Sun Server X3-2L (formerly Sun Fire X4270 M3) Product Notes

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Part No: E23397-30

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.

Contents

Using This Documentation

- **Overview** – Provides information about supported software and firmware, new features, and important operating guidelines for the Sun Server X3-2L
- **Audience** – Technicians, system administrators, authorized service providers, and system users
- **Required knowledge** – Experience installing operating systems

Product Documentation Library

Documentation and resources for this product and related products are available at `https://www.oracle.com/goto/x3-2l/docs`.

Feedback

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

Sun Server X3-2L Product Notes

For the most updated information about supported firmware and operating systems, important operating notes, and known issues, refer to the latest product notes, which are available at `https://www.oracle.com/goto/x3-2l/docs`.

These product notes include the following information.

Description	Links
Review information on the server name change.	"Sun Server X3-2L Name Change" on page 13
Review supported hardware.	"Supported Hardware" on page 14
Review supported firmware revisions.	"Server Update Information" on page 14
Review supported operating systems.	"Supported Operating Systems" on page 15
Review supported Oracle server management tools.	"Server Management Tools" on page 16
Review product accessibility.	"Sun Server X3-2L Product Accessibility" on page 16
Review important operating notes.	"Important Operating Notes" on page 19
Review supported PCIe cards.	"Supported PCIe Cards" on page 41
Review resolved issues.	"Resolved Issues" on page 43
Review known issues.	"Known Issues" on page 49
Obtain and install the latest firmware and server updates.	"Getting Server Firmware and Software" on page 101

Sun Server X3-2L Name Change

The Sun Server X3-2L was formerly named the Sun Fire X4270 M3 server. This former name might still appear in the software. The name change does not indicate any change in system features or functionality.

The new name identifies the following:

- X identifies an x86 product.
- The first number, 3, identifies the generation of the server.

- The second number, 2, identifies the number of processors.
- The alpha character, L, identifies the product as a large capacity server.

Supported Hardware

You can find detailed information about supported hardware in these Sun Server X3-2L documents:

- "About the Installation Procedure" in the *Sun Server X3-2L Installation Guide*
- "About the Sun Server X3-2L" in the *Sun Server X3-2L Service Manual*

Within those documents, you can find information about supported hardware for these and other components:

- Processors
- Memory
- Storage drives
- Host bus adapters

Related Information

-

Server Update Information

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

- Oracle System Assistant, by clicking the Help button on the System Information page.
- On My Oracle Support at `https://support.oracle.com`.
- With any server software package downloaded from My Oracle Support.

Supported Operating Systems

The following Hardware Compatibility Lists (HCLs) identify the latest operating system versions supported on Oracle hardware. To find the latest operating system version supported for the Sun Server X3-2L, go to the following sites and search using your server model number:

- Oracle Solaris – `https://www.oracle.com/webfolder/technetwork/hcl/index.html`
- Oracle Linux – `https://linux.oracle.com/pls/apex/f?p=117:1:3991604960223967`
- Oracle VM – `https://linux.oracle.com/pls/apex/f?p=117:1:3991604960223967`
- Windows – `https://www.windowsservercatalog.com/`
- VMware ESXi – `http://www.vmware.com/resources/compatibility/search.php`
- Red Hat Enterprise Linux – `https://access.redhat.com/certifications`
- SUSE Linux Enterprise Server – `https://www.suse.com/yessearch/Search.jsp`

The following operating systems are supported for use with the Sun Server X3-2L:

- Oracle Solaris 10 8/11 and 10 1/13
- Oracle Solaris 11 11/11 (with SRU 2, or any later bootable SRU, required) (also available as a preinstalled option)

Note - Before installing Oracle Solaris 11 11/11 on your server, you must update it to include Support Repository Update (SRU) 2, or any later bootable SRU. For information on how to add an SRU to Oracle Solaris 11 11/11, go to: `https://www.oracle.com/technetwork/server-storage/solaris11/documentation/index.html`

- Oracle Solaris 11.1, 11.2, and 11.3
- Oracle Linux 5.7, 5.8, 5.9, 5.10, 5.11, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 7.2, and 7.5 for x86 (64-bit) including the Oracle Unbreakable Enterprise Kernel Release 5 for Linux
- Oracle VM Release 3.0, 3.1, 3.2, 3.3, 3.4.1, and 3.4.5
- Red Hat Enterprise Linux 5.7, 5.8, 5.9, 5.10, 5.11, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, and 7 for x86 (64-bit)
- SUSE Linux Enterprise Server 11 SP1, SP2, and SP3 (64-bit)
- VMware ESXi 5.0 and later
- VMware ESXi 5.1 and later
- VMware ESXi 5.5 and later
- VMware ESXi 6.0 Update 2
- Windows Server 2008 SP2
- Windows Server 2008 R2 SP1

- Windows Server 2012
- Windows Server 2012 R2

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) 4.0.4 Documentation Library at: `https://www.oracle.com/goto/ilom/docs`
- Oracle System Assistant – For information, see "Setting Up the Server Using Oracle System Assistant" in the *Sun Server X3-2L Administration Guide*.
- Oracle Hardware Management Pack – For information, refer to the Oracle Hardware Management Pack Documentation Library at: `https://www.oracle.com/pls/topic/lookup?ctx=ohmp`

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

Sun Server X3-2L Product Accessibility

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

Sun Server X3-2L Hardware Accessibility

Sun Server X3-2L 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's HTML documentation provides context and descriptive text available to assistive technologies to

aid in interpreting status and understanding the system. For information about system-level descriptions, see the Sun Server X3-2L Service Manual at `https://www.oracle.com/pls/topic/lookup?ctx=E23393-01`.

You can also use the built-in Oracle Integrated Lights Out Manager (ILOM) to obtain information about the system. Oracle ILOM provides a browser-based interface (BUI) and a command-line interface (CLI) that support assistive technologies for real-time viewing of system status, indicator interpretation, and system configuration. For details, see "Oracle ILOM Accessibility" on page 17.

Oracle ILOM Accessibility

You can use the Oracle ILOM 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, use standard keyboard inputs, such as the Tab key to go to a selection, or the up and down arrow keys to scroll through the page. You can use standard keyboard combinations to make menu selections.

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 lighted 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 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 Plus 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 do the following:

- 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 Oracle ILOM at https://www.oracle.com/goto/ilom/docs.

Oracle Hardware Management Pack Accessibility

Oracle Hardware Management Pack software is a set of 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 man pages are available that describe the Hardware Management Pack tools on the system on which those tools are installed.

You can install and uninstall Oracle Hardware Management Pack by 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" on page 17.

BIOS information and its functions are typically documented in the Sun Server X3-2L 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, but are 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 Sun Server X3-2L products at `https://www.oracle.com/pls/topic/lookup?ctx=E23393-01`.

Important Operating Notes

This section includes important operating information and requirements for the Sun Server X3-2L.

Related Information

Software and Critical Patch Updates

Update Your System to the Latest Software Release

It is highly recommended that you update your system to the latest software release before you use the system. Software releases often include bug fixes, and updating ensures that your server software is compatible with the latest server firmware and other component firmware and software. See Latest Firmware Releases for Oracle X86 Servers

You can get the latest available system BIOS, Oracle Integrated Lights Out Manager (ILOM), firmware, and drivers from Oracle by performing the Get Updates task in Oracle System Assistant. An Internet connection is required. For instructions on how to use the Get Updates task, see the *Oracle X3 Series Servers Administration Guide* at `https://www.oracle.com/goto/x86admindiag/docs`.

You can also download the latest firmware and software updates from My Oracle Support at `https://support.oracle.com`. For information about downloading firmware and software from My Oracle Support, see "Getting Server Firmware and Software Updates" in the *Sun Server X3-2L Installation Guide*.

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 will help ensure optimal system performance, security, and stability. You can identify the latest Software Release for your system at `https://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 will be 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 `https://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 will ensure 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 15.

For details about the current system software update, see "Important – Install Latest OS Updates, Patches, and Firmware" on page 22

▼ **Important – Install Latest OS Updates, Patches, and Firmware**

Some product features are enabled only when the latest versions of patches and firmware are installed. To retain optimal system performance, security, and stability, you must install the latest operating system, patches, and firmware. For further information, see "Getting Server Firmware and Software Updates" in the *Sun Server X3-2L Installation Guide*.

To verify that the firmware is a minimum of 4.0.4.22 or newer:

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

   ■ From the web interface, click System Information → Summary, then view the property information for the System Firmware Version in the General Information table.

   ■ From the CLI, at the command prompt (->) type: show /System/Firmware

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

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

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

   a. **Download the firmware from My Oracle Support at `https://support.oracle.com`. For more information, see "Getting Server Firmware and Software" on page 101.**

   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.

Download an OS or Software Applications

You can download an operating system (OS) or software applications for all licensed Oracle products from Oracle Software Delivery Cloud (formerly called Oracle eDelivery). Software is available in zip and ISO formats, which you can unzip or burn to DVDs, respectively. All of the download links on the Oracle Technology Network (OTN) point to the Software Delivery Cloud, making this site the authoritative source for all Oracle downloads. See also "Physical Media Requests Are No Longer Supported" on page 98. To access Oracle Software Delivery Cloud, go to `https://edelivery.oracle.com`.

Diagnose SAS Data Path Failures on Servers Using MegaRAID Disk Controllers

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 `MegaCLI` or `StorCLI` commands.
  - For Oracle Exadata Database Machine database or storage cell servers, run the sundiag utility.
  - For the Sun Server X3-2L, use the `MegaCLI` command.

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

```
root# ./MegaCli64 adpeventlog getevents –f event.log aall
Success in AdpEventLogExit
Code: 0x00
```

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`.

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.

Remove and Replace a Fan Module Within 20 Seconds

When removing and replacing a server fan module, you must complete the entire removal and replacement procedure within 20 seconds in order to maintain adequate cooling within the system. In anticipation of this time limit, prior to starting the replacement procedure, obtain the replacement fan module and verify that the new fan module is ready for installation.

Fan modules are hot-swappable components, with N+1 fan redundancy. The Sun Server X3-2L fan module uses a single 80mm counter-rotating fan pair (two rotors total) and the chassis holds four fan modules. Even if only one fan is faulted within the fan module, the Oracle ILOM service processor detects that two fans have failed to spin while the fan module is being removed for replacement. If replacing the fan module takes longer than 20 seconds, Oracle ILOM automatically shuts down the system in order to prevent thermal damage to the system. This is expected behavior.

Oracle ILOM Important Operating Notes

This section includes important operating information and requirements for Oracle ILOM, relating to the Sun Server X3-2L.

- "Resolving Warning Messages for Custom CA and Self-Signed SSL Certificates" on page 25
- "Oracle ILOM Deprecation Notice for IPMI 2.0 Management Service" on page 25
- "Oracle ILOM Enhancement Allows Enabling IPv4 only, IPv6 only, or Dual Stack" on page 26

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 ILOM Deprecation Notice for IPMI 2.0 Management Service

Present Behavior: IPMI 2.0 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 no longer will 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 Enhancement Allows Enabling IPv4 only, IPv6 only, or Dual Stack

Oracle ILOM's standard network connectivity features support the ability to configure an IPv4 network connection or a dual-stack (IPv4 and IPv6) network connection. Starting with system software release 1.4.2, Oracle ILOM's enhanced network connectivity properties support the ability to configure a static IPv6 gateway address and any of the following type of network connections: *IPv4 only, IPv6 only,* or *dual-stack (IPv4 and IPv6 enabled).*

The following web and command-line interface (CLI) instructions provide details for viewing and modifying the network settings that are assigned to the SP.

To modify the SP network settings from the Oracle ILOM web interface, do the following:

1. Log in to Oracle ILOM as an Administrator.
2. Click ILOM Administration > Connectivity > Network.
3. Modify the settings on the Network Settings page as required.

   For further details about how to configure the properties on the Network Settings page, click the *More Details* link.
4. Click Save to save your network property changes in Oracle ILOM.

Note - All user sessions on the SP are terminated upon modifying and saving IP network property changes. To log back in to Oracle ILOM, use the newly assigned service processor IP address.

To modify the SP network settings from the Oracle ILOM CLI, do the following:

1. Log in to Oracle ILOM as an Administrator.
2. To view the assigned IPv4 and IPv6 network settings on the SP, perform the following:

For IPv4, type: `show /SP/network`

For IPv6, type: `show /SP/network/ipv6`

3. To view the descriptions about each IPv4 and IPv6 network property, perform the following:

   For IPv4, type: `help /SP/network`

   For IPv6, type: `help /SP/network/ipv6`

4. To modify the IPv4 and IPv6 network properties on the SP, issue the `set` command.

   IPv4 Example:

   `set /SP/network state=enabled|ipv4-only|ipv6-only|disabled pendingipdiscovery=static|` `dhcp pendingipaddress=`*value* `pendingipgateway=`*value* `pendingipnetmask=`*value*

   IPv6 Example:

   `set /SP/network/ipv6 state=enabled|disabled` `pending_static_ipaddress=`*value*/*subnet_mask_value* `pending_static_ipgatewayaddress=`*value*

   Note - A dual-stack network connection is enabled when both the IPv4 and IPv6 State properties are set to enabled. By default, Oracle ILOM arrives out-of-the-box with network settings enabled for a dual stack (IPv4 and IPv6) network connection. If the IPv4 State property is enabled (`/SP/network state=enabled`) and the IPv6 State property is disabled (`/SP/network/ipv6 state=disabled`), Oracle ILOM will support an IPv4-only network connection.

   ---

5. To commit the pending network changes (IPv4 or IPv6) in Oracle ILOM, type:

   `set /SP/network commitpending=true`

   Note - All user sessions on the SP are terminated upon modifying and saving IP network property changes. To log back in to Oracle ILOM, use the newly assigned service processor IP address.

Ensuring Successful File Transfers from Oracle ILOM

Do not use the # ; and ? special characters in the password of a target host. If the target host password includes these special characters, file transfers fail from Oracle ILOM to the target host when using Uniform Resource Identifier (URI) to perform the file transfer. Examples of these file transfers include using host storage redirection, and backing up and restoring BIOS and SP configurations. To ensure successful file transfers between Oracle ILOM and a target host, remove these special characters from the target host password.

Oracle ILOM License Information

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 X3-2L with 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`

Reset Takes a Long Time and Causes the Server to Power Cycle Due to Delayed BIOS Update

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 as long as 26 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.

Caution - Firmware corruption and server down time. If you 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.

For details on the pending BIOS upgrade feature in Oracle ILOM, refer to `https://www.oracle.com/goto/ilom/docs`.

UEFI Configuration Synchronization Removed

As of Platform Software Release 1.4, the `UEFI Configuration Synchronization` option has been removed from the BIOS Advanced menu. The user can no longer control the point at which Oracle ILOM synchronizes the UEFI configuration. UEFI configuration synchronization is now handled by the server platform software, so user actions are no longer required.

Install System Battery Incorrect Position

In the *Sun Server X3-2L Service Manual*, the illustration of removing the system battery in the procedure "Remove the Battery" shows the negative side of the battery facing the chassis wall. This illustration of the battery is incorrect. The correct position of the battery, which the illustration should depict, is for the positive (+) side of the battery to face the chassis wall in the Sun Server X3-2L.

Single-Processor to Dual-Processor Upgrade Is Not Supported

Oracle does not support a single-processor to dual-processor upgrade on the Sun Server X3-2L. Oracle does not provide a single-processor to dual-processor upgrade kit for the server.

Avoid Overwriting the Embedded Oracle System Assistant USB Flash Drive

Sun Server X3-2L systems that have the Oracle System Assistant USB flash drive are (for the purposes of installing a Linux operating system or virtual machine software) multi-storage drive systems, even if they have only one hard-disk drive (HDD) or solid-state drive (SSD). The Oracle System Assistant USB flash drive looks like an ordinary disk to the installer.

During operating system (OS) installations, you must not accept the default disk layout presented by the installer without carefully reviewing the devices used for disk partitions. If you accept the default disk partitions suggested by the OS installer without reviewing or correcting the device selections, you might overwrite the Oracle System Assistant USB flash drive and incur other system software issues.

This is more likely to happen in Oracle Linux 6.x or Red Hat Enterprise Linux (RHEL) 6.x based installations in Unified Extensible Firmware Interface (UEFI) mode, because the installer will recognize the USB flash drive as a valid Efi System Partition (ESP boot partition) and will attempt to use the Oracle System Assistant USB flash drive to boot the OS in many of the default disk configurations. Always select the disk partitioning options that allow you to review the disk layout.

- For details on creating a custom layout or modifying the default layout, see `https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html/Installation_Guide/s1-diskpartitioning-x86.html`

- For details on the disk partitioning setup, see `https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html/Installation_Guide/s1-diskpartsetup-x86.html`

For more information, see the following sections in the software installation guides:

- For Linux operating systems, see "Installation Target Options" in the *Sun Server X3-2L Installation Guide for Linux Operating Systems*.
- For Oracle VM, see "Installation Target Options" in the *Sun Server X3-2L Installation Guide for Oracle VM*.
- For VMware ESXi, see "Installation Target Options" in the *Sun Server X3-2L Installation Guide for VMware ESXi*.

Oracle Solaris 10 8/11 Required Patches

Before installing Oracle Solaris 10 8/11 on the server, you should install the patches listed in the following table.

TABLE 1   Required Patches for Oracle Solaris 10 8/11

Required Patches	CRs Fixed	CR Descriptions
150401-12	16353003	ILOM Remote Console issue. When using the Oracle ILOM Remote Console (eeprom variable "console" set to "text") the system could appear to hang in the final stages of halting.
150401-09	15786729	BIOS issue. Patch fixes issue with power limit.
145649-04	15829089	Driver issue. Patch fixes issue with crash dump during poweroff with qlge driver installed.
150631-04	15805238	Installation issue. Patch fixes intermittent install crash.
148170-02	7097919	Ethernet issue. This patch fixes an issue with Ethernet (ixgbe) ports losing link. Note that this issue also affects Oracle Solaris JumpStart installations. To support JumpStart installations, apply this patch to your Oracle Solaris 10 8/11 JumpStart miniroot image. The instructions for patching miniroot are in the *Oracle Solaris 10 8/11 Installation Guide: Network Based Installations*, which is available at this web site: `https://docs.oracle.com/cd/E23823_01/html/E23800/netinstall-patch.html`
147706-02	6986256	FMA support. This patch adds support for Oracle Solaris Fault Management Architecture (FMA) for the Intel processor (CPU) used in the Sun Server X3-2L.
148172-01	6893274	Kernel issue. This patch fixes a problem with delayed visibility to processor threads that can cause a panic that contains the string `turnstile_block` and unowned `mutex`.
147441-08	7001739	AVX issue. This patch fixes an issue with Intel AVX support.

Required Patches	CRs Fixed	CR Descriptions
147156-01	6956660	Processor (CPU) performance counters support. This patch adds performance counter support for the Intel processor used in the Sun Server X3-2L.
147150-01	7052663	HBA issue. This patch fixes a panic that can occur when booting from an SGX-SAS6-INT-Z host bus adapter (HBA).
148099-03	7026372	SCSI issue. This patch fixes an issue with SCSI DMA transfers during cable disconnects that reports "Error setting up next portion of DMA transfer".

Preinstalled Oracle VM Server and Oracle VM Manager Compatibility Requirements

If you use the Oracle VM Server software that is preinstalled on your system, you must ensure that it is compatible with the version of Oracle VM Manager that you use to manage your Oracle VM infrastructure. If necessary to achieve compatibility, upgrade your Oracle VM Server or Oracle VM Manager so that they are the same version.

For information about upgrading the Oracle VM software, see the *Oracle VM Installation and Upgrade Guide*. The Oracle VM documentation is available at the following web site: `https://www.oracle.com/technetwork/documentation/vm-096300.html`

Supported Operating System Limitations

This section provides information about limitations and recommendations for the supported operating systems when the Sun Server X3-2L is configured with 3-terabyte (3-TB) 7200-RPM 3.5-inch SAS hard disk drives (HDDs).

To use the following operating systems without installation or boot drive limitations on servers with the 3.5-inch SAS drive configuration, you should obtain and use a 600-Gb, 3.5-inch SAS HDD. Alternatively, if your configuration has rear 2.5-inch drives, these have a smaller capacity and you can use these for your installation and boot image.

- Oracle Linux 5.7 and 5.8
- RHEL 5.7 and 5.8
- Windows Server 2008 SP2/R2 SP1
- Oracle VM 3.0 and 3.*x*
- VMware ESXi 5.0

The following table lists the operating system limitations and recommendations for 3-TB drive boot support when the system is configured with either the SGX-SAS6-INT-Z or the SGX-SAS6-R-INT-Z host bus adapter (HBA).

TABLE 2   Limitations and Recommendations for 3-TB Install and Boot Support

Operating System	Legacy Boot With SGX-SAS6-INT-Z HBA	UEFI Boot With SGX-SAS6-INT-Z HBA	Legacy Boot With SGX-SAS6-R-INT-Z HBA	UEFI Boot With SGX-SAS6-R-INT-Z HBA
Oracle Solaris 10	2 TB used, 1 TB unusable	Not applicable	Use virtual drive that is less than 2.19 TB	Not applicable
Oracle Solaris 11 11/11	2 TB used, 1 TB unusable	Not applicable	Use virtual drive that is less than 2.19 TB	Not applicable
Oracle Solaris 11.1, 11.2, 11.3	Not recommended	Recommended	Not recommended	Recommended
Oracle Linux 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, and 7.2 RHEL 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, and 7	Not recommended	Recommended	Not recommended	Recommended
Oracle Linux 5.7, 5.8, 5.9, 5.10, and 5.11 RHEL 5.7, 5.8, 5.9, 5.10, and 5.11	Not applicable	Not applicable	Use virtual drive that is less than 2.19 TB	Not applicable
SLES 11 SP1, SP2, and SP3	Not recommended	Recommended	Not recommended	Recommended
Windows Server 2008 SP2/R2 SP1	Not applicable	Recommended	Not recommended	Recommended
Windows Server 2012 Windows Server 2012 R2	2 TB used, 1 TB unusable	Not applicable	Use virtual drive that is less than 2.19 TB	Recommended
Oracle VM 3.0, 3.1, 3.2, and 3.3	Not applicable	Not applicable	Use virtual drive that is less than 2.19 TB	Not applicable
VMware ESXi 5.0	Not applicable	Not applicable	Not recommended	Recommended
VMware ESXi 5.0 Update 1, Update 2, and Update 3 VMware ESXi 5.1, 5.1 Update 1, and Update 2 VMware ESX 5.5, 5.5 Update 1, and Update 2	Not recommended	Recommended	Not recommended	Recommended

The following table lists limitations for the preinstalled operating systems that use 3-TB boot drives when the system is configured with either the SGX-SAS6-INT-Z or the SGX-SAS6-R-INT-Z host bus adapter (HBA).

TABLE 3 Data Drive Support for 3-TB Drives

Operating System	3-TB Data Drive	Support for SGX-SAS6-INT-Z or SGX-SAS6-R-INT-Z HBA
Oracle Solaris 10	Patch 148099-03 required (CR 7026372)	Both HBAs supported
Oracle Solaris 11 11/11	SRU required (CR 7026372)	Both HBAs supported
Oracle Solaris 11.,1, 11.2, 11.3	Supported	Both HBAs supported
Oracle Linux 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, and 7.2	Supported	Both HBAs supported
RHEL 6.1, 6.2, 6.3, 6.4, and 6.5, 6.6, and 7		
Oracle Linux 5.7, 5.8, 5.9, 5.10, and 5.11	Supported	Both HBAs supported
RHEL 5.7, 5.8, 5.9, 5.10, and 5.11		
SLES 11 SP1, SP2, and SP3	Supported	Both HBAs supported
Windows Server 2008 SP2/R2 SP1	Supported	Both HBAs supported
Windows Server 2012	Supported	Both HBAs supported
Windows Server 2012 R2		
Oracle VM 3.0, 3.1, and 3.2	Supported	Both HBAs supported
VMware ESXi 5.0	Supported, but only with the SGX-SAS6-R-INT-Z HBA installed	SGX-SAS6-R-INT-Z supported only
VMware ESXi 5.0 Update 1, Update 2, and Update 3	Supported	Both HBAs supported
VMware ESXi 5.1, 5.1 Update 1, and Update 2		
VMware ESX 5.5, 5.5 Update 1, and Update 2		

The following table lists operating system support for 3-TB data drives when the system is configured with either the SGX-SAS6-INT-Z or the SGX-SAS6-R-INT HBA.

TABLE 4 Data Drive Support for 3-TB Drives

Operating System	3-TB Data Drive	Support for SGX-SAS6-INT-Z or SGX-SAS6-R-INT-Z HBA
Oracle Solaris 10	Patch 148099-03 required (CR 7026372)	Both HBAs supported
Oracle Solaris 11 11/11	SRU required (CR 7026372)	Both HBAs supported
Oracle Solaris 11.1	Supported	Both HBAs supported
Oracle Linux 6.1, 6.2, 6.3, 6.4, and 6.5	Supported	Both HBAs supported

Operating System	3-TB Data Drive	Support for SGX-SAS6-INT-Z or SGX-SAS6-R-INT-Z HBA
RHEL 6.1, 6.2, 6.3, 6.4, and 6.5		
Oracle Linux 5.7, 5.8, 5.9, 5.10, 6.1, 6.2, 6.3, 6.4, and 6.5 for x86 (64-bit)	Supported	Both HBAs supported
RHEL 5.7, 5.8, 5.9, 5.10, 6.1, 6.2, 6.3, 6.4, and 6.5 for x86 (64-bit)		
SLES 11 SP1 and SP2	Supported	Both HBAs supported
Windows Server 2008 SP2/R2 SP1	Supported	Both HBAs supported
Windows Server 2012	Supported	Both HBAs supported
Windows Server 2012 R2		
Oracle VM 3.0, 3.1, and 3.2	Supported	Both HBAs supported
VMware ESXi 5.0	Supported, but only with the SGX-SAS6-R-INT-Z HBA installed	SGX-SAS6-R-INT-Z supported only
VMware ESXi 5.0 Update 1, ESXi 5.1, and ESXi 5.5	Supported	Both HBAs supported

Update HBA Firmware to Support UEFI BIOS

You might need to update the firmware on your Sun Storage 6 Gb SAS PCIe HBA Internal (SGX-SAS6-INT-Z), Sun Storage 6 Gb SAS PCIe HBA External (SGX-SAS6-EXT-Z), or Sun Storage 6 Gb SAS PCIe RAID HBA Internal (SGX-SAS6-R-INT-Z) card to support Unified Extensible Firmware Interface (UEFI) BIOS if you are not using a card that was shipped with your system. You might need to update your HBA firmware if:

- You receive a replacement card for a faulty HBA.
- You order an HBA separately from your system.
- You want to use an HBA that you already own.

You can use Oracle System Assistant or Oracle Hardware Management Pack to update your HBA firmware. For information on updating HBA firmware using Oracle System Assistant, see "Update Firmware" in the *Sun Server X3-2L Administration Guide.* For information on updating HBA firmware using Oracle Hardware Management Pack, see "Set Up Software and Firmware Using Oracle Hardware Management Pack" in the *Sun Server X3-2L Administration Guide*.

Note - Alternatively, you can configure your system to use Legacy BIOS. For information, see "Select Legacy BIOS or UEFI Boot Mode" in the *Sun Server X3-2L Administration Guide*.

FRU TLI Auto-Update

Oracle ILOM includes a top-level indicator (TLI) auto-update feature that ensures the TLI stored in the server's field-replaceable units (FRUs) is always correct. The TLI, which is unique to each server, is used to track the server's service entitlement and warranty coverage. When a server requires service, the server's TLI is used to verify that the server's warranty has not expired.

The TLI is stored in the FRUID (field-replaceable unit identifiers) of these components: power supply 0 (PS0), motherboard (MB), and disk backplane (DBP).

Note - You should not replace the power supply 0 (PS0), disk backplane, or motherboard at the same time. Replace one component at a time, and reboot the SP after each replacement.

The TLI components stored in each component FRUID include:

- Product name
- PPN (product part number)
- PSN (product serial number)

When a server FRU that contains the TLI is removed and a replacement module installed, the TLI of the replacement module is programmed by Oracle ILOM to contain the same TLI as the other two modules.

Note - After you have replaced power supply 0, the disk backplane, or the motherboard, you might need to reset the ILOM service processor (SP) to propagate the FRU top-level indicator (TLI) data to the new power supply 0, disk backplane, or motherboard. For instructions on resetting the SP, see the *Oracle Integrated Lights Out Manager (ILOM) 3.1 Configuration and Maintenance Guide* at `https://www.oracle.com/goto/ilom/docs`.

Segfaults Might Occur on Servers Running 64-bit Linux Operating Systems

Servers running 64-bit Linux operating systems with Advanced Vector Extensions (AVX) processor support might experience segmentation faults (segfaults) when loading applications such as the Oracle Database or other Oracle Middleware products.

To avoid these unpredictable segfaults, you should ensure that the `glibc` package on your system is version `glibc-2.12-1.47.0.2.el6_2.12.x86_64`, or later.

You can obtain an updated `glibc` package from the Oracle Public Yum repository.

Failure of a Single Server Fan Module Might Impact Performance

If a single server fan module fails and the operating temperature of the server rises above 30 degrees C (86 degrees F), the performance of the server processors might be reduced.

MAC Address Mapping to Ethernet Ports

A system serial label that displays the MAC ID (and the associated barcode) for the server is attached to the top, front-left side of the Sun Server X3-2L server disk cage bezel.

This MAC ID (and barcode) corresponds to a hexadecimal (base 16) MAC address for a sequence of six consecutive MAC addresses. These six MAC addresses correspond to the server's network ports as shown in the following table.

Base MAC Address	Corresponding Ethernet Port
"base" + 0	NET 0
"base" + 1	NET 1
"base" + 2	NET 2
"base" + 3	NET 3
"base" + 4	SP (NET MGT)
"base" + 5	Used only when Network Controller - Sideband Interface (NC-SI) sideband management is configured.

Rear-Mounted HDD Naming When Using Oracle Solaris

When using the Oracle Solaris `croinfo` command to display hard disk drive (HDD) information for the Sun Server X3-2L, the rear-mounted hard disk drives (HDDs) are displayed as follows:

- In the 12+2 HDD configuration, the rear-mounted HDDs are displayed as HDD12 and HDD13.
- In the 24+2 HDD configuration, the rear-mounted HDDs are displayed as HDD24 and HDD25.

Inspect Grounding Strap on 3.5-inch HDD Bracket Before Installing HDDs

The 3.5-inch hard disk drive (HDD) bracket that is used in the Sun Server X3-2L incorporates a spring-loaded metal grounding strap, which is located on the right side of the HDD bracket. A deflection in the grounding strap can cause the strap to catch on the server disk cage, which can further damage the grounding strap. Once damaged, the grounding strap cannot be repaired and the HDD bracket must be replaced.

Before installing a 3.5-inch HDD into your system, visually inspect the grounding strap to ensure that the end of the strap is seated correctly in the HDD bracket. See the following figure for an example of a grounding strap that is seated correctly.

FIGURE   1   Grounding Strap Seated Correctly in the HDD Bracket
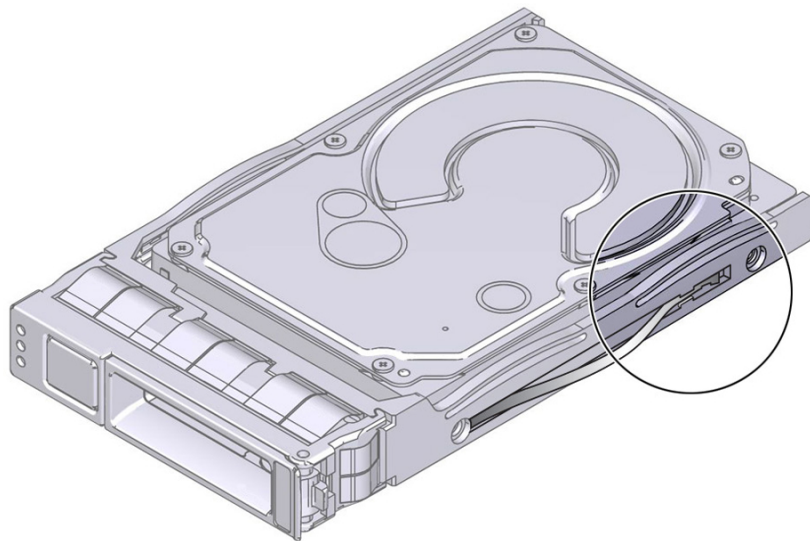
If the grounding strap is not seated correctly, or is protruding past the outer edge of the HDD bracket, the HDD bracket should be replaced. See the following figure for an example of a grounding strap that is not seated correctly.

FIGURE 2 Grounding Strap Not Seated Correctly in the HDD Bracket
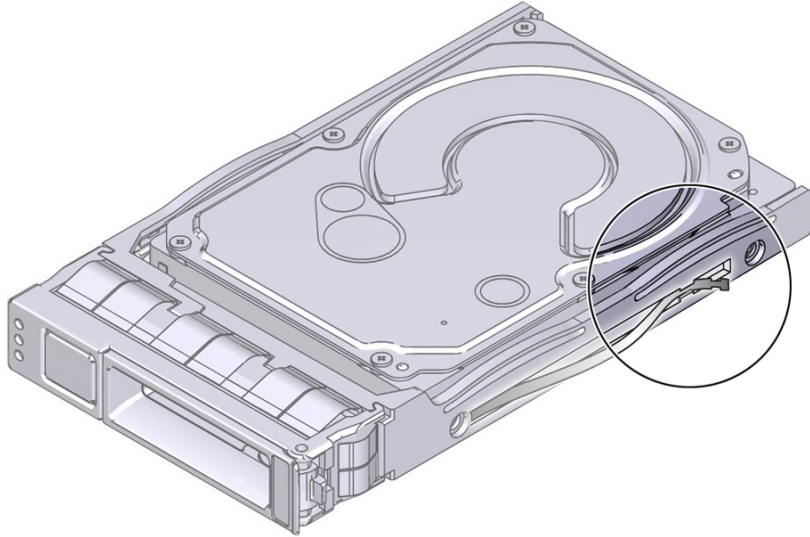
Battery Module

In Oracle Engineered Systems, rear storage drive 1 might be populated with a remote battery module for the host bus adapter (HBA) card.

Caution - The battery module is not a customer-replaceable unit (CRU) and should not be removed or replaced by customers. The battery module should be removed or replaced only by Oracle field service personnel.

The battery module is hot-pluggable and provides the backup power subsystem for the Sun Storage 6 Gb SAS PCIe RAID internal HBA: SG-SAS6-R-INT-Z. It enables Oracle field service personnel to replace the battery at the end of its service life without requiring the server to be powered off.

Connect AC Power Cables Before Installing Slide-Rails in Sun Rack II 1042

Right-angle AC power cables must be installed before slide-rails when installing the Sun Server X3-2L into a Sun Rack II 1042 (1000-mm) system rack. The standard rail kit tool-less slide-rails impede access to the 15kVA and 22kVA Power Distribution Unit (PDU) electrical sockets in the 1000-mm rack. If you use the standard AC power cables and then install the slide-rails into the rack, you will be unable to disconnect or remove the AC power cables.

Note - This procedure applies only to server installations within the Sun Rack II 1042 (1000-mm) system rack. You do not have to perform this procedure if you are installing the servers into the Sun Rack II 1242 (1200-mm) system rack.

You must use the following 2-meter right-angle AC power cable for this procedure:

- 7079727 - Pwrcord, Jmpr, Bulk, SR2, 2m, C14RA, 10A, C13

Perform this procedure in conjunction with the instructions provided in "Installing the Server Into a Rack" in the *Sun Server X3-2L Installation Guide*.

▼ Install AC Power Cables and Slide-Rails

1. **Prior to installing the slide-rails into the rack, install right-angle AC power cables into the left-side and right-side PDU electrical sockets for the servers you are going to rack mount.**
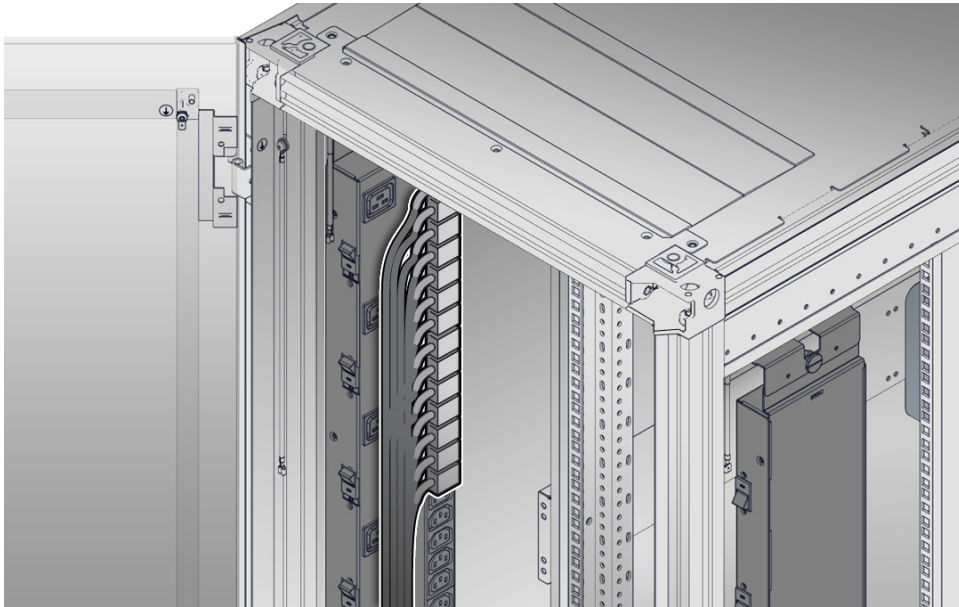
2. **Install the slide-rails into the rack.**

See "Attach Tool-less Slide-Rail Assemblies" in the *Sun Server X3-2L Installation Guide*.
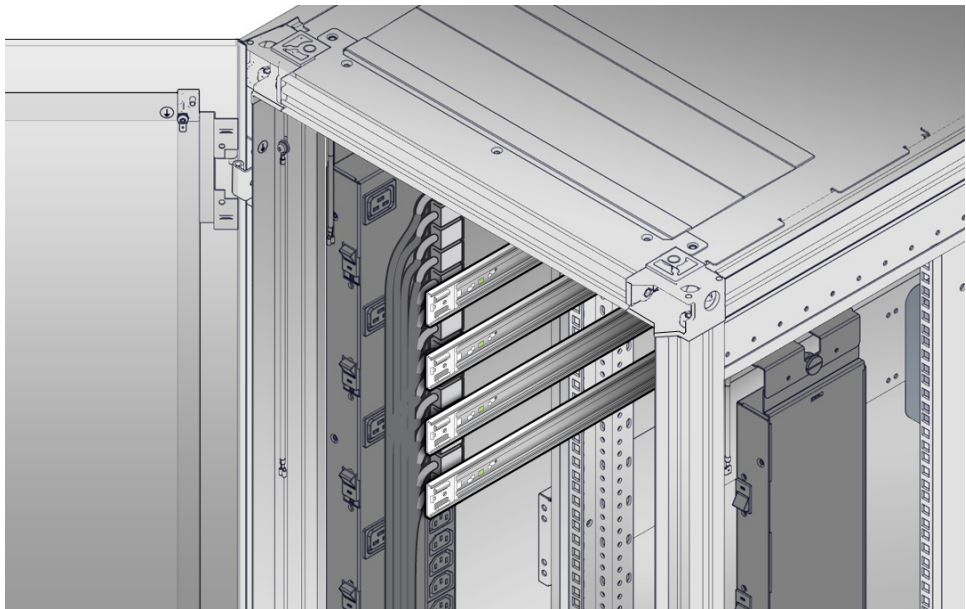
3. **Continue to install servers into the rack.**

   See "Install the Server Into the Slide-Rail Assemblies" in the *Sun Server X3-2L Installation Guide* and "Install the Cable Management Arm" in the *Sun Server X3-2L Installation Guide*.

Supported PCIe Cards

This section includes information about the PCIe cards that are supported on the Sun Server X3-2L.

The following table lists the quantity and slot restrictions for PCIe cards supported on the Sun Server X3-2L. The Maximum Quantity Supported column indicates the number of cards tested and supported by Oracle.

Note - PCIe slots 1, 2, and 3 are nonfunctional in single-processor systems. PCIe cards that are supported in slots 1 through 5 in dual-processor systems are only supported in slots 4 and 5 in single-processor systems.

TABLE 5   PCIe Cards Supported, Quantity Supported, and Slot Restrictions

PCIe Card	Maximum Quantity Supported	Slot Restrictions
Sun Storage 6 Gb SAS PCIe RAID HBA, Internal SGX-SAS6-R-INT-Z SG-SAS6-R-INT-Z	1	Supported in slot 6 only.
Sun Storage 6 Gb SAS PCIe HBA, Internal SGX-SAS6-INT-Z SG-SAS6-INT-Z	1	Supported in slot 6 only.
Sun Storage 6 Gb SAS PCIe HBA, External SGX-SAS6-EXT-Z SG-SAS6-EXT-Z	4	Supported in slots 1, 2, 3, 4, and 5.
StorageTek 8 Gb FC PCIe HBA Dual Port QLogic SG-PCIE2FC-QF8-Z SG-XPCIE2FC-QF8-N	5	Supported in slots 1, 2, 3, 4, and 5.
StorageTek 8 Gb FC PCIe HBA Dual Port Emulex SG-PCIE2FC-EM8-Z SG-XPCIE2FC-EM8-N	5	Supported in slots 1, 2, 3, 4, and 5.
Sun Dual Port 10GbE SFP+ PCIe 2.0 Low Profile Adapter (incorporates the Intel 82599 10 Gigabit Ethernet controller) 1109A-Z X1109A-Z	4	Supported in slots 1, 2, 3, 4, and 5.
Sun InfiniBand QDR Host Channel Adapter PCIe: Low Profile 4242A X4242A	2	Supported in slots 1, 2, 3, 4, and 5.
Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic Low Profile, Dual Port and Twin-Ax SG-XPCIEFCOE2-Q-TA	2	Supported in slots 1, 2, 3, 4, and 5.
Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic Low Profile, Dual Port and SR Optics SG-XPCIEFCOE2-Q-SR	2	Supported in slots 1, 2, 3, 4, and 5.
Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF 7100481 7100482	4	Supported in slots 1, 2, 3, 4, and 5.
Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP 7100477 7100479	4	Supported in slots 1, 2, 3, 4, and 5.
Sun Dual Port 10 GbE PCIe 2.0 Low Profile Adapter, Base-T 7100488 7100563	4	Supported in slots 1, 2, 3, 4, and 5.
Sun Flash Accelerator F40 PCIe Card, 400 GB, enterprise multilevel cell (eMLC) 7104480 7104482	4	Supported in slots 1, 2, 4, and 5

Resolved Issues

This section describes resolved issues on the Sun Server X3-2L.

For the latest information about resolved issues on the Sun Server X3-2L, refer to the updated product notes, which are available at the following web site:

https://www.oracle.com/goto/x3-2l/docs

Note - The resolved issues table lists the issues by the Bug ID number (the identification number assigned by the current Oracle BugDB bug tracking system) and the Change Request number (the identification number assigned by the previous bug tracking system). Either number, the Bug ID number or the CR number, can be used to access the issue in BugDB.

- "Documentation implies ability to set RAID volume as global hot spare" on page 44
- "`fmtopo` output incorrect in single-processor systems (15812479, formerly CR 7194345)" on page 44
- "Power-on command might not work after rapid power off/on cycles (15775215, formerly CR 7148627)" on page 45
- "Attempts to change serial port ownership in BIOS Setup Utility fails (15791123, formerly CR 7168093)" on page 45
- "Event logged for power reset is incorrect (15788495, formerly CR 7165042)" on page 45
- "Ethernet ports NET 2 and NET 3, and PCIe slot 1 are incorrectly displayed as editable in the BIOS IO Menu screen (15800659, formerly CR 7179910)" on page 45
- "Server's network interface controllers cannot establish 100 Mb link in UEFI BIOS mode (15766055, formerly CR 7129556)" on page 46
- "The IPMItool boot override command overrides existing boot priority list (15774974, formerly CR 7148294)" on page 46
- "BIOS bootlist might permanently change when IPMItool is used to override the existing bootlist (15774795, formerly CR 7148056)" on page 46
- "Message "cannot retrieve host power status" appears in Oracle ILOM web interface when launching Oracle System Assistant (15763811, formerly CR 7126194)" on page 46

- "Oracle System Assistant does not support creating, deleting, or modifying the username "user" (15777542, formerly CR 7151906)" on page 47
- "Fibre channel adapters not supported in UEFI boot mode (15776345, formerly CR 7150235)" on page 47
- "Oracle ILOM might not support the clearing of faults diagnosed by the Oracle Solaris operating system (15793363, formerly CR 7170842)" on page 47
- "No USB controller in fmtopo for servers, and fault.sunos.eft.unexpected_telemetry is reported (15773526, formerly CR 7146324)" on page 47
- "Oracle Solaris operating system panics during a system power off or a system reboot (15829089)" on page 48
- "Oracle ILOM Hard Cap power setting does not work with Oracle Solaris operating systems (15786729, formerly CR 7162900)" on page 48
- "Oracle Solaris 11.1 operating system installation process might fail (15805238)" on page 48
- "Xorg GUI might fail to start with Oracle Solaris 11 11/11 (15755307, formerly CR 7112301)" on page 48

Related Information

- "Server Update Information" on page 14
- "Important Operating Notes" on page 19

Documentation implies ability to set RAID volume as global hot spare

Software Release 1.2.1 documentation incorrectly implies ability to set RAID volume as global hot spare. This issue was fixed at the release of the documentation library for system software release 1.2.2.

`fmtopo` output incorrect in single-processor systems (15812479, formerly CR 7194345)

In single-processor systems, `fmtopo` output is incorrect. This issue was fixed in system software release 1.2.1.

Power-on command might not work after rapid power off/on cycles (15775215, formerly CR 7148627)

Power-on command might not work after rapid power off and on cycles. This issue was fixed in system software release 1.2.

Attempts to change serial port ownership in BIOS Setup Utility fails (15791123, formerly CR 7168093)

Attempts to change serial port ownership using the BIOS Setup Utility (F2) fail. This issue was fixed in system software release 1.2.

Event logged for power reset is incorrect (15788495, formerly CR 7165042)

Oracle ILOM event logged for power reset is incorrect. This issue was fixed in system software release 1.2.

Ethernet ports NET 2 and NET 3, and PCIe slot 1 are incorrectly displayed as editable in the BIOS IO Menu screen (15800659, formerly CR 7179910)

On single-processor systems, Ethernet ports NET 2 and NET 3, and PCIe slot 1 are incorrectly displayed as visible and editable (enable/disable) in the BIOS IO Menu screen. This issue was fixed in system software release 1.2.

Server's network interface controllers cannot establish 100 Mb link in UEFI BIOS mode (15766055, formerly CR 7129556)

The server's dual Intel X540 10GBase-T network interface controllers are unable to establish a 100 Mb link while in UEFI BIOS mode and enabled for LOM. This issue was fixed in system software release 1.1.

The IPMItool boot override command overrides existing boot priority list (15774974, formerly CR 7148294)

The IPMItool boot override command can be used to override the existing boot priority list. This issue was fixed in system software release 1.1.

BIOS bootlist might permanently change when IPMItool is used to override the existing bootlist (15774795, formerly CR 7148056)

The BIOS bootlist might get permanently changed when IPMItool is used to override the existing bootlist on two or more consecutive boot cycles. This issue was fixed in system software release 1.1.

Message "cannot retrieve host power status" appears in Oracle ILOM web interface when launching Oracle System Assistant (15763811, formerly CR 7126194)

Popup message "cannot retrieve host power status" appears in the Oracle ILOM web interface when the Oracle System Assistant Launch button is pressed. This issue was fixed in system software release 1.1.

Oracle System Assistant does not support creating, deleting, or modifying the username "user" (15777542, formerly CR 7151906)

Oracle System Assistant does not support creating, deleting, or modifying a user with a user name of `user`. This issue was fixed in system software release 1.1.

Fibre channel adapters not supported in UEFI boot mode (15776345, formerly CR 7150235)

Fibre channel adapters are not supported in UEFI boot mode. This issue was fixed in system software release 1.1.

Oracle ILOM might not support the clearing of faults diagnosed by the Oracle Solaris operating system (15793363, formerly CR 7170842)

Oracle Integrated Lights Out Manager (ILOM) might not be able to repair or clear a fault diagnosed by the Oracle Solaris operating system. This issue was fixed in system software release 1.4.4.

No USB controller in fmtopo for servers, and fault.sunos. eft.unexpected_telemetry is reported (15773526, formerly CR 7146324)

On the server, Fault Management Architecture (FMA) topology does not include USB controllers. If an FMA ereport is generated for a EHCI USB controller, the `fmadm faulty` command will generate an `fault.sunos.eft.unexpected_telemetry` fault and the Service Required LED will be illuminated. This issue was fixed in Solaris 11.0 SRU 7.5.

Oracle Solaris operating system panics during a system power off or a system reboot (15829089)

The Oracle Solaris Operating System (OS) panics during a system power off or during a system reboot when either the SG-XPCIEFCOE2-Q-SR or SG-XPCIEFCOE2-Q-TA PCIe cards are installed in the system. This issue was fixed in Solaris 11.1 SRU 8.4.

Oracle ILOM Hard Cap power setting does not work with Oracle Solaris operating systems (15786729, formerly CR 7162900)

Oracle Integrated Lights Out Manager (ILOM) Hard Cap power setting fails to set maximum power limit on the server with Oracle Solaris Operating Systems if the Hard Cap power setting is enabled before the hand off to the operating system. This issue was fixed in Solaris 11u1.

Oracle Solaris 11.1 operating system installation process might fail (15805238)

The Oracle Solaris 11.1 operating system (OS) installation process might fail at the following point during the OS installation if you are using an ISO image to install the OS. This issue was fixed in Solaris 11.1 SRU 6.4.

Xorg GUI might fail to start with Oracle Solaris 11 11/11 (15755307, formerly CR 7112301)

Note - This issue is fixed in Support Repository Update (SRU) 5 for Oracle Solaris 11 11/11. If you have installed SRU 5, you will not experience this problem.

Systems containing SR-IOV capable devices in certain configurations might encounter problems with the X11 Xorg graphical user interface (GUI) not starting on startup. This issue was fixed in Solaris 11 SRU 5.4.

Known Issues

For the latest information about known issues on the Sun Server X3-2L, refer to the updated product notes, which are available at the following web site:

https://www.oracle.com/goto/x3-2l/docs

Note - The known issues tables list the issues by the Bug ID number (the identification number assigned by the current Oracle BugDB bug tracking system) and the Change Request number (the identification number assigned by the previous bug tracking system). Either number, the Bug ID number or the CR number, can be used to access the issue in BugDB.

- "BIOS Known Issues" on page 49
- "Hardware Known Issues" on page 54
- "Oracle System Assistant Known Issues" on page 68
- "Oracle Solaris Operating System Known Issues" on page 72
- "Linux Operating Systems and Virtual Machine Known Issues" on page 77
- "Windows Known Issues" on page 88
- "VMware ESXi Known Issues" on page 89
- "Documentation Known Issues" on page 90

Related Information

- "Server Update Information" on page 14
- "Important Operating Notes" on page 19

BIOS Known Issues

This section lists known BIOS issues with the Sun Server X3-2L.

- "Sun Storage 10 GbE FCoE PCIe Twin-Ax converged network adapter not supported in UEFI mode (17756168)" on page 50

- "Do not preserve BIOS configuration when downgrading from SW release 1.3 to 1.2 (17719173)" on page 51
- "UEFI configuration settings might be lost when transitioning between UEFI and Legacy BIOS modes (15736328, formerly CR 7080526)" on page 51
- "BIOS might hang when a key is entered in response to a BIOS prompt (15761342, formerly CR 7121782)" on page 52
- "BIOS might not respond to a USB keyboard and/or mouse connected to the server (15735895, formerly CR 7079855)" on page 52
- "Using OS tools to create, modify or delete UEFI Boot variables might cause the loss of a variable required for the OS to start (15784988, formerly CR 7160733)" on page 53
- "Oracle ILOM BIOS Configuration Backup and Restore reports "Partial Restore" status (15790853, formerly CR 7167796)" on page 53

Related Information

- "Server Update Information" on page 14
- "Important Operating Notes" on page 19

Sun Storage 10 GbE FCoE PCIe Twin-Ax converged network adapter not supported in UEFI mode (17756168)

Sun Storage 10 GbE FCoE PCIe and/or ExpressModule Twin-Ax converged network adapter card is not supported in UEFI mode.

If a X3-2L system is configured with a Sun Storage 10 GbE PCIe Twin-Ax converged network adapter card while in UEFI mode, the system will hang for a while then reset automatically if Europa option ROM is enabled.

Affected software:

- Release 1.3 and later

Workaround:

Do not use Software Release 1.3 in UEFI mode when a Sun Storage 10 GbE FCoE PCIe and/or ExpressModule Twin-Ax converged network adapter is connected.

Do not preserve BIOS configuration when downgrading from SW release 1.3 to 1.2 (17719173)

When downgrading the SW 1.3 image to the SW 1.2 image, you will receive a backup failure error if you preserve the SW 1.3 Oracle ILOM Configuration.

Affected software:

- Releases 1.2 and 1.3

Workaround:

Restore the SW 1.2 BIOS configuration before downgrading from SW 1.3

UEFI configuration settings might be lost when transitioning between UEFI and Legacy BIOS modes (15736328, formerly CR 7080526)

Unified Extensible Firmware Interface (UEFI) boot priority list settings might be lost when transitioning between UEFI BIOS and Legacy Only BIOS modes. This issue might occur if you need to run system diagnostics using the Pc-Check utility, which only runs in the Legacy Only BIOS mode. UEFI configuration settings should be saved prior to switching between UEFI BIOS and Legacy Only BIOS.

Affected software:

- Releases 1.0 and later
- Oracle ILOM 3.1 and 3.2

Workaround:

Use the Oracle ILOM BIOS Configuration Backup and Restore feature to save configuration settings prior to transitioning between the BIOS modes. Then restore the BIOS configuration settings after transitioning back to UEFI mode. For more information and procedures for saving UEFI configuration settings, refer to the *Oracle ILOM 3.1 Configuration and Maintenance Guide* in the Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at:
http://www.oracle.com/pls/topic/lookup?ctx=ilom31

BIOS might hang when a key is entered in response to a BIOS prompt (15761342, formerly CR 7121782)

On rare occasions, BIOS might hang when a key is entered in response to a prompt from BIOS for F2, F8, or F12 input. The prompt, and resulting hang, based on key input, might look similar the following:

```
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

BIOS Date: 12/09/2011 10:23:55 Ver: 18010900

Press F2 to run Setup (CTRL+E on serial keyboard)
Press F8 for BBS Popup (CTRL+P on serial keyboard)
Press F12 for network boot (CTRL+N on serial keyboard)
Entering Setup...B2
```

Affected software:

■ Releases 1.0 and later

Workaround:

Reboot the host. If the problem persists after two or three system reboots, contact your authorized Oracle service provider for assistance.

BIOS might not respond to a USB keyboard and/or mouse connected to the server (15735895, formerly CR 7079855)

On rare occasions, when a USB keyboard and/or mouse is directly connected to the host, the keyboard and/or mouse might not be recognized by BIOS. This problem is indicated by a failure of BIOS to respond to key presses during the time the BIOS splash screen is displayed.

Affected software:

■ Releases 1.0 and later

Workaround:

Reboot the host. If the problem persists after two or three system reboots, contact your authorized Oracle service provider for assistance.

Using OS tools to create, modify or delete UEFI Boot variables might cause the loss of a variable required for the OS to start (15784988, formerly CR 7160733)

During operating system installations in Unified Extensible Firmware Interface (UEFI) mode, operating system installers will create UEFI Boot variables to be used in BIOS menus to select the operating system to boot. To avoid potential loss of a boot variable created by the operating system installer, you should not use any operating system tools or utilities to manage (create, modify, or delete) these boot variables. Loss of a boot variable will preclude users from being able to boot the operating system.

Affected software:

- All supported UEFI-capable operating systems
- Releases 1.0 and later

Workaround:

If a UEFI Boot variable is lost, reinstall the operating system so as to create a new UEFI Boot variable.

Oracle ILOM BIOS Configuration Backup and Restore reports "Partial Restore" status (15790853, formerly CR 7167796)

Any time an Oracle ILOM Unified Extensible Firmware Interface (UEFI) BIOS configuration is loaded, the configuration file might contain inactive parameters, that is, parameters that are no longer valid for the current version of the BIOS, or typographical errors. This can result in the failure of one or more parameters to load. When this occurs, the Oracle ILOM `/System/BIOS/Config/restore_status` parameter, which provides the user with the status of the last attempted configuration load, will report that the load was partially successful. The value of `/System/BIOS/Config/restore_status` parameter will not change until a subsequent load of an Oracle ILOM UEFI BIOS configuration occurs.

Affected software:

- Oracle ILOM 3.1 and 3.2
- Releases 1.0 and later

Workarounds:

1. Using a text editor, create an XML file with the following contents:

   <BIOS>

   </BIOS>

2. Save the file to any XML file name.

   For purposes of this example, the file name used is `bios_no_op_config.xml`

3. To load the configuration, enter the following command:

   % **load -source** *<URL location>***/bios_no_op_config.xml /System/BIOS/Config**

4. If host power is on, enter the following command to reset the host:

   % **reset /System**

Hardware Known Issues

This section lists known hardware issues with the Sun Server X3-2L.

- "Oracle ILOM SNMP v3 traps are not delivered after SNMP engine ID change (23634048)" on page 55
- "Solaris 10 U11 installation fails in system configured with InfiniBand CX2 card (17977420)" on page 56
- "Error while updating disk firmware when using Oracle System Assistant (19940151)" on page 56
- "Windows Device Manager takes 2 to 4 minutes to display Intel NIC card properties in BIOS Legacy mode (20259399)" on page 57
- "Sun Storage 10 GbE FCoE PCIe converged network adapter card does not have Windows 2012 R2 driver (17848060)" on page 58
- "PCIe slot 1 on the server service label and the server rear panel is mislabeled" on page 58
- "Mouse pointer does not work in MegaRAID utility from the Oracle ILOM Remote Console (15584702, formerly CR 6875309)" on page 58
- "SAS expander firmware must be updated prior to updating HBA firmware" on page 59
- "System can appear to hang when booted in UEFI BIOS mode if the Sun Storage 6 Gb SAS PCIe RAID HBA has old firmware (15763252, formerly CR 7125220)" on page 60
- "GRUB boot loader can only boot from the first eight hard drives in a system (15788976, formerly CR 7165568)" on page 60
- "Windows Server 2008 installation to R1 or R10 RAID volume fails with Sun Storage 6 Gb SAS PCIe Internal HBA and UEFI mode selected in BIOS (15789031, formerly CR 7165622)" on page 63

- "Emulex HBA: UEFI "Add Boot Device" hangs when invoked if "Scan Fibre Devices" is not run first (15785186, formerly CR 7160984)" on page 64
- "MegaRAID Storage Manager not able to assign hot spares to 3-TB drives using EFI partitioning with the Sun Storage 6 Gb SAS PCIe HBA (15787798, formerly CR 7164218)" on page 65
- "Some Oracle ILOM web interface System Information screens show incorrect number of Ethernet ports and PCIe ports (15803551, 15803553, formerly CR 7183782, 7183789)" on page 65
- "Storage drives of servers with both Internal and External Sun Storage 6 Gb SAS PCIe HBA cards are not detected by BIOS at boot time (15803117, formerly CR 7183271)" on page 66
- "Oracle ILOM CLI commands and web interface System Information screen shows incorrect number of DIMM sockets (15803564, formerly CR 7183799)" on page 67

Related Information

- "Server Update Information" on page 14
- "Important Operating Notes" on page 19

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.

Affected hardware and software:

- Oracle ILOM 3.1 and 3.2
- Releases 1.0 and later

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
```

Solaris 10 U11 installation fails in system configured with InfiniBand CX2 card (17977420)

When Solaris 10 U11 is installed on a system with a configured InfiniBand CX2 card, the Solaris installation will fail.

Affected hardware and software:

- Releases 1.3 and later
- InfiniBand CX2 card
- Solaris 10 U11

Workaround:

Disable PCI 64-bit resource allocation in BIOS before installing Solaris 10 U11.

Error while updating disk firmware when using Oracle System Assistant (19940151)

When using Oracle System Assistant to upgrade system hard disk firmware, the update might fail with the following error:

```
Error code: 205
Device: c0d0
Message:
ERROR: Firmware download failed for component
```

Affected hardware and software:

- Releases 1.0 and later

Workaround:

This problem is intermittent. Reboot the system back into OSA and attempt the update again.

Windows Device Manager takes 2 to 4 minutes to display Intel NIC card properties in BIOS Legacy mode (20259399)

Windows Server 2008 R2 might occasionally hang for 2 to 4 minutes after clicking on `Intel Network` port to open its property window.

On Windows Server 2008 SP2/R2 SP1, Task Manager may hang for 2 to 4 minutes while attempting to switch to the 'Networking' tab.

On Windows Server 2012/R2, Resource Monitor may hang for 2 to 4 minutes while attempting to shift to the 'Networking' tab.

Affected hardware and software:

- Releases 1.0 and later
- Intel NIC cards such as the Sun Dual Port 10GbE SFP+ PCIe 2.0 Low Profile Adapter (including Onboard NIC), Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, and Sun Dual Port 10 GbE PCIe 2.0 Low Profile Adapter.
- Windows Server 2008 SP2, Windows Server 2008 R2 SP1, Windows Server 2012, Windows Server 2012 R2
- Hardware Management Pack (HMP) 2.3.1.0, HMP 2.3.0, HMP 2.2.8

Workaround:

Reboot the Service Processor (SP).

Sun Storage 10 GbE FCoE PCIe converged network adapter card does not have Windows 2012 R2 driver (17848060)

When Windows 2012 R2 is installed on a system with a configured Sun Storage 10 GbE FCoE PCIe card, neither Windows nor OSA installs a driver.

Affected hardware and software:

- Sun Storage 10 GbE FCoE PCIe and/or ExpressModule card
- Windows Server 2012 R2

Workaround:

There is currently no workaround or fix available.

PCIe slot 1 on the server service label and the server rear panel is mislabeled

PCIe slot 1 on the server service label and the server rear panel is mislabeled. PCIe slot 1 supports an x16 electrical interface, but is labeled incorrectly as x8.

Affected hardware and software:

- Releases 1.0 and later

Workaround:

The nomenclature for PCIe slot 1 on the service label and the back panel label will be revised on subsequent releases of the system.

Mouse pointer does not work in MegaRAID utility from the Oracle ILOM Remote Console (15584702, formerly CR 6875309)

When using the Oracle ILOM Remote System Console (with the mouse mode set to Absolute) on a server with a Sun Storage 6 Gb SAS PCIe RAID HBA Internal option card installed, if you

boot the system and press Ctrl+H to enter the LSI MegaRAID BIOS Utility, the mouse pointer only moves vertically and horizontally on the left and top sides of the utility.

Affected hardware and software:

- Sun Storage 6 Gb SAS PCIe RAID HBA Internal (SGX-SAS6-R-INT-Z and SG-SAS6-R-INT-Z)
- Releases 1.0 and later

Workaround:

In the Oracle ILOM Remote System Console, change the mouse mode setting from Absolute (the default) to Relative mode.

For instructions for setting Oracle ILOM Remote System Console to Relative mode, see the Oracle ILOM 3.1 Documentation Library at: `https://www.oracle.com/pls/topic/lookup?ctx=ilom31`.

SAS expander firmware must be updated prior to updating HBA firmware

On systems with a Sun Storage 6 Gb SAS PCIe HBA card, it is critical that the SAS expander firmware is updated to version 0901 prior to updating the HBA firmware to version 11.00.00.00. If the HBA firmware is updated before the SAS expander, the system will not boot.

Note - See also CR 7095163 in these product notes for important related information.

Affected hardware and software:

- Sun Storage 6 Gb SAS PCIe HBA Internal (SG-SAS6-INT-Z and SGX-SAS6-INT-Z)
- Releases 1.0 and later

Workaround:

Use Oracle System Assistant to update the system firmware. Oracle System Assistant updates components automatically and will always update the SAS expander before updating the HBA. However, if you elect to update components one at a time (for example, by unchecking components in the Oracle System Assistant preview list for the Update Firmware task), it is critical to not update the HBA prior to the SAS expander.

System can appear to hang when booted in UEFI BIOS mode if the Sun Storage 6 Gb SAS PCIe RAID HBA has old firmware (15763252, formerly CR 7125220)

System appears to hang when booted in UEFI BIOS mode if the Sun Storage 6 Gb SAS PCIe RAID HBA is running an old version of the LSI firmware, version 10M09P9 or older. Specifically, the Driver Configuration Protocol has to be called on each device handle (there is no mechanism to associate it with the HBA device after it is installed). The Unified Extensible Firmware Interface (UEFI) specification states that the protocol is supposed to return EFI_UNSUPPORTED if called for the wrong device. Instead, if older LSI firmware is running on the HBA, the HBA driver attempts to use the device without checking it, which causes a processor exception. The newer version of the HBA LSI firmware has fixed the protocol to check the device and return the appropriate status code.

Affected hardware and software:

- Sun Storage 6 Gb SAS PCIe RAID HBA, Internal option card (SGX-SAS6-R-INT-Z and SG-SAS6-R-INT-Z)
- Releases 1.0 and later

Workaround:

If the problem is encountered, you can recover in either of the following ways:

- Update the HBA LSI firmware. For instructions for updating the HBA firmware, see "Update HBA Firmware to Support UEFI BIOS" on page 34.
- Use Oracle ILOM to restore BIOS to the default settings. This reverts the BIOS mode back to Legacy mode, which is the factory default.
- Use the Oracle ILOM BIOS Configuration Backup and Restore feature to change the UEFI Boot Mode Option back to Legacy BIOS, instead of UEFI BIOS.

GRUB boot loader can only boot from the first eight hard drives in a system (15788976, formerly CR 7165568)

Some versions of the GRUB boot loader can only boot from the first eight hard drives in a system. It is possible to install the operating system (OS) and boot loader to a drive that is ninth or higher in the list of drives connected to host bus adapters (HBAs) with Option ROMs

enabled. However, when the system is rebooted after the OS installation, the GRUB boot loader will hang at the GRUB prompt, and will not execute disk I/O operations to load the OS from the disk drive.

Affected software:

- Oracle Linux 6.1, using Unified Extensible Firmware Interface (UEFI) BIOS or Legacy (non-UEFI) BIOS
- Red Hat Enterprise Linux (RHEL 6.1) using UEFI BIOS or Legacy BIOS
- SUSE Linux Enterprise Server (SLES) 11 SP1/SP2, using Legacy BIOS
- Oracle Linux 5.7 and 5.8 using Legacy BIOS
- RHEL 5.7 and 5.8 using Legacy BIOS
- Oracle VM 3.0 and 3.1 using Legacy BIOS
- Releases 1.0 and later

Workaround:

Depending on your operating system and your BIOS configuration, choose one of the following solutions.

- *Solution 1 (Supporting all operating systems and either Legacy BIOS or UEFI BIOS configurations):*

  1. Rearrange the disk drives and reinstall the operating system and boot loader to any one of the first eight disk drives in the system. This method might require you to enter the BIOS Setup Utility and disable the Option ROMs of HBAs that are connected to disk drives that are not used for system boot.

     For information on entering the BIOS Setup Utility and changing Option ROM settings of HBAs, see "Configure Option ROM Settings" in the *Sun Server X3-2L Administration Guide*.

- *Solution 2 (Supporting Oracle Linux 6.1 and RHEL 6.1 in a Legacy BIOS configuration):*

  This procedure details the process of updating the GRUB RPM of the OS, and reinstalling GRUB to the MBR of the disk drive from a rescue environment. For more information on updating the GRUB MBR boot code from a rescue environment, see `https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html/Installation_Guide/ap-rescuemode.html#Rescue_Mode-x86`.

  Before you begin, you will need to obtain the Oracle Linux 6.2 or RHEL 6.2 installation media.

  1. Boot the system from the Oracle Linux 6.2 or RHEL 6.2 installation boot media, as appropriate.
  2. From the installation prompt, type `linux rescue` to enter the rescue environment.
  3. Create a directory for the installation media.

    mkdir /mnt/cd

4. Mount the installation media.

    mount -o ro /dev/sr0 /mnt/cd

    cp /mnt/cd/Packages/grub-0.97-75*rpm /mnt/sysimage

5. Enter change root environment on the root partition.

    chroot /mnt/sysimage

    yum localupdate /grub-0.97-75*rpm || rpm -Uvh /grub-0.97-75*rpm

6. Reinstall the GRUB boot loader.

    /sbin/grub-install *bootpart*

    where *bootpart* is the boot partition (typically, `/dev/sda`).

7. Review the `/boot/grub/grub.conf` file, as additional entries might be needed for GRUB to control additional operating systems.

8. Reboot the system.

    reset /System

- *Solution 3 (Supporting Oracle Linux 6.1 and RHEL 6.1 in a UEFI BIOS configuration):*

  This procedure details the process of updating the `grub.efi` binary by updating the GRUB RPM to the latest version from a rescue environment. For more information on updating the GRUB RPM from a rescue environment, see `https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/6/html/Installation_Guide/ap-rescuemode.html#Rescue_Mode-x86`.

  Before you begin, you will need to obtain the Oracle Linux 6.2 or RHEL 6.2 installation media.

  1. Boot the system from the Oracle Linux 6.2 or RHEL 6.2 installation boot media, as appropriate.
  2. From the UEFI boot loader menu, select rescue to enter the rescue environment.
  3. Create a directory for the installation media.

      mkdir /mnt/cd

  4. Mount the installation media.

      mount -o ro /dev/sr0 /mnt/cd

      cp /mnt/cd/Packages/grub-0.97-75*rpm /mnt/sysimage

  5. Enter change root environment on the root partition.

      chroot /mnt/sysimage

      yum localupdate /grub-0.97-75*rpm || rpm -Uvh /grub-0.97-75*rpm

  6. Exit the root environment.

      chroot env

7. Exit rescue mode.

8. Reboot the system.

   reset /System

Windows Server 2008 installation to R1 or R10 RAID volume fails with Sun Storage 6 Gb SAS PCIe Internal HBA and UEFI mode selected in BIOS (15789031, formerly CR 7165622)

Note - This problem does not occur in Legacy BIOS mode. If you are installing Windows Server 2008 in Legacy mode, you will *not* experience this problem.

In Unified Extensible Firmware Interface (UEFI) BIOS mode, during setup of Windows Server 2008 R2 SP1 or Windows Server 2008 SP2, the installer is unable to detect a newly created R1 or R10 RAID volume. This might occur in cases where the Sun Storage 6 Gb PCIe Internal host bus adapter (HBA) has had other disks or prior RAID configurations configured on it.

This problem is due to an issue with the way data is managed within a mapping table used in the HBA NVRAM when in UEFI mode. If multiple RAID configurations are created, then removed (such as might occur in a test environment), the entries used in the mapping table might be filled and new configurations cannot be added. This happens because the stale data in the mapping table from prior configurations is not purged.

Affected hardware and software:

- Windows Server 2008 R2 SP1 and Windows Server 2008 SP2
- Sun Storage 6 Gb SAS PCIe Internal HBA (SG-SAS6-INT-Z and SGX-SAS6-INT-Z)
- Releases 1.0 and later

Workaround:

To clear entries in the HBA NVRAM mapping table, perform the following steps:

1. Reset or power cycle the host, and when BIOS starts, press F2 to access the BIOS Setup Utility.
2. In the BIOS Setup Utility screen, select the Boot Menu, temporarily change the UEFI/BIOS Boot Mode to Legacy BIOS, and press F10 to save the change and exit BIOS.
3. When BIOS restarts, press F8, and then watch the monitor for the LSI BIOS to start.

At the F8 boot menu, you should see the logical volume.

4. At the F8 boot menu, scroll down and enter the BIOS Setup Utility again.

5. In the BIOS Setup Utility screen, select the Boot Menu, change the UEFI/BIOS Boot Mode back to UEFI, and press F10 to save the change and exit BIOS.

6. Restart Windows Server 2008 setup.

   On the next boot attempt, the Windows Server 2008 installer will see the logical volume.

Emulex HBA: UEFI "Add Boot Device" hangs when invoked if "Scan Fibre Devices" is not run first (15785186, formerly CR 7160984)

Note - This problem only occurs on Emulex HBAs running EFIBoot version 4.12a.15 firmware. If you are running a different version of the HBA firmware, you will not experience this issue.

At the UEFI Driver control HII menu for the Emulex HBA, with `Set Boot From San` to enabled, if you run the `Add Boot Device` function, you will see the `Please Wait` message for approximately 3 to 5 seconds, and then the system hangs. You must reset the server to clear the condition.

However, if you run the `Scan Fibre Devices` function first, and then you run the `Add Boot Device` function, the `Add Boot Device` function works correctly. The hang condition only occurs if the `Add Boot Device` function is run first.

Affected hardware and software:

- StorageTek 8 Gb FC PCIe HBA Dual Port Emulex, with EFIBoot version 4.12a.15 firmware (SG-PCIE2FC-EM8-Z and SG-XPCIE2FC-EM8-N)
- Releases 1.0 and later

Workaround:

To recover from this hang condition, enter the following command to power cycle the host:

```
reset /System
```

MegaRAID Storage Manager not able to assign hot spares to 3-TB drives using EFI partitioning with the Sun Storage 6 Gb SAS PCIe HBA (15787798, formerly CR 7164218)

MegaRAID Storage Manager V11.08.03.02 is not able to assign hot spares if the virtual drive is based on the Sun Storage 6 Gb SAS PCIe HBA, Internal option card, and is constructed on 3-terabyte (3-TB) drives using Extensible Firmware Interface (EFI) partitioning.

Affected hardware and software:

- Sun Storage 6 Gb SAS PCIe RAID HBA, Internal (SGX-SAS6-INT-Z and SG-SAS6-INT-Z)
- MegaRAID Storage Manager V11.08.03.02
- Releases 1.0 and later

Workaround:

Use the sas2ircu Utility until the defect in MegaRAID Storage Manager is corrected.

Some Oracle ILOM web interface System Information screens show incorrect number of Ethernet ports and PCIe ports (15803551, 15803553, formerly CR 7183782, 7183789)

On single-processor systems, Ethernet ports NET 2 and NET3, and PCIe slots 1, 2, and 3 are not supported. However, the following Oracle Integrated Lights Out Manager (ILOM) web interface screens incorrectly show these ports as available for use.

- The Oracle ILOM System Information > Summary screen and the System Information > Networking screen show the number of supported Ethernet NICs (Network Interface Controllers) as 4 when actually only two Ethernet NICs (NET 0 and NET 1) are supported and available for use.
- The Oracle ILOM System Information > PCI Devices screen shows the Maximum Add-on Devices as 6, when actually only three PCIe slots (slots 4, 5, and 6) are supported and available for use. This screen also shows the number of On-board Devices (NICs) as 4, when actually only NET 0 and NET 1 are supported and available for use.

Affected hardware and software:

- Single-processor Sun Server X3-2L systems
- Oracle ILOM 3.1 and 3.2
- Releases 1.0 and later

Workaround:

None.

Storage drives of servers with both Internal and External Sun Storage 6 Gb SAS PCIe HBA cards are not detected by BIOS at boot time (15803117, formerly CR 7183271)

If the server is configured with a Sun Storage 6 Gb SAS PCIe Internal host bus adapter (HBA) installed in PCIe slot 6 and a Sun Storage 6 Gb SAS PCIe External HBA installed in one of the external PCIe slots (slots 1 through 5), the storage drives are not detected during the BIOS boot. As a result, Pc-Check will not detect and test the internal storage drives and you will not be able to designate an internal storage drive as the boot drive.

Affected hardware and software:

- Sun Storage 6 Gb SAS PCIe Internal HBA (SG-SAS6-INT-Z and SGX-SAS6-INT-Z)
- Sun Storage 6 Gb SAS PCIe External HBA (SG-SAS6-EXT-Z and SGX-SAS6-EXT-Z)
- Releases 1.0 and later

Workaround:

To reconfigure the internal and external HBA cards so that the internal storage drives are detected at boot time, perform the following steps:

1. Reboot the server.

   As the BIOS boots, the LSI Corporation MPT SAS2 BIOS screen appears.
2. When the "Type Control+C to enter SAS Configuration Utility" message appears, type: **Ctrl+C**.

   The LSI Corp Config Utility screen appears.

   Note that the internal PCIe card (SG-SAS6-INT-Z) does not appear in the Boot Order column.
3. Press the right arrow key to select the Boot Order column.
4. Press the Insert key (Alter Boot List).

The number 1 is inserted next to the internal PCIe card (SG-SAS6-INT-Z).

5. To change the boot order, press the - (minus) key (Alter Boot Order).

   The Boot order number for the internal PCIe card is changed to 0 (zero) and the boot order for the external PCIe card (SG-SAS6-EXT-Z) is changed to 1 (one).

6. Use the arrow keys to select the Boot Order column for the external PCIe card and press the Del key (Alter Boot List) to remove the external PCIe card from the boot order.

7. To exit from the LSI Corp Config Utility, press the Esc key.

   An exit confirmation screen appears.

8. In the Exit Confirmation screen, scroll down to "Save Changes and Reboot" and press the Enter key.

9. When the BIOS screen appears, press the F2 key to enter the BIOS Setup Utility.

   The BIOS Main screen appears.

10. In the BIOS Main screen, select the Boot option in the menu bar.

    The Boot Menu screen appears.

11. Verify that the server's internal storage drives are now displayed in the Boot Menu screen.

    You can now select an internal storage drive to be at the top of the boot list order.

Oracle ILOM CLI commands and web interface System Information screen shows incorrect number of DIMM sockets (15803564, formerly CR 7183799)

On single-processor systems, the `show /System/memory` command issued from the Oracle Integrated Lights Out Manager (ILOM) command-line interface (CLI) will incorrectly return `max DIMMs = 16`, when the maximum number of supported DIMMs on a single-processor system is 8.

Additionally, if a DIMM is mistakenly installed in a socket associated with the processor 1 (P1) socket, the following Oracle ILOM CLI commands will identify the misconfiguration by showing the DIMM associated with P1, even though P1 is not actually present in the system. Note, however, that the DIMM will not be usable by the system.

- -> `show /System/Memory/DIMMs`
- -> `show /System/Memory/DIMMs/DIMM_`*n*, where *n* can be any number from 8 through 15
- -> `show /SP/powermgmt/powerconf/memory`
- -> `show /SP/powermgmt/powerconf/memory/MB_P1_D0`

For the Oracle ILOM web interface, the System Information > Summary screen and the System Information > Memory screen incorrectly show the maximum number of supported DIMMs as 16, when the maximum number of supported DIMMs on a single-processor system is 8.

Affected hardware and software:

- Single-processor Sun Server X3-2L systems
- Oracle ILOM 3.1 and 3.2
- Releases 1.0 and later

Workaround:

None.

Oracle System Assistant Known Issues

This section lists known Oracle System Assistant issues with the Sun Server X3-2L.

- "Virtual Ethernet device is reported as "Not Installed" in Windows Server 2008 (15765750, formerly CR 7129124)" on page 69
- "Oracle System Assistant cannot be used to update a Sun Storage 6 Gb SAS PCIe HBA from Legacy BIOS to UEFI BIOS firmware (15762391, formerly CR 7123372)" on page 69
- "'Path too Long' errors might occur when unzipping Windows downloads (15758199, formerly CR 7116803)" on page 70
- "User with only admin (a) privilege cannot update Oracle ILOM firmware from Oracle System Assistant (15783347, formerly CR 7158820)" on page 71
- "When using Oracle System Assistant to perform a SLES 11 OS-assisted install, password and network prompts might appear (15783011, formerly CR 7158471)" on page 71

Related Information

- "Server Update Information" on page 14
- "Important Operating Notes" on page 19

Virtual Ethernet device is reported as "Not Installed" in Windows Server 2008 (15765750, formerly CR 7129124)

After installing the Windows Server 2008 SP2 and Windows Server R2 SP1 drivers, the Windows Device Manager reports that the virtual Ethernet device is not installed. Oracle System Assistant does not provide the driver for this interface. The driver is available with the Oracle Hardware Management Pack.

Affected software:

- Releases 1.0 and later

Workarounds:

- To obtain this driver, install the Oracle Hardware Management Pack, which is available as a supplemental tool on Oracle System Assistant.
- To disable this device and prevent it from appearing in the Windows Device Manager, use the `ilomconfig disable interconnect` command.

Oracle System Assistant cannot be used to update a Sun Storage 6 Gb SAS PCIe HBA from Legacy BIOS to UEFI BIOS firmware (15762391, formerly CR 7123372)

Oracle System Assistant cannot be used to update a Sun Storage 6 Gb SAS PCIe host bus adapter (HBA) from Legacy (non-UEFI) BIOS firmware to Unified Extensible Firmware Interface (UEFI) BIOS firmware. Updating the HBA to UEFI BIOS firmware requires two consecutive firmware updates. Oracle System Assistant is unable to perform consecutive firmware updates on a single HBA. Instead, use the LSI `sas2flash` utility.

Affected hardware and software:

- Sun Storage 6 Gb PCIe HBA, Internal option card (SGX-SAS6-INT-Z and SG-SAS6-INT-Z)
- Releases 1.0 and later

Workaround:

Perform the following procedure to update the HBA firmware using the LSI `sas2flash` utility:

1. Download the OS version-specific `sas2flash` utility for the HBA at: https://www.broadcom.com/support/oem/oracle/.

2. To identify the controller number, use the `sas2flash` tool to list all of the installed SAS2 (Sun Storage 6 Gb SAS PCIe) HBAs:

   ```
   -> sas2flash -listall
   ```

3. To update the HBA, use the following `sas2flash` commands, where *<n>* is the controller number displayed by the `sas2flash` command in step 2.

   ```
   -> sas2flash -c n -f fw-rem-11050000-0a030019.bin
   -> sas2flash -c n -b x64sas2-07180207.rom
   -> sas2flash -c n -b mptsas2-7210400.rom
   -> sas2flash -c n -b lsisas2f-10060.rom
   ```

'Path too Long' errors might occur when unzipping Windows downloads (15758199, formerly CR 7116803)

When unzipping a downloaded Windows package from My Oracle Support (MOS) using the default Windows Server 2008/2008 R2 compression utility, errors might occur stating that the path is too long. Path length is determined by the Windows OS.

The maximum path, which includes drive letter, colon, backslash, name components separated by backslashes, and a terminating null character, is defined as 260 characters. Depending on the directory level at which the package is unzipped or the tool used to unzip the package, the maximum path length could be exceeded.

Affected software:

- Releases 1.0 and later

Workarounds:

Use a third-party compression utility. Unlike the default Windows compression utility, some third-party utilities allow for longer maximum path lengths.

User with only admin (a) privilege cannot update Oracle ILOM firmware from Oracle System Assistant (15783347, formerly CR 7158820)

When updating the Oracle Integrated Lights Out Manager (ILOM) service processor (SP) firmware using Oracle System Assistant, a login prompt appears. To perform the firmware update, you must log in as a user who is either an Administrator, or as a user with advanced (aucro) role privileges.

Affected software:

■ Releases 1.0 and later

Workaround:

This is not a defect. This is expected behavior.

For instructions on how to use Oracle System Assistant to update the Oracle ILOM service processor firmware, see "Setting Up Software and Firmware" in the *Sun Server X3-2L Administration Guide*.

When using Oracle System Assistant to perform a SLES 11 OS-assisted install, password and network prompts might appear (15783011, formerly CR 7158471)

When using Oracle System Assistant to perform an operating system-assisted installation of SUSE Linux Enterprise Server (SLES) 11, a root password prompt might appear. The method by which the install volume was created (either by Oracle System Assistant or by LSI WebBIOS) determines whether a password prompt appears. If the install volume was created using Oracle System Assistant (RAID Configuration task), then the password prompt does *not* appear. If the install volume was created using LSI WebBIOS, then password and network prompts appear.

Affected Software:

■ SUSE Linux Enterprise Server (SLES) 11 SP1 and SP2
■ Releases 1.0 and later

Workaround:

When the password prompt appears, type the following password: `changeme`

Note - For additional information, see the Oracle System Assistant Help.

Oracle Solaris Operating System Known Issues

This section lists known Oracle Solaris OS issues with the Sun Server X3-2L.

- "fmadm displays a telemetry fault when installing Oracle Solaris 11.2 SRU 6.1 on X3-2L with a Flash Accelerator F40 card (20186286)" on page 72
- "S11.2:intel_iommu0: DEBUG: generated a fault event when translating DMA write (20194099)" on page 73
- "Oracle Solaris 11.2 reports polling errors against onboard NICs (20194728)" on page 73
- "Oracle Solaris 10 U11 installation fails in a system configured with the Sun Dual Port 4x QDR IB Host Channel Adapter (17977420)" on page 74
- "Oracle ILOM Remote Console appears to hang with the Oracle Solaris 10 1/13 (16353003)" on page 74
- "Accepting default partitioning of 3 TB HDD when using Oracle Solaris 11 11/11 text installer results in failed installation (15762166, formerly CR 7123018)" on page 75
- "During system boot, a warning message might appear on the console (15777292, formerly CR 7151581)" on page 76
- "Oracle Solaris 11 11/11 Preinstall might encounter a five-minute delay during first boot" on page 76

Related Information

- "Server Update Information" on page 14
- "Important Operating Notes" on page 19

fmadm displays a telemetry fault when installing Oracle Solaris 11.2 SRU 6.1 on X3-2L with a Flash Accelerator F40 card (20186286)

When Oracle Solaris 11.2 SRU 6.1 is installed on a X3-2L running the Flash Accelerator F40 card, `fmadm` might show the following telemetry fault:

```
Fault class : fault.sunos.eft.unexpected_telemetry
```

```
Certainty : 16%
Affects : dev:////pci@0,0/pci8086,3c04@2/pci108e,581@0
Status : faulted but still in service
```

Affected hardware and software:

- Flash Accelerator F40 card
- Oracle Solaris 11.2 SRU 6.1

Workaround:

Disable the Intel Virtualization Technology for Directed I/O (VT-d) setting in the system BIOS settings. This setting can be disabled in the BIOS Setup Utility IO > I/O Virtualization menu.

For information on entering the BIOS Setup Utility and disabling the VT-d setting, see "Accessing the BIOS Setup Utility" in the *Sun Server X3-2L Administration Guide*.

S11.2:intel_iommu0: DEBUG: generated a fault event when translating DMA write (20194099)

dmesg shows "intel_iommu0: DEBUG: generated a fault event when translating DMA write" in Solaris 11.2 when Flash Accelerator F40 cards are installed.

Affected hardware and software:

- Flash Accelerator F40
- Oracle Solaris 11.2

Workaround:

Disable the Intel Virtualization Technology for Directed I/O (VT-d) setting in the system BIOS settings. This setting can be disabled in the BIOS Setup Utility IO > I/O Virtualization menu.

For information on entering the BIOS Setup Utility and disabling the VT-d setting, see "Accessing the BIOS Setup Utility" in the *Sun Server X3-2L Administration Guide*.

Oracle Solaris 11.2 reports polling errors against onboard NICs (20194728)

Oracle Solaris 11.2 may generate polling errors against onboard network interface controllers during or when switching network profile using command `netadm enable -p ncp DefaultFixed` or `netadm enable -p ncp Automatic`

Affected hardware and software:

- InfiniBand CX2 card
- Oracle Solaris 11.2

Workaround:

Add the following two lines into /kernel/drv/ixgbe.conf:

- `ct-correctable-polling-user_ops = 1;`
- `aact-config-polling-user_ops = 1;`

When finished, reboot the system.

Oracle Solaris 10 U11 installation fails in a system configured with the Sun Dual Port 4x QDR IB Host Channel Adapter (17977420)

When Oracle Solaris 10 U11 is installed on a system with a configured Sun Dual Port 4x QDR IB Host Channel Adapter, the Oracle Solaris installation will fail.

Affected hardware and software:

- Sun Dual Port 4x QDR IB Host Channel Adapter
- Oracle Solaris 10 U11

Workaround:

Disable PCI 64-bit resource allocation in BIOS before installing Oracle Solaris 10 U11.

Oracle ILOM Remote Console appears to hang with the Oracle Solaris 10 1/13 (16353003)

When using Oracle ILOM Remote System Console with the Oracle Solaris 10 1/13 OS, the system appears to hang in the final stages of shutting down. The Remote System Console displays the prompt "Press any key to reboot," but the console does not accept any keyboard input in response to the message. This issue can occur when the Remote System Console eeprom variable console is set to text and when entering the following system administration commands:

- `sys-unconfig`
- `init 0`
- `uadmin 1 0`
- `uadmin 1 6`
- `uadmin 2 0`
- `shutdown -i 0`
- halt

Affected software:

- Oracle Solaris 10 1/13
- Releases 1.0 and later

Workaround:

When using the Oracle ILOM Remote Console with the Solaris 10 1/13 OS, set the `eeprom` variable console to `ttya`.

1. Set `eeprom console=ttya` on Solaris, then reboot the system.
2. From the Oracle ILOM SP, enter the `start /HOST/console` command.
3. Press any key in the Remote System Console when the "Press any key to reboot" message appears.

Accepting default partitioning of 3 TB HDD when using Oracle Solaris 11 11/11 text installer results in failed installation (15762166, formerly CR 7123018)

Note - This issue does *not* apply to DVD-based installs or installs performed using the Automated Installer (AI). This issue only affects text-based installs.

When installing Oracle Solaris 11 11/11 onto a 3-TB hard disk drive (HDD), the Oracle Solaris 11 11/11 text installer presents this misleading default to the installer: "Use the whole disk." This default setting seems to be acceptable because other user messages in the installation program indicate that only 2-TB of the HDD will be used.

If this default setting is accepted, the installation program mistakenly loads Oracle Solaris 11 11/11 onto the entire 3-TB HDD, instead of a 2-TB partition, and the installation fails.

> **Note -** Installing Oracle Solaris 11 11/11 to the entire 3-TB HDD requires support for Unified Extensible Firmware Interface (UEFI) BIOS, and Oracle Solaris 11 does not support UEFI BIOS.

Affected software:

- Oracle Solaris 11 11/11
- Releases 1.0 and later

> **Note -** This issue does not affect Oracle Solaris 11.1.

Workaround:

For text installs, in the Fdisk Partition screen, when prompted, select `Use a partition of the disk`, instead of `Use the whole disk`.

During system boot, a warning message might appear on the console (15777292, formerly CR 7151581)

During system boot, `WARNING: npe1: no ranges property` might appear on the console.

Affected software:

- Oracle Solaris 10 8/11 and Oracle Solaris 11 11/11
- Releases 1.0 and later

> **Note -** This issue does not affect Oracle Solaris 11.1.

Workaround:

This message is benign and can be ignored.

Oracle Solaris 11 11/11 Preinstall might encounter a five-minute delay during first boot

Customers using the Oracle Solaris 11 11/11 Preinstall option might encounter a five-minute delay during first boot. During this delay the system is configuring the `ilomconfig-`

`interconnect` service. This only occurs on first boot; the system will boot normally on subsequent restarts.

Customers monitoring the system's first boot from the system console will observe the system reaching this stage in the boot-up and pause for approximately five minutes and display the following warning:

```
SunOS Release 5.11 Version 11.0 64-bit

Copyright (c) 1983, 2011, Oracle and/or its affiliates. All rights reserved.

WARNING: npe1: no ranges property
```

Please note that this issue is not related to the `WARNING: npe1: no ranges property` message, which is a separate issue documented in Bug ID 15777292.

Affected software:

- Oracle Solaris 11 11/11
- Releases 1.0 and later

Workaround:

Wait for the `ilomconfig-interconnect` service configuration to complete.

Linux Operating Systems and Virtual Machine Known Issues

This section lists known Linux issues with the Sun Server X3-2L.

- "Call trace lockup message generated on RHEL 7 (20117917)" on page 80
- "Oracle Linux 7 power cycle causes system to hang when booting in legacy mode (20048063)" on page 81
- "System will not boot Oracle Linux 7 with Sun Storage 10GbE FCoE PCIe Converged Network Adapter in UEFI mode (20092072)" on page 81
- "CX2 card does not work after installing Oracle Linux 6.5 (17899109)" on page 82
- "The RDMA communication might fail when using the RHEL 6.5 inbox OFED package (17933299)" on page 82
- "Unable to obtain DHCP lease at boot time with RHEL Linux operating systems (16014346)" on page 83
- "SLES 11 SP1 requires an upgraded ixgbe driver to support the onboard network interface controller" on page 83
- ""Sense Key: Recovered Error" message appears on the console and in /var/log/ messages in certain versions of Linux (15771992, 15783197, formerly CR 7144197, 7158666)" on page 84
- "Network boot servers based on Oracle Linux 6.1 or Red Hat Enterprise Linux 6.1 or 6.2 cause UEFI Linux clients to panic when booting over the network (15744732, formerly CR 7096052)" on page 86
- "Oracle VM and some Linux operating system installs can fail on some disk partitions (15770848, formerly CR 7142600)" on page 87
- "When the operating system boots and loads the mpt2sas driver, errors might appear in dmesg (15824191, formerly CR 7205850)" on page 87

Related Information

- "Server Update Information" on page 14
- "Important Operating Notes" on page 19

CPU capping function fails when running Oracle Linux 6.x or 7.x and UEK4 or higher (24585006)

In UEFI BIOS mode, when running the Oracle Linux 6.x or 7.x as the host operating system with the UEK4 or higher kernel on a Sun Fire X3-2L Server, the CPU capping function might fail.

Affected software and operating systems:

- Sun Fire X3-2L Server
- Oracle Linux 6.x and 7.x

Workaround: Disable the Intel `pstate` driver by adding the following kernel parameter to the UEK `/boot/efi/EFI/redhat/grub.cfg` kernel line: `intel_pstate=disable`

Oracle Linux 6.6 and 7 with Unbreakable Enterprise Kernel 3 (UEK3) may panic at boot time (20157307)

Oracle Linux 6.6 and 7 with Unbreakable Enterprise Kernel 3 (UEK3) might panic at boot time with backtrace "__cpufreq_governor".

Affected software:

■ Oracle Linux 6.6/7.0 with UEK3QU4 (3.8.13-55) and any older UEK3 kernels

Workaround:

Manually reset the system.

InfiniBand Host Channel Adapter for PCIExpress card might fail after Oracle Linux 6.5 software is installed (17899109)

After installing Oracle Linux 6.5, the InfiniBand Host Channel Adapter for PCIExpress card might stop working.

Affected software:

■ Sun Dual Port QDR InfiniBand Host Channel Adapter for PCIExpress Gen 3 (7104073 and 7104074)
■ Oracle Linux 6.5
■ Releases 1.0 and later

Workaround:

Do the following:

1. Install the Remote Direct Memory Access (RDMA) package from yum or from the operating system installation disk.
2. Add or unmask " `MLX4_LOAD=yes` " in the `/etc/rdma/rdma.conf` file.

Oracle VM 3.3.1 server dmesg shows "pci_mag_sg failed" (20212048)

Oracle VM 3.3.1 server dmesg might occasionally shows "pci_mag_sg failed" error messages. These are caused by the limited capacity of the software IO TLB.

Affected software:

- Oracle VM Server 3.3.1
- Releases 1.0 and later

Workaround:

Set the swiotlb=65762 in kernel parameters to enlarge it to 128M. If the issue remains, enlarge the value to 131524 or 263048.

Call trace lockup message generated in RHEL 6.6 with inbox rdma and opensm (20057311)

When using an InfiniBand CX2 HBA in RHEL 6.6 with inbox RDMA and opensm, a call trace lockup message might occur when rebooting the system.

Affected software:

- Red Hat Enterprise Linux 6.6
- Releases 1.0 and later

Workaround:

Download and use the OFED suite from `http://www.mellanox.com` .

Call trace lockup message generated on RHEL 7 (20117917)

When using RHEL 7 with option cards, system may generate call trace `"Bug soft lockup -
CPU#N stuck for NNs."` The lockup is caused by the parallel loading of driver modules by multiple systemd-udevd threads.

Affected software:

- Red Hat Enterprise Linux 7.0
- Releases 1.0 and later

Workaround:

To only allow single udev children to run, add `udev.children-max=1 rd.udev.children-max=1` into kernel command in grub configuration.

Oracle Linux 7 power cycle causes system to hang when booting in legacy mode (20048063)

During power-cycle testing, the system will occasionally hang during an Oracle Linux 7 boot cycle with a kernel panic when booting in legacy mode.

Affected software:

- Oracle Linux 7.0
- Releases 1.0 and later

Workaround:

Reset the system manually. This issue will be fixed in a future UEK kernel.

System will not boot Oracle Linux 7 with Sun Storage 10GbE FCoE PCIe Converged Network Adapter in UEFI mode (20092072)

When installing Oracle Linux 7 on X3-2L in UEFI mode on a system with the Sun Storage 10GbE FCoE PCIe Converged Network Adapter (SG-XPCIEFCOE2-Q-SR, SG-XPCIEFCOE2-Q-TA) and option ROM enabled, a blank screen appears and the operating system will not boot.

Affected software:

- Oracle Linux 7.0
- Releases 1.0 and later

Workaround:

In BIOS settings, disable the Option ROM for the PCIE slot of Sun Storage 10GbE FCoE PCIe Converged Network Adapter (SG-XPCIEFCOE2-Q-SR, SG-XPCIEFCOE2-Q-TA).

CX2 card does not work after installing Oracle Linux 6.5 (17899109)

An InfiniBand CX2 card does not work after installation Oracle Linux 6.5 on X3-2L.

Affected hardware and software:

- Oracle Linux 6.5
- Releases 1.0 and later

Workaround:

Add "MLX4_LOAD=yes" to /etc/rdma/rdma.conf.

The RDMA communication might fail when using the RHEL 6.5 inbox OFED package (17933299)

If you use the RHEL 6.5 inbox OpenFabrics Enterprise Distribution (OFED) package, the Remote Direct Memory Access (RDMA) in RHEL 6.5 might fail to run.

Affected software:

- Sun Dual Port QDR InfiniBand Host Channel Adapter for PCIExpress Gen 3 (7104073 and 7104074)
- Red Hat Enterprise Linux 6. 5

Workaround:

None.

Update the Mellanox OFED package. To download the update package, go to `http://www.mellanox.com/page/products_dyn?product_family=26`, scroll down the page and click the MLNX_OFED 2.X, and download `MLNX_OFED_LINUX-2.1-1.0.0-rhel6.5x86_64.iso`.

To install the Mellanox OFED update package, perform the following steps:

1. Mount the ISO image, and run the `./mlnxofedinstall --without-fw-update` command. Note - You must use the `--without-fw-update` qualifier to prevent the installation from flashing the firmware on the Sun Dual Port QDR InfiniBand Host Channel Adapter for PCIExpress Gen 3 card; otherwise, the installation will fail.
2. Reinstall RDMA package from yum or from the RHEL 6.5 installation ISO. Modify the `/etc/rdma/rdma.conf` file to change `RDS_LOAD=no` to `RDSLOAD=yes` and save the file.

3. Start/restart the RDMA service.

Note - If you want to use "rds-tools" to manage or test RDMA performance, ensure that "rds-tools" is updated to a minimum version of 2.0.7.

Unable to obtain DHCP lease at boot time with RHEL Linux operating systems (16014346)

For RHEL configurations in which the DHCP lease auto-negotiation process takes more than five seconds, the boot script might fail with the following message:

`ethX:failed. No link present. Check cable?`

Affected hardware and software:

- Red Hat Enterprise Linux operating systems
- Releases 1.0 and later

Workaround:

If this error message appears, even though the presence of a link can be confirmed using `ethtool ethX` command, try this setting: `LINKDELAY=5` in `/etc/sysconfig/network-scripts/ifcfg-ethX`.

Note - Link time can take up to 30 seconds. Adjust the `LINKDELAY` value accordingly.

The host might reboot after removing the Physical Function (PF) device driver when the Virtual Function (VF) device driver is active in the guest.

Alternatively, you can use NetworkManager to configure the interfaces, which avoids the set timeout. For configuration instructions for using NetworkManager, refer to the documentation provided with your distribution.

SLES 11 SP1 requires an upgraded ixgbe driver to support the onboard network interface controller

The driver needed for the onboard 10 Gigabit Ethernet (10GbE) network interface controller (X540) used in the Sun Server X3-2L is not available in the general availability release of SLES 11 SP1. An upgraded ixgbe driver must be installed.

Affected software:

- SUSE Linux Enterprise Server (SLES) 11 SP1
- Releases 1.0 and later

Workarounds:

Do either of the following:

- Use Oracle System Assistant to install the SLES 11 SP1 operating system. Oracle System Assistant includes the required upgraded Intel 10GbE `ixgbe` driver and installs it for you automatically.
- Download and install an upgraded Intel 10GbE `ixgbe` driver. For instructions for downloading and installing the upgraded `ixgbe` driver, see "Configuring the SLES 11 SP1 Operating System Software to Support Network Connections" in the *Sun Server X3-2L Installation Guide for Linux Operating Systems*.

If you choose to download and install the upgraded `ixgbe` driver manually, you can install the driver after you have installed and configured the SLES 11 SP1 operating system or during the initial install. You also have the option of incorporating the upgraded `ixgbe` driver file(s) into a PXE configuration that supports completely automated network installs.

"Sense Key: Recovered Error" message appears on the console and in /var/log/ messages in certain versions of Linux (15771992, 15783197, formerly CR 7144197, 7158666)

Note - This issue does not apply to either Oracle Linux 5.8 with the Oracle Unbreakable Enterprise Kernel for Linux (default) or SLES 11 Service Pack 2 (SP2). If you are using Oracle Linux 5.8 with the default kernel or SLES 11 SP2, you will not experience this problem.

For the Oracle Linux 5.8 Red Hat compatible kernel, the Red Hat Enterprise Linux (RHEL) 5.8 kernel, and the SUSE Linux Enterprise Server (SLES) 11 Base Install, Service Pack 1 kernel, with certain hardware configurations under these kernels, nuisance error messages are generated by the kernel and the `smartd` service.

Systems using these kernels with `smartd` monitoring of the block device enabled, and configured with an internal Sun Storage 6 Gb SAS PCIe RAID host bus adapter (HBA) that is connected to a SATA drive (such as the 7101423 100GB Solid State SATA Drive) and running

in RAW JBOD mode, might find multiple error messages on the system console or in `/var/ log/` messages that look like the following:

```
Feb 9 18:24:58 X4270M3host kernel: [9108.314218] sd 0:0:0:0 [sda] Sense Key:
Recovered Error [current][descriptor]

Feb 9 18:24:58 X4270M3host kernel: [9108.314226] Descriptor sense data with
sense descriptors (in hex):

Feb 9 18:24:58 X4270M3host kernel: [9108.314229] 72 01 00 1d 00 00 00 0e 09 0c
00 00 00 00 00 00

Feb 9 18:24:58 X4270M3host kernel: [9108.314240] 00 4f 00 c2 00 50

Feb 9 18:24:58 X4270M3host kernel: [9108.314246] sd 0:0:0:0 [sda] Add. Sense ATA
pass through information available.
```

Affected hardware and software:

- Sun Storage 6 Gb SAS PCIe RAID HBA, Internal option card (SGX-SAS6-R-INT-Z and SG-SAS6-R-INT-Z)
- Oracle Linux 5.8 with Red Hat compatible kernel
- Red Hat Enterprise Linux (RHEL) 5.8
- SUSE Linux Enterprise Server (SLES) 11 SP1
- Releases 1.0 and later

Workaround:

The impact of this condition is minimal. The log messages are alarming, but there is no error condition. For Oracle Linux 5.8 using the Red Hat compatible kernel and RHEL 5.8, and SLES 11 SP1, you can choose to ignore the messages, disable `smartd`, or update to the latest errata kernel.

- Disable `smartd` monitoring of all JBOD SATA drives under the Sun Storage 6 Gb SAS PCIe RAID HBA controllers. Use the `smartctl` command to disable monitoring of the drive and to verify drive monitor status.
- Update to the latest errata kernel from SUSE. The new SUSE kernels have a patch applied to quiet this message. You can find the errata kernel on the SUSE Support Site at: `http:// download.novell.com/`. Errata kernels are usually restricted to those with a valid SUSE support contract.

DISABLE: The following example disables `smartctl` service monitoring of block device `/dev/ sda`.

```
X4270M3host3 host:~ # smartctl -s off /dev/sda
```

```
smartctl 5.39 2008-10-24 22:33 [x86_64-suse-linux-gnu] (openSUSE RPM)
Copyright (C) 2002-8 by Bruce Allen, http://smartmontools.sourceforge.net

===START of ENABE/DISABLE COMMANDS section===
SMART Disabled. Use option -s with argument ???on' to enable it.
VERIFY: this example verifies the smartd monitoring status of device /dev/sdb
```

X4270M3host~ # smartctl -i /dev/sda

```
smartctl 5.39 2008-10-24 22:33 [x86_64-suse-linux-gnu] (openSUSE RPM)
Copyright (C) 2002-8 by Bruce Allen, http://smartmontools.sourceforge.net

===START of INFORMATION SECTION===
Device Model: INTEL SSDSA2BZ100G3S
Serial Number: CVLV11830001100AGN
Firmware Version: 6PS10362
User Capacity: 100,030,242,816 bytes
Device is: Not in smartctl database [for details use: -P showall]
ATA Version is: 8
ATA Standard is: ATA-8-ACS revision 4
Local Time is: Fri Feb 10 09:48:34 2012 EST
SMART support is: Available - device has SMART capability.
SMART support is: disabled
SMART Disabled. Use option -s with argument ???on' to enable it.
```

Network boot servers based on Oracle Linux 6.1 or Red Hat Enterprise Linux 6.1 or 6.2 cause UEFI Linux clients to panic when booting over the network (15744732, formerly CR 7096052)

Network boot servers (PXE) based on Oracle Linux 6.1 or Red Hat Enterprise Linux 6.1 or 6.2 cause UEFI Linux clients to panic when booting over the network. The grub.efi bootloader included with the software distribution does not work with Unified Extensible Firmware Interface (UEFI) clients.

Affected software:

- Oracle Linux 6.1
- Red Hat Enterprise Linux (RHEL) 6.1 and 6.2
- Releases 1.0 and later

Note - This issue does not apply to Oracle Linux 6.2.

Workaround:

To support UEFI network boot clients, update the Oracle 6.1 distribution `grub.efi` bootloader package on your PXE boot server. You can obtain updates from Unbreakable Linux Network (ULN) at: https://linux.oracle.com

Oracle VM and some Linux operating system installs can fail on some disk partitions (15770848, formerly CR 7142600)

Oracle VM and some Linux operating system installations can fail on some disk partitions because `libparted` does not handle some disk partitions correctly.

Affected software:

- Oracle Linux 5.7, 5.8, and 6.1
- Red Hat Enterprise Linux (RHEL) 5.7, 5.8, and 6.1
- Oracle VM 3.0 and 3.1
- Releases 1.0 and later

Note - This issue does not affect Oracle Linux 6.2 or Red Hat Enterprise Linux 6.2.

Workaround:

Do the following:

1. Ensure that the disk on which the virtual machine software or operating system will be installed is clean, with no other operating systems installed.
2. If necessary, use the `dd` command to clear the disk before installing the operating system.

When the operating system boots and loads the mpt2sas driver, errors might appear in dmesg (15824191, formerly CR 7205850)

When the operating system boots and initializes the `mpt2sas` driver, several AER (application error reporting) errors might appear in `dmesg`. `dmesg` displays the content of the Linux system message buffer.

Affected Software:

- Oracle VM 3.1.1 and SUSE Linux Enterprise Server (SLES) 11 SP2
- Releases 1.0 and later

Workaround:

None. These errors are harmless and can be safely ignored.

Windows Known Issues

This section lists known Microsoft Windows Server issues with the Sun Server X3-2L.

- "Virtual Ethernet device reported as "Not Installed" in Microsoft Windows 2012 R2 (17971455)" on page 88
- "Sun Storage 10 GbE FCoE PCIe adapter card does not have Windows 2012 R2 driver (17848060)" on page 89

Related Information

- "Server Update Information" on page 14
- "Important Operating Notes" on page 19

Virtual Ethernet device reported as "Not Installed" in Microsoft Windows 2012 R2 (17971455)

During Windows OS Installation, if the user does not install the Oracle Hardware Management Pack, the Device Manager reports the virtual Eth device as "Not Installed" in Microsoft Windows 2012 R2.

Affected hardware and software:

- Releases 1.0 and later
- Windows 2012 R2

Workaround:

To disable this device and prevent it from appearing in Device Manager, use the ilomconfig disable interconnect command. If you have not installed Oracle Hardware Management Pack, you will need to install it in order to get the ilomconfig CLI tool. Alternatively, this device can be disabled using the ILOM GUI.

Sun Storage 10 GbE FCoE PCIe adapter card does not have Windows 2012 R2 driver (17848060)

When Windows 2012 R2 is installed on a system with a configured Sun Storage 10 GbE FCoE PCIe card, neither Windows nor OSA installs a driver.

Affected hardware and software:

- Sun Storage 10 GbE FCoE PCIe and/or ExpressModule card
- Windows 2012 R2

Workaround:

There is currently no workaround or fix available.

VMware ESXi Known Issues

This section lists known VMware ESXi issues with the Sun Server X3-2L.

- "VMware ESXi 5.0 and 5.0 Update 1 requires an updated ixgbe driver to support the onboard network interface controller (NIC)" on page 89
- "VMware ESXi 5.x cannot be installed on system with the Sun Storage 6 Gb SAS PCIe HBA (Internal) and non-RAID volumes (16373075)" on page 90

Related Information

- "Server Update Information" on page 14
- "Important Operating Notes" on page 19

VMware ESXi 5.0 and 5.0 Update 1 requires an updated ixgbe driver to support the onboard network interface controller (NIC)

VMware ESXi 5.0 and 5.0 Update 1 virtual machine software will not support network connections when using the onboard network interface controller (NIC) unless an ixgbe driver or a compatible network interface card is installed. The driver needed for the 10 Gigabit Ethernet (10GbE) Controller (X540) used in the Sun Server X3-2 is not available in the general availability release of VMware ESXi 5.0 and 5.0 Update 1.

Affected software:

- VMware ESXi 5.0 and 5.0 Update 1
- Releases 1.0 and later

Note - This issue does not affect VMware ESXi 5.1.

Workarounds:

Perform either of the following tasks:

- Add the required driver to the ESXi 5.0 and 5.0 Update 1 installation ISO image.
- Install a PCIe network interface controller (NIC) card in the server that is compatible with the standard download ESXi 5.0 and 5.0 Update 1 ISO image.

For instructions for performing the above tasks, see "Configuring the VMware ESXi Software or the Server Hardware to Support Network Connections" in the *Sun Server X3-2L Installation Guide for VMware ESXi*.

VMware ESXi 5.x cannot be installed on system with the Sun Storage 6 Gb SAS PCIe HBA (Internal) and non-RAID volumes (16373075)

VMware ESXi 5.0/5.1/5.5 and their following updates can not be installed on a configuration with the Sun Storage 6 Gb SAS PCIe HBA, Internal when non-RAID volumes exist.

Affected hardware and software:

- Sun Storage 6 Gb SAS PCIe HBA, Internal
- VMware ESXi 5.0, 5.1, and 5.5

Workaround:

Use only RAID volumes when installing ESXi on a system configured with the Sun Storage 6 Gb SAS PCIe HBA, Internal.

Documentation Known Issues

This section lists the known documentation issues:

Broken Links in Sun Server X3-2L Documentation Library

The following documents (HTML and PDF) in the Sun Server X3-2L Documentation Library contain broken links (URLs). The correct links are listed below.

Sun Server X3-2L Site Planning Guide

- Accessibility for the hearing impaired: `https://www.oracle.com/us/corporate/accessibility/support/index.html#trs`
- Related information in the *Sun Server X3-2L Installation Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23394.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

Sun Server X3-2L Getting Started Guide

- Service and Technical Support: `https://www.oracle.com/support/contact.html`

Sun Server X3-2L Installation Guide for the Oracle Solaris Operating System

- *Sun Server X3-2L Product Notes*: `https://docs.oracle.com/cd/E23393_01/pdf/E23397.pdf`
- Related information in the *Sun Server X3-2L Installation Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23394.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.
- Related information in the *Sun Server X3-2L Administration Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23402.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.
- Related information in the *Sun Server X3-2L Service Manual*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23396.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

Sun Server X3-2L Installation Guide for Oracle VM

- *Sun Server X3-2L Product Notes*: `https://docs.oracle.com/cd/E23393_01/pdf/E23397.pdf`
- Related information in the *Sun Server X3-2L Installation Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23394.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Administration Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23402.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Service Manual*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23396.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

Sun Server X3-2L Installation Guide for Linux Operating Systems

- Documentation collection for the Red Hat Enterprise Linux 6 operating system: `https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/?version=6`

- Instructions on how to install the Red Hat Enterprise Linux 5 operating system: `https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/5/html/installation_guide/index`

- *Sun Server X3-2L Product Notes*: `https://docs.oracle.com/cd/E23393_01/pdf/E23397.pdf`

- Related information in the *Sun Server X3-2L Installation Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23394.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Administration Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23402.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Service Manual*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23396.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

Sun Server X3-2L Installation Guide for Windows Operating Systems

- Windows Server 2008 installation media: `https://www.microsoft.com/en-us/download/details.aspx?id=5023`

- *Sun Server X3-2L Product Notes*: `https://docs.oracle.com/cd/E23393_01/pdf/E23397.pdf`

- Related information in the *Sun Server X3-2L Installation Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23394.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Administration Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23402.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Service Manual*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23396.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

Sun Server X3-2L Installation Guide for VMware ESXi

- *Sun Server X3-2L Product Notes*: `https://docs.oracle.com/cd/E23393_01/pdf/E23397.pdf`

- Related information in the *Sun Server X3-2L Installation Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23394.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Administration Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23402.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Service Manual*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23396.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

Sun Server X3-2L Administration Guide

- Utilities and suport software for the SGX-SAS6-INT-Z HBA: `https://www.broadcom.com/support/oem/oracle/`

- Related information in the *Sun Server X3-2L Installation Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23394.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Installation Guide for the Oracle Solaris Operating System*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23398.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Installation Guide for Oracle VM*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23400.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Installation Guide for Linux Operating Systems*: Go to `http://docs.oracle.com/cd/E23393_01/pdf/E23399.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Installation Guide for Windows Operating Systems*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23401.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Installation Guide for VMware ESXi*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23404.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

- Related information in the *Sun Server X3-2L Service Manual*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23396.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

Sun Server X3-2L Service Manual

- Related information in the *Sun Server X3-2L Installation Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23394.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.
- Related information in the *Sun Server X3-2L Administration Guide*: Go to `https://docs.oracle.com/cd/E23393_01/pdf/E23402.pdf`, navigate to the table of contents, and click the appropriate heading for each related section.

Documentation Updates

This section describes documentation issues that have been recently identified and/or resolved.

- "Incorrect Cautionary Text About Reusing a Processor (1657905)" on page 96
- "Outdated Copyright Notice in the Service Manual (20452176) " on page 97
- "Use Oracle ILOM 3.2 Documentation After Updating to Firmware Version 3.2.4.78 or Newer" on page 97
- "Physical Media Requests Are No Longer Supported" on page 98
- "Corrections to the Sun Server X3-2L Service Manual" on page 98
- "Earlier Release of Oracle Hardware Management Pack User's Guide Included in Software Release" on page 99
- "Information About FRU TLI Auto-Update Feature" on page 99
- "Operating Altitude Limits for China Markets" on page 99
- "Translated Documents Use Abbreviated Titles" on page 100

Related Information

- "Server Update Information" on page 14
- "Important Operating Notes" on page 19

Outdated Licensing Text in Sun Server X3-2 Service Manual (20452176)

The legal and copyright text is outdated in the latest version of the Sun Server X3-2 Service Manual. Disregard the legal and copyright text in that service manual. Instead, review the updated Sun Server X3-2 legal and copyright text provided here:

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Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at `https://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc`.

Access to Oracle Support

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

Incorrect Cautionary Text About Reusing a Processor (1657905)

In the *Sun Server X3-2L Service Manual,* there is an incorrect statement about needing to install a *new* processor as part of the motherboard assembly replacement procedure.

If you need to remove and replace the motherboard assembly in a Sun Server X3-2L server, for any reason, you must first remove the processor from the motherboard before you remove the motherboard assembly. If the processor is in good working condition, you can install that same processor back onto the motherboard after you replace the motherboard assembly into the server. There is no requirement to install a *new* processor as part of a motherboard assembly replacement procedure.

However, within the *X3-2L Service Manual*, there is a Caution in the motherboard assembly replacement procedure that states:

"Whenever you remove a processor, you should replace it with another processor and reinstall the processor heatsink; otherwise, the server might overheat due to improper airflow."

This Caution implies that any time a processor is removed, the processor must be replaced with a different or *new* processor. That statement is incorrect because you can install the same processor that you removed from the previous motherboard onto the replacement motherboard assembly.

Workaround:

Ignore the cautionary text in the *Sun Server X3-2L Service Manual*.

Outdated Copyright Notice in the Service Manual (20452176)

The copyright notice that appears in the English and translated versions of the *Sun Server X3-2L Service Manual* is outdated.

Workaround:

Refer to the current copyright text that is included with these Product Notes, which applies to Oracle documentation.

Use Oracle ILOM 3.2 Documentation After Updating to Firmware Version 3.2.4.78 or Newer

When you update to firmware version 3.2.4.78 or newer, it updates Oracle ILOM as well. Note the following documentation changes:

- The Oracle ILOM 3.1 documentation collection no longer applies to your server. Instead, refer to the Oracle ILOM 3.2 documentation collection at `https://www.oracle.com/goto/ilom/docs`.

- The information in the Oracle ILOM 3.1 Supplement is out of date. For current information about Oracle ILOM 3.2.4.78, refer to the Oracle ILOM 3.2 documentation collection.

Physical Media Requests Are No Longer Supported

You can download firmware and software updates from the My Oracle Support (MOS) web site. Previously, if your processes did not allow software downloads from Oracle web sites, you could use the MOS web site to submit a physical media request (PMR) in order to receive the latest software release packages. However, Oracle no longer provides free physical media for firmware and software updates. In addition, physical media packs for software applications or operating systems (OSs) are no longer provided for delivery. Instead, you can now use Oracle Software Delivery Cloud for software application and OS downloads. Due to this change, any mention in your server documentation of PMR submissions, and how to perform PMR submissions, is no longer valid.

Corrections to the Sun Server X3-2L Service Manual

The *Sun Server X3-2L Service Manual* needs to be corrected as follows:

- The TLI is stored in the FRUID (field-replaceable unit identifiers) of these components: power distribution board (PDB), motherboard (MB), and disk backplane (DBP). This statement is incorrect. The TLI is actually stored in power supply 0 (PSU 0), the motherboard (MB), and the disk backplane DBP).
- The IO menu PCI Subsystem Settings option in the BIOS Setup Utility is disabled by default. This statement is incorrect. The default setting for this BIOS option is "enabled." For more information on the impact of enabling this option, see "Oracle Solaris 10 1/13 Does Not Support PCI Subsystem Settings Option Enabled in the BIOS Setup Utility IO Menu".
- The following note should be added to the "Install Power Supply" procedure:

Note - After you have replaced Power Supply 0, you must reset the Oracle ILOM service processor (SP) to propagate the FRU top-level indicator (TLI) data to the new power supply. For instructions on resetting the SP, see the Oracle ILOM Administrator's Guide for Configuration and Maintenance at https://www.oracle.com/goto/ilom/docs. Power Supply 1 does not contain FRU TLI data, and therefore does not require an SP reset after replacement.

The *Sun Server X3-2L Service Manual* shows an incorrect procedure and example for installing a processor in the server. Replace the procedure and example for step 16b under "Install a Processor" with the following:

b. **To clear the fault identified in Step 16a, type the following command:**

`-> `**`set /SYS/MB/P0 clear_fault_action=true`**

For example:

```
-> set /SYS/MB/P0 clear_fault_action=true
Are you sure you want to clear /SYS/MB/P0 (y/n)? y
Set 'clear_fault_action' to 'true'
```

Earlier Release of Oracle Hardware Management Pack User's Guide Included in Software Release

The Oracle System Assistant update for software release 1.3 includes a past version of the Oracle Hardware Management Pack (HMP) User's Guide. To access the current Oracle HMP documentation, go to:

https://docs.oracle.com/cd/E20451_01/html/E25303/index.html

Information About FRU TLI Auto-Update Feature

The English version of the *Sun Server X3-2L Service Manual* (E22396) published on the documentation web site and within Oracle System Assistant does not include detailed information about the FRU TLI Auto-Update feature that is supported on the server. This information is included in these Product Notes. See "FRU TLI Auto-Update" on page 35. The latest Japanese translation of the *Sun Server X3-2L Service Manual* will include this information.

Operating Altitude Limits for China Markets

In the previous versions of the *Sun Server X3-2L Site Planning Guide*, for the Sun Server X3-2L environmental specifications, the following information about the server's operating altitude that is pertinent to installations in China was omitted:

Operating altitude: Up to 9,840 feet (3,000 meters) maximum ambient temperature is derated by 1° C per 300 meters above 900 meters.

Note - In China markets, regulations may limit installations to a maximum altitude of 6,562 feet (2,000 meters).

Translated Documents Use Abbreviated Titles

In the translated versions of the PDF documents, the document titles used in cross-references are abbreviated. The abbreviated titles correspond to the complete document titles listed in the table that follows.

Abbreviated Document Title	Complete Document Title
Site Planning	*Sun Server X3-2L Site Planning Guide*
Installation	*Sun Server X3-2L Installation Guide*
Oracle Solaris Installation	*Sun Server X3-2L Installation Guide for Oracle Solaris Operating System*
Oracle VM Installation	*Sun Server X3-2L Installation Guide for Oracle VM*
Linux Installation	*Sun Server X3-2L Installation Guide for Linux Operating Systems*
Windows Installation	*Sun Server X3-2L Installation Guide for Windows Operating Systems*
VMware ESXi Installation	*Sun Server X3-2L Installation Guide for VMware ESXi*
Administration	*Sun Server X3-2L Administration Guide*
Service	*Sun Server X3-2L Service Manual*

Getting Server Firmware and Software

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

Description	Links
Learn about server firmware and software updates.	"Firmware and Software Updates" on page 101
Learn about options for accessing firmware and software.	"Firmware and Software Access Options" on page 102
Review available firmware and software releases.	"Available Software Release Packages" on page 102
Learn how to get firmware and software using Oracle System Assistant or My Oracle Support.	"Getting Updates From Oracle System Assistant or My Oracle Support" on page 103
Install firmware and software updates using other methods.	"Installing Updates Using Other Methods" on page 105

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 set of firmware and software for your server:

- **Oracle System Assistant** – Oracle System Assistant is a new factory-installed option for Oracle servers that allows you to easily download and install server firmware and software.

  For more information about using Oracle System Assistant, refer to the *Sun Server X3-2L Administration Guide*.

- **My Oracle Support** – All system firmware and software are available from My Oracle Support at `https://support.oracle.com`.

  For more information on what is available on the My Oracle Support web site, see "Available Software Release Packages" on page 102.

  For instructions on how to download software releases from My Oracle Support, see "Download Firmware and Software Using My Oracle Support" on page 104.

- **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 105.

Available Software Release Packages

Software releases on My Oracle Support are grouped by product family (such as 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. Alternatively, you can download the same firmware and software to your server using Oracle System Assistant.

Package Name	Description	When to Download This Package
X3-2L (X4270 M3) *SWversion* – Firmware Pack	All the system firmware, including Oracle ILOM, BIOS, and option card firmware.	You need the latest firmware.

Package Name	Description	When to Download This Package
X3-2L (X4270 M3) *SWversion* – OS Pack	An OS Pack is available for each supported operating system version. Each OS Pack includes a package of all tools, drivers, and utilities for that version of the OS. Software includes Oracle Hardware Management Pack and LSI MegaRAID software. For the Windows OS, this OS Pack also includes Intel Network Teaming and Install Pack.	You need to update OS-specific drivers, tools, or utilities.
X3-2L (X4270 M3) *SWversion* – 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.
X3-2L (X4270 M3) *SWversion* – Diagnostics	Oracle VTS diagnostics image.	You need the Oracle VTS diagnostics image.
X3-2L (X4270 M3) *SWversion* – Oracle System Assistant Updater	Oracle System Assistant recovery and ISO update image.	You need to manually recover or update Oracle System Assistant.

Each of the downloads 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.

Getting Updates From Oracle System Assistant or My Oracle Support

You can use Oracle System Assistant to easily download and then use the latest software release. For further information, see the *Sun Server X3-2L Administration Guide* at `https://docs.oracle.com/cd/E23393_01/index.html`.

You can also obtain firmware and software updates from the My Oracle Support web site. For instructions, see "Download Firmware and Software Using My Oracle Support" on page 104.

▼ Download Firmware and Software Using My Oracle Support

1. Go to the following 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 Search).

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 until a match appears. For example, Sun Server X3-2L.

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 "Available Software Release Packages" on page 102 for a description of the available downloads.

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

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

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

The File Download dialog box appears.

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 you can manually load firmware into the Enterprise Controller. In either case, Ops Center can install the firmware onto one or more servers, blades, or blade chassis.

  For more information, go to: `https://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 more 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 the command-line interface to updated Oracle ILOM or BIOS firmware. Oracle ILOM and BIOS firmware are the only firmware that can be updated using either the Oracle ILOM web interface or the command-line interface.

  For more information, refer to the Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at: `https://docs.oracle.com/cd/E24707_01/index.html`.