Sun Server X4-8 Product Notes

Part No: E40323-24
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Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Référence: E40323-24

Accès aux services de support Oracle

Les clients Oracle qui ont souscrit un contrat de support ont accès au support électronique via My Oracle Support. Pour plus d'informations, visitez le site `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info` ou le site `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs` si vous êtes malentendant.

Contents

Using This Documentation

- **Overview** – Provides late-breaking information, issue status, and product announcements for Oracle's Sun Server X4-8.
- **Audience** – System administrators, network administrators, and service technicians.
- **Required knowledge** – Advanced understanding of server systems.

Product Documentation Library

Documentation and resources for this product and related products are available at https://www.oracle.com/goto/x4-8/docs.

Feedback

Provide feedback about this documentation at https://www.oracle.com/goto/docfeedback.

Sun Server X4-8 Product Information

This section provides the following information about supported operating systems, firmware, and hardware configurations.

Review	Links
Supported firmware	“Supported Firmware” on page 11
Supported operating systems	“Supported Operating Systems” on page 12
Supported hardware	“Supported Hardware” on page 12
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Getting Server Firmware and Software Updates	“Getting Server Firmware and Software Updates” on page 57

Note - This document contains information that was accurate for the server at the time of the document's publication.

Supported Firmware

Some product features are enabled only when the latest versions of patches or firmware are installed. You are required to install the latest software version for optimal performance, security, and stability. For details, see “IMPORTANT - Install Latest OS Updates, Patches, and Firmware” on page 20.

You can find detailed information about supported firmware releases here:

- Latest Firmware Releases for Oracle X86 Servers

- Firmware Downloads and Release History for Oracle Systems

Additional information about tools, drivers, component firmware versions, and bug fixes is available in the software release Readme file. For access to the Readme file, see "Getting Server Firmware and Software Updates" on page 57.

Supported Operating Systems

The following list shows the minimum and maximum supported versions of Oracle Solaris:

- The minimum supported version is Oracle Solaris 11.1.
- The latest supported version is Oracle Solaris 11.3 SRU xx.

For other operating systems, the following table shows the *minimum* supported operating systems, and provides links to Hardware Compatibility Lists (HCLs). To find the latest supported operating system versions, go to the corresponding HCL.

Note - The Oracle System Assistant assisted OS installation feature might not include support for the latest supported operating systems. To ensure that you have the latest available Oracle System Assistant software, use the Oracle System Assistant Get Updates feature.

Note - Operating system versions are added frequently.

Operating System	Minimum Supported Version	Link to List of Supported Operating Systems
Oracle Linux	Oracle Linux 5.10	http://linux.oracle.com/pls/apex/f?p=117:1:3991604960223967
Oracle VM	Oracle VM 3.2 7	http://linux.oracle.com/pls/apex/f?p=117:1:3991604960223967
Red Hat Enterprise Linux	RHEL 5.10	https://access.redhat.com/certifications
SUSE Linux Enterprise Server	SLES 11 SP3	https://www.suse.com/yessearch/Search.jsp
Windows	Windows Server 2008 SP2	https://www.windowsservercatalog.com/
VMware ESXi	VMware ESXi 5.5 VMware ESXi 6.0	http://www.vmware.com/resources/compatibility/search.php

Supported Hardware

The following table shows supported hardware.

Part	Description
CMOD	Four or eight CPU modules each equipped with one Intel® Xeon E7-8895 V2®
Storage	Eight SSD/HDD slots, containing: ■ 400 GB eMLC,SATA3 SSD ■ 600 GB 2.5-inch 10000 rpm SAS-2 HDD ■ 1.2 TB 2.5-inch 10000 rpm SAS-2 HDD
Memory	Each CMOD supports a minimum of four and a maximum of 24 DIMMs. All DIMMs in a server must be identical. The supported DIMM types are: ■ 16 GB 1.35V, 1600 MHz dual rank RDIMM ■ 32 GB 1.35V, 1600 MHz quad rank LRDIMM
PCIe Cards	16 PCIe Slots mounted on eight dual PCIe card carriers (DPCC). Each DPCC houses two PCIe slots. ■ Four-CMOD systems support PCIe slots 1 through 8. ■ Eight-CMOD systems support all 16 PCIe slots. See "PCIe Card Configuration" on page 13 for more information on PCIe details.

PCIe Card Configuration

The following PCI Express (PCIe) cards are supported for use with the Sun Server X4-8. Installation rules (card and slot) listed in the table below are recommendations based on factory tested configurations.

Note the following restrictions:

- Slots 13, 14, 15, and 16 cannot contain bootable devices such as HBA or network boot devices.
- No mixing of Emulex and Qlogic versions of the Sun Storage 16 GB Fibre Channel PCIe Universal HBA in the system. Only one vendor's option card can be used per system.
- No mixing of FC SFP+ and FCoE SFP+ on the same Sun Storage 16 GB Fibre Channel Universal HBA.
- However, you can have a mix of a single vendor's Sun Storage 16 GB Fibre Channel Universal HBA in the system (either Qlogic or Emulex); one installed with FC SFP+ and one installed with FCoE SFP+.
  - For Qlogic adapters: 7101676, 7101680, 7101678 FCoE

    -or-
  - For Emulex adapters: 7101686, 7101688 FCoE
- No mixing of the Sun Storage 16 GB Fibre Channel PCIe Universal HBA with the Sun StorageTek 8 GB FC PCIe HBA in the system.

PCIe Card Installation Order	PCIe Card	Maximum in 4-CPU System	Slot Installation Order	Maximum in 8-CPU System	Slot Installation Order
1	Sun Flash Accelerator F80 PCIe Card (7069200)	4	Slots 7,5,3,1	8	Slots 11,9,7,5,3,1,15,13
2	Sun Storage 16 Gb Fibre Channel PCIe Universal HBA, Qlogic (7023303)	4	Slots 8,6,4,2,7,5,3,1	4	Slots 12,10,8,6,4,2,11,9,7,5,3,1,16,14,15,13
3	Sun Storage 16 Gb Fibre Channel PCIe Universal HBA, Emulex (7023036)	4	Slots 8,6,4,2,7,5,3,1	4	Slots 12,10,8,6,4,2,11,9,7,5,3,1,16,14,15,13
4	Sun StorageTek 8 Gb FC PCIe HBA, Qlogic (SG-XPCIE2FC-QF8-N)	2	Slots 8,6,4,2,7,5,3,1	2	Slots 12,10,8,6,4,2,11,9, 7,5,3,1,16,14,15,13
5	Sun StorageTek 8 Gb FC PCIe HBA, Emulex (SG-XPCIE2FC-EM8-N)	2	Slots 8,6,4,2,7,5,3,1	2	Slots 12,10,8,6,4,2,11,9,7,5,3,1,16,14,15,13
6	Sun Dual Port QDR InfiniBand Host Channel Adapter, InfiniBand CX3 (7104074)	2	Slots 8,6,4,2,7,5,3,1	4	Slots 12,10,8,6,4,2,11,9,7,5,3,1,16,14,15,13
7	Dual-Port 10 Gigabit-Ethernet PCIe 2.0 Copper/Fiber SFP+ (1109A-Z)	4	Slots 8,6,4,2,7,5,3,1	8	Slots 12,10,8,6,4,2,11,9,7,5,3,1,16,14,15,13
8	Sun Dual Port 10 G Base-T PCIe 2.0 Low Profile Adapter LP (7100488)	4	Slots 8,6,4,2,7,5,3,1	8	Slots 12,10,8,6,4,2,11,9,7,5,3,1,16,14,15,13
9	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP (7100477, 7100479) **Note -** This card is supported on systems with SW 1.1.0 or newer.	8	Slots 8,6,4,2,7,5,3,1	10	Slots 12,10,8,6,4,2,11,9,7,5,3,1,16,14,15,13

Server Update Information

Server updates are available to maintain support, add enhancements, or correct issues. Updates can include new versions of firmware (BIOS and SP/Oracle ILOM), new releases of tools and drivers, and updates to any other packaged components. When an update is released the changes are described in the update's Readme file, which is accessible at the following sources:

- In Oracle System Assistant by clicking the Help button on the System Information page.
- On My Oracle Support as the top-level Readme at `https://support.oracle.com`.
- With any server package download from My Oracle Support.

Related Information

- “Getting Server Firmware and Software Updates” on page 57
- “Oracle Integrated Lights Out Manager (ILOM)” on page 15

Server Management Tools

There are three sets of single system management tools for your server:

- Oracle Integrated Lights Out Manager (ILOM) – For information, refer to the Oracle Integrated Lights Out Manager (ILOM) Documentation Library at: https://www.oracle.com/goto/ilom/docs
- Oracle System Assistant – For information, see instructions for setting up the server using Oracle System Assistant in the Oracle X4 Series Servers Administration Guide at: https://www.oracle.com/goto/x86admindiag/docs
- Oracle Hardware Management Pack – For information, refer to the Oracle Hardware Management Pack Documentation Library at: https://www.oracle.com/goto/ohmp/docs

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Note - Oracle Hardware Management Pack 2.3.0 includes support for Oracle Linux Fault Management Architecture (FMA) software, which can be used to manage server faults from the host OS command line on Oracle Linux 6.5. To use Oracle Hardware Management Pack on a server running Oracle Linux 7, you must download Oracle Hardware Management Pack 2.3.1 or later from My Oracle Support.

In addition, the following software is available to manage multiple systems in a data center:

- Oracle Enterprise Manager Ops Center – For information, refer to the product information page at: http://www.oracle.com/technetwork/oem/ops-center/index.html

Oracle Integrated Lights Out Manager (ILOM)

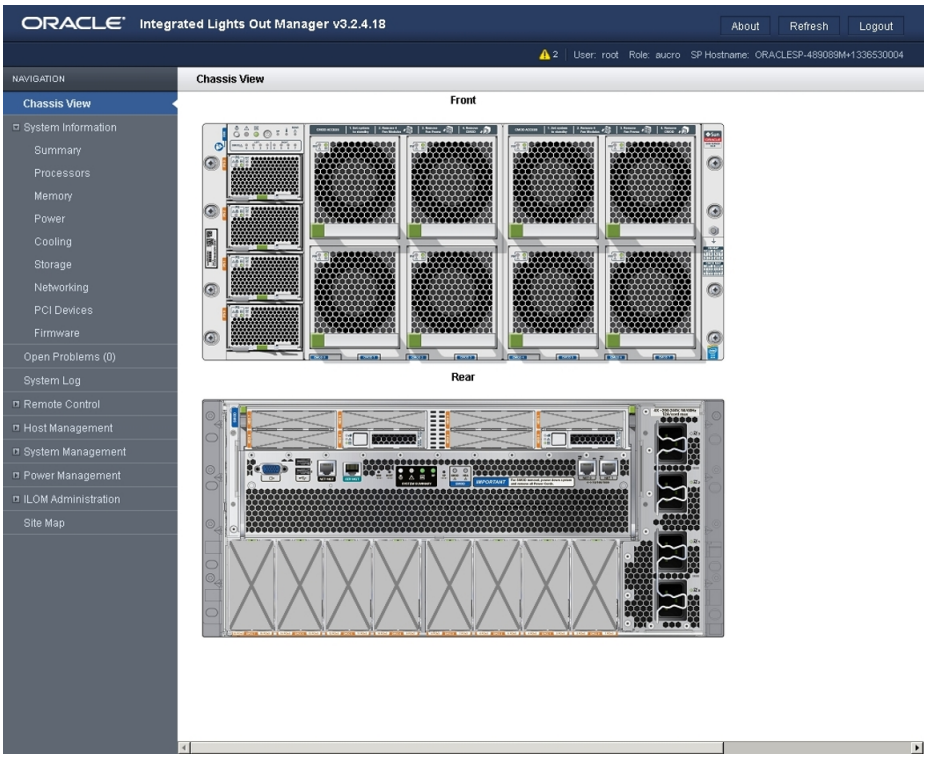
Each server module compute node includes a service processor (SP). The SP contains Oracle Integrated Lights Out Manager (ILOM), which provides IPMI 2.0 compliant remote server management capabilities.

The following interfaces provide network access to Oracle ILOM:

- Integrated Lights Out Manager (ILOM) through the server module node service processor (SP) or Chassis Monitoring Module (CMM)
- Local ILOM command-line access using serial connection
- 10/100 management Ethernet port to midplane
- Remote keyboard, video, mouse, and storage (KVMS) over IP

Oracle ILOM Chassis View Feature

Starting with SW 1.1, Oracle ILOM includes a chassis view feature. Selecting Chassis View from the Oracle ILOM web interface displays a picture of the system components. Clicking any visible component causes Oracle ILOM to display the status of that component.



Related Information

- “Server Management Tools” on page 15
- ILOM documentation library: `https://www.oracle.com/goto/ilom/docs`

Antistatic Wrist Straps Are Not Included With All CRUs and FRUs

The service and installation documentation might state that antistatic wrist straps are included with Customer Replaceable Units (CRUs) and Field Replaceable Units (FRUs). This is not always true. Some CRUs and FRUs are shipped without antistatic wrist straps.

Important Operating Notes

This section provides information about critical issues that affect your server. These include:

Sun Server X4-8 Product Notes include the following information:

Review	Links
Server Security, Software Releases, and Critical Patch Updates	“Server Security, Software Releases, and Critical Patch Updates” on page 20
Procedure to install the latest OS updates, patches, and firmware	“IMPORTANT - Install Latest OS Updates, Patches, and Firmware” on page 20
Note changes to the Oracle ILOM TLSv1.1 configuration property	“Changes to TLSv1.1 Configuration Property as of ILOM 4.0.4.x” on page 21
Diagnosing SAS Data Path Failures on Servers Using MegaRAID Disk Controllers	“Diagnosing SAS Data Path Failures on Servers Using MegaRAID Disk Controllers” on page 22
Oracle ILOM Deprecation Notice for IPMI 2.0 Management Service	“Deprecation Notice for Oracle ILOM IPMI 2.0 Management Service” on page 23
Information about Oracle ILOM licenses and notices.	“Oracle ILOM License Information” on page 24
Information about self-signed SSL certificates	“Resolving Warning Messages for Custom CA and Self-Signed SSL Certificates” on page 25

For known issues affecting system components, see:

- “Hardware, Firmware, and BIOS Issues” on page 31
- “Oracle ILOM Issues” on page 37
- “Oracle Solaris Issues” on page 43
- “Oracle VM Issues” on page 47
- “Linux Issues” on page 51
- “VMware ESXi Issues” on page 55

Server Security, Software Releases, and Critical Patch Updates

To ensure continued security of your system, Oracle strongly recommends that you apply the latest Software Releases. Server Software Releases include Oracle ILOM, BIOS, and other firmware updates, often referred to as “patches.” Oracle publishes these patches regularly on the My Oracle Support site. Applying these patches helps ensure optimal system performance, security, and stability. You can identify the latest Software Release for your system at: `http://www.oracle.com/technetwork/systems/patches/firmware/release-history-jsp-138416.html`

To download a Software Release, go to My Oracle Support at: `https://support.oracle.com`

Oracle notifies customers about security vulnerability fixes for all its products four times a year through the Critical Patch Update (CPU) program. Customers should review the CPU advisories to ensure that the latest software release updates are applied to their Oracle products. Note that updates for Engineered Systems are specifically published for a specific Engineered Systems product (that is, you need not look at specific updates for individual software components included in your Engineered System). For more information about the Oracle CPU program, go to: `http://www.oracle.com/technetwork/topics/security/alerts-086861.html`

Oracle also recommends that you update to the latest operating system release when it becomes available. Although a minimum operating system release is supported, updating to the latest OS release ensures that you have the most up-to-date software and security patches. To confirm that you have the latest OS release, refer to the Oracle Hardware Compatibility Lists. See “Supported Operating Systems” on page 12.

For details about the current system software update, see: “IMPORTANT - Install Latest OS Updates, Patches, and Firmware” on page 20

▼ IMPORTANT - Install Latest OS Updates, Patches, and Firmware

Some product features are enabled only when the latest versions of operating systems, patches, and firmware are installed. To retain optimal performance, security, and stability, you must install the latest available operating systems, patches, and firmware.

To verify that the server firmware version is a minimum of 4.0.4.30 or higher:

1. **Use Oracle ILOM to check your system firmware version.**

- **From the web interface, click System Information > Summary, then view the System Firmware Version in the General Information table.**

- **From the CLI, type:** `show /System/Firmware` **or** `version`**.**

  For more details, refer to information about viewing system information and inventory in your server administration guide, which is available at `https://www.oracle.com/goto/x86admindiag/docs`.

2. **Ensure that the server firmware version is at the minimum required version, shown above, or a subsequent release, if available.**

3. **If the required firmware (or newer) is not installed:**

   a. **Download the firmware from My Oracle Support at:** `https://support.oracle.com`

      For more information, see: "Server Update Information" on page 14

   b. **Install the downloaded firmware.**

      Refer to the information about performing firmware updates in the *Oracle ILOM Administrators Guide for Configuration and Maintenance*, which is available at `https://www.oracle.com/goto/ilom/docs`. Ensure that you perform the preparatory steps described in that document before updating the firmware.

Note - Occasionally after installing the firmware, the Oracle ILOM web interface cannot display the power state correctly on the power control page. To correct this problem, clear your browser cache before logging in to the Oracle ILOM web interface.

Changes to TLSv1.1 Configuration Property as of ILOM 4.0.4.x

Present Behavior: The Oracle ILOM TLSv1.1 configuration property is Enabled by default.

Future Behavior: The following changes will occur to the TLSv1.1 configuration property sometime after the Oracle ILOM 4.0.4 firmware release:

- First Change: The TLSv1.1 configuration property will default to Disabled in the next minor release of Oracle ILOM.

- Second Change: The TLSv1.1 configuration property will no longer be supported and will be removed from all Oracle ILOM user interfaces in the next major release of Oracle ILOM.

For future updates regarding TLSv1.1 support in Oracle ILOM, refer to latest release information in the `Oracle ILOM Feature Updates and Release Notes for Firmware 4.0.x` at https://docs.oracle.com/cd/E81115_01/index.html.

Diagnosing SAS Data Path Failures on Servers Using MegaRAID Disk Controllers

Important Operating Note

On Oracle x86 servers using MegaRAID disk controllers, Serial Attached SCSI (SAS) data path errors can occur. To triage and isolate a data path problem on the SAS disk controller, disk backplane (DBP), SAS cable, SAS expander, or hard disk drive (HDD), gather and review the events in the disk controller event log. Classify and analyze all failure events reported by the disk controller based on the server SAS topology.

To classify a MegaRAID disk controller event:

- Gather and parse the MegaRAID disk controller event logs either by running the automated sundiag utility or manually using the or `StorCLI` command.
  - For Oracle Exadata Database Machine database or storage cell servers, run the sundiag utility.
  - For Oracle Server X4-8, use the `StorCLI` command.

For example, manually gather and parse the controller event log by using the `StorCLI` command. At the root prompt, type:

```
root# ./storcli64/c0 show events file=event.log
Controller=0
Status=Success
```

Note - Use the existing name of the event log as the name for the disk controller event log. This produces a MegaRAID controller event log with the given file name `event.log`.

To show drive and slot errors separately, at the root prompt, type:

```
root# /opt/MegaRAID/storcli/storcli64 /c0 /eall /sall show errorcounters
Controller=0
Status=Success
```

```
Description=Show Drive/Cable Error Counters Succeeded.
```

Error Counters:

Drive	Error Counter for Drive Error	Error Counter for Slot
/c0/e8/s0	0	0
/c0/e8/s1	0	0
/c0/e8/s2	0	0
/c0/e8/s3	0	0
/c0/e8/s4	0	0
/c0/e8/s5	0	0
/c0/e8/s12	0	0
/c0/e8/s13	0	0

These error counters reflect drive or slot errors separately.

The following SCSI sense key errors found in the event log in SAS data path failures indicate a SAS data path fault:

```
B/4B/05 :SERIOUS: DATA OFFSET ERROR
B/4B/03 :SERIOUS: ACK/NAK TIMEOUT
B/47/01 :SERIOUS: DATA PHASE CRC ERROR DETECTED
B/4B/00 :SERIOUS: DATA PHASE ERROR
```

A communication fault between the disk and the host bus adapter causes these errors. The presence of these errors, even on a single disk, means there is a data path issue. The RAID controller, SAS cables, SAS expander, or disk backplane might be causing the interruption to the communication in the path between the RAID controller and the disks.

Oracle Service personnel can find more information about the diagnosis and triage of hard disk and SAS data path failures on x86 servers at the My Oracle Support web site: https://support.oracle.com. Refer to the Knowledge Article Doc ID 2161195.1. If there are multiple, simultaneous disk problems on an Exadata server, Oracle Service personnel can refer to Knowledge Article Doc ID 1370640.1.

Deprecation Notice for Oracle ILOM IPMI 2.0 Management Service

Present Behavior: IPMI 2.0 Management Sessions - Enabled (default setting).

Future Behavior: The following IPMI Management Service changes will occur in a future Oracle ILOM firmware release after firmware version 4.0.2.

First IPMI Service Support Change: The default configuration property for IPMI 2.0 Sessions will change from Enabled to Disabled. Clients relying on Oracle ILOM IPMI 2.0 session support by default will no longer be able to communicate with Oracle ILOM.

To enable IPMI communication with Oracle ILOM, perform one of the following:

- Use the Oracle IPMI TLS service and interface. For more information, refer to *IPMI TLS Service and Interface* in the *Oracle ILOM Protocol Management Reference SNMP and IPMI Firmware Release 4.0.x*.

- or -

- Manually enable the configuration property for IPMI 2.0 Session. For details, refer to *IPMI Service Configuration Properties* in the *Oracle ILOM Administrator's Guide for Configuration and Maintenance Firmware Release 4.0.x*.

Second IPMI Service Support Change: Removal of IPMI 2.0 client support.

IPMI 2.0 clients *will no longer be able* to communicate with Oracle ILOM. Clients relying on IPMI communication will need to use the IPMI TLS service and interface. For more information, refer to *IPMI TLS Service and Interface* in the *Oracle ILOM Protocol Management Reference SNMP and IPMI Firmware Release 4.0.x*.

For future updates about IPMI Management Service support in Oracle ILOM, refer to the latest firmware release information published in the *Oracle ILOM Feature Updates and Release Notes Firmware Release 4.0.x*.

Oracle ILOM License Information

For Oracle ILOM 5.0.x license information, refer to the *Licensing Information User Manual Oracle ILOM Firmware Release 5.0.x* at: https://docs.oracle.com/cd/E95134_01/html/E95135/index.html

For Oracle ILOM 4.0.x license information, refer to the *Licensing Information User Manual Oracle ILOM Firmware Release 4.0.x* at: https://docs.oracle.com/cd/E81115_01/html/E81116/index.html

The Sun Server X4-8 with Oracle ILOM 5.0.x and Oracle ILOM 4.0.x uses the Debian software that is also used in Oracle ILOM 3.2.x. For license information, refer to the *Licensing Information User Manual Oracle ILOM Firmware Release 3.2.x* at: https://docs.oracle.com/cd/E37444_01/html/E62005/index.html

Resolving Warning Messages for Custom CA and Self-Signed SSL Certificates

The following information applies to the users of the Oracle ILOM Remote System Console and the Oracle ILOM Remote System Console Plus.

A warning message occurs when the Java client is not properly configured to validate the Secure Sockets Layer (SSL) certificate that is currently being using by Oracle ILOM. This validation behavior applies to Oracle ILOM firmware version 3.2.8 or later for systems using the default self-signed SSL certificate and to Oracle ILOM firmware version 3.2.10 and later for systems using a Custom Certification Authority (CA) SSL certificate.

To resolve the SSL warning message, refer to the applicable sections noted below in the Oracle ILOM Administrator's Guide for Configuration and Maintenance Firmware Release 4.0.x, which is available at: https://www.oracle.com/goto/ilom/docs

- *Warning Messages for Self-Signed SSL Certificate*
- *Resolving Warning Messages for Custom Certification Authority (CA) SSL Certificate*

Oracle x86 Products Accessibility

This section describes the accessibility features that are part of Oracle x86 hardware, firmware, and related documentation.

Oracle strives to make its products, services, and supporting documentation usable and accessible to the disabled community. To that end, products, services, and documentation include features that make the product accessible to users of assistive technology.

For more information about Oracle's commitment to accessibility, go to:

- http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc

Hardware Accessibility

Oracle x86 hardware has color-coded labels, component touch points, and status indicators (LEDs) that provide information about the system. These labels, touch points, and indicators can be inaccessible features for sight-impaired users. The product HTML documentation provides context and descriptive text available to assistive technologies to aid in interpreting status and understanding the system. System-level descriptions and status indicator interpretation can be found in the product Service Manual. The documentation also provides diagrams and screenshots that do not rely on color. Within the diagrams, callouts indicate the referenced component information. The callout descriptions are mapped within a table. All images and tables in the documentation include descriptive alternative text.

Another method to obtain information about the system is to use the built-in Oracle Integrated Lights Out Manager (ILOM). Oracle ILOM provides a browser-based interface and a command-line interface that support assistive technologies for real-time viewing of system status, indicator interpretation, and system configuration. For details, see "Oracle ILOM Accessibility."

You can access the accessible HTML documentation for Oracle x86 hardware products at:

- http://docs.oracle.com/en/servers/

Oracle ILOM Accessibility

You can use the Oracle Integrated Lights Out Manager (ILOM) browser user interface (BUI) to monitor and manage the server hardware. The Oracle ILOM BUI does not require a special accessibility mode; rather, its accessibility features are always available. The BUI was developed using standard HTML and JavaScript and its features conform to accessibility guidelines.

To navigate a BUI page and select items or enter commands, you can use standard keyboard inputs, such as using the Tab key to go to a selection, or the up and down arrow keys to scroll through the page. You can also make menu selections by using standard keyboard combinations.

For example, using the Oracle ILOM Open Problems BUI page, you can identify faulted memory modules (DIMMs) or processors (CPUs) that would otherwise be identified by a lit LED indicator on the motherboard. Likewise, you can use the Oracle ILOM BUI to monitor the hardware power states that are also indicated by flashing LED indicators on the hardware.

The Oracle ILOM command-line interface (CLI) is an alternative and equivalent way to access the Oracle ILOM BUI features and functionality. Because the operating systems that run on the Oracle server hardware support assistive technologies to read the content of the screen, you can use the CLI as an equivalent means to access the color-based, mouse-based, and other visual-based utilities that are part of the BUI. For example, you can use a keyboard to enter CLI commands to identify faulted hardware components, check system status, and monitor system health.

You can use the Oracle ILOM Remote Console Plus to access both a text-based serial console and a graphics-based video console that enable you to remotely redirect host server system keyboard, video, mouse, and storage devices. Note, however, that the Oracle ILOM Java Remote Console does not support scaling of the video frame within the Java application. You need to use assistive technology to enlarge or reduce the content in the Java Remote Console Plus display.

As an alternative method to using the BIOS Setup Utility to configure BIOS settings, Oracle ILOM provides a set of configurable properties that can help you manage the BIOS configuration parameters on an Oracle x86 server. Using Oracle ILOM, you can:

- Back up a copy of the BIOS configuration parameters to an XML file using the Oracle ILOM BUI.
- Edit the XML file using a standard XML editor. The BIOS XML tags correlate directly to the BIOS screen labels.
- Restore the XML file of the backed up or edited configuration parameters to BIOS.

The BUI and CLI methods for using Oracle ILOM are described in the accessible HTML documentation for Oracel ILOM at:

- https://www.oracle.com/goto/ilom/docs

Oracle Hardware Management Pack Accessibility

Oracle Hardware Management Pack software is a set of command-line interface (CLI) tools. Oracle Hardware Management Pack software does not include product-specific accessibility features. Using a keyboard, you can run the CLI tools as text commands from the operating system of a supported Oracle server. All output is text-based.

Additionally, most Oracle Hardware Management Pack tools support command output to a text log file or XML file, which can be used for text-to-speech conversion. Accessible manual pages (man pages) are available that describe the Hardware Management Pack tools on the system on which those tools are installed.

Installation and uninstallation of Oracle Hardware Management Pack can be performed manually, using text commands entered from the CLI. Assistive technology products such as screen readers, digital speech synthesizers, or magnifiers can be used to read the content of the screen.

Refer to the assistive technology product documentation for information about operating system and command-line interface support.

The CLI tools for using the software are described in the accessible HTML documentation for Hardware Management Pack at:

- https://www.oracle.com/goto/ohmp/docs

BIOS Accessibility

When viewing BIOS output from a terminal using the serial console redirection feature, some terminals do not support function key input. However, BIOS supports the mapping of function keys to Control key sequences when serial redirection is enabled. Descriptions of the function key to Control key sequence mappings are provided in the product documentation, typically within the server Service Manual. You can navigate the BIOS Setup Utility by using either a mouse or keyboard commands.

As an alternative method of configuring BIOS settings using the BIOS Setup Utility screens, Oracle ILOM provides a set of configurable properties that can help you manage the BIOS configuration parameters on an Oracle x86 server. For more information, see "Oracle ILOM Accessibility."

BIOS information and its functions are typically documented in the product Service Manual or Installation Guide.

Documentation Accessibility

Documentation for Oracle hardware is provided in HTML and PDF formats. The HTML documents are accessible using standard operating system controls and assistive technology. PDF documents are also provided; however, PDF is not an accessible format. PDF documents are considered support documents because the PDF content is available in accessible HTML format.

Product documentation provides figures, other types of images, and screenshots that do not rely on color for interpretation. Within the figures, callouts indicate the referenced component information. The callouts are mapped within a table to provide text descriptions of the referenced parts of the figures. In addition, alternative text is provided for all tables and images that provides the context of the information and images.

Note that screen readers might not always correctly read the code examples in the documentation. The conventions for writing code require that closing braces should appear on an otherwise empty line. However, some screen readers might not always read a line of text that consists solely of a bracket or brace.

The documentation might contain links to web sites of other companies and organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these web sites.

You can access the accessible HTML documentation for Oracle x86 products at:

- http://docs.oracle.com/en/servers/

Hardware, Firmware, and BIOS Issues

The following table lists hardware, firmware, and BIOS issues for the Sun Server X4-8.

Links to Issues	Workaround?
"New Policy Allows You to Prevent System from Disabling DIMMs with Correctable Errors (22708327)" on page 31	N/A
"Reset Takes a Long Time and Causes the Server to Power Cycle" on page 32	N/A
"Downgrade to Older Version of System Software Requires Additional AC Power Cycle (20275809)" on page 33	N/A
"CMOD Warm Service Procedure" on page 33	Yes
"Do Not Power Cycle Server During Automatic CMOD FPGA Update (18707243)" on page 33	N/A
"Server Boots Twice After BIOS Configuration Changes (18339188)" on page 34	Yes
"Locator Button on SMOD Might Become Stuck" on page 35	Yes
"Ignore Fault Message About Degraded Width on HBA (18783638)" on page 35	N/A Fixed in SW 1.1
"Fan Errors During System Diagnostic Tests or High Stress Conditions (20256677)" on page 35	Yes Fixed in SW 1.1

New Policy Allows You to Prevent System from Disabling DIMMs with Correctable Errors (22708327)

Normally when a DIMM exceeds the threshold of correctable errors (CEs), the system maps it out, which disables it until it can be replaced.

Setting the DIMM CE Map Out policy allows you to prevent the system from mapping out DIMMs that exceed the CE threshold. This feature is available with Oracle ILOM 3.2.6 or later.

- When DIMM CE Mapout is enabled, DIMMs that exceed the CE threshold are mapped out (disabled). This is the default.

- When DIMM CE Mapout is disabled, DIMMs that exceed the CE threshold are not mapped out.

To enable or disable the DIMM CE Mapout policy:

- From the Oracle ILOM web interface, navigate to System Management > Policy and use the drop-down list to enable or disable DIMM CE fault DIMM map out.
- From the Oracle ILOM command-line interface (CLI), enter:

  `set /SP/policy DIMM_CE_MAP_OUT=[`*enabled/disabled*`]`

Reset Takes a Long Time and Causes the Server to Power Cycle

If you have a pending BIOS upgrade, a routine reset takes longer than expected and causes your server to power cycle and reboot several times. This is expected behavior, as it is necessary to power cycle the server to upgrade the BIOS firmware. If the upgrade includes an FPGA update, it can take more than 30 minutes to complete.

A pending BIOS upgrade exists when both conditions are true:

- You update the BIOS and service processor firmware using Oracle ILOM.
- You select the option to Delay BIOS Upgrade.
- The host is powered on.

If you then reboot the server expecting a routine server reset and instead initiate a (delayed) BIOS upgrade, wait until the upgrade is finished. Do not interrupt the process, as this can result in corrupted firmware and server down time.

Caution - Data corruption and system downtime. Interrupting the firmware upgrade process can corrupt the firmware and render the server inoperable.Do not interrupt the upgrade. Allow the process to finish.

Note - Oracle ILOM and BIOS updates are designed to work together. When you have a pending BIOS upgrade, it is recommended that you install the upgrade by resetting or power cycling your server as soon as possible.

For details, refer to “Update the BIOS and Service Processor Firmware (Oracle ILOM)” in *Oracle X4 Series Servers Administration Guide*.

Downgrade to Older Version of System Software Requires Additional AC Power Cycle (20275809)

If after upgrading your server to the latest system software version (such as version 1.1.1) you need to go back to an older version (such as version 1.0.1 or 1.0) you must perform an additional AC power cycle of the server after the downgrade has completed to ensure proper system operation.

An AC power cycle can be performed by shutting down the system and removing the AC power cords from the power supplies. Then, plug the AC power cords back into the power supplies and restart the system.

CMOD Warm Service Procedure

Starting with Oracle ILOM 3.2.4.18 and SW 1.1, warm service mode allows you to service CMODs and their subcomponents without removing the power cords or shutting down Oracle ILOM.

When you remove more than one fan module from a column (cooling zone), or when you insert a CMOD into a previously empty slot during an upgrade, Oracle ILOM immediately removes power from all CMOD slots, placing the server in warm service mode.

Caution - Data Loss. Do not remove more than one fan module from a column (cooling zone) while the system is in Full power mode. This action removes power from the CMODs and causes an immediate shutdown. On an eight-CMOD system, this applies to all fan modules. On a four-CMOD system, this applies to the fan modules in the left-hand fan frame (CMODs 0-3).

For more information. refer to *Sun Server X4-8 Service Manual*.

Do Not Power Cycle Server During Automatic CMOD FPGA Update (18707243)

If you replace the CMOD or SMOD hardware, it can cause the FPGA to be out of synchronization between the CMOD and the SMOD. When you apply AC power to the server, Oracle ILOM detects the FPGA mismatch and automatically updates the FPGA.

Caution - Do not power off or power cycle your server during this update.

When an automatic FPGA update is in progress, messages like the following appear in the Oracle ILOM event logs:

```
Thu May 8 01:01:20 2014 Firmware Update minor FPGA update x4_8cmod0 started
```

or:

```
Thu May 8 01:01:19 2014 Firmware Update minor Performing
FPGA sync on x4_8cmod0 x4_8cmod2 x4_8cmod3 x4_8cmod4 x4_8cmod5 x4_8cmod6
x4_8cmod7 x4_8smod
```

After the update is complete, it displays messages like this:

```
Thu May 8 01:10:32 2014 Firmware Update minor FPGA update complete
```

If the upgrade was not necessary, it displays messages like this:

```
Thu May 8 00:46:36 2014 Firmware Update minor FPGA update is not needed
```

Server Boots Twice After BIOS Configuration Changes (18339188)

If the UEFICfg LateSync feature is enabled, the server reboots at the end of BIOS POST if the BIOS/boot configuration is changed. The first boot synchronizes the changes to Oracle ILOM.

The BIOS boot configuration can change in response to a customer selection, or automatically in response to certain system changes.

- Customer selections include changes to the boot order, boot list, or boot mode.
- Automatic changes can be triggered in response to events such as removing or adding a PCIe card or memory risers.

Normally this is not a problem. Just wait for the second boot to finish and the server should operate normally.

When UEFICfg LateSync is disabled, Oracle ILOM might not be synchronized with the BIOS configuration changes until the next boot.

For more information, see Oracle X4 Series Servers Administration Guide or the *Sun Server X4-8 Service Manual*.

Locator Button on SMOD Might Become Stuck

On some systems, when you press the locator button on the SMOD (on the back of the system), it can become stuck, and remain pressed after you release it.

Ignore Fault Message About Degraded Width on HBA (18783638)

This issue is fixed in SW 1.1.

You might see fault messages warning of degraded width on HBAs. For example:

```
Fault fault.io.intel.iio.pcie-link-degraded-width on FRU /SYS/SMOD/HBA at
 component /SYS/SMOD/HBA
```

You can ignore these messages. This issue does not affect performance.

Fan Errors During System Diagnostic Tests or High Stress Conditions (20256677)

This issue is fixed in System Software 1.1.1.

During high system stress, or during hardware diagnostic tests, low fan speed errors or fan faults might appear in the event log. These errors or faults might occur due to an incorrect setting of the fan rotation threshold in firmware. In rare cases this can shut down the system to prevent a perceived over-temperature condition.

If you encounter fan errors/faults, upgrade to the latest system software. If fan errors/faults continue after upgrading, contact Oracle Service.

Oracle ILOM Issues

This section includes important operating information and requirements for the Sun Server X4-8. The following table lists the Oracle ILOM issues for the Sun Server X4-8.

Links to Issues	Workaround?
“Use Oracle ILOM 4.0 Documentation After Updating to Firmware Version 2.0.0 or Newer” on page 37	N/A
“File Transfer Using URI Fails if Target Password Contains Certain Special Characters (25917655)” on page 38	Fixed in SW 1.7.0
“Oracle ILOM SNMP v3 Traps Are Not Delivered After SNMP Engine ID Change (23634048)” on page 38	Yes
“Third-Party Web Scan and Test Tools Cause Sluggish Oracle ILOM Performance (23564626)” on page 39	Yes Fixed in SW 1.3.1
“Oracle ILOM Enhancement Allows Enabling IPv6 While Disabling IPv4” on page 39	N/A
“Console Timestamp Logging (20405652)” on page 40	N/A
“FPGA Update Fails and Server Does Not Boot (19871445)” on page 40	Yes
“Ignore Message When Flashing Oracle ILOM With New CPLD (18317337)” on page 41	Yes Fixed in SW 1.1.0
“Oracle ILOM Identifies CPU Incorrectly” on page 41	Yes

Note - Additional information about Oracle ILOM appears in “Important Operating Notes” on page 19.

Use Oracle ILOM 4.0 Documentation After Updating to Firmware Version 2.0.0 or Newer

When you update firmware, it updates Oracle ILOM as well, and earlier documentation collections no longer apply.

- When you update to SW 2.0.0 or newer, refer to the Oracle ILOM 4.0 documentation collection.
- Refer to the Oracle ILOM 3.2 documentation collection for older SW versions.

The Oracle ILOM documentation collections are posted at https://www.oracle.com/goto/ilom/docs.

File Transfer Using URI Fails if Target Password Contains Certain Special Characters (25917655)

This problem is fixed in SW 1.7.0.

When using Oracle ILOM to transfer files using a Uniform Resource Identifier (URI), the transfer fails if the target host's password contains any of the following special characters:

```
# ; ?
```

Examples of these transfers include using host storage redirection, and backing up and restoring BIOS and SP configurations.

Workaround

Use a target host password that does not include any of the indicated special characters.

Oracle ILOM SNMP v3 Traps Are Not Delivered After SNMP Engine ID Change (23634048)

If you change the engine ID, create an SNMP v3 user, and configure an alert using that user without waiting approximately 10 seconds between each action, the internal user configuration might be incorrect and traps are missed.

Workaround

Do not create multiple configuration changes without verifying the effect of each configuration change. To prevent misconfigured users and missed traps, insert sleep statements in the script. For example:

```
# change engineID
set /SP/services/snmp engineid=NEWENGINEID
```

```
# sleep 10 seconds to give snmp enough time to make the change
sleep 10
# verify engineID
show /SP/services/snmp engineid
# verify SNMPv3 users have been deleted
show /SP/services/snmp/users

# create snmpv3 user
create /SP/services/snmp/users newuser authenticationpassword=...
# sleep 10 seconds to give snmp enough time to make the change
sleep 10
# verify user
show /SP/services/snmp/users newuser
# do a snmpget with that user to verify it

# configure alert
set /SP/alertmgmt/rules/1 type=snmptrap ...
# sleep 10 seconds to give snmp enough time to make the change
sleep 10
# verify alert
show /SP/alertmgmt/rules/1
set /SP/alertmgmt/rules/1 testrule=true
```

Third-Party Web Scan and Test Tools Cause Sluggish Oracle ILOM Performance (23564626)

Under certain conditions, third-party web scanning and test tools can cause Oracle ILOM to run extremely slowly.

Workaround

Install the latest system software release. This problem is fixed in system software 1.3.1 or newer.

Oracle ILOM Enhancement Allows Enabling IPv6 While Disabling IPv4

Starting with software release 1.2, Oracle ILOM has been enhanced to allow you to enable IPv6 while disabling IPv4. In addition, you can configure a static gateway for IPv6.

The user interface changes include:

In the Web Interface:

- Separate State fields have been added to both the IPv4 and IPv6 areas. Select or deselect the Enabled checkboxes to enable or disable the corresponding internet protocol as desired.
- If required, type a static gateway address in the IPv6 Static Gateway field.

In the Command-Line Interface (CLI):

- The `state` command has been expanded so that it only needs to be entered once, while configuring IPv4 or IPv6. The parameters are:
  - `enabled` – enable IPv4 and IPv6

    Note - With SW 1.2 or newer, if IPv6 is disabled and you use the `set /SP/network/state = enabled` command to enable both IPv4 and IPv6, to finish enabling IPv6, you must also enter the command `/SP/network/ipv6 state=enabled`.
  - `ipv4_only` – enable IPv4 and disable IPv6
  - `ipv6_only` – disable IPv4 and enable IPv6
  - `disabled` – disable IPv4 and IPv6
- The `ipv6_static_ipgateway` command allows you to set a static IPv6 gateway.

For more information, see "Accessing Oracle ILOM" in *Oracle X4 Series Servers Administration Guide* or refer to `https://www.oracle.com/goto/ilom/docs`.

Console Timestamp Logging (20405652)

A new property called timestamp has been added to the `/HOST/console` command.

- When timestamp = yes, the console history display includes local timestamps on the front of each line.
- When timestamp = no, the console history does not include timestamps (default).

If timestamp = yes, any console history entries that existed before SW 1.2 have incorrect times.

FPGA Update Fails and Server Does Not Boot (19871445)

If you update Oracle ILOM with a version that includes a new FPGA, the FPGA update might not succeed.

When this happens, the host fails to power on, and the system displays power failure faults:

- The service required LEDs light.
- Power fail error messages appear on Oracle ILOM.
- Error messages appear in the SP event log. These include:

  `FPGA update failure`

  `FPGA recovery failure`

Workaround

1. Power cycle the server.
2. If power cycling the server does not clear the problem, contact Oracle support.

Ignore Message When Flashing Oracle ILOM With New CPLD (18317337)

When you upgrade Oracle ILOM with a newer version of CPLD, if you choose the option to delay the power cycle, and then you power cycle the system, it displays a message:

```
Unable to confirm that the power state was changed. Please check the status of
the host or its settings.
```

You can ignore this message. The power cycle causes the system to update CPLD and Oracle ILOM. When the power cycle is complete, the system should function normally.

To avoid seeing the message, power the system off and allow the CPLD update to complete before powering it on.

This is fixed in system software 1.1.0.

Oracle ILOM Identifies CPU Incorrectly

The FRU printout command in Oracle ILOM does not provide information about the processor model. For example, the `ipmitool fru` command displays:

```
FRU Device Description : CMOD0/P0 (LUN 0 ID 16)
 Product Manufacturer  : Intel
 Product Name          : unknown product name unknown
 Product Part Number   : CM80636
```

```
  Product Version       : 000306E7 SR1NR
```

Workaround

Use the `show /System/Processors/CPUs/CPU_`*N* command, where *N* is the CPU number. For example:

```
-> show /System/Processors/CPUs/CPU_0

 /System/Processors/CPUs/CPU_0
    Targets:

    Properties:
        health = OK
        health_details = -
        part_number = CM80636
        serial_number = Not Available
        location = P0 (CPU 0)
        model = Intel(R) Xeon(R) CPU E7-8895 v2 @ 2.80GHz
        max_clock_speed = 2.800 GHz
        total_cores = 15
        enabled_cores = 15
        temperature = Not Supported

    Commands:
        cd
        show

->
```

Alternatively, select Processor > Details on the Oracle ILOM web interface Summary or System Information pages.

Oracle Solaris Issues

This section contains topics that describe Oracle Solaris 10 and Solaris 11 OS issues for the Sun Server X4-8. The following table lists the issues that are covered in this section.

Links to Issues	Workaround
"Performance Degradation Can Occur With Some High Bandwidth I/O Cards (19526300)" on page 43	Yes
"Solaris 11.1 With Desktop Package Cannot Be Powered Off Using Certain Options in Oracle ILOM (16816951)" on page 44	Yes
"Installing Solaris 11 from a Solaris Client using Oracle ILOM Remote Console Plus Fails (18285100)" on page 45	Yes Fixed in SW 1.1

Performance Degradation Can Occur With Some High Bandwidth I/O Cards (19526300)

Systems with some types of high performance I/O option cards, such as dual port InfiniBand cards, might experience constrained I/O performance under some types of high stress workloads. The symptom appears as lower than expected bandwidth through the external ports of the I/O option cards.

Workaround

If you see lower than expected performance through the external ports of high bandwidth I/O cards and it is not attributable to an external cause, such as fabric issues, the following procedure might increase I/O performance.

1. Start or reboot the server.
2. During the initial boot process, press F2 when prompted to enter the BIOS Setup Utility.
3. Use the right arrow key to navigate to the Advanced menu.
4. Cursor down to select CPU Power Management Configuration and press Enter.
5. Set the power management configurations as follows:

```
CPU PM Tuning:              Manual
EIST (GV3):                 Disabled
Turbo Mode:                 Disabled
CPU C3 report:              Disabled
CPU C6 report:              Disabled
Package C state Limit:      C0/C1
Uncore Frequency Scaling:   Disabled
```

6. Press the F10 key to save your new settings and exit the BIOS Setup Utility.

For the latest updates on this issue, refer to bug 19526300 in My Oracle Support:

https://support.oracle.com

Solaris 11.1 With Desktop Package Cannot Be Powered Off Using Certain Options in Oracle ILOM (16816951)

For a server running Oracle Solaris 11.1 with the desktop package, the following Oracle ILOM power off options do not power off the server:

- When performing a graceful shutdown of the server from the Oracle ILOM web interface.
- When performing a forced shutdown of the server using the stop -f /SYS command from the Oracle ILOM command-line interface (CLI).

Other power off options work normally.

Workaround

Perform one of the following workarounds on the server running Oracle Solaris depending on whether you plan on using the Oracle ILOM web interface or CLI to power-off the server.

To use the Oracle ILOM CLI for power-off, first do the following at the server running Oracle Solaris:

1. In `/usr/share/dbus-1/services/gnome-power-manager.service`, add **`--verbose`** to the following line: **`Exec=/usr/bin/gnome-power-manager`**

   The edited line should read:

   `Exec=/usr/bin/gnome-power-manager --verbose`

To use the Oracle ILOM web interface for power-off, first do the following at the server running Oracle Solaris:

1. Select System > Preferences > Startup Applications from gnome-panel's menu list.
2. Select Power Manager > Edit.

Add **`--verbose`** to the following line: **`gnome-power-manager`**

The edited line should read: **`gnome-power-manager --verbose`**

Note - If gnome-power-manager demon is currently running, enter **`pkill gnome-power-manager`** from the command line to stop it.

Installing Solaris 11 from a Solaris Client using Oracle ILOM Remote Console Plus Fails (18285100)

This issue is fixed in SW 1.1.

If you try to install Solaris 11.1 from an ISO image using Oracle ILOM Remote Console Plus, the install fails.

Workaround

Perform one of the following:

- Use Oracle ILOM Remote Console Plus from a Windows or Linux client.

  or:
- Use the Oracle ILOM Remote Device feature to mount and connect an ISO image residing on a remote NFS or SAMBA server instead.

For details, see:

https://www.oracle.com/goto/ilom/docs.

Oracle VM Issues

This section describes the following Oracle Virtual Machine (OVM) issues for the Sun Server X4-8.

Link to Issue	Workaround
“Oracle VM Does Not Allocate Enough Interrupts for Multiple Option Cards (16596993)” on page 47	Yes
“Error After Installing Oracle VM Server on a System With a Large Amount of Memory (16557272)” on page 48	Yes
“Oracle VM 3.2.7 Supports Only 4TB of Memory (17859222)” on page 48	N/A

Oracle VM Does Not Allocate Enough Interrupts for Multiple Option Cards (16596993)

Running Oracle VM with a large number of PCIe cards installed can cause various symptoms, including:

- Using dhclient might result in a system panic.
- The `ethtool` command displays `speed unknown` and `duplex unknown`.
- Option cards might not operate as expected.

Workaround

Edit the `grub.conf` file to add the following kernel boot parameters:

```
extra_guest_irqs=64,2048 nr_irqs=2048
```

Error After Installing Oracle VM Server on a System With a Large Amount of Memory (16557272)

In some cases, a system with a large amount of memory requires special configuration in order for Oracle VM to install and launch correctly. If not, you might see the following error on launch after installation:

```
kernel panic -not syncing: Out of memory and no killable processes
```

If you install Oracle VM from an ISO image or by using Oracle System Assistant, the `dom0_mem` parameter should be set correctly. If you install the Oracle VM software from PXE boot or some other customized environment and you have a large-memory system, you might need to recalculate the `dom0_mem` setting.

Workaround

Recalculate the `dom0_mem` setting using this formula:

dom0_mem = 502 + int(physical_mem * 0.0205)

For example, if your system has 128 GB of memory, you need to increase `dom0_mem` to 3188 MB:

```
dom0_mem=3188M
```

You can update the `dom0_mem` setting in the grub.conf file, or during installation by interrupting the boot process at grub menu and editing it there.

For more information on the `dom0_mem` setting, refer to the Installing Oracle VM Server documentation:

http://docs.oracle.com/cd/E35328_01/E35330/html/vmiug-server-dom0-memory.html

Oracle VM 3.2.7 Supports Only 4TB of Memory (17859222)

A system with 8 CMODs can have as much as 6 TB of memory.

Oracle VM 3.2.7 supports a maximum of 4 TB of RAM.

Workaround

To run Oracle VM on a system with more than 4TB of memory, add the following line to the `grub.conf` file:

xen.gz mem=4096G

For example:

```
kernel /xen.gz dom0_mem=3152M allowsuperpage dom0_vcpus_pin dom0_max_vcpus=20
crashkernel=256M@128M mem=4096G module /vmlinuz-2.6.39-300.32.6.el5uek
ro root=UUID=4adbac6a-fa58-4892-9052-2cca403f7dd0
 module /initrd-2.6.39-300.32.6.el5uek.img
```

Linux Issues

This section contains topics that describe Linux OS issues for the Sun Server X4-8. The following table lists the issues that are covered in this section.

Links to Issues	Workaround
“Linux OS Installation Might Fail When Using Oracle System Assistant in UEFI Boot Mode (19274609, 19232280, and 19044611)” on page 51	Yes
“Installing Fibre Optic PCIe Card Causes Error Message When Attention Button is Pressed (18191306)” on page 52	N/A
“Sun Flash Accelerator F80 PCIe Card Hotplug Fails (17898908)” on page 52	Yes
“For RHEL 5.10 in an Eight-Socket System Set maxcpus to 160 (16734123)” on page 53	Yes
“Oracle RHEL Compatible Kernel 5.10 1 TB Memory Limitation (16732124)” on page 53	No
“Oracle RHEL Compatible 5.10 XEN Requires pci=nomsi If Two or More Option Cards are Present (16734126)” on page 53	Yes
“Hotplugging PCIe Card Causes Error AER (16949957, 16956385)” on page 54	Yes

Linux OS Installation Might Fail When Using Oracle System Assistant in UEFI Boot Mode (19274609, 19232280, and 19044611)

If you are installing Linux using Oracle System Assistant, and you have configured the system to use UEFI Boot Mode, after you select the target drive, the installation might fail.

Workaround

1. Log in to the Oracle ILOM web interface.
2. Select System Management > BIOS > Settings > Reset to Defaults > Factory.
3. Reboot the server.

   The system boots and resets the BIOS settings to factory defaults.

Note - After you reset the BIOS settings, the server is in Legacy BIOS Boot Mode.

4. To change the boot mode back to UEFI Boot Mode, select Boot > UEFI/BIOS Boot Mode, and then select UEFI from the drop-down menu.

   Alternatively, if you have backed up your BIOS settings, you can restore the BIOS settings from the backup.
5. Boot to Oracle System Assistant and retry the Oracle System Assistant assisted Linux OS Installation.

Installing Fibre Optic PCIe Card Causes Error Message When Attention Button is Pressed (18191306)

When you install a fibre optic card in a PCIe slot, then press the Attention button on the DPCC, you might see the message:

```
pciehp 0000:20:02.0:pcie04: Button pressed on Slot(3)
pciehp 0000:20:02.0:pcie04: PCI slot #3 - powering off due to button press.
```

You can ignore this message.

Sun Flash Accelerator F80 PCIe Card Hotplug Fails (17898908)

If you hotplug a Sun Flash Accelerator F80 PCIe Card in a system, it might not be initialized. When this occurs, messages like the following appear in the error logs:

```
mpt2sas1: _base_wait_for_doorbell_int: failed due to timeout count(5000),
       int_status(40000000)!
mpt2sas1: doorbell handshake int failed (line=3309)
mpt2sas1: _base_get_ioc_facts: handshake failed (r=-14)
mpt2sas1: failure at drivers/scsi/mpt2sas/mpt2sas_scsih.c:11348/_scsih_probe()!
```

Workaround

1. Record the PCIe device from the console or `/var/log/messages`. For example (from `/var/log/messages`:

   ```
   pci 0000:e1:00.0: no hotplug settings from platform
   ```

```
mpt2sas1: _base_wait_for_doorbell_int: failed due to timeout count(5000),
int_status(40000000)!
mpt2sas1: doorbell handshake int failed (line=3309)
mpt2sas1: _base_get_ioc_facts: handshake failed (r=-14)
mpt2sas1: failure at drivers/scsi/mpt2sas/mpt2sas_scsih.c:11348/_scsih_probe()!
```

2. Record the PCI device number (0000:e1:00.0 in the example)
3. Run the following command:

   `echo -n` *xxxx:yy:nn.n* `> /sys/bus/pci/drivers/mpt2sas/bind`

   where *xxxx:yy:nn.n* is the device number.

For RHEL 5.10 in an Eight-Socket System Set maxcpus to 160 (16734123)

For RHEL 5.10 XEN, if your server has eight sockets, it might crash.

Workaround

Add the following text to the `xen.gz` line in `/boot/grub/menu.1st`:

`maxcpus=160`

Oracle RHEL Compatible Kernel 5.10 1 TB Memory Limitation (16732124)

Oracle RHEL 5.10 Compatible Kernel can only access 1 TB of memory.

Oracle RHEL Compatible 5.10 XEN Requires pci=nomsi If Two or More Option Cards are Present (16734126)

If you run the Oracle Red Hat Compatible 5.10 Xen, and you have more than two option cards in your system, the system might hang or experience poor performance.

Workaround

Add **`pci=nomsi`** to the module `/vmlinux` line in the file `/etc/grub.conf`:

For example:

```
module /vmlinuz-2.6-XXX.el5xen ro root=LABEL=/ pci=nosmi
```

Hotplugging PCIe Card Causes Error AER (16949957, 16956385)

Hotplugging PCIe cards in a Linux system might cause AER due to an option ROM speed mismatch.

Workaround

If you encounter an AER after a PCIe card hotplug:

- For Oracle Linux 6.5, add the following line to the `/etc/grub.conf` file:

  ```
  pci=pcie_bus_perf
  ```
- For Red Hat Linux 5.10 or 6.5 (or equivalent Oracle Red Hat compatible Oracle Linux), use the BIOS Setup utility to set the Maximum Payload to 128.

  1. Access the BIOS Setup utility.
  2. Select the I/O tab.
  3. Select PCI Subsystem Settings from the drop-down list.
  4. On the PCI Subsystem Settings page, set Maximum Payload to 128.

     The default is 256.

VMware ESXi Issues

This section contains topics that describe VMware ESXi software issues for the Sun Server X4-8.

Link to Issues	Workaround
"VMware ESXi 5.5 Does Not Support MMIO Regions Above 4GB (16480679, 17013064)" on page 55	Yes
"VMware ESXi 5.5 Runs Out of Interrupts With PCIe Cards (16494653)" on page 56	No
"ESXi 5.5 Supports a Maximum of 4 TB of RAM" on page 56	N/A

VMware ESXi 5.5 Does Not Support MMIO Regions Above 4GB (16480679, 17013064)

The Sun Server X4-8 defaults in BIOS to 64-bit MMIO (Memory Mapped I/O). This allows additional PCIe memory address space to be mapped above the standard 32-bit 4GB of space for PCIe cards that include option ROMs. However, VMware ESXi is incompatible with MMIO space above the standard 4GB. This issue can cause some PCIe cards not to function properly with ESXi.

Workaround

As a possible workaround, disable 64-bit MMIO through the server's BIOS Setup utility (under the IO > PCIe Subsystem Settings > PCI 64-bit Resources Allocation menu). This workaround has limitations. With some combinations of option cards, the system will require more MMIO space than what the system can allocate within 32 bits of address space. When that occurs, those option cards that could not be assigned MMIO address space (because there was not enough left) are unavailable for use.

For more information, refer to VMware's Knowledge Base.

http://vmware.com/

VMware ESXi 5.5 Runs Out of Interrupts With PCIe Cards (16494653)

In certain configurations VMware ESXi can run out of interrupts for devices (this can include storage and networking).

For more information, refer to VMware's *Configuration Maximums* document for ESXi 5.5, under host maximums:

http://www.vmware.com/pdf/vsphere5/r55/vsphere-55-configuration-maximums.pdf

ESXi 5.5 Supports a Maximum of 4 TB of RAM

Running ESIx vSphere 5.5 with more than 4 TB of RAM is not supported.

Getting Server Firmware and Software Updates

This section explains the options for accessing server firmware and software updates.

Description	Links
Learn about server firmware and software updates.	“Firmware and Software Updates” on page 57
Learn about options for accessing firmware and software.	“Firmware and Software Access Options” on page 58
Review available firmware and software releases.	“Software Releases” on page 58
Learn how to get firmware and software using Oracle System Assistant or My Oracle Support.	“Getting Firmware and Software From My Oracle Support” on page 59
Install firmware and software updates using other methods.	“Installing Updates Using Other Methods” on page 60

Firmware and Software Updates

Firmware and software for your server are updated periodically. These updates are made available as software releases. The software releases are a set of downloadable files (patches) that include all available firmware, software, hardware drivers, tools, and utilities for the server. All these files have been tested together and verified to work with your server.

You should update your server firmware and software as soon as possible after a new software release becomes available. Software releases often include bug fixes, and updating your server ensures that your server has the latest firmware and software.

The ReadMe document that is included with each patch in a software release contains information about the patch, such as what has changed or not changed from the prior software release, as well as bugs that are fixed with the current release.

The product notes that are part of the server documentation identify which server software release is the latest release supported on your server.

Firmware and Software Access Options

Use one of the following options to obtain the latest release of firmware and software for your server:

- **Oracle System Assistant** – Oracle System Assistant is a factory-installed option for Oracle servers that enables you to easily download and install the latest software releases.

  For information about using Oracle System Assistant, refer to Oracle X4 Series Servers Administration Guide (`https://www.oracle.com/goto/x86admindiag/docs`).

  My Oracle Support – All system software releases are available from My Oracle Support at `https://support.oracle.com`.

  For information about what is available on the My Oracle Support web site, see "Download Firmware and Software Using My Oracle Support" on page 59.
- **Other Methods** – You can use Oracle Enterprise Manager Ops Center, Oracle Hardware Management Pack, or Oracle ILOM to update your server software and firmware.

  For information, see "Installing Updates Using Other Methods" on page 60.

Software Releases

Software releases on My Oracle Support are grouped by product family (such as Sun Server), then the product (the specific server or blade), and finally the software release version. A software release contains all the updated software and firmware for your server or blade as a set of downloadable files (patches), including firmware, drivers, tools, or utilities, all tested together to be compatible with your server.

Each patch is a zip file that contains a ReadMe file and a set of subdirectories containing firmware or software files. The ReadMe file contains details on the components that have changed since the prior software release and the bugs that have been fixed.

My Oracle Support provides the set of software releases for your server as described in the following table. You can obtain these software releases by downloading the files from My Oracle Support or by using Oracle System Assistant.

Package Name	Description	When to Download This Package
X4-*x* SW *release* – Firmware Pack	Contains all system firmware, including Oracle ILOM, BIOS, and option card firmware.	You need the latest firmware.
X4-*x* SW *release* – OS Pack	Includes a package of all tools, drivers, and utilities for a specific	You need to update OS-specific tools, drivers, or utilities.

Package Name	Description	When to Download This Package
	OS. An OS Pack is available for each supported operating system version. Software includes Oracle Hardware Management Pack and LSI MegaRAID software. For the Windows OS, the OS Pack also includes Intel Network Teaming and Install Pack.	
X4-*x* SW *release* – All Packs	Includes the Firmware Pack, all OS Packs, and all documents. This pack does not include Oracle VTS or the Oracle System Assistant image.	You need to update a combination of system firmware and OS-specific software.
X4-*x* SW *release* – Diagnostics	Includes Oracle VTS diagnostics image.	You need the Oracle VTS diagnostics image.
X4-*x* SW *release* – Oracle System Assistant Updater	Includes Oracle System Assistant recovery and ISO update image.	You need to manually recover or update Oracle System Assistant.

Getting Firmware and Software From My Oracle Support

You can use Oracle System Assistant to easily download and then use the latest software release. For further information, refer to Oracle X4 Series Servers Administration Guide (`https://www.oracle.com/goto/x86admindiag/docs`)

However, you can also obtain updated firmware and software by using My Oracle Support. See: "Download Firmware and Software Using My Oracle Support" on page 59

▼ Download Firmware and Software Using My Oracle Support

1. **Go to the My Oracle Support web site: `https://support.oracle.com`.**
2. **Sign in to My Oracle Support.**
3. **At the top of the page, click the Patches & Updates tab.**
   The Patch Search pane appears at the right of the screen.
4. **Within the Search tab area, click Product or Family (Advanced).**

The Search tab area appears with search fields.

5. **In the Product field, select the product from the drop-down list.**

   Alternatively, type a full or partial product name (for example, Sun Server X4-8) until a match appears.

6. **In the Release field, select a software release from the drop-down list.**

   Expand the list to see all available software releases.

7. **Click Search.**

   The Patch Advanced Search Results screen appears, listing the patches for the software release.

   See "Software Releases" on page 58 for a description of the available software releases.

8. **To select a patch for a software release, click the patch number next to the software release version.**

   You can use the Shift key to select more than one patch.

   A pop-up action panel appears. The panel contains several action options, including the ReadMe, Download, and Add to Plan options. For information about the Add to Plan option, click the associated button and select "Why use a plan?".

9. **To review the ReadMe file for this patch, click ReadMe.**

10. **To download the patch for the software release, click Download.**

11. **In the File Download dialog box, click the patch zip file name.**

    The patch for the software release downloads.

Installing Updates Using Other Methods

In addition to using Oracle System Assistant and My Oracle Support, you can install updated firmware and software using one of the following methods:

- **Oracle Enterprise Manager Ops Center** – You can use Ops Center Enterprise Controller to automatically download the latest firmware from Oracle, or firmware can be loaded manually into the Enterprise Controller. In either case, Ops Center can install the firmware onto one or more servers, blades, or blade chassis.

  For information, go to:

  `http://www.oracle.com/technetwork/oem/ops-center/index.html`

- **Oracle Hardware Management Pack** – You can use the `fwupdate` CLI Tool within the Oracle Hardware Management Pack to update firmware within the system.

  For information, refer to the Oracle Hardware Management Pack Documentation Library at:

  `https://www.oracle.com/goto/ohmp/docs`
- **Oracle ILOM** – You can use the Oracle ILOM web interface or command-line interface to update Oracle ILOM and BIOS firmware.

  For information, refer to the Oracle Integrated Lights Out Manager (ILOM) Documentation Library at: `https://www.oracle.com/goto/ilom/docs`