Sun Fire™ X4100 and Sun Fire X4200 Servers Product Notes

For Release 1.0
and Release 1.1

Sun Microsystems, Inc.
www.sun.com

Part No. 819-1162-15
April 2006, Revision A

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

Contents

Preface

This document describes hardware issues, software issues, and documentation issues for the Sun Fire™ X4100 and Sun Fire X4200 servers. Both Release 1.0 and Release 1.1 of the servers are covered in these product notes.

Issues include information that you should know about, such as prerequisites, tips, troubleshooting hints, and change requests. Change requests are a subset of issues. Change requests have tracking numbers shown in parentheses. For updates on change requests and for patches, see the SunSolve℠ web site at http://sunsolve.sun.com.

Using UNIX Commands

This document does 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

Shell Prompts

Shell	Prompt
C shell	*machine-name*%
C shell superuser	*machine-name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

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.

Related Documentation

For a description of the document set for the Sun Fire X4100 and Sun Fire X4200 servers, see the *Where To Find Documentation* sheet that is packed with your system and also posted at the product's documentation site. See the following URL, then navigate to your product.

http://www.sun.com/documentation

Translated versions of some of these documents are available at the web site described above in 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 hardware documentation, see the following URL:

http://www.sun.com/documentation

For Solaris and other software documentation, see the following URL:

http://docs.sun.com

Product Updates

For product updates that you can download for the Sun Fire X4100 or Sun Fire X4200 servers, please visitthe following Web site:

http://www.sun.com/servers/entry/x4100/downloads.jsp

This site contains updates for firmware and drivers, as well as CD-ROM `.iso` images.

Accessing Sun Documentation

You can view, print, or purchase a broad selection of Sun documentation, including localized versions, at:

http://www.sun.com/documentation

Contacting Sun Technical Support

If you have technical questions about the Sun Fire X4100 or Sun Fire X4200 servers that are not answered in this document, go to:

http://www.sun.com/service/contacting

See the Support menu for links to the Knowledgebase.

If you need to contact Sun technical support, please have the following information available so that we can best assist you in resolving problems:

- Description of the problem, including the situation where the problem occurs and its impact on your operation
- Machine type, operating system version, and product version, including any patches and other software that might be affecting the problem
- Detailed steps on the methods you have used to reproduce the problem
- Any error logs or core dumps

Third-Party Web 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.

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. Use the web-based form to provide feedback to Sun:

http://www.sun.com/secure/products-n-solutions/hardware/docs/feedback/

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

Sun Fire X4100 and Sun Fire X4200 Servers Product Notes, part number 819-1162-15

Changes in This Update

This chapter provides a brief summary of changes between releases of the Sun Fire™ X4100 and Sun Fire X4200 servers. The known issues that are fixed or introduced in each new release are also summarized in this chapter and are described in detail in later chapters of these release notes.

Where to Find ILOM Firmware and BIOS Update Instructions

The BIOS and the Integrated Lights-Out Manager (ILOM) firmware are tightly coupled and are always updated together. A single firmware image contains both the ILOM and BIOS firmware.

For full instructions, see the section, "How to Upgrade the ILOM Firware" in the *Integrated Lights-Out Manager (ILOM) Administration Guide*, 819-1160. You can find the doc at this URL:

`http://www.sun.com/products-n-solutions/hardware/docs/Servers/x64_servers/x4100/index.html`

Before you begin the update procedure, review these sections:

- "Special Considerations Regarding the Release 1.1 Update" on page 2
- "Precautions For Updating the ILOM Release 1.0 Firmware to Release 1.1" on page 3
- For a summary of what is included in the product releases, also see "Component Versions By Release" on page 11.

Special Considerations Regarding the Release 1.1 Update

FRU Information Appears Empty After Updating the ILOM Firmware and the BIOS (6406138)

The host CPU and DIMM FRU information shown by the service processor is provided to the service processor during each BIOS power-on-self-test (POST). Therefore, after a BIOS/SP upgrade, this FRU information is empty until the first host BIOS POST.

Workaround

This is expected behavior. Reset the server and allow it to complete POST during bootup to repopulate the FRU lists.

Considerations When Starting the Update On Systems With SP Versions Earlier than 6464

If you were a Beta or Early Access customer, you might have a system with an SP version earlier than 6464.

Note – To determine the release of your server, see the procedures in "How to Determine The Release of Your Server" on page 11.

- If the release is earlier than 6169, you must return the Graphics Redirect and Service Processor board to the factory for reprogramming. See "BIOS Upgrades Fail When Upgrading SP Firmware Older Than Version 6169 (6324746)" on page 35.
- If the release is 6169, then upgrade your SP to the current version 9306 by doing the following:

1. Upgrade to release version 6464, the initial general release. See "Upgrading the ILOM SP Firmware From Version 6169 to 6464 Causes SP Configuration To Be Lost" on page 35 for additional considerations.

2. Power cycle the machine. (Unplug, then reconnect its AC power cords.)
3. Upgrade to release version 6464 again.
4. Upgrade to release version 9306. See "Precautions For Updating the ILOM Release 1.0 Firmware to Release 1.1" on page 3 for additional considerations.

Precautions For Updating the ILOM Release 1.0 Firmware to Release 1.1

This section lists precautions that you should take when upgrading the Integrated Lights-Out Manager (ILOM) 1.0 firmware.

Several issues have been found and corrected in the Sun Fire X4100 and Sun Fire X4200 servers flash upgrade process. To avoid these issues, and ensure a successful ILOM flash upgrade, please use follow the following steps.

Note – If any of these intermittent failures occur, simply reset the ILOM service processor (SP), and try the update again (see below for details on resetting the ILOM service processor).

---

1. **Reset the ILOM service processor before beginning flash upgrade.**

   Memory fragmentation in long-running ILOM processes, or multiple ILOM users or connections, might cause flash upgrades to fail with permission errors, or flash-image verification errors. To avoid these issues, reset the ILOM SP before attempting the flash upgrade:

   To reset the ILOM SP, there are several methods you can use (for complete details, see the *Integrated Lights-Out Manager Administration Guide*, 819-1160):

   - From the ILOM SP graphical web interface, navigate to the Maintenance tab, then use the Reset SP action.
   - From the ILOM CLI, use the following command:

     `reset /SP`
   - Using IPMItool, use the following command:

     `ipmitool -U root -P` *<password>* **`-H`** *<sp_ipaddress>* **`bmc reset cold`**
   - You can also reset the ILOM SP by shutting down the host, then removing and restoring AC power cords to the system.

2. **Shut down the host.**

A rare USB interaction from the Sun Fire X4100 or Sun Fire X4200 host operating system may cause the ILOM SP to fail early in the flash upgrade processs. To avoid this issue, shut down the host before beginning the flash upgrade process (the BIOS update portion of the flash upgrade must reset the host). For complete details, see the *Integrated Lights-Out Manager Administration Guide*, 819-1160. The list below gives several methods for shutting down the host:

- Use the host operating system's command to shut down the server.
- From the ILOM web GUI, navigate to the Remote Control tab, then use the Remote Power Control action.
- From the ILOM CLI, use the following command

  `stop /SYS`
- Using IPMItool, use the following command:

  `ipmitool -U root -P` <*password*> **`-H`** <*sp_ipaddress*> **`chassis power off`**
- You can also shutdown the host server by pressing and releasing the Power button.

3. **Use N1 System Manager or the ILOM CLI `load` command to perform the flash upgrade.**

   Because of the increased memory usage during web-based GUI operations, use N1 System Manager or the ILOM CLI `load` command to upgrade the ILOM firmware. See the N1 System Manager documentation or the *Integrated Lights-Out Manager Administration Guide*, 819-1160 for details of firmware flashing. For example:

   From the ILOM CLI, use the following command

   `load -source tftp://`<*tftpserver*>**`/`**<*firmware.ima*>

   Online documentation for Sun N1 System Manager can be found at:

   `http://docs.sun.com/coll/1283.2`

Note – A firmware upgrade will cause the server and Integrated Lights Out Manager (ILOM) to be reset. An upgrade takes about 20 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.

Recovering From a Failed Flash Update

This section contains instructions for recovering from a failed Sun Fire X4100 or Sun Fire X4200 ILOM firmware upgrade (`r6464.rom.ima` to `r9306.rom.ima`). Several issues have been identified with the firmware upgrade, which could result in a failed or incomplete firmware upgrade.

Use the following procedure to recover from a failed firmware upgrade. Note that in a small percentage of cases (such as when no output is displayed on the SP serial port), the Graphics Redirect and Service Processor (GRASP) board must be replaced.

Prerequisites:

- A trivial file-transfer protocol (TFTP) server is required to reload the ILOM firmware.
- The host system must also remain powered off for the duration of the recovery process.

Note – This ILOM recovery process is *only* supported for recovering from a failed firmware flash of `r6464.rom.ima` or `r9306.rom.ima` versions. Numbers printed below are in hexidecimal unless otherwise noted, and apply *only* to these specific versions of ILOM firmware.

Recovery Steps:

1. **Determine if the ILOM SP first-level booter (referred to in this procedure as U-Boot) is intact. Follow documented procedures to connect to the SP serial port, apply power to the system, and observe the initial ILOM boot messages.**

   See the *Sun Fire X4100 and Sun Fire X4200 Servers Installation Guide*, 819-1155 for details.

   - If no screen output is displayed, stop here. The GRASP board must be replaced. Refer to the *Sun Fire X4100 and Sun Fire X4200 Servers Service Manual*, 819-1157 for instructions.
   - If screen output is displayed, continue to the next step.

2. **Enter the ILOM SP U-Boot command interpreter with `xyzzy`.**

   When the message, `Booting linux in 2 seconds...` is displayed, during ILOM initial boot, type **`xyzzy`** to enter the U-Boot command interpreter.

Note – The characters typed will not echo. Cutting and pasting the characters improves the chance of success. You might need to try the process of applying power to the system, and entering, **xyzzy**, several times.

3. **Disable automatic reboot.**

   Set the U-Boot environment variable, `bootretry`, to `-1` to temporarily disable automatic reboot:

   `set bootretry -1`

4. **Configure the network for TFTP access.**

   a. **Copy the ILOM SP firmware image to a TFTP server that is accessible on the same IP subnet as the ILOM SP network port.**

   b. **Set the IP address for the ILOM SP and the TFTP server IP address by setting the `ethaddr` and `serverip` U-Boot variables.**

      `set ipaddr` *N.N.N.N*
      `set serverip` *M.M.M.M*

5. **Use the U-Boot `tftp` command to download the `r9306.rom.ima` ILOM firmware image.**

   `tftp 100000 r9306.rom.ima`

Note – If the TFTP server or filename is incorrect, you might need to enter ^C to halt the `tftp` command, then repeat this recovery procedure.

Be sure that the complete flash image is actually downloaded successfully before proceeding. You should see a message similar to:

```
=> tftp 100000 r9306.rom.ima
Using FCC1 ETHERNET device
TFTP from server 10.6.154.8; our IP address is 10.6.154.99
Filename 'r9306.rom.ima'.
Load address: 0x100000

Loading:
#################################################################

#################################################################

#################################################################

#################################################################

#################################################################
```

```
##########################

done

Bytes transferred = 13107200 (c80000 hex)
```

6. **Confirm that the download succeeded:**

   a. **Confirm that the** `tftp` **command output ends with**
   `Bytes transferred =` *ByteCount*

   b. **Use the** `md` **comand and confirm that its output displays strings from the beginning of the firmware image file. For example:**

```
=> md 100000
00100000: 244d4f44 554c4524 01004000 00000200
$MODULE$..@.....
00100010: 00000000 000000f2 67726173 70000000
........grasp...
00100020: 01000200 40000000 61000000 0000ffff
....@...a.......
00100030: ffff0000 00000100 00000000 0000aa55
...............U
00100040: 46575f56 45525349 4f4e3d31 2e302e31 FW_VERSION=
1.0.1
00100050: 0a46575f 44415445 3d4d6172 20203320 .FW_DATE=Mar  3
00100060: 32303036 0a46575f 4255494c 4454494d
2006.FW_BUILDTIM
00100070: 453d3130 3a35363a 30370a46 575f4445     E=
10:56:07.FW_DE
00100080: 53433d57 41524e49 4e47203a 20554e4f    SC=WARNING :
UNO
00100090: 46464943 49414c20 4255494c 44212120     FFICIAL
BUILD!!
001000a0: 0affffff ffffffff ffffffff ffffffff
................
```

7. **Erase the existing ILOM flash image:**

Caution – Interrupting the flash recovery process from this point onwards, or entering an incorrect U-Boot command, might result in a disabled service processor, which will require replacement. DO NOT stop or remove power from the system from this point onward.

   a. **Erase the exiting flash image with the** `erase ff380000 ffffffff` **command.**

      A series of dots will be displayed indicating the progress of the erase. For example:

```
=> erase ff380000 ffffffff

.....................................................................
..................Erased 200/200 sectors
```

   b. **If a failure occurs, retry the** `erase` **command repeatedly until it succeeds.**

Note – If a persistent failure occurs, the service processor is not flash-upgradable, and must be replaced. Refer to the *Sun Fire X4100 and Sun Fire X4200 Servers Service Manual*, 819-1157, for details on replacing the GRASP board.

8. **Program the new ILOM firmware image:**

   a. **Use the U-Boot** `cp.b` **command to copy the new ILOM firmware image from the download location at 100000 to ff380000, until end address ffffffff.**

      For example:

```
=> cp.b 100000 ff380000 ffffffff

Copy to Flash
.....................................................................
.....................................................................
................done
```

b. Use the `fmh` command to verify the new ILOM firmware image.

Before resetting, make sure the copy succeeded, using the `fmh` command, which should display firmware sections. For example:

```
=> fmh
Listing FMH Modules
Flash Size : 32768 KB
Erase Size : 64 KB
Sector Count : 512

FMH Located at 0xff380000 of Size 0x00020000
Name     : grasp
Ver      : 1.0
Type     : 0x0002
Flags    : 0x0000
Size     : 0x00000061
Location: 0xff380040
LoadAddr: 0xffffffff
CheckSum: Not Computed
-------------------------------------------------

FMH Located at 0xff3a0000 of Size 0x00120000
Name     : sysbios
Ver      : 1.31
Type     : 0x0000
Flags    : 0x0100
Size     : 0x00100000
Location: 0xff3c0000
LoadAddr: 0xffffffff
CheckSum: Valid
-------------------------------------------------

FMH Located at 0xff4c0000 of Size 0x000c0000
Name     : osimage
Ver      : 1.0
Type     : 0x0006
```

```
Flags    : 0x0119
Size     : 0x000ac9c8
Location: 0xff4c0040
LoadAddr: 0x00c00000
CheckSum: Valid
...
```

Note – If the command output does not show anything, you may have entered an incorrect memory address. Repeat the `tftp`, `erase` and `cp.b` commands until the image is properly copied. Note that you must erase the existing firmware image before attempting to copy a new image.

---

9. **Reset the ILOM service processor.**

   Once you are certain that the service processor firmware image has been recovered, you can restart the service processor with the `reset` command.

   => **`reset`**

10. **Recover the system BIOS:**

    This manual ILOM SP recovery process does *not* reflash the system BIOS. Repeat the firmware upgrade process, using the ILOM GUI or CLI firmware load procedures as described in the *Integrated Lights-Out Manager Administration Guide*, 819-1160.

    Be sure to reset your service processor and BIOS configuration settings as needed, because they might be lost during this recovery.

Component Versions By Release

The service processor (SP) and BIOS software and the LSI firmware versions might be updated in each new release.

How to Determine The Release of Your Server

Determining the Firmware Version Using the CLI Through the Management Ethernet Port:

1. **Connect an RJ-45 Ethernet cable to the NET MGT Ethernet port on the back panel.**
2. **Establish an SSH connection using the following command, then enter the default password** (`changeme`) **when you are prompted:**

   # **`ssh -l root`** *<SP IP address>*

   `changeme`

   After you have successfully logged in, the SP displays its default command prompt:

   `->`
3. **Type the** `version` **command, which will return output similar to the following:**

```
-> version
SP firmware version: 1.0
SP firmware build number: 6464
SP firmware date: Tue Sep 13 12:50:37 PDT 2005
SP filesystem version: 0.1.13
```

   The ILOM firmware build version is the "build number" listed above.

Determining the Firmware Version Using the CLI Through the Serial Port:

1. **Configure your terminal device or the terminal emulation software running on a laptop or PC to the following settings:**
   - 8N1: eight data bits, no parity, one stop bit
   - 9600 baud
   - Disable hardware flow control (CTS/RTS)

- Disable software flow control (XON/XOFF)

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

3. **Press Enter on the terminal device to establish a connection between that terminal device and the server's SP.**

   The SP displays a login prompt.

   `SUNSP`*`0003BA84D777`* `login:`

   In this example login prompt, *0003BA84D777* is the Ethernet MAC address of the SP. This will be different for each server.

4. **Log in to the ILOM SP and type the default user name (`root`) with the default password (`changeme`).**

   After you have successfully logged in, the SP displays its default command prompt:

   ```
   ->
   ```

5. **Type the `version` command, which will return output similar to the following:**

   ```
   -> version
   SP firmware version: 1.0
   SP firmware build number: 6464
   SP firmware date: Tue Sep 13 12:50:37 PDT 2005
   SP filesystem version: 0.1.13
   ```

   The ILOM firmware build version is the "build number" listed above.

Determining the Firmware Version Using the Web GUI:

1. **Connect to the ILOM WebGUI by typing the IP address of the server's SP into your browser's URL field. For example:**

   `https://129.146.53.150`

2. **Log in to the ILOM SP and type the default user name (`root`) with the default password (`changeme`).**

   The first web page that is presented is the System Information -> Versions page, which includes the Build Number.

Component Versions

TABLE 1 lists the component versions for the initial release (Release 1.0) of the Sun Fire X4100 and Sun Fire X4200 servers.

TABLE 1 Server Release 1.0 Component Versions

Component Name	Sun Fire X4100 Server Version	Sun Fire X4200 Server Version
Service Processor	6169	6169
BIOS	0ABGA022	0ABGA022
LSI Firmware	fw1.04.00-bios6.02.0A	fw1.04.00-bios6.02.0A
Motherboard	501-7261	501-6974

TABLE 2 lists the component versions for Release 1.1 of the Sun Fire X4100 and Sun Fire X4200 servers.

TABLE 2 Server Release 1.1 Component Versions

Component Name	Sun Fire X4100 Server Version	Sun Fire X4200 Server Version
Service Processor	9306	9306
BIOS	0ABGA031	0ABGA031
LSI Firmware	fw1.08.01-bios6.04.0A	fw1.08.01-bios6.04.0A
Motherboard	501-7261	501-6974

Issues Resolved and New Issues in Release 1.1

TABLE 1 lists the known issues that were resolved in Release 1.1, or within the Release 1.1 timeframe. These issues are described in detail in the later chapters in these product notes.

TABLE 1 Issues Resolved in Release 1.1 (or the Release 1.1 Timeframe)

Issue Title and Page Number in Release Notes	Fixed in Sun Fire X4100 Server?	Fixed in Sun Fire X4200 Server?
"Non-Recommended Optical Mouse Devices and Keyboards (6299692, 6317710, 6304725)" on page 21	X	X
"Hard Disk Drive LEDs Bleed Through to Adjacent LEDs (6286872)" on page 22	X	X
"RAID 1 Volume Cannot Be Created, Partition Warnings Displayed (6310074)" on page 24	X	X
"LSI MPT BIOS Does Not Provide Low-Level Hard Drive Formatting Functionality (6301350)" on page 24	X	X
"Upgrading BIOS Without Changing and Saving Optimal Defaults Might Result in Increased Memory Latency (6306622, 6299794)" on page 41	X	X
"DIMM Fault LEDs Are Not Implemented At This Time (6324863)" on page 42	X	X
"Incorrect MPT Driver Included in Sun Installation Assistant Base (6319680)" on page 50	X	X
"The ext3 File System Reports Errors After Red Hat Linux Installation Using Sun Installation Assistant CD (6336064)" on page 51	X	X
"Do Not Use `raidctl` Command in Solaris 10 3/05 (6228874)" on page 48	X	X
"SunVTS `ramtest` Might Cause System to Reboot When Testing More Than Seven Hours (6369893)" on page 62	X	X

TABLE 2 New Issues in Release 1.1 (or in the Release 1.1 Timeframe)

Issue Title and Page Number in Release Notes	Affects Sun Fire X4100 Server?	Affects Sun Fire X4200 Server?
"Log Event Timestamps Might Appear Different Between Host and Client Systems Because of Time Zone Adjustment (6369917)" on page 43	X	X

TABLE 2 New Issues in Release 1.1 (or in the Release 1.1 Timeframe) *(Continued)*

Issue Title and Page Number in Release Notes	Affects Sun Fire X4100 Server?	Affects Sun Fire X4200 Server?
"Server Goes Into BIOS Recovery Mode When Control-Alt-Delete Keys Are Pressed (6386222)" on page 43	X	X
"Hard Drive Resynchronization Completion Is Indicated By `Optimal` Status in LSI Firmware Version 1.08 (6389986)" on page 25	X	X
"SP Does Not Handle SNMP Traps (6396525)" on page 30	X	X

New Features and Additional Software

This chapter provides a brief summary of new features and late-breaking news for the Sun Fire™ X4100 and Sun Fire X4200 servers.

Additional Software in This Release

The following software is included with every Sun Fire X4100 and Sun Fire X4200 server:

- Solaris™ 10 (preinstalled on the hard disk)
- Sun Java™ Enterprise System (Java ES) 2005Q1 (90-day trial)
- Sun™ N1 System Manager, depending on availability

Solaris 10 1/06

The Solaris 10 1/06 Operating System delivers the security, manageability, and performance that IT professionals need to help increase service levels and decrease costs and risk. It also serves as the foundation for the Sun Java Enterprise System, an integrated, open, standards-based software system delivered using a new predictable approach for development, testing, and servicing.

If you need to re-install the Solaris 10 1/06 OS after removing it, you can download the CD or DVD image.

- To download the CD image, see:

  http://javashoplm.sun.com/ECom/docs/Welcome.jsp?StoreId=8&PartDetailId=Sol10-hw1-x86-G-F&TransactionId=try

- To download the DVD image, see:

  http://javashoplm.sun.com/ECom/docs/Welcome.jsp?StoreId=8&PartDetailId=Sol10-hw1-x86-DVD-G-F&TransactionId=try

Online documentation for Solaris 10 can be found at:

http://docs.sun.com/coll/1236.1

Sun Java Enterprise System

Sun Java Enterprise System (Java ES) is a set of software components that provide services needed to support enterprise-strength applications distributed across a network or Internet environment.

Online documentation for Java ES can be found at:

http://docs.sun.com/app/docs/prod/entsys.05q1

Sun N1 System Manager

Sun N1 System Manager is an aggregated system manager that helps administrators reduce cost and complexity while providing the agility to manage hundreds of systems. Using the N1 System Manager software, administrators can discover, provision, patch, monitor and manage anywhere from one to hundreds of Sun systems. The benefits of the N1 System Manager software include a centralized, interactive, easy-to-use browser and command line interface (CLI), allowing administrators to make quick and accurate changes to single systems or groups of systems.

Online documentation for Sun N1 System Manager can be found at:

http://docs.sun.com/coll/1283.2

For more information, go to:

http://www.sun.com/software/products/system_manager

Diagnosing Server Problems With the Bootable Diagnostics CD-ROM

The server is shipped with the Sun Fire X4100 and Sun Fire X4200 Servers Bootable Diagnostics CD-ROM (705-1439). This CD-ROM is designed so that the server will boot using the Solaris Operating System on the CD-ROM and start SunVTS software. Diagnostic tests will run and write output to log files that the service technician can use to determine the problem with the server.

Requirements

- You must install SunVTS 6.0 Patch Set 3 to get the full diagnostic capability of SunVTS 6.0. Download Patch Set 3 from this URL:

  `http://www.sun.com/servers/entry/x4100/downloads.jsp`

- To use the Sun Fire X4100 and Sun Fire X4200 Servers Bootable Diagnostics CD, you must have a keyboard, mouse, and monitor attached to the server on which you are performing diagnostics.

Hardware Issues

This chapter describes hardware issues related to the Sun Fire X4100 and Sun Fire X4200 servers.

Note – If a problem statement does not specify a particular platform, the problem applies to all platforms.

Non-Recommended Optical Mouse Devices and Keyboards (6299692, 6317710, 6304725)

The following Sun optical mouse devices are not recommended for use on the Sun Fire X4100 or Sun Fire X4200 servers:

- Type 5c
- Type 6c

The following two keyboards are not recommended for use on the front bottom USB port on the Sun Fire X4200 server.

- Microsoft Digital Media Pro keyboard (this issue, 6304725, is fixed for this keyboard in Release 1.1, and it can be used in systems with the Release 1.1 upgrade).
- Belkin keyboard.

Hard Disk Drive LEDs Bleed Through to Adjacent LEDs (6286872)

When the hard disk drive activity LED is blinking, it can appear that the adjacent fault LED is blinking. This is because of the interconnection of the LED light-pipes.

Workaround

A redesign of the LED light-pipes was implemented on servers shipping after January 2006 to fix this problem.

LSI Firmware, Service Processor, and BIOS Issues

This chapter describes the LSI firmware, Sun Integrated Lights Out Manager (ILOM) Service Processor, and BIOS issues related to the Sun Fire X4100 and Sun Fire X4200 servers. It includes these topics:

Note – If a problem statement does not specify a particular platform, the problem applies to all platforms.

LSI Firmware Issues

RAID Volume Disk Space Requirement for Metadata (6312581)

To create a RAID volume, the firmware and BIOS must write metadata at the end of the hard disk drive (HDD). Therefore, allow at least 64 Mbytes of unpartitioned disk space for the metadata.

Workaround

In future servers shipped, the Solaris OS preinstall image will include more than 64 Mbytes of unpartitioned disk space for metadata. At this time, you must partition the disk space from within the Solaris operating system before you use the LSI Configuration Utility to create RAID volumes.

RAID 1 Volume Cannot Be Created, Partition Warnings Displayed (6310074)

When using the LSI BIOS Configuration Utility, you might see the following warning when trying to create a RAID volume by migrating existing data:

```
The selected disk contains partitions that may not be preserved
when creating an array. This data may be lost when the array is
created! If you would still like to use this disk in an array,
choose the Erase Disk option on the previous menu by pressing
Delete (D)
```

If you choose the Erase Disk option as suggested in the warning, the RAID volume will still not be created and the warning will be displayed again.

This is because the Utility does not recognize the new Solaris x86 disk partition type. This problem is planned to be fixed in a future release of the LSI MPTBIOS.

Workaround

This issue is resolved in the LSI firmware that is included in the Release 1.1 update and no workaround is necessary.

If you do not have the Release 1.1 update, use the fdisk utility and, either from the command line or from the Format screen, choose menu item 4:

```
Change between Solaris and Solaris2 Partition IDs
```

This will change a Solaris2 ID to a Solaris1 ID (0x82).

LSI MPT BIOS Does Not Provide Low-Level Hard Drive Formatting Functionality (6301350)

LSI MPT BIOS version 6.02 does not provide low-level format functionality at this time. This functionality is planned for the next LSI MPT BIOS release.

Workaround

This issue is resolved in the LSI firmware that is included in the Release 1.1 update and no workaround is necessary.

Hard Drive Resynchronization Completion Is Indicated By `Optimal` Status in LSI Firmware Version 1.08 (6389986)

If you are using LSI firmware Version 1.08 or later, the resynchronization progress indicator might stay at 0%, even though the resynchronization is happening. The resynchronization is complete when `Optimal` is displayed as the status.

Workaround

This is expected behavior in LSI firmware Version 1.08 or later.

Service Processor Issues

Service Processor Neither Logs Event Nor Provides Visual Alert After Hard Disk Is Removed (6306536)

If a hard disk is removed from a system, the service processor neither logs an event nor provides a visual alert. This is expected behavior since the service processor does not receive events from the LSI SAS controller when a disk drive is hot-plugged and visual alerts do not occur.

Service Processor and USB Interactions Interrupt the OS (6277725)

There are several methods you can use to reset the service processor, for example:

- Using the Reset SP tab in the ILOM web GUI
- Using the `reset SP` command on the ILOM CLI
- Using the IPMItool command `IPMI_MC_RESET_COLD`
- As a side effect of changing the remote mouse emulation mode

Any of these methods could interrupt the system or cause it to hang because of the USB plug/unplug events that are initiated between the service processor and the system.

Workaround

To ensure that the service processor is reset and a USB event does not hang the system, configure the OS with minimal or no USB support.

Do not reboot the system while the service processor is resetting itself or the system could hang. Instead, change the mouse mode to the desired state before booting.

Scheduling service processor resets to occur only when the system is off or in reset will also prevent any service processor interaction with the system.

Kernel Error During Reset Hangs Some System Components (6295154)

During service processor reset, such as during flashing or mouse mode changes, an SP kernel error might occur that leaves the service processor reachable, but which hangs serial login, SSH, the web GUI, and CLI services.

Workaround

Reset the system using the remaining working service or by removing the system power.

Network Port Does Not Operate at 10 Mbyte/sec (6302923)

The service processor Ethernet port operates only at 100 Mbyte/sec. It does not operate at 10 Mbyte/sec.

Workaround

None at this time.

System Might Not Initially Mount `iso` Image (6276086)

If you are installing a RHEL or SUSE Linux distribution using the ILOM web GUI and you unmount an `iso` image, then try to mount a new image, the first attempt to read the new image might fail.

Workaround

Try to mount the new image again. It should mount correctly the second time.

Installing OS Using Redirected Samsung SN-124 CD-ROM Drive Might Not Work (6279896)

If you try to install an operating system (OS) from a Samsung SN-124 CD-ROM drive using the Java Remote Console, the virtual CD-ROM drive might not be recognized.

Workaround

Install the OS using the image files redirected from another device.

Sun Integrated Lights Out Manager (ILOM) Web GUI Displays Incorrect Thresholds (6316706)

The ILOM web GUI might display incorrect threshold values for the temperature sensors, for example. ILOM might also display random values for non-threshold sensors.

Workaround

None at this time.

Cannot Log In to Service Processor With 16-Character Passwords With ILOM Web GUI or CLI (6286187)

If your password contains exactly 16 characters, you will not be able to log in to the service processor (SP) using either the ILOM web GUI or CLI.

Workaround

Choose a password containing fewer than 16 characters.

Unimplemented Simple Network Management Protocol (SNMP) Traps (6300437)

The following traps are currently not supported:

- SUN-PLATFORM-MIB
  - sunPlatObjectCreation
  - sunPlatObjectDeletion
  - sunPlatCommunicationsAlarm
  - sunPlatEnvironmentalAlarm
  - sunPlatEquipmentAlarm
  - sunPlatProcessingErrorAlarm
  - sunPlatStateChange
  - sunPlatAttributeChangeInteger
  - sunPlatAttributeChangeString
  - sunPlatAttributeChangeOID
  - sunPlatQualityOfServiceAlarm
  - sunPlatIndeterminateAlarm
- ENTITY-MIB
  - entConfigChange
- SNMPv2-MIB
  - coldStart
  - warmStart
  - authenticationFailure

Other SNMP Issues

The following SNMP issues are known limitations:

- The SNMP agent does not currently handle `SET`s for the Entity and Sun Platform MIBs. This causes compliance tests involving `SET`s to fail. Use other services to perform the needed tasks. (6255301)
- Error messages are unclear when an SNMP user is being deleted. For example, you might see the message `Target cannot be deleted` when a user is being deleted soon after another activity. In general, these commands can be ignored. However, scripted commands might not succeed. (6284706)
- The SNMP agent stops responding if there are multiple connections. This requires you to restart SNMP or reboot the system. (6290651)
- An error message appears when a user is added. For example, you might see the message `SNMP agent not up yet, may be reconfiguring`. In general, this message can be ignored. (6292473)

- The `sysUpTime` values might be incorrect. For example, a system that has been assembled only a few days might show an uptime of 51 days. You can ignore these values. (6295609)
- Using CLI to set the maximum number of communities might kill the SNMP agent and require you to reboot the system. (6316403)

SP Does Not Handle SNMP Traps (6396525)

The service processor does not support SNMP traps for the SUN-PLATFORM-MIB.

Workaround

To work around this, use IPMI PET traps, a form of SNMP trap, to trap errors. You can implement them by configuring alert rules in the service processor, or by configuring PEF rules directly in IPMI. See the *Integrated Lights-Out Manager Administration Guide*, 819-1160, for details.

Serial Port Speed Setting Reverts to 9600 After Exiting CLI Session (6298521)

When you exit a CLI session, the serial port speed is reset to 9600 bps. This might cause the serial port not to work after you exit a CLI session if the speed was set to a value other than 9600 bps.

Workaround

Keep the speed of the serial management port set to 9600 bps.

Browser Displays `Transferring data from` Message After Transfer Has Completed (6254310)

If you use a Mozilla™ browser, the status area might display a `Transferring data from` message, even though the transfer has completed. This is a problem with the browser, not the Sun ILOM software. For more information on this bug, see: https://bugzilla.mozilla.org/show_bug.cgi?id=185547.

Workaround

None at this time. This issue will be fixed in a future version of the Mozilla software.

Break Key Does Not Work in Secure Shell (SSH) Session or From Java Remote Console (6306610)

Breaks are transmitted to the system serial port only from the serial management port. The Break key does not work when you enter `ssh ~B` in a secure shell (SSH) session, or in the Java Remote Console.

Workaround

None at this time.

Java Remote Console Might Crash During External CD-ROM Redirection (6306010)

Java Remote Console might crash if you redirect an external CD-ROM to a remote client, running RHEL 4 U1 (64-bit) on both the host and the remote client.

Workaround

None at this time.

Java Remote Console Might Hang When Restarting Floppy Disk Redirection (6295147)

When running on a virtual device, the Java Remote Console might hang.

Workaround

Kill and restart the Java Remote Console.

Accessibility Issues

Accessibility means removing barriers that can prevent people with disabilities from participating in substantial life activities, including the use of services, products, and information. Not only does providing access offer benefits for a wide range of users, but it is also a requirement in all current federal contracts under Section 508 of the Federal Rehabilitation Act. In the commercial sector, the Americans with Disabilities Act (ADA) calls for similar considerations when reasonably accommodating current and prospective employees.

The Sun Fire X4100 and Sun Fire X4200 servers meet Section 508 accessibility requirements. However, the following accessibility issues have been noted in the SP-firmware GUI:

- If the focus is in a low-level tab menu, the Tab key does not navigate to the higher level. This issue is seen in Mozilla Firefox. (6316639)
- JavaScript™ alerts and confirmation boxes in the GUI have generic menu titles that do not provide enough contextual information. (6274918)
- Tabbing to top level frames is not possible in Mozilla. Typing a phrase to find the corresponding item in Mozilla works partially. Frames are highlighted, but not action items such as buttons. (6278273)
- Pressing the down arrow in the Select Action pull-down list moves the focus to reset. You cannot use the down arrow to scroll through the rest of the list. This issue is seen in Internet Explorer. (6316634)
- When you tab to the Add button in the Add User pop-up menu and press Enter, the page exits without adding the user entry. This issue is seen in Internet Explorer. (6316625)
- When you press the Tab key, the focus does not move to the lower-level tabs within the selected tab. (6245789)
- When you press the Tab key in Internet Explorer, the focus does not move to an unselected radio button. Also, if a radio button is selected, you cannot deselect it using the keyboard. (6316591)
- When you press the Tab key in Internet Explorer, the focus does not move to any checkboxes that might be in the GUI. (6316621)
- Some pages contain JavaScript links for navigation that are not read by assistive technologies. (6255423)

External Storage Redirection Error Messages Might Be Erroneous

You can redirect remote storage devices to Sun Fire X4100 or Sun Fire X4200 servers by starting the Java Remote Console from the ILOM web GUI (Remote Console -> Redirection). Because the ILOM has this capability, the operating system might display redirected USB storage devices as always being attached.

If redirection is disabled, however, you might see one of the following messages if you attempt to access those devices: `Drive not ready` or `No media found`. Starting and stopping storage redirection does not add or remove the virtual devices themselves, but affects only the media in those virtual devices.

Incorrect Name Used for Rear Fan Tray (6323731)

The internal software incorrectly uses the name `io.f0` (Input/Output Fan 0) to refer to the rear fan tray of the Sun Fire X4200 server. The name should be `FT2`.

Workaround

None at this time.

Serial Console Access Over SSH Might Lock Up When Using `start -script` Command (6337909)

While connecting to the SP CLI mode via SSH, the serial console connection might intermittently lock up when the `start -script` command is used to log in to the SP console.

Workaround

Use the `SP start console` command to connect to the SP console, rather than `start -script` command.

If the serial console connection locks up, exit the SSH session then try again using the `SP start console` command.

BIOS Upgrades Fail When Upgrading SP Firmware Older Than Version 6169 (6324746)

If you attempt to upgrade the SP firmware and BIOS on a pre-release server that still has an SP firmware version older than version 6169, FRU data will be corrupted. This problem has been corrected in servers shipping at the time of release (with BIOS version 6464).

See the procedures in "Upgrading the ILOM SP Firmware From Version 6169 to 6464 Causes SP Configuration To Be Lost" on page 35 for methods of determining the firmware version.

Workaround

If you were a Beta or Early Access customer with a system that has SP firmware older than version 6169, you must return the graphics redirect and service processor (GRASP) board to the factory for reprogramming. Contact your Sun Service representative for assistance.

Upgrading the ILOM SP Firmware From Version 6169 to 6464 Causes SP Configuration To Be Lost

Early access systems might have shipped with ILOM SP firmware version 6169. The production release firmware version is 6464.

When you upgrade the firmware from version 6169 to 6464, the SP configuration is lost and must be reconfigured. This includes anything that has been set up on the SP, such as:

- Changes to the default password (`changeme`) for the `root` userid
- Any users that have been added
- Any configuration of SNMP, alerts, LDAP, NTP, or network settings (for example, a static IP address).

You can determine the ILOM SP firmware build version on your server by using the ILOM command language interface (CLI) or the ILOM Web GUI. You can access the CLI via the management Ethernet or the serial port on the back of the server.

For alternate methods of determining the firmware version see:

- "Determining the Firmware Version Using the CLI Through the Management Ethernet Port:" on page 36
- "Determining the Firmware Version Using the CLI Through the Serial Port:" on page 36
- "Determining the Firmware Version Using the Web GUI:" on page 37

Determining the Firmware Version Using the CLI Through the Management Ethernet Port:

1. **Connect an RJ-45 Ethernet cable to the NET MGT Ethernet port on the back panel.**
2. **Establish an SSH connection using the following command, then enter the default password** (`changeme`) **when you are prompted:**

   `# ssh -l root` *<SP IP address>*

   `changeme`

   After you have successfully logged in, the SP displays its default command prompt:

   `->`
3. **Type the** `version` **command, which will return output similar to the following:**

```
-> version
SP firmware version: 1.0
SP firmware build number: 6464
SP firmware date: Tue Sep 13 12:50:37 PDT 2005
SP filesystem version: 0.1.13
```

   The ILOM firmware build version is the "build number" listed above.

Determining the Firmware Version Using the CLI Through the Serial Port:

1. **Configure your terminal device or the terminal emulation software running on a laptop or PC to the following settings:**
   - 8N1: eight data bits, no parity, one stop bit
   - 9600 baud
   - Disable hardware flow control (CTS/RTS)
   - Disable software flow control (XON/XOFF)
2. **Connect a serial cable from the RJ-45 SER MGT port on your server's back panel to your terminal device or PC.**
3. **Press Enter on the terminal device to establish a connection between that terminal device and the server's SP.**

   The SP displays a login prompt.

   `SUNSP`*`0003BA84D777`* `login:`

   In this example login prompt, *0003BA84D777* is the Ethernet MAC address of the SP. This will be different for each server.

4. **Log in to the ILOM SP and type the default user name (`root`) with the default password (`changeme`).**

   After you have successfully logged in, the SP displays its default command prompt:

   ```
   ->
   ```

5. **Type the `version` command, which will return output similar to the following:**

   ```
   -> version
   SP firmware version: 1.0
   SP firmware build number: 6464
   SP firmware date: Tue Sep 13 12:50:37 PDT 2005
   SP filesystem version: 0.1.13
   ```

   The ILOM firmware build version is the "build number" listed above.

Determining the Firmware Version Using the Web GUI:

1. **Connect to the ILOM WebGUI by typing the IP address of the server's SP into your browser's URL field. For example:**

   ```
   https://129.146.53.150
   ```

2. **Log in to the ILOM SP and type the default user name (`root`) with the default password (`changeme`).**

   The first web page that is presented is the System Information -> Versions page, which includes the Build Number.

Note – If you have a Beta system, it might have an ILOM SP firmware version older than 6169. The GRASP board must be returned to the factory for reprogramming. See also "BIOS Upgrades Fail When Upgrading SP Firmware Older Than Version 6169 (6324746)" on page 35.

BIOS Issues

System Connected to External Storage Device Using PCI Card In Slot 0 Might Not Boot From Internal Disk (6268877)

The system will not boot from the internal disk if any external storage devices are connected to a PCI card plugged in to Slot 0 only. This occurs because the BIOS scans Slot 0, which connects to the hard disk drives (HDDs), before scanning the embedded 1064 SAS controller.

The BIOS scans PCI devices in ascending order (from low PCI address to high PCI address). The scanning priority is:

1. NIC
2. Slot 0
3. SAS
4. Slot 2
5. Slot 3
6. Slot 4
7. Slot 1

Because of constraints in the option ROM, there is a chance that any HDDs connected to the embedded SAS will not be in the boot list if a PCI card is installed in Slot 0, which connects to the external HDDs.

If you want to connect to external storage devices, connect the PCI card to Slots 1-4 and not to Slot 0. Slot 0 is the only slot that cannot be used if you want to boot from an internal disk drive in the server.

Workaround

Install the PCI card in Slots 1-4 instead of Slot 0.

System Will Not Boot Up With Emulex LP10000 Card Enabled (6306640)

If an Emulex LP10000 card is plugged in to any slot on the system and its BIOS is enabled, the system will not boot up.

Workaround

To boot up the system, disable the Emulex LP10000 BIOS.

System Does Not Detect Supported HBA Card During Bootup Process (6272514)

If a supported host bus adapter (HBA) card is plugged in to Slot 1 (on a Sun Fire X4100 server) or Slots 1-4 (on a Sun Fire X4200 server), the card is not detected by the BIOS during the bootup process. After the BIOS scans the network interface cards and SAS, the BIOS runs out of address space for the option ROM and cannot scan the card. However, the card is detected at the OS level and can still be used.

Workaround

To boot the system from an external storage device, connect the device to a supported HBA controller installed in Slot 0.

Hard Disk Drive Order Changes in BIOS Settings After Installing HBA Card (6308569)

After installing a supported host bus adapter (HBA) card, you might not be able to boot the system to operating system level because of changes in the drive order.

Workaround

Make sure the BIOS boot order is set correctly according to your system configuration after installing or removing any supported HBA card connected to an external storage device.

BIOS Date and Time and Optimal Defaults Must Be Reset After Certain System Events (6379898)

With the inital version 6464 of the firmware using BIOS 22, you must manually reset the date and time and load the optimal default settings in the BIOS Configuration Utility after some system events.

The requirement to reset these items manually will be removed in the first update to the firmware.

You must use the BIOS Configuration Utility to reset the date and time and load optimal defaults after these system events:

- When a pre-release version of the server with a pre-release version of the firmware such as version 6169, has the firmware upgraded to the release version 6464.
- When the BIOS checksum is invalid.
- When the CMOS is cleared using the Clear CMOS jumper or using IPMItool through the service processor.

Workaround

After any of the events listed above happen, use the BIOS Configuration Utility to reset the date and time and to load the optimal defaults:

1. **Enter the BIOS Configuration Utility by pressing F2 while the system is booting.**
2. **Change the date and time on the Main menu screen of the utility.**
3. **Use the arrow keys to choose Load Optimal Defaults on the Exit menu.**
4. **Press Enter to go to the next screen.**
5. **Press Enter when prompted to load the optimal defaults.**
6. **Choose Save Changes and Exit, and then press Enter.**
7. **Press Enter when prompted to save the configuration changes and exit the utility.**

Upgrading BIOS Without Changing and Saving Optimal Defaults Might Result in Increased Memory Latency (6306622, 6299794)

You might notice an increased memory latency if you upgrade the BIOS image and do not also change the optimal defaults and save the setup. This issue is not specific to an operating system.

Workaround

This issue is fixed in the BIOS that is part of Release 1.1.

If you have a server without the Release 1.1 upgrade, do the following after upgrading the BIOS using the BIOS Setup utility:

1. **Use the arrow keys to choose Load Optimal Defaults on the Exit menu.**
2. **Press Enter to go to the next screen.**
3. **Press Enter when prompted to load the optimal defaults.**
4. **Choose Save Changes and Exit, and then press Enter.**
5. **Press Enter when prompted to save the configuration changes and exit the utility.**

Resetting System Might Create Invalid CMOS Checksum (6297018)

Each time the system is booted, BIOS recomputes CMOS data within the checksum area and checks the data against the stored value. If the two values do not match, an error message is generated to tell you that the CMOS memory contents might have been corrupted. There is a time gap between when the system writes the CMOS data and when it writes the checksum. This could cause an invalid CMOS checksum to be created if the system is reset during the gap.

Workaround

Load the optimal defaults as described in "Upgrading BIOS Without Changing and Saving Optimal Defaults Might Result in Increased Memory Latency (6306622, 6299794)" on page 41.

BIOS Boot Order Lost After Reset Testing (6302703)

If you reset the system and interrupt BIOS power-on self-test (POST) early in the boot process, the system might lose the virtual USB devices from the boot order and stop booting from the drive. The BIOS rewrites some CMOS registers during POST and does not immediately update the CMOS checksum.

Workaround

Unplug and then replug the system to cause a full hardware reset. All USB devices should reappear.

DIMM Fault LEDs Are Not Implemented At This Time (6324863)

The troubleshooting and maintenance documentation for the product describes the future functionality of the DIMM fault LEDs. When there is an uncorrectable error, it is expected that the DIMM fault LEDs will light the DIMM-slot ejector levers to indicate the faulty DIMM pair. This functionality has not been implemented yet, but will be added in the first update to the BIOS.

Workaround

This functionality was added in the Release 1.1 update.

Log Event Timestamps Might Appear Different Between Host and Client Systems Because of Time Zone Adjustment (6369917)

The timestamps on events reported in the server's system event log and IPMI logs are always based on GMT/UTC. However, when you view system information from a client system using the GUI or IPMItool, the timestamps displayed are adjusted based on the timezone of the client system. Therefore, the same event can appear to have two different timestamps when viewed directly from the host and from a client system in a different timezone.

Workaround

None at this time. This is expected behavior.

Server Goes Into BIOS Recovery Mode When Control-Alt-Delete Keys Are Pressed (6386222)

If you hold down the Control-Alt-Delete keys long enough for the system to reset and re-enter BIOS POST, the BIOS will enter BIOS recovery mode. This is non-destructive unless a special BIOS recovery CD or USB-floppy is attached to the machine.

Workaround

Power cycling the host by pushing the power button resolves the problem and the system returns to normal operation.

Software Issues

This chapter describes software issues related to the Sun Fire X4100 and Sun Fire X4200 servers and includes these topics:

Note – If a problem statement does not specify a particular platform, the problem applies to all platforms.

Solaris 10 Operating System Issues

Solaris 10 1/06 Adds Support For GRUB-Based Booting

Starting with the Solaris 10 1/06 release, the open-source GNU Grand Unified Bootloader (GRUB) has been implemented on x86-based systems that are running the Solaris OS. GRUB is the boot loader that is responsible for loading a boot archive into a system's memory. The boot archive contains the kernel modules and configuration files that are required to boot the system. For more information on GRUB, you can see the `grub(5)` man page.

For information on how to boot a server that is running Solaris 10 1/06 in a GRUB-based environment, refer to the *Solaris 10 System Administration Guide: Basic Administration*, at this URL:

`http://docs.sun.com/app/docs/doc/819-2379`

Solaris 10 1/06 Installation Might Fail if System Has Multiple InfiniBand Host Channel Adapter Cards (6321372)

During Solaris 10 1/06 installation, the installer runs in 32-bit mode. Because of this, the virtual memory available is reduced. The InfiniBand Host Channel Adapter (IB-HCA) card by Mellanox typically uses 256 Mb or more of virtual memory for each card installed on the system. If multiple IB-HCA cards are installed, the system might not have enough virtual memory and the installation might hang.

Workaround

Remove the IB-HCA cards before installing Solaris 10 1/06.

Drives Moved From Two-Drive System to Four-Drive System Might Not Operate Correctly (6300178)

On systems that have two hard disk drives, the drives in Slot 0 and Slot 1 are mapped to the OS as disk 2 and disk 3. Therefore, drives that are configured in Slot 0 or Slot 1 in systems with four hard disk drives, and then moved into a two-disk system, might not operate correctly.

Workaround

None at this time.

Solaris 10 3/05 x86 Patch Cluster Installation Required Before Installing Patches for Some Host Bus Adapters (6312352)

Certain patches for host bus adapters (HBAs), such as the Sun StorEdge Entry-Level Fibre Channel host bus adapter (QLA210), will not work without first installing a Solaris patch cluster on systems running Solaris 10 x86 and then rebooting the systems.

To install the patch cluster and the QLA210 patch:

1. **Install the Solaris 10 3/05 operating system (if it is not already installed).**
2. **Install the recommended patch cluster.**

   For instructions on installing the patch cluster, see:

   `http://patches.sun.com/clusters/10_x86_Recommended.README`
3. **Install the recommended patch for the HBA.**

   For example, to install the QLA210 patch (119131-*xx*):

   a. **See the instructions at:**

      `http://sunsolve.sun.com/pub-cgi/show.pl?target=patchpage`

   b. **Enter `119131` in the PatchFinder text box.**
4. **Reboot the system.**

X Window Server Default Is Xorg (6321043)

If for any reason you remove the pre-installed Solaris 10 image from the server and then install Solaris 10 software from a download or DVD, a kdmconfig screen prompts you to select the X Window server. For Sun Fire X4100 and Sun Fire X4200 servers, choose Xorg as the X Window server.

Do Not Use `raidctl` Command in Solaris 10 3/05 (6228874)

The `raidctl` command enables you can manage the RAID controllers from the command line interface. However, because the `raidctl` command is not supported in Solaris 10 3/05, using the command might cause the system to panic.

Workaround

A Solaris 10 3/05 patch (119851-13) that resolves this issue is available from the SunSolve download site.

If you do not have the latest Solaris 10 3/05 patch, use the MPT SCSI BIOS to create and manage the RAID volumes.

Ignore Bootup Message: `Method or service exit timed out` (6297813)

If the input device and output device are set to the serial port (ttya), the following message might appear in the console during bootup:

```
svc:/system/power:default: Method or service exit timed out. Killing
contract 17.
```

This message does not indicate a problem.

Solaris 10 Installation From CD Media Hangs When the Second Disc is Inserted (6374024)

During Solaris 10 installation, Solaris might report that it cannot find the secon CD even though the second CD is inserted.

This problem will be fixed in a future Solaris 10 update.

Workaround:

This problem does not occur if you perform a net install. Solaris is then able to mount and read the CD images. You can also work around this problem by installing from DVD media rather than multiple CDs.

Sun Installation Assistant Issues

Red Hat Enterprise Linux 4 (RHEL 4): Cannot Enable Security-Enhanced Linux (SELinux) (6288799)

The Sun Installation Assistant does not allow SELinux configuration during the installation of RHEL 4. The GUI for the SELinux option is disabled during the installation of RHEL 4 U1 with the Sun Installation Assistant CD.

Workaround

To configure SELinux, run `system-config-securitylevel` after the installation.

Incorrect MPT Driver Included in Sun Installation Assistant Base (6319680)

The Sun Installation Assistant will not work when a Sun StorEdge PCI single-channel card is installed. This is because the base code for the Sun Installation Assistant has the wrong driver. This affects only the Sun Installation Assistant—the drivers installed on the system are correct.

Workaround

This issue has been resolved in the current version of the Sun Installation Assistant CD.

If you do not have the latest version, install the card after running the Sun Installation Assistant or do not use the Sun Installation Assistant. Check for the latest downloadable version at this URL:

`http://www.sun.com/servers/entry/x4100/downloads.jsp`

Ignore Kudzu Messages After Installing Red Hat Enterprise Linux 3 or 4 (RHEL 3 or RHEL 4) (6290559)

RHEL runs a hardware discoverer named Kudzu. After installing RHEL 3 or RHEL 4 with the Sun Installation Assistant, Kudzu displays messages indicating that the Ethernet drivers need to be removed and added again.

The messages Kudzu displays are incorrect. The Ethernet drivers do not need to be changed. Click Ignore when you are prompted to change the hardware configuration.

The ext3 File System Reports Errors After Red Hat Linux Installation Using Sun Installation Assistant CD (6336064)

When the Sun Installation Assistant CD is used to install Red Hat Linux, the ext3 file system might report incorrect disk space utilization and `file system full` errors. This is because the file system was not being unmounted correctly by the utility on the CD.

Workaround

The problem has been fixed in the new version of the Sun Installation Assistant CD (version 1.1.6 or later) that is available on the Sun Download Center web site. Go to the following URL and click on Downloads.

`http://www.sun.com/servers/entry/x4100/index.html`

If you use the old version of the CD and you see these errors, correct the problem by entering the `tune2fs` command at a command line, then reboot the server.

Linux Operating System Issues

This section describes known problems and associated workarounds for the Linux operating system on Sun Fire X4100 and Sun Fire X4200 servers.

Base Versions of Linux Distributions Shipped By Sun Must Be Upgraded to Receive Full Sun Support

The Red Hat EL3, Red Hat EL4, and SUSE Linux ES9 CDs that you can purchase from Sun are the base (initial-release) versions of those operating systems (OS's) and are not the latest updated versions of those OS's. Although Sun will support customers to help them install these base versions from the shipped media, customers are expected to immediately upgrade to RHEL3 U6, RHEL4 U3, and SLES9 SP2 to get full Sun support for servers running those OS's.

- If you download these Linux OS's from the manufacturer's web site, you will get the latest distribution, with no upgrades necessary.
- If you purchased one of these Linux OS's from Sun, do the following:

1. **Go to Sun's download site for these platforms and download the latest Sun Installation Assistant software. The latest version, 1.1.6, is designed to support installation of the base versions of the Linux OS's.**
2. **Burn the new SIA software to CD.**
3. **Use the new SIA CD you burned to install the version of the OS that you received from Sun.**

   Refer to the *Sun Fire X4100 and Sun Fire X4200 servers Operating System Installation Guide* for detailed instructions.
4. **Immediately download the latest update or patches from the Linux manufacturers's web site and install them.**

   Refer to the *Sun Fire X4100 and Sun Fire X4200 servers Operating System Installation Guide* for detailed instructions.

Unloading QLogic Drivers Might Be Necessary Before Installing Updated Drivers (6312342, 6314923)

When installing the updated QLogic drivers for the QLA210 or QLA2342 option cards, you must manually unload the current drivers or the installation will fail. The `modprobe -rv` command does not work with these drivers.

Workaround

1. **To check for existing QLA drivers, enter the following command:**

   ```
   # lsmod | grep qla
   ```

   The output should look like this:

   ```
   qla6322                129536  0
   qla2xxx_conf           310536  1
   qla2xxx                226960  1 qla6322
   scsi_transport_fc       16384  1 qla2xxx
   scsi_mod               140800  8
   usb_storage,st,sr_mod,sg,qla2xxx,scsi_transport_
   fc,mptscsih,sd_mod
   ```

2. **Unload the drivers as shown in the following example:**

   ```
   # rmmod qla6322
   # rmmod qla2xxx
   ```

3. **Load the updated QLA drivers.**

Translation Look-Aside Buffer (TLB) Reload Causes Errors With Certain Linux Software (6296473)

Note – We recommend that Red Hat Enterprise Linux 3.0 (RHEL 3) users install the most recent OS update on the server to alleviate this issue. (At the time of printing, the most recent update is RHEL 4 U1.)

The BIOS Advanced menu (CPU Configuration menu), in the BIOS Setup utility, contains an option named “Speculative TLB Reload.” By default, this setting is enabled, which allows TLB reload.

With this default setting, you might see errors similar to the following on systems running any 64-bit version of Red Hat Linux and also SUSE Linux with Service Pack 1.

```
Northbridge status a60000010005001b
GART error 11
Lost an northbridge error
NB status: unrecoverable
NB error address 0000000037ff07f8
Error uncorrected
```

Workaround

To avoid these errors, disable TLB reloading:

1. **Reboot the server and press F2 to enter the BIOS Setup utility.**
2. **Go to the Advanced -> CPU Configuration menu.**
3. **Use the arrow keys to highlight the Speculative TLB Reload option, and change its setting to Disabled.**

   This disables TLB reloading.
4. **Save your changes and exit the utility.**

AMD PowerNow! Might Cause System Clock to Lose Ticks (6298500, 6281771)

The AMD PowerNow! feature is disabled in the BIOS by default. Before enabling it, verify that your operating system and applications support the PowerNow! feature.

The PowerNow! feature changes CPU clock rates. A loss of timer ticks has been observed while running recent Linux SMP kernels when PowerNow! is enabled. This loss of timer ticks might result in timing errors in the kernel and in user applications. Symptoms might include timers that prematurely time out and the time of day clock appearing to behave erratically.

Workaround

Disable the PowerNow! feature by using the BIOS Setup utility. The menu path to the feature's screen is Main -> Advanced -> AMD PowerNow Configuration.

Red Hat Enterprise Linux 3 (RHEL 3): I/O Errors Are Displayed When Initializing USB Mass Storage Device (6241851)

RHEL 3 displays many I/O errors when a USB device is being initialized. The USB mass storage driver uses the SCSI subsystem to access the device. When a USB mass storage device is attached, the driver attempts to identify it as a SCSI device. The I/O errors displayed are a result of this initialization probe. The I/O errors can be ignored, and the USB device should work properly once it is initialized. This problem and its workaround are documented at:

https://bugzilla.redhat.com/bugzilla/show_bug.cgi?id=156831.

Red Hat Enterprise Linux 3 (RHEL 3): Kernel Might Report Incorrect CPU Information on Dual Core Processors (6241701)

When two dual core processors are installed on a Sun Fire X4200 server, the RHEL 3 kernel might report four of the hyperthreaded CPUs with the same physical ID of 0. Instead, the IDs should be 0 and 1 for each CPU.

Graceful Shutdown Not Available on Non-ACPI Supported Linux OS Such as Red Hat Enterprise Linux 3 (RHEL 3) (6278514)

Some Linux OSs, such as RHEL 3, do not support the Advanced Configuration and Power Interface (ACPI), which allows a graceful shutdown. On systems running non-ACPI Linux operating systems, only a forceful shutdown is available.

Duplicate Devices Seen by Linux OS if External RAID Array Connects to Server Through Ultra320 SCSI (6220406)

If a RAID array is attached to the system using a Sun StorEdge PCI/PCI-X Single Ultra320 SCSI host bus adapter (Ultra320 SCSI), you might see the following if you enter the command, `fdisk -l`, depending on which Linux OS you are using:

- Duplicate devices for each logical unit number (LUN) in the array
- One device for multiple LUNs in the array

Red Hat Enterprise Linux 3 (RHEL 3) U5 (64-bit): Ignore `Keyboard reset failed` Message (6306118)

If the USB keyboard is connected to either the front or back USB port, the system running RHEL 3 U5 (64-bit) always shows the following error message in the "dmesg" after the reboot.

```
initialize_kbd: Keyboard reset failed, no ACK
```

This message does not indicate a problem.

SUSE Linux Enterprise Server 9 (SLES9) 64-Bit: Incorrect CPU Speeds Reported (6287519)

On systems running SLES9, incorrect CPU speeds might be reported in `/proc/cpuinfo` when the PowerNow! option is enabled. The maximum speed may not be reported.

Workaround

Disable the PowerNow! feature by using the BIOS Setup utility. The menu path to the feature's screen is Main -> Advanced -> AMD PowerNow Configuration.

SUSE Linux Enterprise Server 9: Kirkwood RPM Build Fails (6312670)

The Kirkwood driver RPM builds might fail in an SLES9 environment. This is because the Kirkwood drivers were not yet compatible with the SLES kernels.

Workaround

Use one of the following workarounds to install the new Kirkwood drivers, depending on which kernel version you have:

- For 2.4 kernel:

1. **Install the released 1.0.95.X SRPM from the Sun Download Center, or from the Kirkwood driver CD.**
2. **Build the 1.0.100.3 RPM and upgrade (`rpm -U`) to the new driver.**
3. **Install the 1.0.100.3 driver on a clean system (assuming no ixge modules were ever installed).**

- For 2.6 kernel:

On a freshly installed system, build/install the 1.0.100.3 driver.

Note that support for the 2.6 kernel is introduced with this release, so there should not be any existing modules installed.

SUSE Linux Enterprise Server 9: Multipath Driver Does Not Work After Reboot (6332988)

SLES9 SP1 multipath driver (`mdadm`) does not work after a reboot of the host.

Workaround

None at this time.

SUSE Linux Enterprise Server 9 SP2 Update Does Not Work If SLES9 is Already Installed (6343559)

The Yast CD update method does not work to update SLES9-base to SLES9-SP2. The error message, `corrupt kernel`, is reported. The problem is that the driver modules are not loaded during the system boot.

Workaround

Installation of SLES9-SP2 works if the SLES9-base is not installed. Start the installation with SLES9-SP2, rather than SLES9-base.

Server Might Reboot Sun Fire X4100 Server When MTU is Set to 9K on Kirkwood Interface (6335741)

The Sun Fire X4100 server might spontaneously reboot when running network traffic over the Kirkwood interface, in a Linux environment. This problem has only been observed when the MTU is set to 9K.

Workaround

None at this time.

SUSE Linux Enterprise Server 9 (SLES9) 64-Bit: System Does Not Boot With Supported HBA Card Plugged Into Slot 0 (6307424)

On systems running SLES9, if a host bus adapter (HBA) card is plugged in to Slot 0, you might not be able to boot the system. This is because SLES9 enumerates IDE and SCSI devices in scan order, and the BIOS scans PCI devices in ascending order. The scanning priority is:

1. NIC
2. Slot 0
3. SAS
4. Slot 2
5. Slot 3
6. Slot 4
7. Slot 1

If there is only one drive in the system, it is enumerated as `/dev/sda`. If an external device is later connected to an HBA card in Slot 0, the device will be enumerated as `/dev/sda` and the internal device will be enumerated as `/dev/sdb`. However, the SLES9 boot device points to `/dev/sda`, which is an external device without the OS, and the system cannot boot.

The problem does not occur if the HBA card is plugged in to Slots 1-4, since these slots are scanned later than the on-board SLI controller. This problem is not specific to the server or the HBA card.

Workaround

Plug the supported HBA card in to Slots 1-4, and then reboot the system. Also, follow these general guidelines:

- Do not move SCSI drives around.
- Do not change bus connections for IDE drives.
- Have a rescue disk ready in case these guidelines are not followed, as you might need to run `grub` or `vi /etc/fstab` afterwards.

Windows Server 2003 Operating System Issues

Bootup Time Affected by Degraded RAID Volume (6297804)

The bootup time for Windows Server 2003 could be significant (20 minutes or so) if there is a defective disk in the RAID array. Both Windows and firmware retries contribute to the time delay. The defective disk might be recognized by the controller under SAS Topology, but not under RAID Properties.

OS Cannot Be Installed on LSI RAID Array If RAID Is Not Recognized as First Storage Device (6297723)

Windows Server 2003 requires that you use the first storage or the existing partition for installation. You cannot install Windows Server 2003 onto an on-board LSI RAID array if:

- The array is not recognized by Windows as the first storage device.
- There is another existing partition on disks other than the RAID storage.

No Output Displayed on Java Remote Console After Issuing Restart Command (6301444)

If you reset the system using the Restart command (Special Administrative Console -> Restart), then reboot, you might not see output displayed in the Java Remote Console. BIOS messages are displayed in the host serial console, but not in the Java Remote Console.

Workaround

Restart the system again to clear this problem.

OS Installation on External Disks Requires Partition on Internal Disk (6238985)

Before you install Windows Server 2003 on any external device, you must create a partition on an internal disk for the setup files. A partition is not required if you install Windows Server 2003 on an internal disk.

Alert and Power Failure LEDs Might Illuminate If AMD PowerNow! Feature Is Enabled (6310814)

The AMD PowerNow! feature is disabled in the BIOS by default. Before enabling it, verify that your operating system and applications support the PowerNow! feature.

If you enable PowerNow! in a Windows Server 2003 environment, you might see a loss of timer ticks and a decrease in CPU voltage, resulting in alert and power failure LEDs illuminating.

Workaround

Disable the PowerNow! feature by using the BIOS Setup utility. The menu path to the feature's screen is Main -> Advanced -> AMD PowerNow Configuration.

Windows Server 2003: Graceful Shutdown and Power Off Fails (6293118)

If a system running Windows Server 2003 OS is in screen lock state and you try to turn off the system remotely using the "Graceful shutdown and power off" option (Remote Control -> Remote Power Control), the shutdown does not occur and the service processor issues the following error:

```
ChassisCtrl.c : Invalid Chassis task parameter
```

Windows Server 2003 allows a graceful shutdown only if you are logged in as Administrator. This is expected Windows Server 2003 behavior.

Workaround

Use the Java Remote Console to log in as Administrator and issue a graceful shutdown.

SunVTS Issues

SunVTS `ramtest` Might Cause System to Reboot When Testing More Than Seven Hours (6369893)

A memory test under exclusive mode in SunVTS (version 6.1 and earlier), `ramtest`, exercises a corner case that does not follow AMD programming guidelines. Therefore, on early Sun Fire X4100 or Sun Fire X4200 servers, `ramtest` might cause the system to reboot after an extended test run of more than seven hours. Sun Fire X4100 and Sun Fire X4200 systems running software that follows AMD programming guidelines, which most compilers generate, will function properly.

Workaround

This problem is fixed in Sun VTS version 6.1sp1 and later. To get the latest version of SunVTS, you can download it from this URL:

`http://www.sun.com/oem/products/vts/`

If you have SunVTS version 6.1 or earlier, SunVTS `pmemtest` and `vmemtest` are suitable memory diagnostics for extended test runs. When performing test runs of more than seven hours, use `pmemtest` or `vmemtest`, rather than `ramtest`.

Documentation Issues

This chapter describes issues related to the Sun Fire X4100 and Sun Fire X4200 servers documentation.

Documentation Titles Changed

In the current documentation release, several of the document titles were changed to comply with corporate titling guidelines. The following table describes differences in the current documentation set. See the documentation set at this URL:

http://www.sun.com/products-n-solutions/hardware/docs/Servers/x64_servers/x4100/index.html

Doc Part Number	Old Doc Title	New Doc Title
819-1155	Sun Fire X4100 and Sun Fire X4200 Servers Setup Guide	Sun Fire X4100 and Sun Fire X4200 Servers Installation Guide
819-1157	Sun Fire X4100 and Sun Fire X4200 Servers Setup and Maintenance Guide	Sun Fire X4100 and Sun Fire X4200 Servers Service Manual
819-1160	Sun Fire X4100 and Sun Fire X4200 Servers System Management Guide	Integrated Lights-Out Manager (ILOM) Administration Guide
819-5464	New	ILOM Supplement for Sun Fire X4100 and Sun Fire X4200 Servers
819-1162	Sun Fire X4100 and Sun Fire X4200 Servers Release Notes	Sun Fire X4100 and Sun Fire X4200 Servers Product Notes
819-3284	Sun Fire X4100 and Sun Fire X4200 Servers Troubleshooting Guide	Sun Fire X4100 and Sun Fire X4200 Servers Diagnostics Guide
819-4153	Sun Fire X4100 and Sun Fire X4200 Servers Guide for Preinstalled Solaris 10 Operating System	Deleted. The content of this book is now in 819-1155.

Index

T

W