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Sun Fire X4500 Server
Product Notes

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Sun Fire X4500 Server Product Notes

This document contains late-breaking information and issues for the Sun Fire™ X4500 server.

The following issues are covered in these product notes:

Supported Operating Systems

For a complete list of operating system support for your Sun Fire server, check the Sun web site:

http://www.sun.com/servers/x64/x4500/os.jsp

Sun Installation Assistant (SIA)

The Sun Installation Assistant (SIA) is a bootable tool used to assist in the installation of the operating system for the server. SIA performs the following tasks:

- Identifies the hardware on your system and prepares Sun server drivers for the OS install. **SIA eliminates the need to create a Driver CD.**
- Provides tools that you might use to upgrade system BIOS, SP firmware, installed device firmware, recover an inaccessible SP and more. Tools available are system-specific and might vary.
- Launches the OS vendor's native installation program.
- Identifies and installs appropriate drivers and platform-specific software during the OS installation process.

You can download the latest image (for CD or USB flash drive) for your server from the web, at:

http://www.sun.com/servers/x64/x4500/downloads.jsp

Tools and Drivers CD

The Tools and Drivers CD contains the Sun drivers and optional software for your server. The drivers and optional software enable you to choose from a variety of operating systems to run on your server, along with tools to manage and enhance the functionality of your server.

You can download the latest version of the Tools and Drivers CD for your server from the web, at:

http://www.sun.com/servers/x64/x4500/downloads.jsp

Drivers for Option Cards

Option cards supported by operating systems are listed on the platform-specific product webpage under Companion Products. To check if the driver of your option card is available for download, check the Option Cards link on the Product Page.

For example, Sun Fire X4100 M2 platform page and related option card are:

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

For complete platform listings please visit:

http://www.sun.com/servers/index.jsp?tab=2

Orderable Documentation and Software CDs

You can order a documentation and software CD kit for the Sun Fire X4500 server for a nominal fee. This kit includes:

- Sun Fire X4500/X4540 Server Installation Guide
- Sun Fire Servers Bootable Diagnostics CD 7.0 ps2 or later
- Sun Fire X4500 Tools & Drivers CD
- Sun Fire X4500 Sun Installation Assistant CD 2.1.2.0 or later

Based on input from customers and our Eco Responsibility Initiative, Sun is reducing the amount of paper and other materials shipped with your server. However, you can order this kit as needed. The most up-to-date documentation and software are online and downloadable for free at http://www.sun.com.

Optional Software

There is optional software available for your Sun Fire server. Some of it might be pre-installed, downloaded, or purchased as an option (Solaris, Sun Java Enterprise System). There are also optional software tools available on the Tools and Drivers CD (`suncfg`, HERD, `cfggen`, Disk Control and Monitoring utility). These optional software components are explained in more detail in the following sections:

Solaris 10 Operating System

The Solaris 10 Operating System (OS) 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. The Solaris OS is preinstalled on your server.

If you need to reinstall the Solaris 10 OS after removing it, you can download the DVD image.

To download the DVD image, visit:

http://www.sun.com/software/downloads

Online documentation for Solaris 10 OS can be found at:

http://docs.sun.com/documentation

Solaris Adds Support For GRUB-Based Booting

Starting with the Solaris 10 11/06 OS 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 11/06 OS or later in a GRUB-based environment, refer to the *Solaris 10 System Administration Guide: Basic Administration.*

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. The Java ES is preloaded on your server.

Online documentation for Java ES can be found at:

http://docs.sun.com/documentation

`suncfg` Utility

This `suncfg` utility is a command-line utility that runs on Windows and performs SP and BIOS configuration tasks that are useful in automated deployment. For more information, refer to the *x64 Servers Utilities Reference Manual,* 820-1120.

Hardware Error Report and Decode (HERD) Utility

The HERD utility runs on Linux for monitoring, decoding, and reporting correctable hardware errors. For more information, refer to the *x64 Servers Utilities Reference Manual,* 820-1120.

HERD Utility Supported on SLES 1.0 and RHEL 4.6

HERD utility is suppported on SUSE Linux Enterprise Server (SLES) version 10 and Red Hat Enterprise Linux version 4.6.

hd Hard Disk Mapping Utility

The hd utility runs on Solaris, Linux and Windows systems and provides a logical-to-physical mapping of the server's 48 hard disk drives. For more information, refer to the *x64 Servers Utilities Reference Manual*, 820-1120.

Disk Control and Monitoring Utility

The Disk Control and Monitoring (DCM) utility is a program for the Sun Fire X4500 server running the Microsoft Windows Server 2003 R2, Windows Server 2003 R2 SP2, Red Hat 4.5 Linux, or SUSE 10 Linux operating systems. DCM assists with drive insertion and removal, reports changes in disk configuration, and synchronizes the disk FRU (Field Replacable Unit) information with information stored in the Sun Fire X4500's BMC (also known as the Service Processor).

For details, refer to the *Sun Fire X4500 Server Operating System Installation Guide* (819-4362, for Solaris and Linux systems) or the *Sun Fire X4500 Server Windows Operating System Installation Guide* (820-0407).

Sun xVM Ops Center

Sun xVM Ops Center is a highly scalable, unified management platform for physical and virtual environments. Sun xVM Ops Center manages multi-platform x64 and SPARC systems distributed throughout a global datacenter and integrates with existing toolsets. Sun xVM Ops Center facilitates many aspects of compliance reporting (ITIL), data center automation, and enables the simultaneous management of thousands of systems.

Latest Firmware Updates

The latest firmware updates for the Sun Fire X4500 server are available on the Tools and Drivers CD supplied with your system. Or, you may download the latest version of the Tools and Drivers CD from the web, at:

http://www.sun.com/servers/x64/x4500/downloads.jsp

Ethernet Port (NIC) Device and Driver Naming

These servers each have four 10/100/1000BASE-T Gigabit Ethernet ports connected to individual Network Interface Cards (NICs). The chassis labeling of the physical ports is shown in FIGURE 1.

FIGURE 1   Ethernet Port Chassis Labeling Designations
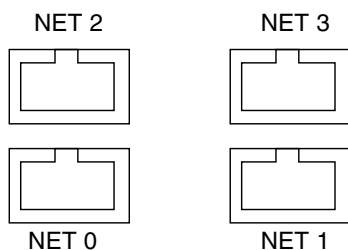
The logical device naming for the NICs is reported differently by different interfaces and operating systems.

See FIGURE 2 for a diagram that explains how operating systems and interfaces name the four NICs shown in FIGURE 1.

FIGURE 2   Sun Fire NIC Naming Conventions

BIOS	
slot 110	slot 111
slot 108	slot 109

Solaris 10	
e1000 g2	e1000 g3
e1000 g0	e1000 g1

Red Hat Linux	
eth2	eth3
eth0	eth1

SuSE Linux	
eth2	eth3
eth0	eth1

Windows 2003	
net3	net4
net	net2

VMware ESX	
vmnic3 6:2:0	vmnic0 6:2:1
vmnic1 6:1:0	vmnic2 6:1:1

Hardware, Firmware and BIOS Issues

The following issues apply to the Sun Fire X4500 server hardware, firmware, service processor (SP) or BIOS:

- "Recommended Racks" on page 9
- "Replacement of a Hard Disk Drive (HDD)" on page 10
- "Ejecting System Controller Requires Stylus or Pointed Device" on page 10
- "Newer Systems Might Have a Captive Screw Instead of a System Controller Eject Handle Release Button" on page 10
- "Press Firmly When Inserting the System Controller" on page 10
- "Take Precautions Before Removing HDD0 or HDD1" on page 10
- "Do Not Open the Fan Tray Cover for More Than 60 Seconds" on page 11
- "Do Not Leave the HDD Access Cover Open Longer Than Necessary, Especially When an HDD Slots Is Empty" on page 11
- "Locate LED" on page 12
- "Do Not Lift the Server by the Rear Slots" on page 12
- "Cable on PCI Card Is Difficult to Connect and Disconnect" on page 12
- "System Cooling Might Be Affected by Dust" on page 13
- "Memory Hole Remapping" on page 13
- "sd Treats An fdisk-Partitioned Disk As An EFI-Partitioned Disk (6355349)" on page 14

Recommended Racks

Because of its depth, the Sun Fire X4500 server fits best in 1000-mm racks. Sun recommends the Sun Rack 1000-42 and Sun Rack 1000-38. Installation documentation for these racks is included in the *X4500-J Slide Rail Installation Guide* (820-1858-10) and is shipped in the orderable rail kit box and is available online. This document is suitable for Sun products that list this kit as an accessory or option.

This document is online at:

http://www.sun.com/products-n-solutions/hardware/docs/Servers/x64_servers/x4500/index.html

For more information on Sun racks, see:

http://www.sun.com/servers/rack/index.html

Replacement of a Hard Disk Drive (HDD)

When replacing a hard drive, press the hard drive module firmly to ensure that it is properly seated.

Ejecting System Controller Requires Stylus or Pointed Device

Use a stylus or other nonconducting pointed device to push the system controller eject handle release button.

Newer Systems Might Have a Captive Screw Instead of a System Controller Eject Handle Release Button

To release the system controller eject handle, loosen the captive screw. To secure the system controller eject handle, tighten the captive screw.

Press Firmly When Inserting the System Controller

When inserting the system controller, push it in most of the way until you encounter resistance, then push again to ensure that it is well seated before lifting the system controller handle and clicking it into place.

Take Precautions Before Removing `HDD0` or `HDD1`

The drives in `HDD0` and `HDD1` are the system bootable drives as shipped. You should not remove `HDD0` until the Solaris 10 OS is shut down correctly.

Note – This does not apply to the Windows operating system.

The LEDs on each disk drive indicate its condition.

If the software detects that any drive has failed, the amber LED lights.

- On **non-bootable drives**, unconfigure the failed drive. This causes the blue LED to light, signalling that you can replace the drive.
- For the **bootable drives**, the amber LED lights, but the blue LED does not.

To replace a bootable drive, you must use additional steps:

- To remove the drive you booted from, you must shut down the system.

  For example, if you booted from HDD0 and the amber LED on HDD0 lights up, you must shut down the system to replace it.

- To remove a bootable drive that you did not boot from, use the cfgadm command to unconfigure the disk. When the blue LED lights, you can replace it.

  For example, if you booted from HDD0, and the amber LED on HDD1 lights up, you can use cfgadm to unconfigure HDD1, and when the blue LED lights, you can replace it.

Do Not Open the Fan Tray Cover for More Than 60 Seconds

If you open the fan tray cover while the server is running, you must replace it within 60 seconds to keep the server from potentially overheating.

Do Not Leave the HDD Access Cover Open Longer Than Necessary, Especially When an HDD Slots Is Empty

Do not leave the HDD access cover open longer than necessary. The HDD access cover should be closed as soon as any HDD service action is complete.

Sun supports the removal or replacement of only one hard disk drive at a time. Never remove more than one hard disk drive, even temporarily, from a system that is running.

Caution – The combination of an open HDD cover and empty slots can cause the system to overheat rapidly.

Locate LED

Normally, holding down the locate button for five seconds causes all indicators to come on for 15 seconds. However, when you do this, the locate LED might not stay on as long as expected.

Note – There are two locate LEDs: one on the front panel of the system and one on the rear panel of the system.

Do Not Lift the Server by the Rear Slots

The rear of the server includes three slots that can contain power supplies and a CMA bracket. Using any of these locations to lift the server might damage it and cause personal injury.

FIGURE 0-1 Rear Panel

Power Supply 0	Power Supply 1	CMA Bracket

System Controller
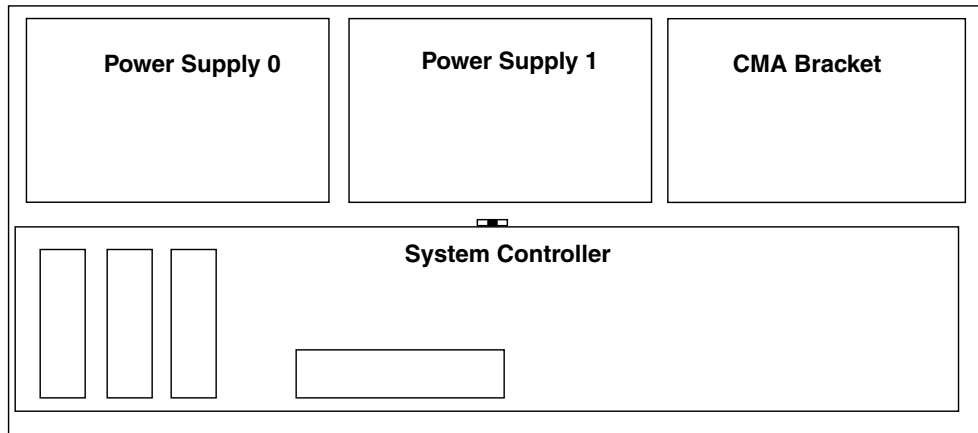
Cable on PCI Card Is Difficult to Connect and Disconnect

The X4500 rear panel is very dense. Cables for the following Mellanox InfiniBand PCI cards are difficult to install and remove:

- MHET2X-2SC
- MHXL-CF256-T

Be careful when installing or removing cables for these PCI cards.

System Cooling Might Be Affected by Dust

System cooling might be affected by dust and contaminant build-up. It is recommended that systems be opened and checked approximately every six months or more often in dirty operating environments. Check system heat sinks, fans, and air openings. If necessary, clean systems by brushing or blowing contaminants or carefully vacuuming contaminants from the system.

Memory Hole Remapping

There is a known issue with x64 platforms that have 4 GB or greater physical memory installed. Systems with this configuration will not be able to recognize all of the physical memory because of the memory configuration and PCI address settings. This condition is known as Memory Hole or PCI Hole. There will be a memory gap between the reported amount of available memory and the amount of physical memory in the system (for example, for a system with 4GB memory, the reported amount will be about 3.2 GB).

The size of the PCI hole is the total amount of PCI/AGP address space consumed for all devices as configured by the BIOS, and so is dependent upon items such as the amount of video memory, size of the AGP aperture, and the number of PCI devices.

With BIOS 0ABIG022, you can now remap memory around the memory hole and, if the operating system allows, programs can now access all the memory.

The default selection for memory remapping is Disabled. In order to enable memory remapping, you will need to choose one of the following options, depending on the type of processor that you have.

- For E-stepping Opteron Processors (model 252 or later): Choose the Hardware option, which enables the hardware to do memory remapping.
- For CG Opteron Processors (models earlier than 252): Choose the Software option, which provides a software emulation of the memory remapping. E-stepping processor systems can use this mode as well, but there might be a slight performance degradation.

To enable memory remapping in the BIOS

1. Press the F2 key at the Sun logo screen to enter the BIOS Setup utility.

2. Select the Advanced menu.

3. Use the arrow keys to select the Memory Hole Remapping option.

4. Press the F10 key to save your changes and exit the BIOS.

sd Treats An fdisk-Partitioned Disk As An EFI-Partitioned Disk (6355349)

If a GUID Partition Table (GPT) backup header is left on a disk after the disk is repartitioned to a format other than Extensible Firmware Interface (EFI) or GPT, the Solaris OS might treat the disk as EFI or GPT labeled. This error occurs only if an EFI or GPT labeled disk is repartitioned with earlier releases of Solaris or by using a utility that is not EFI or GPT aware. If the GPT backup is used, the following warning is displayed:

primary label corrupt; using backup

Workaround 1: Clear the entire disk before you repartition the disk.

```
dd if=/dev/zero of=/dev/rdsk/c1t3d0
```

Workaround 2: Clear the GPT backup header that resides in the last block of the disk. Perform the following steps:

1. Run the format command on the disk and specify the verify option. Note the values of the sectors.

   ```
   #echo  "verify" | format /dev/rdsk/c1t3d0 | grep "^sectors"
       Reading the primary EFI GPT label failed. Using backup label.
       Use the 'backup' command to restore the primary label.
       sectors = 143374743
   ```

2. (Optional) Copy the contents of the specified block.

   ```
   dd if=/dev/rdsk/c1t3d0 of=/var/tmp/lastblock iseek=143374743
   ```

3. Clear the specified block.

   ```
   dd if=/dev/zero of=/dev/rdsk/c1t3d0 oseek=143374743
   ```

Download Fails on Certain Drives (6653884)

The download microcode command fails on certain drives with Solaris 11, Solaris 10 4/08, and Windows OS 5, while the command works with other drives. This failure could be due to the large firmware file size.

Workaround: Download the code onto an LSI Host Bus Adapter.

Power-glitch Detection Is Disabled (6674155)

Power-glitch detection is temporarily disabled. A brief power interruption causes the host to hang rather than reset and restart. The feature in the field-programmable gate array (FPGA), which can be used to detect such events, is functioning as expected.

ILOM CLI Cannot Properly Parse Values Surrounded by Quotation Marks (6559544)

When entering a value that contains spaces for the property binddn under `/SP/clients/ldap`, the value is incorrectly parsed and results in a bad value.

Workaround: Add additional escape characters to make the value work properly.

Error Messages Are Displayed When System Operates in Low Ambient Temperature Environments

Error messages might appear when the system operates in a low ambient temperature environment.

Error Message Is Displayed When Executing `svcs -xv` Command

Executing `svcs -xv` with the pre-install version of the operating system loaded returns the following error:

```
svc:/system/webconsole:console (java web console)

 State: maintenance since Tue Jun 24 15:44:26 2008

Reason: Maintenance requested by an administrator.

   See: http://sun.com/msg/SMF-8000-63

   See: man -M /usr/share/man -s 1M smcwebserver

   See: /var/svc/log/system-webconsole:console.log

Impact: This service is not running.
```

Workaround: Issue the following command:

```
/usr/share/webconsole/private/bin/wcremove -i console
```

After this command is issued, reboot the server and verify that service is available by again issuing the `svcs -xv` command in a shell prompt.

Delay For SSH Connections After Setting Alert Rules (6715659)

After setting alerts on a with Integrated Lights Out Manager (ILOM) 2.0.2.5 with one failure, there is a delay in connecting to the system using SSH.

ILOM 2.0: GUI/CLI Sessions Never Times Out When Browser With No Cookies Are Used (6581097)

The ILOM Web interface requires that cookies be enabled in the user's browser. If login attempts are made with cookies disabled, system session resources could become depleted, preventing further logins from succeeding. (6580773)

Workaround: Disable the Web service to prevent this from occurring. Alternatively, always enable cookies in user browser. Reset the service processor to clear the resource failure.

ILOM 2.0: ILOM WebGUI Hangs For Other Users When Firefox Displays Warning About Certificate (6681331)

Log into ILOM WebGUI from one host. Verify WebGUI is responding. Open up a WebGUI with Firefox from another machine and wait for a warning message.

On Solaris the warning message says:

```
Website Certified by an unknown Authority
Unable to verify the identity of sun-ilon as a trusted site
```

On Windows the warning message says:

```
Security Error: Domain Name mismatch
```

```
You have attempted to establish a connection with "x.x.x.x"
```

While this window is up, the other WebGUI clients cannot access ILOM.

Mozilla Firefox's browser holds open the TCP transaction while displaying the confirmation dialog to the end user to ask whether the SSL certificate should be accepted. This prevents usage by other users because the ILOM web server (webgo) is a single-instance, single-threaded application.

Workaround: Answer the confirm dialog in a timely manner.

Fork Appears To Cause `pthread seg` Fault (6714006)

In rare circumstances, the Integrated Lights Out Manager (ILOM) Service Processor becomes unresponsive on Intelligent Platform Management Interfaces (IPMI), and BIOS displays `BMC Not Responding`, during boot.

Workaround: Reset the ILOM service processor using GUI, CLI, or SNMP interfaces, if it becomes unresponsive on IPMI interfaces, and BIOS displays `BMC Not Responding` during boot.

CD-ROM Redirection Stops (6734614)

CD-ROM redirection stops after user specifies in ILOM Remote Console not to stop CD-ROM redirection.

Workarounds:

If the system is booting from a bootable media like SIA:

- If this issue occurs during system boot, the workaround is to reboot.
- If system has already booted, then try reconnecting the media as a virtual CD-ROM.

If an OS is being installed when this issue occurs:

- Restart the system.

J4 Jumper Does Not Reset SP Password (6747636)

The ILOM BIOS password J4 jumper reset procedure resets the CMOS password, but does not reset the SP password to "changeme."

Workaround: Use uboot to reset both passwords:

1. **Determine if the ILOM SP first-level booter (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 X4500/X4540 Server Installation Guide* for details.

   - If no screen output is displayed, stop here. The GRASP board must be replaced. Refer to the *Sun Fire X4500/X4540 Server Service Manual* 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 does not echo. Cutting and pasting the characters improves the chance of success. You might try cycling power to the system and entering `xyzzy` several times.

---

3. **Disable automatic reboot.**

   Set the uboot environment variable, bootretry, to -1 to temporarily disable automatic reboot:

   ```
   set bootretry -1
   ```

4. **Configure to not save the current configuration:**

   ```
   set preserve_conf no
   ```

5. **Save your current environment:**

   ```
   saveenv
   ```

6. **Reboot:**

   ```
   boot
   ```

BIOS ROM Memory

In systems that have multiple PCI cards installed, and with the option ROM in all the cards enabled, the following error messages are displayed:

```
Not enough space to copy PCI option ROM.
Option ROM memory space exhausted.
```

The BIOS Option ROM is 128 KB. Of these 128 KB, approximately 86 KB are used by the VGA controller, the Marvell controller and the on-board NIC. Approximately 42 KB remain for the other option ROMs. Because of the order that the devices in the system are scanned and detected during system boot, the option ROM space is exhausted before all cards can be scanned. This affects which slots can be used for bootability.

Another side effect of this problem is that you cannot PXE boot using the on-board NICs. When you press F12 to PXE boot with this configuration, the following error message appears when the system tries to reach the PXE server:

```
PXE-ECI: Base code ROM-ID structure was not found.
Exiting Intel Boot Agent.
```

Devices and PCI Slots

Currently, the devices and PCI slots are detected by the BIOS during startup in the following order:

1. On-board SATA controllers 0 – 3

2. Onboard Intel NIC

3. On-board SATA controllers 4 – 5

4. Slot 0

5. Slot 1

To work around the problem for booting devices without exhausting all the option ROM memory,

■ Do not install PCI cards in slots 0 and 1.

■ Use the BIOS PCI/PnP menu to disable OPROM scanning for PCI-X slots 0 and 1.

Disabling OPROM Scanning

To disable OPROM scanning:

1. **Enter the BIOS Setup utility by pressing the F2 key while the system is booting up and performing POST.**

2. **On the BIOS Main Menu screen, select the PCIPnP tab to open the PCI/PnP Settings screen.**

3. **Change the lines for Scanning OPROM on PCI-X slots 0 and 1 to Disabled.**

4. **Press and release the right arrow key until the Exit menu screen is displayed.**

5. **Follow the instructions on the Exit menu screen to save your changes and exit the Setup utility.**

To work around the problem with PXE booting, disable OPROM scanning for all PCI slots by using the procedure above. After this, you can PXE install successfully.

Sync Flood on BIOS Menu (6427041)

A sync flood error is seen on BIOS menu. This is an intermittent issue.

The issue is seen on a system that can launch JavaRconsole and has the following:

- BIOS 011, SP 10370
- Solaris OS (snvx_38)
- LSI MPT HBA card
- Intel PRO Ethernet card

And, the following steps were taken to see this issue:

1. **Boot snvx_38 or snvx_39.**

2. **Copy the VTS iso image:**
   ```
   cp /net/iso/iso/sunvtscd/mfg/sunvtsbcd-s10u2b7-VTS6.2b8-mfg-
   2.1.iso /tmp
   ```

3. **Start JavaConsole:**
   Devices -> CD-ROM image -> (Include the path for the `sunvtsbcd-s10u2b7-VTS6.2b8-mfg-2.1.iso`)

4. **Make sure the Solaris Volume Manager sees the remote iso image.**

5. **Reboot the thumper host system:**
   Ensure system boots from the CD_DVD -> virtual CD-ROM. (By default system boots from the CD-DVD's virtual CD-ROM.) System takes about 10-15 minutes to boot.

6. **System then reboots itself.**
   BIOS -> Advance -> Event Logging details -> View Event Log

   ```
   Option Rom Meory space Exhausted
   ...
   A Hyper Transport sync flood error occurred on last reboot
   ...
   Option Rom Meory space Exhausted
   ```

Abnormal Voltage, io.v_-12v (6638811)

System shows abnormal unmatched `io.v_-12v` sel log entries.

System Hangs With Watchdog Time-outs (6746949)

System experiences intermittant hangs and results in a lock-up of the CPU due to a watchdog time-out

Workaround: The system can only be recoverd by a power cycle or rest.

Disks Missing in SEL When System Boots (6764150)

Upon OS boot, the System Error Log (SEL) reports that hard disk drives were shown as either `Hot Spared - Asserted` or `Drive Present - Deasserted`.

System Management and Service Processor Issues

The following issues apply to the Sun Fire X4500 server Integrated Lights Out Manager (ILOM) and Service Processor (SP):

SEL Occasionally Fails to Log ECC Error Messages

The service processor receives ECC Correctable and Uncorrectable error reports from BIOS, and logs these in the IPMI SEL (System Event Log) which are viewable from the ILOM web interface. On rare occasions, these messages do not get logged.

Correctable errors do not interrupt server operation. Uncorrectable errors always cause a server reset.

Workaround: Access the BIOS DMI Event Log, which has a full record of ECC Correctable and Uncorrectable errors.

Unconfigured Disk Appears in SP/IPMItool (6512915)

If you unconfigure a disk and remove it, it still appears in IPMItool.

For example, if you use the `cfgadm unconfigure` command:

```
cfgadm -c unconfigure sata4/6
```

then use IPMItool:

```
#ipmitool .. sunoem led get
hdd31.ok2rm.led | ON
hdd32.fail.led | OFF
```

New ILOM Flash Update Layouts

If you flash downgrade the SP firmware/system BIOS, you might be required to repeat the process. If this becomes necessary, a message will prompt you. This does not indicate a problem; simply repeat the procedure as instructed and it will succeed.

If the flash downgrade using the ILOM WebGUI, ILOM CLI, or N1 System Manager, does not succeed the first time, retry a second time to complete the process.

The new ILOM flash process does not power off the host unless a new BIOS is required. To force the updating of all components (including the BIOS) and therefore power off the host, use the CLI `load` command with the `-f` option.

For example, to force update all components to the Software Release 1.1.1 layout, use this command:

```
load -f tftp://tftpserver/ILOM.X4500-1.1.1.ima
```

Thermal Shutdown Does Not Log a CPU Fail Event in the SP SEL Log (6499953)

The SP does not log CPU failure events in the IPMI SEL log when a thermal shutdown occurs.

Workaround: To determine which CPU overheated, look for upper non recoverable temperature event(s) in the IPMI SEL log.

`help targets` Command Does Not Show All Objects Under `/SYS`

Typing the `help targets` command does not show all the valid targets under `/SYS`. This is a known issue.

Baud Rate and Flow Control Not Saved (6647450)

ILOM Service Processor settings for serial port baud rate and flow control on host and Service Processor serial port interfaces are not saved across Service Processor resets.

Workaround: Use 9600 baud or set an alternative baud rate after each Service Processor reset.

ILOM 2.0.2.5 and 2.0.3.1 on x64w ppc-SP platforms, now export both the virtual floppy/cdrom,

when the javarconsole webstart application is used to redirect floppy or cdrom media.

Default Boot Device Number Changes When Virtual Devices Are Enabled (6725713)

On systems with Integrated Lights Out Manager (ILOM) versions 2.0.2.5 or 2.0.3.1, the controller numbers of the USB virtual device CD-ROM drive or the USB virtual floppy drive changes when they are enabled. The controllers can be either 6 and 7 or 2 and 3 depending on when the virtual devices are enabled:

1. When the virtual devices are not enabled with Solaris 10 installed, the SATA HBA controllers are numbered from 0 to 5. When the virtual devices are enabled, the USB mass storage controllers become numbers 6 and 7.

2. When the virtual devices are enabled with Solaris 10 installed, the SATA HBA controllers numbers are 0, 1, 4, 5, 6 and 7, and the controller numbers for the USB virtual devices are 2 and 3.

Upgrading to ILOM 2.0.2.5 Changes Controller IDs

If you upgrade an X4500 to ILOM 2.0.2.5 and reinstall Solaris, several of the Solaris disks device, including the boot disks, names may change. You may need to change your jumpstart configuration and any scripts you may have created for ZFS or UFS filesystems.

The following sample output shows the disk naming on an X4500 system before it has been upgraded to ILOM 2.0.2.5:

```
# hd
platform = Sun Fire X4500
...
---------------------SunFireX4500------Rear----------------------
36:    37:    38:    39:    40:    41:    42:    43:    44:    45:    46:    47:
c5t3   c5t7   c4t3   c4t7   c7t3   c7t7   c6t3   c6t7   c1t3   c1t7   c0t3   c0t7
^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++
24:    25:    26:    27:    28:    29:    30:    31:    32:    33:    34:    35:
c5t2   c5t6   c4t2   c4t6   c7t2   c7t6   c6t2   c6t6   c1t2   c1t6   c0t2   c0t6
^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++
12:    13:    14:    15:    16:    17:    18:    19:    20:    21:    22:    23:
c5t1   c5t5   c4t1   c4t5   c7t1   c7t5   c6t1   c6t5   c1t1   c1t5   c0t1   c0t5
^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++
 0:     1:     2:     3:     4:     5:     6:     7:     8:     9:    10:    11:
c5t0   c5t4   c4t0   c4t4   c7t0   c7t4   c6t0   c6t4   c1t0   c1t4   c0t0   c0t4
^b+    ^b+    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++    ^++
-------*-----------*-SunFireX4500--*---Front-----*-----------*-----
```

The following sample output shows the disk naming on an X4500 system that has been upgraded to ILOM 2.0.2.5:

```
# hd
platform = Sun Fire X4500
...
--------------------SunFireX4500------Rear-----------------------
36:   37:   38:   39:   40:   41:   42:   43:   44:   45:   46:   47:
c3t3  c3t7  c2t3  c2t7  c5t3  c5t7  c4t3  c4t7  c1t3  c1t7  c0t3  c0t7
^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++
24:   25:   26:   27:   28:   29:   30:   31:   32:   33:   34:   35:
c3t2  c3t6  c2t2  c2t6  c5t2  c5t6  c4t2  c4t6  c1t2  c1t6  c0t2  c0t6
^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++
12:   13:   14:   15:   16:   17:   18:   19:   20:   21:   22:   23:
c3t1  c3t5  c2t1  c2t5  c5t1  c5t5  c4t1  c4t5  c1t1  c1t5  c0t1  c0t5
^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++
0:    1:    2:    3:    4:    5:    6:    7:    8:    9:    10:   11:
c3t0  c3t4  c2t0  c2t4  c5t0  c5t4  c4t0  c4t4  c1t0  c1t4  c0t0  c0t4
^b+   ^b+   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++   ^++
-------*-----------*-SunFireX4500--*---Front-----*-----------*-----
```

General Software Issues

This section contains issues that apply to Sun Fire X4500 server running Sun optional software.

- "Tools and Drivers, Sun Installation Assistant, and Bootable Diagnostics CD" on page 26
- "Ignore Messages When Booting from SunVTS Bootable Diagnostics CD .iso Image, Version 2.1f" on page 26
- "All Drives in RAID Volumes Must Have Same Capacity" on page 27
- "Configuring PowerNow! for Your OS" on page 27
- "Marvell Warning Messages Appear When Hard Disk Is Removed or Inserted" on page 27
- "Boot Off Of Flash Archive (FLAR) Fails" on page 28

Tools and Drivers, Sun Installation Assistant, and Bootable Diagnostics CD

Because software versions are updated frequently, check the product download site for the latest versions of the software that are qualified by Sun.

The Tools and Drivers, Sun Installation Assistant, and revised bootable diagnostics software might not be shipped with early production systems. Instead, they are available on the product download site.

To access the product download site, go to the following web site and locate the Downloads section:

http://www.sun.com/servers/x64/x4500/support.xml

Ignore Messages When Booting from SunVTS Bootable Diagnostics CD `.iso` Image, Version 2.1f

If you boot from the SunVTS Bootable Diagnostics CD `.iso` image, version 2.1f, through a virtual CD-ROM or on some CD-ROM models, you might see the following messages. These messages are informational only and do not indicate a failure:

```
Sep  7 03:49:11  scsi: [ID 107833 kern.warning] WARNING:

/pci@0,0/pci1022,7460@6/pci1022,7464@0,1/storage@1/disk@0,0 (sd0):

Sep  7 03:49:11          Error for Command: read(10)       Error

Level: Fatal

Sep  7 03:49:11  scsi: [ID 107833 kern.notice]  Requested Block:

109118                    Error Block: 109118

Sep  7 03:49:11  scsi: [ID 107833 kern.notice]  Vendor:

AMI                                Serial Number:

Sep  7 03:49:11  scsi: [ID 107833 kern.notice]  Sense Key: Media Error

Sep  7 03:49:11  scsi: [ID 107833 kern.notice]  ASC: 0x11 (unrecovered

read error), ASCQ: 0x0, FRU: 0x0
```

All Drives in RAID Volumes Must Have Same Capacity

All the drives in a RAID volume must have the same capacity. Mixing drives with different capacity in the same RAID volume can result in unpredictable behavior.

Configuring PowerNow! for Your OS

The Sun Fire X4500 server includes AMD's PowerNow! technology, developed by AMD to reduce power consumption and heat dissipation. PowerNow! accomplishes this by lowering the CPU frequency and voltage when the kernel load is low.

Note that changes in CPU frequency and voltage with PowerNow! cause fluctuations in the clock speed. Depending on your utilization of system resources, the indicated speed might be substantially lower than the actual (maximum) rating of your CPU. For example, if you installed a 2.2 GHz processor; at times of low demand, the CPU could clock down and indicate only approximately 1.0 GHz. This is normal and indicates that your system is in a power-saving mode.

Note – PowerNow! is not supported on all operating systems. On some operating systems which do support it, PowerNow! is enabled by default. Read the following information carefully for your particular operating system.

PowerNow! Not Supported on Solaris OS

PowerNow! is not supported on the Solaris operating system. However you do not need to take any action, because leaving it enabled has no impact on reliability or performance.

Marvell Warning Messages Appear When Hard Disk Is Removed or Inserted

Marvell warning messages appear in the `/var/adm/messages` file when a hard disk is removed or inserted.

These messages are informational only and do not indicate a failure.

Boot Off Of Flash Archive (FLAR) Fails

The Flash Archive (FLAR) is an image taken from a running system and saved to the ZFS of another system to facilitate the installation of the other system.

The bootup on the other system might fail due to the PCI bus scan during or after POST. This might be due to the system having boot drives in different slots than those of the original system. Because of this, files are not able to load correctly from the FLAR image and results in boot failure.

Workaround: Reload the system using the CD-install method.

Solaris OS Issues

This section lists issues that are specific to the Solaris operating system.

How to Reinstall the Solaris OS

Your Sun Fire X4500 Server comes preinstalled with the Solaris 10 5/08 OS. If you need to reinstall Solaris 10 5/08, it is available from the Sun Download Center at:

http://www.sun.com/software/solaris/get.jsp

To recreate the factory-installed configuration, perform the following steps:

1. **Install Solaris 10 5/08 OS.**

2. **Install patch 138053-02 or later.**

3. **Install the** hd **utility for the Solaris OS from:**

   http://www.sun.com/servers/x64/x4500/support.xml

4. **Mirror the two bootable disks.**

For more information, see the *Sun Fire X4500 Server Administration Guide* (819-6562).

5. **Ongoing recommended patches are made available at the following web site:**

   http://www.sun.com/servers/x64/x4500/support.xml

Marvell Disk Controller Warning Messages (6538627, 6381939)

You might see multiple Marvell disk controller warning messages in the `/var/adm/messages` file. Here is a list of the most common and what you can do about them (additional information on Marvell warning messages might be found in the marvell88sx man page):

Error	Description
marvell88sx<n>: error on port <y>	This is a generic lead-in message which indicates on which Marvell controller (<n>) and which port (<y>) on the controller an error has occurred. It will be followed by more specific information. Take action, as necessary, on the follow-up messages.
ATA UDMA data parity error	This message appears due to a PCI or internal parity error during an ATA UDMA data transaction. This would indicate a hardware failure. Contact service personnel.
ATA UDMA PRD parity error	This message appears when a PCI or internal parity error is recognized when fetching a new PRD descriptor from system memory. This would indicate a hardware failure. Contact service personnel.
BIST FIS or asynchronous notification	The device reported a built-in self test result or other asynchronous notification about its state. No action required.

Error	Description
command request queue parity error	A PCI or internal memory error occurred while accessing the request queue. This indicates a hardware failure. Contact service personnel.
command response queue parity error	A PCI or internal memory error occurred while accessing the response queue. This indicates a hardware failure. Contact service personnel.
device connected	The device has been electrically connected. This occurs when the device is connected. This is normal behavior upon connecting a device. No action is required.
device disconnected	The device has been electrically disconnected. This can be caused by physically disconnecting the device, a poor power connection, vibration or during a device reset. If there is no obvious operator-induced reason for this condition, check for poor seating of the device or an environmental reason. If this condition persists, service personnel should be contacted.
device error	A device has reported that it is in an error state. This error could range from a fatal flaw in the device to a bad sector on the disk. A surface analysis of a disk might show bad blocks which can be overwritten. The disk might be subject to vibration, heat or seating issues which might require it to be replaced. Repeated device errors on the same device indicates that service personnel should be contacted.
device reset	This message indicates the attached device was reset. This reason for the reset will be described in a follow-up message. Device resets are required under a large number of circumstances. The device reset message itself does not require any action. View the follow-up messages to determine if action is needed.
EDMA self disabled	This message indicates that the controller has disabled DMA operations due to an interruption caused by any number of events including a device error. No action is required.
internal memory parity error	An internal memory error occurred in the controller. This indicates a hardware failure. Contact service personnel.
I/O ready time-out	The device failed to respond the a programmed I/O request in a reasonable amount of time. This indicates a hardware failure of the attached device. Contact service personnel.

Error	Description
`link established`	This message indicates that the SATA communication link has be made. This is expected when a device is first connected or when the device is enabled programatically (using `cfgadm`).
`link lost`	This message indicates that the SATA communication link was lost. This might be caused by programmatic operator action (using `cfgadm`) or physically unplugging the device or by the device being reset or by poor signal integrity.
	If the cause of the loss of signal was due to an operator action, or was immediately preceded by a "device reset" message, no action is required.
	If you receive this message spuriously (not as part of a disk removal operation), reseating device connections should be attempted. Repeated messages of this sort with no obvious source would indicate a hardware problem. Contact service personnel.
	No action required.
`SError interrupt`	One or more of the following conditions has occurred:
	• SATA link communication wake up
	• 10-bit to 8-bit error
	• incorrect disparity
	• link sequence error
	• transport state transition error
	These all indicate communication transition or error states over the SATA link.
	The "`SATA link communication wake up`" occurs normally after a device connects and requires no action. Some or all of the other conditions might occur transitionally when a disconnection occurs. Rule of thumb: if the message occurs once, at the time of a device disconnect, then no action is required.
	If these messages are persistent, this could indicate poor signalling over the SATA link. Check to ensure devices are properly seated and connected. If the problem persists, contact service personnel.

Mode Sense Page 0x3 Fails in `Format -M` for `fdisk` Type "IFS:NTFS, OtherOS, None" (6393815)

If `format (1M)` is run on a disk that contains partitions for systems other than the Solaris operating system, the `fdisk` subcommand might fail with the following error message:

```
Current Disk Type is not set
```

Workaround: In this case, use the standalone `fdisk (1M)` utility to create a Solaris partition and then complete the disk slice configuration in `format(1M)`.

`iostat -E` Reports Excessive Number of Soft Errors on SATA Drives (6427672, 6397613)

These messages can be ignored.

Similar messages might also appear on Virtual CD ROM. They can also be ignored.

Message "Bad PBR Sig" Appears During Boot

The message "Bad PBR sig" during booting indicates that you are trying to boot from a non-bootable device.

Workaround: To correct this, boot from a bootable drive. See the *Sun Fire X4500 Server Guide for Preinstalled Solaris 10 Operating System, (819-7148)*.

SATA `cfgadm` Does Not Always Show All SATA Attachment Points (6386934)

SATA `cfgadm` might not display all SATA attachment nodes if any instance of the HBA is detached. This can happen after the boot, because unused drivers might be unloaded.

When the HBA driver is unloaded, there is no entity that can manage the SATA attachment point nodes on given controller instances. The display does not show the SATA attachment points, and hot-plugging of SATA devices is unnoticed by the user and the system. This can cause confusion and potential mishandling of the devices.

Workaround: Running `devfsadm -C` loads SATA drivers and force initializing all SATA controller instances. Then, `cfgadm` would display all SATA attachment points.

`cfgadm_sata` Might Not Display a SATA Attachment Node if IOCTL Directed To The Node Fails (6397654)

It is possible that some SATA attachment points will not appear in the list of SATA attachment points displayed by `cfgadm`.

This problem is transient. The attachment points should appear on subsequent `cfgadm` invocations.

ZFS Data Synchronization Slows System Performance (6430480)

ZFS data synchronization of data slows system performance.

DCMU Hot-plug Causes Inconsistent Output From `cfgdisk` (6571540)

After a hot plug of a drive, cfgdisk intermittently shows the inserted disk as "Disconnected or not present." Steps to duplicate this problem:

1. **Disconnect the disk using cfgdisk**

   ```
   # cfgdisk -o disconnect -d sata1/5
   ```

2. **Unplug the disk**

3. **Plug the disk in again**

4. **Connect the disk using cfgdisk**

   ```
   # cfgdisk -o connect -d sata1/5
   ```

At this point, the disk is still reported as `Disconnected or not present`. However, the output of `ipmitool -I open sdr elist` shows the disk as `Drive Present`.

Cannot Boot After Installing Windows 2003 64 Bit onto Solaris 10 8/08 (6796016)

When installing Windows 2003 64 bit onto a system with the pre-installed Solaris 10 8/08, if all partitions are not removed, the system fails to reboot. After `copying files to system...` system prints, `Windows could not start because of a computer disk hardware configuration problem....`

Workaround: Manually remove all partitions before installing Windows 2003.

System Hangs after `mvSatalinux` Driver (6792429)

After installing the driver for `mvSatalinux`, the system hangs during booting up. The terminal and reports: `Waiting for device /dev/disk/by-id/scsi-SATA...... to appear`.

Workaround: Current workaround is to change the system's root device in `/boot/grub/menu.lst` to `/dev/sdy1`.

Linux OS Issues

This section lists issues that are specific to the Linux operating system.

Deprecated SCSI Calls When Using smarttools or Sun DCMU (6549823)

Due to deprecated SCSI calls when using smarttools or Sun Disk Control Monitor Utility. You see the following warning messages in the system logs when using these tools:

```
kernel: program smartctl is using a deprecated SCSI ioctl,
please convert it to SG_IO
```

or

```
kernel: program diskmond is using a deprecated SCSI ioctl,
please convert it to SG_IO
```

The messages are benign.

Single 10-Gigabit Ethernet PCI-X Adapter Cards Can Ping Each Other Only After Disabling the MSI Mode (6518874)

Instructions in the *Sun 10-Gigabit Ethernet PCI-X Adapter Installation and User's Guide* require modification on pages 53-56. These instructions apply to the Sun 10-Gigabit Ethernet PCI-X adapter card to work on the RHEL4 Update 4 64-bit.

Workaround: The following steps require the additional action:

Before Step 1, remove the `ixgb` with the following command:

`# rmmod ixgb`

Modify Step 6 from `#modprobe ixge` to `#modprobe ixge MsiDisable=1`

This step disables the MSI mode.

Ethernet Interface Name Reordering

Linux automatically reconfigures the device numbers when Ethernet option cards are inserted and configured. This might confuse the PXE installation and users.

Workaround: Use the interactive PXE installation method, which lets you select the appropriate ethernet device during run time. To enable the interactive method:

1. Add an "interactive" macro in the kickstart file.

2. Change the default file under the PXE server to present the ethernet device. An example default file entry might look like:

```
label th-rhel4.5-64-everything
kernel os_images/rhel4.5as_64/images/pxeboot/vmlinuz
append initrd-4500/rhel4.5as_64/initrd.img ksdevice=eth0 load_ramdisk=1 network
ks=nfs:xx.xx.xx.xx:/data/shared/pxeboot/4500/rhel4.5as_64/ks_everything.cfg
```

The value `ksdevice=eth0` hard codes the ethernet device `eth0`. Since `eth0` can change to `eth4` or `eth5`, do not hard code the value.

3. This step applies to a system which is up and running. This binds the device number to the mac address of the ethernet device.

   a. For `ifconfig ethX`, replace `X` with the corresponding numeral, for example: `eth0`.

   b. Copy the mac address.

   c. Edit the `ifcfg` file that corresponds to the device `/etc/sysconfig/network-scripts/ifcfg-ethX`. Replace X with the corresponding numeral, for example: `eth0`.

   d. Add the previously copied mac line: `HWADDR=XX:XX:XX:XX:XX:XX`

DCMU Does Not Work Properly Due To SATA Driver Issue In SLES 10 SP1 (6637535)

DCMU does not properly detect a faulty HDD under SLES 10, SP1.

`udev mount` by ID Option Is Incompatible With `mv_sata` (Closed Source) Driver (6548621)

As part of SLES 10 installation, `udev` is run to populate peristent links to different devices. `udev` uses `scsi_id` program that gets the serial number of the device by sending a inquiry `ioctl` command (0x12). This inquiry command fails to report the serial number in the Non GPL version of the SATA driver.

Functionality To Disable Write Cache Option on `mv_sata` Linux Driver Is Needed (6625187)

The sudden powering off of system results in hardware errors. The ability to disable the write cache option for `mv_sata` linux driver is needed.

Workaround: The write cache can be disabled by a command-line utility like `sdparm`.

SUSE Linux Driver For 10-GB Fiber Card Is Not Available (6623929)

SUSE Linux driver is needed for the 10-GB fiber card.

Unable to Change MBR to `/dev/sdy` using SLES 10 SP1 Installation GUI (6636730)

User is unable to change MBR to `/dev/sdy` under SLES10 SP1. In SLES10, this functionality is present.

Workaround: Change device mapping by editing the GRUB configuration file from manual installation GUI in SLES10 SP1.

After manually partitioning the disks, for example, `/dev/sdy`, go to the section Boot loader in expert mode in the GUI.

1. **A screeen with the heading Boot Loader Settings appears.**

2. **Go to the first table named Section Management.**

3. **Click on the button, Others, at the right-hand bottom.**

4. **Click on Edit Configuration Files.**

5. **Click Expert Manual Configuration.**

6. **At the top of the page, the configuration file to be edited can be selected. There is a listview of 3 files:**

   a. **. /boot/grub/device.map**

   b. **. /boot/grub.conf**

c. . /etc/grub.conf

   The first file is selected by default and opened in an editable interface.

7. **In that file, change the following entries as follows:**

   `(hd0) /dev/sdaa` to `(hd46) /dev/sdaa`

   `(hd46) /dev/sdy` to `(hd0) /dev/sdy`

   (You are swapping the hd46 and hd0 entries.)

8. **In file b and file c, change hd46 to hd0. Don't change anything else.**

9. **Click ok/finish.**

   System prompt you to load default configuration. Select No and continue your installation.

RHEL 4.5 and RHEL 4.6 Non-Uniform Memory Access (NUMA) Applications Do Not Perform As Expected (6719368)

Applications that are controlled by Non-Uniform Memory Access (NUMA) and applications that rely on `numactl` do no perform as expected on RHEL 4 through RHEL 4.7. These issues are due to NUMA recognizing only three CPU nodes instead of the actual four. See output below for the `numactl --show` command after nodebind:

```
# numactl --show
policy: default
preferred node: 0
interleavemask:
interleavenode: 0
nodebind: 0 1 2
membind: 0 1 2 3
cpubind: 0123456789101112131415
```

This issue does not impact newer applications that are able lto use `/sys/devices/system/node/`.

Workaround: Configure the applications to use `/sys/devices/system/node`, or configure the applications to use NUMA's config file.

RHEL 4.x `sata_mv driver` Does Not Set 64-bit DMA Mask Causing "Out of IOMMU Space" (6752388)

On a system running RHEL 4.x, when thousands of I/O intensive threads are run, the IOMMU space fills and causes watchdog timeout sync floods. This issue is more dependent on how many concurrent threads are running rather than how long they have been running.

In the `sata_mv` driver source in RHEL4.x, the driver does not enable 64-bit DMA. Hence, it ends up using IOMMU for accessing higher addresses. However the default IOMMU space is 64 MB (OS default). But during I/O intensive load, with thousands of concurrent threads, this 64 MB space is not enough and quickly gets filled causing the above mentioned error. To set the DMA mask to 64 bit would require recompilation of the `sata_mv` driver in RHEL4.x. This problem does not occur with RHEL 5.1, RHEL 5.2, or with the Marvell SATA driver (mv_sata).

This problem does not occur with RHEL 5.1, RHEL 5.2, or with the Marvell SATA driver (`mv_sata`).

Workaround: Set kernel option such that `iommu=memaper=3` to increase the size of the memory aperture from 64 MB (OS default) to 512 MB. This increases the aperature space by 2^3 times default (512MB) and is enough to sustain the load of I/O-intensive threads. For heavy loads on 4.x kernels, the `mv_sata` driver should be used because it is 64-bit DMA-enabled and scales well enough to avoid this issue.

RHEL 4.7 Installation Fails With SIA When 10-Gb Intel Network Card is Installed (6772570)

Installing RHEL 4.7 x86_64 fails when using SIA and when the system has an installed Intel 82598 10-Gigabit Ethernet option card.

The installation succeeds, but upon boot-up the GRUB boot tool is not able to locate the `initrd` file and the boot process fails.

Workaround: Remove the Intel 82598 10-Gigabit Ethernet controller and then install the RHEL.

Windows OS Issues

This section lists issues that are specific to the Microsoft Windows operating system.

- "Ability To Monitor And Control HDDs Using IPMI On The Host OS Is Not Supported (6434272)" on page 40
- "Windows Installation Might Fail Using SIA" on page 40
- "Windows DCM Does Not Uninstall DCM Properly (6663504)" on page 40
- "DCM Installation Error Message (6663511)" on page 41
- "Remove Disk Command" on page 41
- "Installing Disk Control and Monitoring (DCM) Remote Scripts" on page 41
- "Cannot Install Windows 2003 on Disk with RHEL5 U2, 64-bit (6791971)" on page 41

Ability To Monitor And Control HDDs Using IPMI On The Host OS Is Not Supported (6434272)

You cannot control or monitor the hard drives via the service processor or IPMI.

The Ready to Remove and Fault LEDs on the hard drives do not provide reliable information about the state of the hard drive.

Windows Installation Might Fail Using SIA

The Windows 2003 server OS installation using Sun Installation Assistant (SIA) might fail if a Windows bootable disk is present in one of the non-boot drives.

Windows DCM Does Not Uninstall DCM Properly (6663504)

After installing DCM, attempting to remove DCM using Control Panel -> Add or Remove Program results in an error message.

DCM Installation Error Message (6663511)

After installing Microsoft framework 2.0 (x86) and DCM, launching DCM intermittently results in an `Unhandled exception` error message.

Workaround: Quit the Unhandled Exception error message and relaunch DCM.

Remove Disk Command

Use caution when removing dynamic drives with volumes.

Note – The `Remove Disk` command deletes the volume(s) on the selected disk. Do not perform this action on disks that have data you want to keep as the data will be lost.

For more information, see the DCM Operation Examples section in the *Sun Fire X4500 Server Windows Operating System Installation Guide*.

Installing Disk Control and Monitoring (DCM) Remote Scripts

`InstallPack.exe` (included in server software version 1.4), is used to install the Disk Control and Monitoring (DCM) application on the Sun Fire x4500 server. During installation, the DCM Remote Script installer (`DCMRemoteSetup1.1.1.msi`) is copied to the Windows desktop.

In order to install and use the DCM Remote Script feature, refer either to Chapter 11 "Disk Control and Monitoring", in the *Sun Fire X4500 Server Windows Operating System Installation Guide* (820-0407), or the "DCM Remote Client" section in the DCM application online help.

Cannot Install Windows 2003 on Disk with RHEL5 U2, 64-bit (6791971)

Windows 2003 can't be installed onto a disk with RHEL5 U2, 64-bit image and hangs with message: `setup is installing Windows`. The target disks were partitioned by fdisk under RHEL5/SLES10.

Workaround: Unplug these disks, then reinstall the OS.

Documentation Issues

The following issues were found in the documentation.

- "Incorrect Example in Section Titled, "Edit Existing IP Addresses in ILOM Using the CLI" (6654413)" on page 42
- "Addendum to the Sun Integrated Lights Out Manager 2.0 User's Guide Contains Information That Does Not Apply" on page 42

Incorrect Example in Section Titled, "Edit Existing IP Addresses in ILOM Using the CLI" (6654413)

IP Addresses in the *Sun Integrated Lights Out Manager 2.0 User's Guide* procedure, "Edit Existing IP Addresses in ILOM Using the CLI" provides instructions where `set pendingipnetmask=` appears twice in the example. Instead, the line `pendingipgateway=` should be included.

Addendum to the Sun Integrated Lights Out Manager 2.0 User's Guide Contains Information That Does Not Apply

The *Addendum to the Sun Integrated Lights Out Manager 2.0 User's Guide* covers a wide range of x64 servers. Thus, some of the information in that document does not apply the the SunFire X4500 server.

The following lists which topics in the *Addendum* apply to the Sun Fire X4500 servers. All other topics do *not* apply.

- ILOM CLI Cannot Properly Parse Values Surrounded by Quotation Marks (6559544)
- Documentation Error: Edit Existing IP Addresses in ILOM Using the CLI Procedure Gives Incorrect Instruction (6654413)

Sun Fire X4500-to-X4540 Migration User's Guide

The table on page 11 of Sun Fire X4500-to-X4540 Migration User's Guide (819-4364-19) should read as:

TABLE 1 Drive Swap Migration Summary

System	Boot Controller	Boot Drive Slot	Mirrored Drive Controller	Mirrored Drive Slot
X4500	c3	0	c3	1
X4540	c0	0	c1	8

Resolved Hardware, Firmware or BIOS Issues

The following are resolved hardware, firmware, or BIOS issues for this release.

Fan Tray LEDs (6469493, 6456577)

The fan tray LEDs operate as follows:

- Green LEDs might be off when the fan is functioning normally.
- Blue LEDs are not used.
- Amber LEDs are on if either or both fans are slow or stopped.
- The front panel fault indicator for TOP is on if a fan tray has a fault condition.

Note – The front panel TOP indicator might also indicate that a service action is required for a hard disk drive.

This issue was fixed in software release 3.0.2.1.

`ipmiflash` Exits With "lost contact with host" (6694423)

During Service Processor firmware upgrade, ipmiflash gives the error message, "lost contact with host" and exits.

Workaround: When ipmiflash comes back up, the system has been upgraded with the correct version of the firmware.

This issue was fixed in ipmiflash-1.8.9.5.

CLI Processor Might Have Issues Setting Multiple Properties Simultaneously (6544145)

The ILOM CLI might have issues setting multiple properties simultaneously.

Workaround: You must set properties individually. For example, to set ipaddress to 10.8.168.64:

```
set /SP/clients/ldap ipaddress=10.8.168.64
```

This issue was fixed in software release 2.0.3.1.

System Shuts Down While Attempting To Boot After a Thermal Shutdown (6494327)

When the system attempts to reboot after a thermal shutdown, it might shut down during the boot process.

When a component is overheated, it requires time to cool down.

Workaround: After correcting the cause of the overheating, if the system still fails to boot correctly, wait 30 minutes to restart it.

This issue was resolved in software release 2.0.2.1.

SP Does Not Support 115200 Baud (6499189)

The SP has been upgraded to support selectable baud rates. However baud rate 115200 is not supported. Do not set the baud rate to 115200.

This issue was resolved in software release 2.0.1.

ILOM Service Processor Is Unresponsive And Access To USB Devices Fail (6708525)

In rare circumstances, the Integrated Lights Out Manager (ILOM) Service Processor becomes unresponsive on USB interfaces, and access to a virtual USB mouse/keyboard/floppy/cdrom fails.

Workaround: Reset the ILOM Service Processor using the GUI, CLI, IPMI, or SNMP interface.

Unable To Format The Virtual Floppy From Solaris Host (6593484)

Unable to format the virtual floppy disk with a Solaris system as a host. This issue was observed when the following steps were taken:

1. Redirect the floppy device from a Windows XP system as a client.

Execute "rmformat -F force virtualFloppyRawDevice" from a Solaris system as a host (formatting a physical floppy disk attached directly to the system).

Resolved System Management or Service Processor Issues

The following are resolved system management and Service Processor issues for this release.

WebGUI Might Not Respond After Changing the SP's IP Address From WebGUI (6496327)

If you change the SP's IP address using the ILOM WebGUI (web interface), WebGUI might become unresponsive.

Workaround: Do one of the following:
- Use ILOM CLI to change the SP IP address.
- Clear the browser's cache and cookies after using ILOM WebGUI to change the SP's IP address.

This issue was fixed in software release 2.0.

Redirection Does Not Work if Network IP Gateway Address is Incorrect (6494290)

Configure either a valid IP gateway or 0.0.0.0 if no gateway is required. Otherwise redirection does not work.

Use the ILOM WebGUI Network Configuration tab or the CLI SP/network object to configure the gateway IP address.

This issue was fixed in software release 1.1.8.

Uploading SSL Certificate Without the Key Causes Port 443 To Not Open (6554510, 6550394)

If the SSL certificate is uploaded to the ILOM web interface without the key, it causes port 443 to not open.

Workaround: Errors when uploading the SSL certificate might cause the https interface to not work correctly. To resolve the issue, re-flash the ILOM service processor, (without preserving configuration), by using CLI or ipmi flash upgrade procedures.

CLI Sessions Might Lose Data Due to `tftp` Timeout (6554507)

A ILOM CLI session might lose data if a new image upload fails due to a timeout tftp during download.

Workaround: Close the current ILOM CLI session and open a new session.

SNMP Fails To Respond After Enabled/Disabled of V1,V2c,V3 and Sets (6554515)

The ILOM service processor might have issues starting services, when the maximum number of users or communities are configured, or multiple commands are issued immediately.

Workaround: Do not configure the maximum number of users or communities, and wait several seconds between each configuration command.

JavaRConsole Can Crash Installing Solaris 10 11/06 OS From Mounted CD from SUSE 10 Platform (6507785)

The ILOM JavaRConsole remote applet might have problems mounting physical media such as DVDs, CD-ROMs, and floppies on remote clients, particularly with SUSE 10.

Workaround: Either copy the media to an image file to perform redirection, or use Solaris 10 or Windows XP SP2 as the remote client.

Java Console Displays Error Message When Starting Up Remote Console Session (6441908)

When attempting to start a remote console session, the Java™ console starts, then displays a message "Checking for the Latest Version", and does not proceed.

Workaround:

- Ensure that the latest versions of Java and Java Webstart are installed. It should be version 1.0.5 or greater.
- Ensure that the SP is connected to a 100 Mb port or a switch with 100 Mb capability.

This issue will not be fixed.

TOP_SVC, REAR_SVC, and /SYS/FT4 Entries Missing from CLI and WebGUI (6502713)

To monitor these objects, use the IMPI utility's `ipmitool sdr` command.

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/ILOM upgrade, this FRU information is empty until the first host BIOS POST.

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

Serial Console on Host System Might Stop Working After BIOS Update Until CMOS Settings Are Cleared (6489959)

After updating the system BIOS, you might need to clear CMOS settings to get serial console output from the host. This is because CMOS defaults might be changed from your existing settings in the new BIOS.

Workaround: If you cannot get serial console output, clear the CMOS settings. 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
```

User Cannot Login to ILOM WebGUI After Flashing New Image (6513809)

Sometimes after flashing an image on SP, the ILOM WebGUI does not allow you to log in and gives an `Authentication fail` error. Clearing the cache and cookies of the web browser enables you to log in as usual.

Cannot Set Syslog IP Address When Zeros Are Used (6547470)

An attempt to set the syslog IP address fails if the address contains an octet of 0. For example, 10.10.10.10 and 100.100.100.100 works, while 19.52.0.17 does not work.

ILOM Does Not Handle SNMP Traps (6396525)

ILOM does not support SNMP traps for the SUN-PLATFORM-MIB.

Workaround: 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 platform event filter (PEF) rules directly in IPMI.

Resolved General Software Issues

The following are resolved general software issues for this release.

A Test Parameter in the SunVTS Disktest Is Set to a Default That Causes a Longer Running Time (6548088)

One of the test parameters in the SunVTS-disktest, Media Transfer Size, is set to 32 KB by default. It can take a long time for the disktest to complete one pass.

Workaround: To improve the performance:

1. **Before starting the SUNVTS test, right-click the disktest and select Test Parameters Options.**

2. **Select 256KB for the Media Transfer Size.**

3. **Select Apply to All for Across All Instances.**

This setting allows the test to complete one run in a few hours.

This issue was fixed in software release 6.4.

AMD Erratum 131 Warning Message Can Be Safely Ignored During Solaris Startup (6438926, 6447850)

Solaris AMD x64 OS support includes a boot-time check for the presence of a BIOS workaround for the AMD Opteron Erratum 131. If the Solaris OS detects that the workaround for Erratum 131 is needed but it is not yet implemented, Solaris logs and displays the following warning message:

```
WARNING: BIOS microcode patch for AMD Athlon(tm) 64/Opteron(tm)
processor erratum 131 was not detected; updating your system's
BIOS to a version containing this microcode patch is HIGHLY
recommended or erroneous system operation may occur.
```

Workaround: BIOS implements a superset workaround that includes the workaround required for Erratum 131, so this warning message can be safely ignored.

This issue was fixed in Solaris 10 8/07 OS.

Sun Installation Assistant (SIA) Operating System Installation From USB Flash Drive Fails if External CD/DVD-ROM Drive Is Connected After Server Boot (6648865)

Plugging in an external USB CD/DVD-ROM after booting from an USB flash drive prepared with SIA software causes the system to be unable to find the CD/DVD-ROM drive. If you are using an SIA flash drive to assist in the installation of the operating system on your Sun Fire X4500 server, and you plan on installing the operating system using CD distribution media, SIA must be able to access the CD during the installation process.

Workaround: If you are using an SIA flash drive to assist in the installation of the operating system on your Sun Fire X4500 server, and you plan on installing the operating system using CD distribution media, you must first plug the CD/DVD-ROM drive into a free USB port on the server before attempting to boot the server from the USB flash drive.

JavaRConsole Can Crash Installation of Solaris 10 11/06 OS from Mounted CD Using SUSE 10 Client (6507785)

The ILOM JavaRConsole remote applet might have problems mounting physical media such as DVDs, CD-ROMs, and floppies on remote clients, particularly with SUSE10.

Workaround: Either copy the media to an image file to perform redirection, or use Solaris 10 or Windows XP SP2 as the remote client.

Resolved Solaris Issues

Solaris 9 Client Cannot Redirect CD-ROM or USB Diskette Devices (6415385)

The Solaris 9 client cannot redirect CD-ROM or USB floppy devices due to a lack of JavaRConsole required libraries on the platform. Other redirection functionality works as expected, for example keyboard, video, and mouse redirection.

Workaround: Use Solaris 10 clients.

Resolved Linux Issues

The following are resolved Linux issues for this release.

Kudzu/Anaconda Not Seeing All SCSI Devices (6487566)

A Kudzu bug prevents the installer from detecting the virtual CD-ROM and floppy and/or an external USB CD-ROM when the system is populated with a large number of disks.

For more information, refer to this web page:

https://bugzilla.redhat.com/bugzilla/show_bug.cgi?id=206641

Workaround: Do one of the following:

- Perform a network-based installation, with our modified initrd image containing the Marvell SATA driver.
- Perform an installation with the SIA installation CD.
- Perform an installation with fewer disks on the system.

This issue was fixed in software relase 1.3.

SMART Disk Monitoring Daemon Fails to Start with RHEL4-U4-64bit (6389704)

The RHEL4_U4 distribution includes the version 5.33 SMARTMONTOOLS package. This fails due to lack of support for the Marvell SATA controller.

Workaround: The version 5.36 SMARTMONTOOLS package supports the Marvell SATA Controller. To fix the problem, upgrade the package.

1. **Download rpm package** `smartmontools-5.36-1.x86_64.rpm` **from** http://smartmontools.sourceforge.net/.

2. **Install the SMARTMONTOOLS package:**

   a. **Enter the following command to remove the previous package:**

      `#rpm -ivh --force smartmontools-5.36-1.x86_64.rpm`

      This creates a new configuration file `/etc/smartd.conf.rpmnew`.

   a. **Replace the previous iteration of** `/etc/smartd.conf` **with the new. For example, use the commands:**

      `cp /etc/smartd.conf /etc/smartd.conf.OLD`

      `cp /etc/smartd.conf.rpmnew to /etc/smartd.conf`

   b. **Edit** `/etc/smartd.conf`.

i. **Uncomment the line "**`DEVICESCAN`**."**

  ii. **Configure** `/etc/smartd.conf` **to pass** `/dev/sd[a..z]` `-device` `marvell` **for each device.**

  For example, add lines like these:

  ```
  /dev/sda -H -m root -d marvell

  /dev/sdb -H -m root -d marvell

  ...

  /dev/sdav -H -m root -d marvell
  ```

  a. **Save and exit** `/etc/smartd.conf`**.**

Note – `smartd` fails if a device does not exist for a given entry in `/etc/smartd.conf`.

This issue was fixed in software relase 1.1.

FRU Information might Display a Product Name Attribute (6587071)

When viewing the Field Replaceable Unit (FRU) log of a server running Linux, hard disk drive FRU information stored in the Service Processor FRU log might display a Product Name attribute. This attribute is meaningless, and should be ignored. The following is an example of what you might see when viewing logged FRU data (via the `ipmitool` command or the server's management tool) if this erroneous attribute were present:

```
FRU Device Description : hdd40.fru (ID 58)
Product Manufacturer : HITACHI
Product Name : 232VDDF12872G-40
Product Part Number : HDS7225SBSUN250G
Product Version : V44OA81A
Product Serial : VDK41BT4CAD0GE
This issue was fixed in software relase 1.3.
```

Resolved Windows OS Issues

The following are resolved Windows OS issues for this release.

- "Windows 2003 R2 or R2SP2 is Required to Run DCM and the IPMI Driver (6592395)" on page 55
- "Disk, Volume, and FRU Window Panes Need to Scale to the Root Window (6592336)" on page 55
- "Volume and FRU Windows Are Missing Some Functions (6592359)" on page 56
- "DCM Menu Icons (6592296)" on page 56
- "Restore Menu Option Always Enabled (6592312)" on page 56
- "Sync FRU Menu Option Is Always Enabled (6592325)" on page 56
- "Maximized Menu Option Missing From Disk View When Minimized (6592369)" on page 57
- "Pulling and Replacing Basic and Dynamic RAID-5 Drives (6592227)" on page 57
- "Column Sorting Arrow Right Justified (6592349)" on page 57
- "DCM Uninstallation Fails (6655450)" on page 57
- "Boot Disk Is Difficult To Determine During Windows Installation (6486425)" on page 58
- "DCM Does Not Detect A Faulty Disk Drive (6663473)" on page 58

Windows 2003 R2 or R2SP2 is Required to Run DCM and the IPMI Driver (6592395)

DCM can only be installed on Windows Server 2003 R2 or R2SP2. Windows Server 2003 R2 includes an IPMI device driver that DCM requires.

This issue was fixed in software relase 1.3.

Disk, Volume, and FRU Window Panes Need to Scale to the Root Window (6592336)

The Disk, Volume, and FRU window panes should scale in and out to the size of the root/parent window. When the DCM root/parent window is rescaled, the child windows (Disk, Volume, and FRU) should resize to match the scale of the parent window. See Windows Explorer for an example.

This issue was fixed in software relase 1.3.

Volume and FRU Windows Are Missing Some Functions (6592359)

DCM has two buttons with icons (one for Volume and the other for FRU) to add and restore the Volume and FRU windows. These windows are missing the exit, minimize, and restore functions.

This issue was fixed in software relase 1.3.

DCM Menu Icons (6592296)

The DCM menu icon column does not have a label that identifies the purpose of the column. This column identifies the state of each disk drive in DCM relative to the state of each disk drive in the service processor.

For information on the DCM menu icons see the *Sun Fire X4500 Server Windows Operating System Installation Guide*.

This issue was fixed in software relase 1.3.

Restore Menu Option Always Enabled (6592312)

The Restore menu option on the double-disk icon is always enabled, even though no minimized operation has been performed.

This issue was fixed in software relase 1.3.

Sync FRU Menu Option Is Always Enabled (6592325)

The Sync FRU menu option is always enabled, even after performing the Sync FRU operation. The Sync FRU operation should only be enabled when the DCM application is out of sync with the disk information in the service processor.

Performing the Sync FRU operation multiple times does not harm any disk drives or the DCM display.

This issue was fixed in software relase 1.3.

Maximized Menu Option Missing From Disk View When Minimized (6592369)

If the Disk view window is minimized, the maximized menu function is missing to restore the Disk window to its original size.

This issue was fixed in software relase 1.3.

Pulling and Replacing Basic and Dynamic RAID-5 Drives (6592227)

If a RAID-5 drive is pulled from its volume set, one of the remaining RAID-5 drives does not display its volume information in the DCM application.

The remaining drives in the RAID-5 Volume set still display the correct volume information.

This issue was fixed in software relase 1.3.

Column Sorting Arrow Right Justified (6592349)

The column sorting operates with the up and down sorting arrows and is right justified.

This issue was fixed in software relase 1.3.

DCM Uninstallation Fails (6655450)

With DCM version 1.3.5, if you uninstall DCM Remote Scripts (DCMRemoteSetup1.0.1.msi) and then attempt to uninstall the DCM application, you receive the following error message:

```
There is a problem with this Windows Installer package. A
program run as part of the setup did not finish as expected.
Contact your support personnel or package vendor.
```

Click OK to exit the message.

Workaround: Reinstall DCM (`DCMSetup1.3.5.msi`) using the "Repair" option and then uninstall DCM.

This issue was fixed in software relase 1.4.

Boot Disk Is Difficult To Determine During Windows Installation (6486425)

If you are using a physical USB floppy drive connected to the server to supply the mass storage drivers, you must connect the drive to the upper rear USB port for it to be correctly recognized as `A`.

If Solaris OS is currently installed, the Windows installer does not correctly display the disk drives. To correctly select the boot drive, press `Enter` in the drive selection dialog.

- Pressing the up or down arrow keys to scroll through the list of drives does **not** display the boot drive.
- If an arrow key is pressed, you must restart the Windows installation to be able to select the correct boot drive.

A 48-disk system is the only supported configuration. When the system is fully populated with 48 drives, the Windows drive numbers are different than the physical drive numbers. For example, the Windows boot drive number is 24, while the corresponding physical drive number is 0.

For detailed instructions on installing the Windows operating system see the *Sun Fire X4500 Server Windows Operating System Installation Guide*.

This issue will not be fixed.

DCM Does Not Detect A Faulty Disk Drive (6663473)

After installing DCM on Windows 2003 and replacing a hard disk drive with a failed disk, the Disk Control and Monitoring (DCM) did not detect the failed drive in Disk and Volume view and the amber LED on the disk did not turn on.