead.

Sensor Definitions

This chapter lists and describes the Sun Blade X6250 server module sensors for a server module equipped with ILOM 3.0.

Instructions for displaying the sensors are in the ILOM 3.0 documentation collection.

Server Module and System Sensors

The sensors display information about the server module and the chassis.

- The server module sensors appear in [“Server Module Sensors” on page 10](#).
- The system sensors appear in [“System Sensors” on page 12](#). They include information about:
 - Other server modules or storage modules – See [“Server Modules by Slot ID \(BLn\)” on page 12](#).
 - Chassis Management Module – See [“Chassis Management Module Sensors” on page 13](#).
 - Fans – See [“Fan Sensors” on page 13](#).
 - Network Expansion Modules (NEMs) and PCIe Express Modules – See [“Network Expansion Modules and PCIe Express Modules” on page 14](#).
 - Power Supplies – See [“Power Supply Sensors” on page 14](#).

Asserted or Deasserted Readings

Some sensors are *asserted* or *deasserted*. For example PRSNT sensors are asserted if the device is present and deasserted if it is not. ERR sensors are asserted if an error condition is present, and deasserted if it is not. The readings for these sensors are:

- 0x0001 = State Deasserted
- 0x0002 = State Asserted

Server Module Sensors

The sensors in [TABLE 3-2](#) and [TABLE 3-3](#) display information about conditions on the server module.

TABLE 3-2 Server Module Sensors

Sensor	Description
HOT	Temperature sensor on server module.
SYS/PWRCTLSTATE	Deasserted when the server module can be powered-on.
SYS/SLOTID	The slot where the server module resides: <ul style="list-style-type: none">• 0 through 9 for Sun Blade 6000 chassis• 0 through 11 for Sun Blade 6048 chassis
MB/*	Various motherboard sensors. See TABLE 3-3 .

TABLE 3-3 Server Module Motherboard Sensors

Sensor	Description
MB/MCH/DLn/PRSNT	DIMM presence <ul style="list-style-type: none">• <i>L</i> = the channel number (A to D)• <i>n</i> = the number of DIMMs for each channel (0 to 3)
MB/Pn/PRSNT	Indicates whether CPU is present. <i>n</i> = 0 or 1.
MB/Pn/V_VCC	Identifies the voltage level for P0 and P1.
MB/REM/PRSNT	Indicates whether RAID Expansion Module is present.
IPMI-only sensors.	
The following three sensors are only visible through the IPMI interface.	
MB/Pn/TCCAT	<i>n</i> is 0 or 1. This is the PECI reading from CPU core.
ACPI	The host ACPI status. <ul style="list-style-type: none">• 0x1 - host in S0/G0 (working) state.• 0x20 host in S5/G2 (soft-off) state.
NMIBTN	NMI button status (log only sensor). When the NMI button is pressed, this sensor logs a NMI/Diag Interrupt.
DIMMs 0 through 1	

TABLE 3-3 Server Module Motherboard Sensors (Continued)

Sensor	Description
MB/T_DIMM n	<p>Reports the temperature of the DIMMs.</p> <ul style="list-style-type: none"> • upper_critical_threshold - 57.000° C • upper_noncritical_threshold - 52.000° C <p>Thermal Overload</p>
MB/THERMOVRD	<p>Server module is requesting 100% fan speed from the chassis to cool itself down. This is not logged.</p> <p>Ambient Temperature Sensors 0 through 1</p>
MB/T_VRD n	<p>Ambient temperature sensors ($n = 0$ or 1). Only VRD1 has thresholds.</p> <p>MB/T_VRD1 thresholds:</p> <ul style="list-style-type: none"> • upper critical threshold - 65° C • upper nonrecoverable threshold - 68° C <p>If the value exceeds the upper nonrecoverable threshold value, the host powers down.</p> <p>Motherboard Voltage Sensors</p>
MB/V_+12VCPUn $n = 0$ or 1	<p>upper critical threshold - 13.167 Volts lower critical threshold - 10.773 Volts</p>
MB/V_+12V	<p>upper nonrecoverable threshold - 14.427 Volts upper critical threshold - 13.167 Volts lower critical threshold - 10.773 Volts lower nonrecoverable threshold - 9.513 Volts</p>
MB/V_+1V2NIC	<p>upper critical threshold - 1.312 Volts lower critical threshold - 1.074 Volts</p>
MB/V_+1V5	<p>upper critical threshold - 1.646 Volts lower critical threshold - 1.349 Volts</p>
MB/V_+1V8	<p>upper critical threshold - 1.978 Volts lower critical threshold - 1.617 Volts</p>
MB/V_+2V5	<p>upper critical threshold - 2.750 Volts lower critical threshold - 2.250 Volts</p>
MB/V_+3V3STBY	<p>upper critical threshold - 3.625 Volts lower critical threshold - 2.958 Volts</p>

TABLE 3-3 Server Module Motherboard Sensors (Continued)

Sensor	Description
MB/V_+3V3	upper critical threshold - 3.616 Volts lower critical threshold - 3.958 Volts
MB/V_+5V	upper critical threshold - 5.483 Volts lower critical threshold - 4.488 Volts
MB/V_VTT	upper nonrecoverable threshold - 1.449 Volts upper critical threshold - 1.386 Volts lower critical threshold - 1.027 Volts

System Sensors

These sensors appear on the server module's sensor list, but they provide information about conditions elsewhere in the chassis.

They include:

- [“Server Modules by Slot ID \(BLn\)” on page 12](#)
- [“Chassis Management Module Sensors” on page 13](#)
- [“Fan Sensors” on page 13](#)
- [“Network Expansion Modules and PCIe Express Modules” on page 14](#)
- [“Power Supply Sensors” on page 14](#)

Server Modules by Slot ID (BLn)

These sensors provide information about the other server modules in the chassis.

If a slot number is missing from this list, it means either:

- The slot is empty.
- The slot contains the current server module.

To see the slot ID of the current server module, see SYS/SLOTID in [TABLE 3-2](#).

The slots ID numbers in [TABLE 3-2](#) are represented by the variable n , where:

- $n = 0$ to 9 for a Sun Blade 6000 chassis
- $n = 0$ to 11 for a Sun Blade 6048 chassis

TABLE 3-4 Other Server Modules

Sensor	Description
BL <i>n</i> /ERR	Asserted if an error is detected in the server module or storage module.
BL <i>n</i> /PRSNT	Asserted if a server module or storage module is present.
BL <i>n</i> /STATE	Availability state: <ul style="list-style-type: none"> • Running • In Test • Power Off • On Line • Off Line • Off Duty • Degraded • Power Save • Install Error

Chassis Management Module Sensors

These sensors report on the condition of the Chassis Management Module (CMM).

TABLE 3-5 Server Module Sensors

Sensor	Description
CMM/ERR	Predictive failure for CMM
CMM/PRSNT	CMM is present

Fan Sensors

These sensors show the state of the system fans.

- The chassis has six or eight fan modules, FM0 through FM*n*. They appear in [TABLE 3-6](#) as FM*n*, where *n* is:
 - 0 through 5 in a Sun Blade 6000 chassis
 - 0 through 7 in a Sun Blade 6048 chassis

- Each fan module has two fans. They appear in [TABLE 3-6](#) as Fx, where x is 0 or 1.

TABLE 3-6 Fan Sensors

Sensor	Description
FMn/ERR	Predictive failure asserted
FMn/Fx/TACH	Fan speed in RPMs.

Network Expansion Modules and PCIe Express Modules

These sensors show the condition of Network Expansion Modules (NEMs) and PCIe Express Modules.

- The system supports one or two NEMs. These appear in [TABLE 3-7](#) as NEMn, where n is 0 or 1.
- The system supports either 20 or 24 PCIe Express Modules. These appear in [TABLE 3-7](#) as PEMn.

TABLE 3-7 NEM and PCIe Express Module Sensors

Sensor	Description
NEMn/PRSNT	Asserted when NEM is present
NEMn/STATE	Availability state: <ul style="list-style-type: none"> • Running • In Test • Power Off • On Line • Off Line • Off Duty • Degraded • Power Save • Install Error
NEMn/ERR	Asserted when a failure is detected

Power Supply Sensors

These sensors provide information about the chassis power supplies.

- The chassis has two or three power modules. These appear in [TABLE 3-8](#) as PS_n , where n is:
 - 0 or 1 in a Sun Blade 6000 chassis
 - 0 through 2 in a Sun Blade 6048 chassis
- Each power module has two power supplies. These appear in [TABLE 3-8](#) as S_x where x is 0 or 1.

TABLE 3-8 Power Supply Sensors

Sensor	Description
$PS_n/PRSNT$	Asserted when power module n is present
$PS_n/S_x/V_IN_ERR$	Asserted to indicate PS_n/S_x voltage input error
$PS_n/S_x/V_OUT_OK$	Asserted to indicate PS_n/S_x voltage output OK

Fabric Expansion Modules Sensor and Raid Expansion Module Sensors

These sensors show the condition of Fabric Expansion Modules (FEMs) and Raid Expansion Modules (REMs).

TABLE 3-9 Power Supply Sensors

Sensor	Description
$MB/FEM/PRSNT$	Asserted when fabric expansion module is present
$MB/REM/PRSNT$	Asserted when raid expansion module is present

