Sun Fire X4640 Server Product Notes

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Contents

Using This Documentation

Product Downloads

You can find downloads for all Oracle x86 servers and server modules (blades) on My Oracle Support (MOS). On MOS you can find two type of downloads:

- Software release bundles specific to the rackmount server, server module, modular system (blade chassis), or NEM. These software release bundles include Oracle ILOM, Oracle Hardware Installation Assistant and other platform software and firmware.
- Standalone software common across multiple types of hardware. This includes the Hardware Management Pack and Hardware Management Connectors.

▼ Get Software and Firmware Downloads

1. **Go to `http://support.oracle.com`.**
2. **Sign in to My Oracle Support.**
3. **At the top of the page, click the Patches and Updates tab.**
4. **In the Patch Search box, click Product or Family (Advanced Search).**
5. **In the Product field, type a full or partial product name, for example, Sun Fire X4640 until a list of matches is displayed and select the product of interest.**
6. **In the Release pull-down list, click the Down arrow.**
7. **In the window that appears, click the triangle (>) by the product folder icon to show the choices and then select the release of interest and click Close.**

8. **In the Patches Search box, click Search.**

   A list of product downloads (listed as patches) appears.

9. **Select the Patch name of interest, for example, 12980209, for the Sun Fire X4640 1.3.1 Firmware.**

10. **In the right-side pane that appears, click Download.**

About This Documentation (PDF and HTML)

This documentation set is available in both PDF and HTML. The information is presented in topic-based format (similar to online help) and therefore does not include chapters, appendices or section numbering.

We Welcome Your Comments

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Change History

The following changes have been made to the documentation set.

- October 2009, initial publication
- January 2010, two documents revised
  - Service Manual - Revised DIMM population rules and addressed illustration issues
  - Product Notes - Revised software information and fixed bugs
- April 2010, one document revised
  - Installation Guide - Revised power specifications
- December 2010, two documents revised
  - Service Manual - Revised motherboard FRUID update instructions
  - Product Notes - Revised software information and fixed bugs
- January 2012, two documents revised
  - Service Manual — Added CPLD reset procedure.
  - Product Notes — Revised software information
- September 2012, one document revised
  - Product Notes — Revised software information

Overview of the Sun Fire X4640 Server Product Notes

Supported Software and Firmware

System Software Release Summary

The following table lists the software available for download from `http://support.oracle.com` by system software release. For download instructions, see the *Preface*.

System Software Release	BIOS	ILOM Firmware	CPLD Firmware	LSI MPT Controller Firmware (Phase 15)	Sun Installation Assistant	SunVTS
1.3.1	0ABSF013	3.0.3.38 r67080	08	n/a	n/a	n/a
1.3	0ABSF013	3.0.3.31.d r58804	09	Firmware: 1.27.00, BIOS: 6.26.00	2.4.9.3	7.0ps9
1.2	0ABSF010	3.0.3.31.c r56098	09	Firmware: 1.27.00, BIOS: 6.26.00	2.3.21.0	7.0ps6
1.1	0ABSF008	3.0.3.31.b r51526	Not available	Firmware: 1.27.00, BIOS: 6.26.00	2.2.24.0	7.0ps6
1.0	0ABSF007	3.0.3.31	Not available	Firmware: 1.27.00, BIOS: 6.26.00	2.2.24.0	7.0ps6

Tools and Drivers CD

The latest Tools and Drivers CD has the BIOS and ILOM firmware as well as the following:

- Operating system drivers (Linux and Windows)
- System utilities (Herd 2.0, MSM 2.9, LSI SNMP Agent 3.16, ipmitool 1.8.10.3, ipmiflash 1.8.9.4)

Supported Operating Systems

The following operating systems are supported for this server:

- Oracle Solaris 10 09/10
- Oracle Linux 4.8 (64–bit), Oracle Linux 5.5 (64–bit), Oracle's Unbreakable Enterprise Kernel (64–bit)
- Oracle VM 2.2.1 (64–bit)
- VMware ESX 4.0 U2, ESX 4.1, ESXi 4.0 U2, ESXi 4.1, ESXi 5, and ESX 5 U1
- Red Hat Enterprise Linux (RHEL) 4.8 (64-bit), RHEL 5.5 (64-bit)
- SUSE Enterprise Linux (SLES) 11 SP1 (64-bit), SLES 10 SP3 (64-bit)
- Windows Server 2008 R2 (64–bit)

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, see:

`http://support.oracle.com`

The `raidctl` patch for Solaris OS (119851-13) can be downloaded from:

`http://support.oracle.com`

Sun Java Enterprise System

Oracle's Sun Java Enterprise System (Java ES) is a set of software components that provide services needed to support enterprise-strength applications that are distributed across a network or Internet environment. Java ES is preloaded on servers with preinstalled Solaris.

Sun xVM Ops Center

Sun xVM Ops Center is a highly scalable, unified management platform for physical and virtual environments. Use Sun xVM Ops Center to manage multiplatform x64 and SPARC systems that are distributed throughout a global data center and to integrate there systems with existing toolsets. Ready to facilitate many aspects of compliance reporting (ITIL) and data center automation, Sun xVM Ops Center enables management of thousands of systems simultaneously.

MegaRAID Storage Manager (MSM)

MegaRAID Storage Manager (MSM) is a configuration setup application that enables you to configure, monitor, and maintain storage configurations on Integrated RAID controllers. The graphical user interface (GUI) makes it easy for you to create and manage storage configurations. The application is available on the Tools and Drivers CD or the Tools and Drivers CD image on the product download site.

MSM enables you to easily configure the controllers, disk drives, and virtual disks on your system. The Configuration wizard greatly simplifies the process of creating disk groups and virtual disks. The Configuration wizard guides you through several simple steps to create your storage configurations.

For more information on MSM, see the*Sun LSI 106x RAID User's Guide*, on the product documentation web site.

Bootable Diagnostics CD-ROM

The server is shipped with a bootable diagnostics CD-ROM. This CD-ROM is designed so that the server boots using the Solaris OS on the CD-ROM and starts SunVTS software. Diagnostic tests run and write output to log files that the service technician can use to troubleshoot the server.

Integrated Lights Out Manager (ILOM)

The Integrated Lights Out Manager (ILOM) is system management firmware that allows you to manage your server even when the host system is powered down. This is possible because the ILOM runs on a separate service processor (SP) that is powered by the host system's standby power.

The following interfaces provide network access to the ILOM: command-line interface (CLI), web interface, SNMP, and IPMI.

The ILOM also supports remote access to the host's system console through a network remote keyboard video and mouse (RKVM). The host's I/O to optical and floppy drives can be redirected to real and virtual drives on the network. This allows a remote user to perform most maintenance operations, including installing an operating system.

For more information on ILOM, refer to the following documentation:

- ILOM 3.0 Collection: `http://www.oracle.com/pls/topic/lookup?ctx=ilom30`
- ILOM 3.0 Supplement: *Sun ILOM 3.0 Supplement for the Sun Fire X4640 Server*

LSI Firmware Phase

The following table summarizes LSI HBA firmware features by phase. A software release contains LSI firmware features for its designated phase and all previous phases. Software version 1.0 and 1.1 support LSI Firmware Phase 15.

Feature	Description
Firmware resource availability	Target-mode driver can determine available resources.
Support for increased SATA drive NCQ depth	Firmware can now utilize 16-command and 32-command queue depths on drives that support them.
Configure initial AWT advertised	Whenever the IOC attempts to open an end device or expander, the OPEN address frame contains an ARBITRATION WAIT TIME (AWT) value that is used to resolve deadlocks occurring when another device in the topology attempts to open the IOC at the same time. The initial value programmed into this field is now configurable using NVDATA.
Optionally disable phy lockup workaround	The phy lockup workaround periodically examines each direct-attached phy and resets the link if it detects that an in-progress data transfer has stalled for too long. Now, it is possible to disable the phy lockup workaround for direct-attached phys with end devices, expanders, or both (which effectively disables the workaround altogether).

Feature	Description
Support for SATA SSDs	Support for solid state drives (SSDs) in RAID configurations in the same manner as magnetic media drives. SATA Only.
Enable/Disable Integrated RAID data scrub on SSDs	SSDScrubDisable flag (off by default) disables data scrub on RAID 1 and RAID 1E volumes consisting of SSDs.
Support for Sun StorageTek 2500 Series	Supports new CONNECTOR TYPE field in SMP DISCOVER Response
Increase minimum supported target ports to 2444	Keeps 10 bus/target IDs reserved for foreign volumes. This increases the number of supported foreign volumes from 2 to 5 since foreign volumes can consume 2 bus/target IDs per volume.

Hardware Issues

Note – Fixed issues appear at the bottom of the table.

Hardware Issues	Workaround	Fixed
"Limited Support for PCI Express Cards (6879524)" on page 18	No	
"Mixing DIMMs Impacts Memory Performance" on page 18	No	
"Sync Flood Error Before POST (6772148)" on page 18	Yes	
"1 GB and 2 GB DIMMs are Not Supported" on page 19	No	
"Spontaneous Reboot With "`OEM 0#x12 SEL`" Messages and No Memory Errors (6652566)" on page 19	Yes	
"System Does Not Boot With 6 QGE Cards (6555627)" on page 20	No	
"USB Ports Become Disabled (6424279)" on page 20	Yes	
"Mouse and Keyboard Hang During Stress Test (6499312)" on page 20	Yes	
"SLES 11 Systems and the Sun QDR InfiniBand PCIe Low Profile Host Channel Adapter Card (6948303)" on page 28	Yes	
"(Fixed in SW 1.1) System Hangs When a DIMM UE Occurs on CPU0 (6891319)" on page 21	No	Fixed in Software 1.1
"(Fixed in SW 1.1) DIMM Correctable Error Causes System Hang During POST (6902398)" on page 21	No	Fixed in Software 1.1
"(Fixed in SW 1.2) Use USB Full Speed to Boot System With USB External Devices (6880116)" on page 22	No	Fixed in Software 1.2

Limited Support for PCI Express Cards (6879524)

Support for the following PCI Express cards is limited to Solaris 10 and Linux operating systems.

- Sun Quad GbE x8 PCIe Low Profile Adapter (X4447A-Z)
- Sun Dual 10GbE XFP PCI Express Card (X1027A-Z)

These adapter cards are not supported for Windows 2008 Server R2, VMware ESX 4.0, and ESXi 4.0.

Mixing DIMMs Impacts Memory Performance

For optimum performance, all DIMMs controlled by a given CPU should be the same capacity and all single-rank or dual-rank. Mixed configurations are supported, but could result in lower memory performance. Note that all supported 4 GB and 8 GB DIMMs are dual-rank.

Sync Flood Error Before POST (6772148)

The system might experience a sync flood error at boot time, just before the POST messages would have been displayed. This causes an immediate reboot, so it is easy to miss the fact that an unsuccessful boot occurred.

The most obvious symptom is a loss of memory capacity due to spurious DIMM errors. Unrecoverable errors such as the following appear in the system event log.

```
Memory | Uncorrectable Error | Asserted | CPU 0 DIMM 6
Memory | Uncorrectable Error | Asserted | CPU 0 DIMM 7
Memory | Memory Device Disabled | Asserted | CPU 0 DIMM 6
Memory | Memory Device Disabled | Asserted | CPU 0 DIMM 7
```

Note – Performing a warm boot (rebooting the OS without powering down the system) does not clear the condition.

▼ Workaround

- **Power down the system and reboot.**

  You might need to do this more than once if you continue to see the errors.

1 GB and 2 GB DIMMs are Not Supported

The Sun Fire X4640 server does not support 1 GB and 2 GB DIMMs. Such configurations might work, but are not supported.

Spontaneous Reboot With "OEM 0#x12 SEL" Messages and No Memory Errors (6652566)

Spontaneous reboots can occur with no memory errors reported. This problem is associated with an entry in the System Event Log (SEL) labeled `OEM #0x12` followed by a series of entries labeled `OEM record e0`. Here is an example:

```
6502 | 12/22/2007 | 07:41:21 | OEM #0x12 |  | Asserted
6602 | OEM record e0 | 00000000040f0c0200100000f2
6702 | OEM record e0 | 0100000004000000000000000
```

The hexadecimal value in "`OEM record e0`" entries might be different from those in the example.

If this problem occurs on your system, you should take basic steps to eliminate possible causes, as described here. If you take these steps and the problem continues to occur, contact Sun Support for additional remediation.

▼ Remedial Steps

The following steps might eliminate the problem. Retest the system after each step:

1. **Verify that the system BIOS, other system firmware, and PCI card firmware is up to date. For information on verifying and updating system BIOS and firmware, consult the Software Release Notes.**
2. **Remove all PCI cards and CPU modules. Use canned compressed air to clean their contacts and slots, and then reseat them.**
3. **If PCI cards have been added to the system recently, try rearranging the PCI cards. Note any change in symptoms after the cards are rearranged.**

System Does Not Boot With 6 QGE Cards (6555627)

A system does not boot if the PCI slots contain 6 Sun Quad Gigabit Ethernet (QGE) cards. Test systems have run reliably with 5 QGE cards.

USB Ports Become Disabled (6424279)

USB ports might become disabled during operation. This appears to be a hardware problem related to the NVIDIA USB controller.

When this happens, the device attached to the USB port becomes inactive. A message similar to the following is reported in the file:

```
[ID 691482 kern.warning] WARNING: /pci@0,0/pci108e,cb84@2 (ohci0): Connecting device on port 1 failed
```

▼ Workaround

- **Reboot the server to re-enable the USB ports.**

Mouse and Keyboard Hang During Stress Test (6499312)

During a lengthy stress test, a USB mouse and keyboard were both hung. At the time, both the floppy and DVD drives were redirected to physical USB drives.

▼ Workaround

- **Disconnect and reconnect the mouse and keyboard.**

Errors for SLES 11 Systems and the Sun QDR InfiniBand PCIe Low Profile Host Channel Adapter Card (CR 6948303)

See "SLES 11 Systems and the Sun QDR InfiniBand PCIe Low Profile Host Channel Adapter Card (6948303)" on page 28.

(Fixed in SW 1.1) System Hangs When a DIMM UE Occurs on CPU0 (6891319)

If an uncorrectable error (UE) takes place in a DIMM on CPU module slot 0 during POST, the system might hang and not provide any video output. The system can recover during POST from UEs that are not in CPU module slot 0.

Check the SEL logs on the service processor. If the SEL log shows the following and no further output, then it is likely you are encountering this issue.

```
5 | 11/18/2009 | 05:32:48 | System Boot Initiated #0x01 | Initiated by power up | Asserted
6 | 11/18/2009 | 05:32:53 | Processor | Presence detected | Asserted | OEM Data-2 0x08 OEM Data-3 0x08
7 | 11/18/2009 | 05:32:53 | System ACPI Power State #0x0f | S0/G0: working | Asserted
```

▼ Workaround

1. **Call Sun service for help with identifying the faulty DIMM.**
2. **Remove the faulty DIMM from CPU module slot 0.**

(Fixed in SW 1.1) DIMM Correctable Error Causes System Hang During POST (6902398)

If a DIMM correctable error (CE) occurs during POST and before the OS takes control, then the system might hang. If this problem occurs the video output will look similar to the following with no further output:

```
Sun Fire X4640, 8 AMD North Bridges, Rev D0
1 AMD 8132 PCI-X 2.0 Controller, Rev B1
1 NVidia CK8-04 PRO SB, 1 NVidia IO-4 Slave Bridge(s)
Board Serial Number   : 002555
NVMM ROM Version : 4.082.13
BMC Firmware Revision :  3.0.3.31, CPLD Revision : 8.0
SP IP Address : 010.013.060.137
Initializing USB Controllers .. Done.                                    8801
Press F2 to run Setup (CTRL+E on Remote Keyboard)                        DEBD
Press F8 for BBS POPUP  (CTRL+P on Remote Keyboard)
Press F12 to boot from the network (CTRL+N on Remote Keyboard)
39595MB OK                                                               8639
```

▼ Workaround

1. **Reboot your system.**
2. **If the problem reoccurs, reboot another 1–2 times.**

3 **If the problem persists, initiate a service call, as it is possible there is a faulty DIMM in your system that will need to be replaced.**

(Fixed in SW 1.2) Use USB Full Speed to Boot System With USB External Devices (6880116)

If the default BIOS USB device speed settings are changed from "Full Speed" to "High Speed", then the USB device will not be recognized during the BIOS POST.

▼ Workaround

- **Change the BIOS USB device speed setting back to its default configuration, "Full Speed".**
  USB speed settings can be optimized by the OS, either automatically or by the user.

Solaris Operating System Issues

Solaris Operating System Issues	Workaround Available?
"Benign `picld` Error Messages Might Appear on a Solaris OS System (6789972)" on page 23	No
"Panic Might Occur During SunVTS ramtest or High Load Situation on a Solaris OS System (6896920)" on page 24	No
"Link Status Might Be Incorrect on a Solaris OS System (6774715)" on page 24	Yes
"Configuring Solaris to Support 10 5/09 48 Cores (6830736)" on page 25	Yes
"Error Message Is Displayed With Solaris 10 5/09 and Certain Adapter Cards (6838860)" on page 25	No
"Error Messages Are Displayed With Solaris 10 5/09 and Sun Dual 10GbE XFP 2 SR PCI Express Card (6804557)" on page 26	No
"Cannot Install Solaris OS Under VMware With More Than Two Virtual NICs (6548384)" on page 26	Yes

Benign `picld` Error Messages Might Appear on a Solaris OS System (6789972)

Extra /dev/mc nodes might cause `picld` to generate error messages. On x86 systems, `picld` does not use /dev/mc devices.

If a message similar to the following is seen during Solaris bootup, it can safely be ignored:

```
picld[132]: [ID 537930 daemon.error] SUNW_piclmemcfg init mc failed!
```

Panic Might Occur During SunVTS ramtest or High Load Situation on a Solaris OS System (6896920)

The system might panic while running the Solaris OS under a high stress, high load situation or using SunVTS's ramtest. If you see a message similar to the following in the stack trace, you are likely encountering this issue:

```
#pf Page fault
Bad kernel fault at addr=0xfffffdfffffffb8
...
17:36:24 fffffe800198ea00 unix:trap+5e6 ()
17:36:24 fffffe800198ea10 unix:_cmntrap+140 ()
17:36:24 fffffe800198eb30 unix:atomic_cas_ulong+3 ()
17:36:24 fffffe800198eb60 unix:unlink_ptp+54 ()
17:36:24 fffffe800198eba0 unix:htable_release+e7 ()
17:36:24 fffffe800198ec00 unix:hati_pageunload+11e ()
17:36:24 fffffe800198ec10 unix:hat_pageunload+d ()
17:36:24 fffffe800198ec70 unix:do_page_relocate+f3 ()
17:36:24 fffffe800198eca0 unix:page_relocate+2e ()
```

Check for the availability of a patch for this defect.

Link Status Might Be Incorrect on a Solaris OS System (6774715)

In Solaris, if a NIC interface is not physically connected or plumbed (enabled), the `ifconfig` or `dladm` command output might show that the network interface is enabled even when it is not. The following example shows a system with disconnected network cables that is reporting the incorrect status:

```
bash-3.00# dladm show-dev  ixgbe0          link: unknown   speed: 0     Mbps       duplex: full
  ixgbe1          link: unknown   speed: 0     Mbps       duplex: full
  bash-3.00# ifconfig ixgbe0 plumb up ; ifconfig ixgbe1 plumb up
  bash-3.00# ifcnfig -a
lo0: flags=2001000849 <UP,LOOPBACK,RUNNING,MULTICAST,IPv4,VIRTUAL> mtu 8232 index 1
        inet 127.0.0.1 netmask ff000000
  ixgbe0: flags=1000843 <UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500 index 4
        inet 0.0.0.0 netmask ff000000
        ether 0:1b:21:1a:69:e1
  ixgbe1: flags=1000843 <UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500 index 3
        inet 0.0.0.0 netmask ff000000
        ether 0:1b:21:1a:69:e0
```

The link status should not be "full' and the network status should not be "RUNNING" when then network cables are disconnected.

▼ Workaround

- **If incorrect status is being reported, make sure that the cable is connected and the interface is plumbed.**

Configuring Solaris to Support 10 5/09 48 Cores (6830736)

Solaris 10 5/09 is configured by default to support only 32 cores. Use the following workaround to configure it to support 48 cores.

Note – This applies to the 64–bit version of Solaris 10 5/09 only. The 32–bit version cannot support more than 32 cores.

▼ Workaround

1. **Execute the following command:**

   ```
   eeprom boot-ncpus=48
   ```

2. **Reboot the system.**

   Solaris should now support 48 cores.

Error Message Is Displayed With Solaris 10 5/09 and Certain Adapter Cards (6838860)

When loading the drivers for the following adapter cards on a server running Solaris 10 5/09:

- Sun Quad GbE x8 PCIe Low Profile Adapter (X4447A-Z)
- Sun Dual 10GbE XFP PCI Express Card (X1027A-Z)

you might encounter the following error message:

```
WARNING: nxge : ==> nxge_rxdma_databuf_free: DDI
```

This message can be safely ignored.

Error Messages Are Displayed With Solaris 10 5/09 and Sun Dual 10GbE XFP 2 SR PCI Express Card (6804557)

The following message might be displayed when doing a stress test on Sun Dual 10GbE XFP 2 SR PCI Express card (X1107A-Z) on a system running Solaris 10 5/09:

```
fmd: [ID 441519 daemon.error] SUNW-MSG-ID: SUNOS-8000-FU, TYPE: Defect, VER: 1, SEVERITY: Major
EVENT-TIME: Thu Aug 20 14:30:18 PDT 2009
PLATFORM: Sun Fire X4640   , CSN: 002555              , HOSTNAME: nsgbj-phoenix01
SOURCE: eft, REV: 1.16
EVENT-ID: b94dd051-aecb-c0d3-ed0f-aec3fe312222
DESC: The diagnosis engine encountered telemetry for which it was unable to perform a diagnosis.
Refer to http://sun.com/msg/SUNOS-8000-FU for more information.
AUTO-RESPONSE: Error reports have been logged for examination by Sun.
IMPACT: Automated diagnosis and response for these events will not occur.
REC-ACTION: Ensure that the latest Solaris Kernel and Predictive Self-Healing (PSH) patches are installed.
```

These messages can be safely ignored.

Cannot Install Solaris OS Under VMware With More Than Two Virtual NICs (6548384)

A Solaris OS installation under VMware with the recommended minimum virtual memory (512 MB) and more than two virtual network interface cards fails.

▼ Workaround

- **Increase virtual memory to 1 GB.**

Linux Operating System Issues

Linux Operating System Issues	Workaround
"SLES 11 Systems Unable to Start `openibd` and `opensmd` and Unable to Load HCA Driver (6812736)" on page 27	Yes
"SLES 11 Systems and the Sun QDR InfiniBand PCIe Low Profile Host Channel Adapter Card (6948303)" on page 28	Yes
"RHEL 5 Systems Likely to Enumerate PCIe Ethernet Ports First (6758623)" on page 28	No
"Virtual Floppy and DVD Drives Not Detected (6570949)" on page 28	Yes
"Front Panel USB Ports Disabled When Running SLES 10 64–bit (6516732)" on page 29	Yes

SLES 11 Systems Unable to Start `openibd` and `opensmd` and Unable to Load HCA Driver (6812736)

In SLES 11, when you try to load `openibd`, `opensmd`, and the HCA driver, an error occurs and the components do not start or load.

```
#/etc/init.d/opensmd start
OpenSM not installed
#/etc/init.d/openibd start
Loading eHCA driver: [FAILED]
Loading HCA driver and Access Layer: [FAILED]
```

▼ Workaround

1. **Edit the file `/etc/infiniband/openib.conf` and change `EHCA_LOAD=yes` to `EHCA_LOAD=no`.**
2. **Edit the file `/etc/init.d/opensmd` and change `prog=/usr/bin/opensm` to `prog=/user/sbin/opensm`.**

SLES 11 Systems and the Sun QDR InfiniBand PCIe Low Profile Host Channel Adapter Card (6948303)

Eight-socket systems running the SLES 11 operating system that have the Sun Quad Data Rate (QDR) InfiniBand PCIe Low Profile Host Channel Adapter (Sun Microsystems X4237A-Z) might have InfiniBand in-box driver probe errors.

▼ Workarounds

- **There are two possible workarounds:**
  - **Use OFED 1.5.1 or later version. Download the OFED packages from `http://www.openfabrics.org/downloads/OFED/ofed-1.5.1/OFED-1.5.1.tgz`**
  - **Download the ISO file to install InfiniBand drivers for this card from `http://www.mellanox.com/downloads/ofed/MLNX_OFED_LINUX-1.5.3-1.0.0-sles11-x86_64.iso`**

RHEL 5 Systems Likely to Enumerate PCIe Ethernet Ports First (6758623)

Because of changes in the drivers for Red Hat Enterprise Linux 5, Ethernet port assignments might not start with the four built-in ports that are connected to the onboard network controller. If any Ethernet PCIe option cards are installed, ports on these option cards might get the first port numbers.

In RHEL 4 you can assume that the built-in ports are assigned port number 0-3. That assumption might not be valid after an upgrade to RHEL 5.

Virtual Floppy and DVD Drives Not Detected (6570949)

The service processor implements virtual floppy and DVD drives so that they each have their own logical unit number (LUN). This might prevent them from being detected on systems that only configure LUN 0 on each port.

▼ Workaround

Configure the system to scan all possible LUNs at boot time.

1. **Add the following line to `/etc/modules.conf`:**

   ```
   options scsi_mod max_scsi_luns=n
   ```

Where *n* is the largest number of devices on any port.

2 **Go to the `/boot` directory:**

```
cd /boot
```

3 **Run `mkinitrd` to rebuild the boot-time RAM disks.**

On Red Hat systems:

`mkinitrd -k vmlinuz-`*kernel* `-i initrd-`*kernel*

On SUSE systems:

`mkinitrd -v initrd-`*kernel*`.img` *kernel*

Where *kernel* is a kernel-level identifier, such as `2.4.21-292-smp`. You can identify the currently running kernel with this command:

```
uname -r
```

You should also rebuild the RAM disks for any other kernel images in `/boot` that you might use.

4 **Reboot.**

Front Panel USB Ports Disabled When Running SLES 10 64–bit (6516732)

Front Panel USB ports might be completely inoperative on systems running SUSE Linux Enterprise Server (SLES) 10 (64-bit) when USB 2.0 is enabled. This problem does not occur if a USB device is connected to the front panel at boot time or if USB 2.0 is disabled.

▼ Workarounds

- **There are three possible workarounds:**
  - **Plug a USB device into the front panel before booting the system.**
  - **Configure the BIOS to use USB 1.1 only.**
  - **After booting, if the front panel USB ports are found to be inoperative, remove and reinsert the `ehci_hcd` module.**

Windows Operating System Issues

Windows Operating System Issues	Workaround
"On-Board Network Ports Cannot Be Used to Initiate Teaming in Windows Server 2008 R2 (6868558)" on page 31	Yes

On-Board Network Ports Cannot Be Used to Initiate Teaming in Windows Server 2008 R2 (6868558)

Intel network interface card (NIC) teaming is not supported with PCI-X network interface cards running on Windows Server 2008 R2. Your server's on-board network ports are on the PCI-X bus and therefore cannot be used to create an Intel NIC team with Windows Server 2008 R2. Your Windows installation uses a generic NIC driver that does not include the teaming feature.

▼ Workaround

If you want to include the on-board network ports as part of an Intel NIC team, do the following:

1. **Install an optional Intel 82571-based (or newer) PCIe network interface card (NIC) supported for Windows Server 2008 R2.**
2. **Install the NIC driver.**

   This driver provides Intel's Advanced Networking Services. This driver is either included with your card, available from the card manufacturer's web site or from Intel (`http://www.intel.com`).
3. **Include the on-board network ports as part of a multi-vendor team initiated from the Intel PCIe network card.**

VMware ESX and VMware ESXi Issues

VMware Issues	Workaround
"lspci Command Shows Unknown Devices on VMware ESX 4.0" on page 33	No
"Network Interface Enumeration Changes After HBA Installed (6541032)" on page 33	No
"Benign Error Messages (6486386)" on page 33	No
"Incorrect CPU Family Reported in ESX/ESXi 4.0 (6843753)" on page 34	No

lspci Command Shows Unknown Devices on VMware ESX 4.0

Unknown devices are displayed after executing `lspci` command on VMware ESX 4.0. This is expected behavior and can be ignored.

```
Advanced Micro Devices [AMD] Unknown device 1200
Advanced Micro Devices [AMD] Unknown device 1201
```

Network Interface Enumeration Changes After HBA Installed (6541032)

If a Dual Channel U320 SCSI HBA (XPCIE2SCSIU320Z) is installed, the vmnic number changes from 0 to 11.

Benign Error Messages (6486386)

The following messages generated by VMware ESX have little or no impact on system availability or performance.

- `Unexpected IO-APIC error` appears in the kernel message buffer.
- `BIOS reporting unknown devices` appears frequently in the kernel message buffer. The devices referred to are beyond the control of VMware ESX.

- `Syncing Hardware Clock to System Time [Failed]` appears during VMware ESX shutdown.

Incorrect CPU Family Reported in ESX/ESXi 4.0 (6843753)

ESX/ESXi 4.0 displays incorrect information about the Sun Fire X4640 processor family in the `/proc/vmware/cpuinfo` file. The correct family number is 16, and ESX 4.0 displays 15.

This issue does not affect server or ESX functionality.

Sun Installation Assistant Issues

Note – Sun Installation Assistant (SIA) is also known as Oracle Hardware Installation Assistant.

Sun Installation Assistant Issues	Workaround
"Logs for Red Hat OS Installation Using SIA Are Not Available (6812783)" on page 35	No
"SIA Does Not Support Unattended Installation for RHEL 4.8 and RHEL 5. 3 Drivers (6886086)" on page 35	Yes

Logs for Red Hat OS Installation Using SIA Are Not Available (6812783)

When using SIA to install RHEL 4.8 or 5.3, the `SunInstallationAssistant.log` file might not appear on the disk. Check for an SIA update to fix this issue.

SIA Does Not Support Unattended Installation for RHEL 4.8 and RHEL 5. 3 Drivers (6886086)

Sun Installation Assistant (SIA) 2.2.24 does not support unattended installations of RHEL 4.8 (64-bit) or RHEL 5.3 (64-bit).

▼ Workaround

- **When using SIA 2.2.24, use the attended installation option.**

MegaRAID Storage Manager (MSM) Issues

MSM Issues	Workaround
"Loading Saved Configuration File Hangs MSM Under Windows OS (6713250)" on page 37	Yes
"MSM Might Not Update Status Log When Disk Is Removed" on page 37	No

Loading Saved Configuration File Hangs MSM Under Windows OS (6713250)

If MSM is running under Windows 2008, the following sequences of actions can cause MSM to hang.

1. Remove a RAID disk.
2. Clear the configuration file.
3. Plug in a new disk.
4. Load a configuration file.

When the hang occurs, you must use Task Manager to quit MSM, and then reboot the system.

▼ Workaround

- **Replace the disk before loading a configuration file.**

MSM Might Not Update Status Log When Disk Is Removed

In non-RAID configurations, MSM-IR does not update its status log when a disk is removed. Refreshing with F5 does not help. The log is updated when the disk is reinserted.

Integrated Lights Out Manager (ILOM) Issues

Note – Fixed issues appear at the bottom of the table.

ILOM Issues	Workaround
"Service Processor Does Not Log Event or Provide Visual Alert After Hard Disk Is Removed" on page 39	No
"Recovery for Accidentally Flashing the Wrong Platform Firmware on the Sun Fire X4640 Server" on page 40	No
"Unimplemented Simple Network Management Protocol (SNMP) Traps (6300437)" on page 40	No
"SNMP Agent Does Not Handle All Sets (6255301)" on page 41	Yes
"(Fixed in SW 1.1) FRU List Is Not Updated When Power Supply Is Hot-Swapped (6894442)" on page 41	Yes

For a documentation issue related to ILOM, see "ILOM Supplement Missing How to Prove Physical Presence (6881237)" on page 48.

Service Processor Does Not Log Event or Provide Visual Alert After Hard Disk Is Removed

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

Recovery for Accidentally Flashing the Wrong Platform Firmware on the Sun Fire X4640 Server

If you accidentally flash the wrong platform firmware onto a Sun Fire X4640 server, use IPMItool to verify the hardware version. For example, if the SP IP address is 10.0.0.13 and the root password is `changeme`, you might enter the command as follows:

```
# ipmitool -H 10.0.0.13 -U root -P changeme fru
FRU Device Description : p0.card.fru (ID 10)
Board Product : ASSY,CPU BOARD,X4640
Board Serial : 002555
Board Part Number : 501-7321-03
Board Extra : 01
Board Extra : G4_CPU
```

If the `Board Product` line lists something other than `ASSY,CPU BOARD,X4640`, then the server has the wrong firmware. Perform the following steps to recover.

▼ Recovery Steps

The system will not reboot, but the service processor is still functional. You can return to the Sun Fire X4640 firmware.

1. **Download and flash upgrade the server to the latest version of the Sun Fire X4640 firmware.**
2. **Reboot the server.**
3. **Use `ipmitool` to verify the hardware version.**

   ```
   # ipmitool -H 10.0.0.13 -U root -P changeme fru
   ```

   If the `Board Product` line in the output includes `X4640`, then the server has the correct firmware.

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

The following traps are not supported:

- SUN-PLATFORM-MIB
  - sunPlatObjectCreation
  - sunPlatObjectDeletion
  - sunPlatCommunicationsAlarm
  - sunPlatEnvironmentalAlarm
  - sunPlatEquipmentAlarm

- sunPlatProcessingErrorAlarm
- sunPlatStateChange
- sunPlatAttributeChangeInteger
- sunPlatAttributeChangeString
- sunPlatAttributeChangeOID
- sunPlatQualityOfServiceAlarm
- sunPlatIndeterminateAlarm

ENTITY-MIB

- entConfigChange

SNMP Agent Does Not Handle All Sets (6255301)

The SNMP agent does not currently handle sets for the Entity and Sun Platform MIBs. This causes compliance tests involving sets to fail.

▼ Workaround

- **Use other services to perform the needed tasks.**

(Fixed in SW 1.1) FRU List Is Not Updated When Power Supply Is Hot-Swapped (6894442)

If a PSI is hot swapped, the FRU list information will not be automatically updated until old FRU files are removed and the service processor is rebooted.

▼ Workaround

1. **Enable the service processor (SP) Sun Service account, if directed by Sun Service staff.**
   See the Sun Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide, 820-5523.
2. **Login to the SP as `sunservice`.**
3. **Remove `.fru2` files by using the following command: `rm -rf /conf/ps*.fru2`.**
4. **Reboot the SP.**

BIOS Issues

BIOS Issues	Workaround
"Cannot Boot From Internal Disk With Sun Multithreaded 10 GbE Card in Slot 2, 3, or 4 (6711405, 6764001)" on page 43	Yes
"Option ROM Space for PXE Booting Can Be Exhausted Before All Devices Can Be Scanned (6453144, 6403173, 6272514, 6393809, 6439856, 6462303)" on page 44	Yes
"Server Does Not Boot With Sun Multithreaded 10G Networking Card (6706575)" on page 45	Yes

Cannot Boot From Internal Disk With Sun Multithreaded 10 GbE Card in Slot 2, 3, or 4 (6711405, 6764001)

A system with a Sun Multithreaded 10Gb Ethernet card (X1027A-Z or X1107A-Z) in slot 2, 3, or 4 is unable to boot from the local disk. This problem occurs because the Ethernet card has a large option ROM. When the Ethernet card is scanned first before the embedded HBA, there is not enough space left to load the HBA option ROM, and the internal disks become inaccessible.

▼ Workaround

- **There are two possible workarounds:**
  - **Install the Ethernet card in a slot other than 2, 3, or 4.**
  - **Disable any unneeded option ROM.**

Option ROM Space for PXE Booting Can Be Exhausted Before All Devices Can Be Scanned (6453144, 6403173, 6272514, 6393809, 6439856, 6462303)

The amount of BIOS option ROM space is limited and can be exhausted when many option cards are installed in the system.

This is expected behavior.

Possible effects include:

- Cannot PXE boot through the Ethernet ports and the following error message is displayed: `Not enough space to copy PCI Option ROM`.
- Cannot PXE boot through the Ethernet ports and the following error message is displayed: `Base-Code ROM ID structure not found`.
- PCI cards cannot PXE boot as desired if they are installed in a PCI slot that is scanned after the option ROM space is exhausted.
- The HBA card and its attached HDD array are not detected if installed in a PCI slot that is scanned after the option ROM space is exhausted.

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

1. PCIe slot 2
2. PCIe slot 3
3. PCIe slot 4
4. On-board Intel NIC
5. PCI-X slot 0
6. PCI-X slot 1
7. On-board LSI SCSI controller
8. PCIe slot 5
9. PCIe slot 6
10. PCIe slot 7

Also see "PCI Slot Designations" in *Sun Fire X4640 Server Service Manual* for the placement of the PCI slots).

There are two possible workarounds to ensure that you have enough option ROM space to PXE boot from your devices as desired.

- If the device you want to boot from appears in the list of boot devices in the BIOS, perform Option 2 below to change the scanning order.
- If the device you want to boot from does not appear in the list of boot devices, perform Option 1 below so that the device appears in the list, then perform Option 2 to change the scanning order.

Disable option ROM scanning on all devices that do not need to PXE boot. This preserves the option ROM space for the devices that you do want to PXE boot. .

▼ Workaround Option 1

1. **Enter the BIOS Setup utility by pressing the F2 key while the system is booting and performing POST.**
2. **On the BIOS Main Menu screen, select the PCIPnP tab to open the PCI/PnP Settings screen.**
3. **Change the fields to Disabled for those PCI cards or NICs that you do not want to PXE boot.**
4. **Press and release the right arrow key until the Exit menu screen is displayed.**
5. **Save your changes and Exit the BIOS Setup utility.**

▼ Workaround Option 2

1. **Enter the BIOS Setup utility by pressing the F2 key while the system is booting and performing POST.**
2. **On the BIOS Main Menu screen, select the Boot tab to open the Boot menu main screen.**
3. **Select Boot Device Priority, or select Hard Disk Drives from the list to change hard-disk drives.**
4. **Change the selections for the boot devices or hard-disks drives to set the required device order.**
5. **Press and release the right arrow key until the Exit menu screen is displayed.**
6. **Save your changes and Exit the BIOS Setup utility.**

Server Does Not Boot With Sun Multithreaded 10G Networking Card (6706575)

When using the default server BIOS settings, the server cannot boot when a Sun Multithreaded 10 Gigabit Networking Card (X1027A) is in PCIe slots 2, 3, or 4.

▼ Workaround

Disable the Multithreaded 10G Networking Card Option ROM from the server's BIOS Setup utility. This preserves the option ROM space for the integrated RAID controller.

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 OpROM scanning field to "Disabled" for the slot in which the card is installed.**
4. **Save your changes and Exit the BIOS Setup utility.**

Documentation Issues

Documentation Issues	Workaround
"Installation Guide and Getting Started Guide Contain Incorrect SIA Information" on page 47	Yes
"Incorrect Documentation Link on Sun Fire X4640 Server System Overview Label" on page 47	Yes
"ILOM Supplement Missing How to Prove Physical Presence (6881237)" on page 48	Yes

Installation Guide and Getting Started Guide Contain Incorrect SIA Information

Sun Fire X4640 Server Installation Guide and *Sun Fire X4640 Server Getting Started Guide* incorrectly mentions that Sun Installation Assistant (SIA) helps install Windows Operating Systems.

Sun Installation Assistant (SIA) versions before 2.3.21 do not support assisted installation of the Windows Operating Systems on the Sun Fire X4640 server.

▼ Workaround

- **Use SIA version 2.3.21 or later (available in Sun Fire X4640 server software release 1.2) for assisted installation of Windows.**

Incorrect Documentation Link on Sun Fire X4640 Server System Overview Label

The Sun Fire X4640 System Overview label (part number 263-4124) contains an incorrect document link to the *Sun Fire X4640 Service Manual*. The incorrect link points to:

http://docs.sun.com/app/docs/doc/819-4342

▼ Workaround

- **The correct document link is:**

  `http://download.oracle.com/docs/cd/E19273-01/821-0243/index.html`

ILOM Supplement Missing How to Prove Physical Presence (6881237)

The *Sun ILOM 3.0 Supplement for the Sun Fire X4640 Server* should describe how to prove physical presence at the server.

▼ Workaround

The *Sun Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide* describes how to recover a lost password from the ILOM serial console. As part of the recovery, you must prove physical presence at the server.

- **To prove physical presence, press the Locate button (the left-most button on the front of the server, or on the rear of the server near the serial management port).**