SPARC T3-2 Server

Product Notes

Part No.: E20794-08
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Contents

Using This Documentation

This document contains important information and late-breaking news about the SPARC T3-2 server from Oracle.

Related Documentation

Documentation	Links
All Oracle products	http://www.oracle.com/documentation
SPARC T3-2 server	http://www.oracle.com/pls/topic/lookup?ctx=SPARCT3-2
Oracle ILOM 3.0	http://www.oracle.com/pls/topic/lookup?ctx=ilom30
Oracle Solaris OS and other systems software	http://www.oracle.com/technetwork/indexes/documentation/#sys_sw
Oracle VTS 7.0	http://www.oracle.com/pls/topic/lookup?ctx=OracleVTS7.0

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Learn about Oracle's commitment to accessibility	http://www.oracle.com/us/corporate/accessibility/index.html

CHAPTER 1

Late-Breaking Information

This document contains the following information and late-breaking news about SPARC T3-2 server from Oracle:

Preinstalled Software

The preinstalled Oracle Solaris OS is installed on a ZFS file system, as described in the following table.

TABLE 1-1 Preinstalled Software

Software	Location	Function
Oracle Solaris 11 OS or Oracle Solaris 10 9/10 OS	Root disk Slice 0	Operating system

TABLE 1-1 Preinstalled Software

Software	Location	Function
Oracle VM Server for SPARC • 2.2 with Oracle Solaris 11 • 2.0 with Oracle Solaris 10	`/opt/SUNWldm`	Manages logical domains
Electronic Prognostics • 1.2 with Oracle Solaris 11 • 1.1 with Oracle Solaris 10	`/opt/ep`	Provides early warning of the potential for specific FRU faults
System firmware 8.2.0.f or later	Service processor Host processor	Oracle ILOM operations All other firmware operations

Note – Refer to the Customer Information Sheet shipped with your server to identify which version of Oracle Solaris OS is preinstalled.

Note – In addition to reading the product notes for your server, always review the latest version of the Oracle Solaris OS release notes when installing or using the server. The release notes provide important installation, runtime, and update information that you should consider when installing or running the Oracle Solaris OS. The release notes also list the known OS problems and provide workarounds when available.

Find the release notes for your version of the OS on the following web site:
`http://docs.oracle.com`

Supported Versions of Oracle Solaris OS, Firmware, and Software

TABLE 1-2 Supported Versions of the Oracle Solaris OS and Firmware

Software	Supported Versions
Operating System	• Oracle Solaris 11 • Oracle Solaris 10 8/11 OS • Oracle Solaris 10 9/10 OS with required patchsets • Oracle Solaris 10 10/09 OS with the Solaris 10 9/10 SPARC Bundle and required patchsets
Oracle VM Server for SPARC (LDoms)	• 2.1 or 2.2 with Oracle Solaris 11 • 2.0 with Oracle Solaris 10
Electronic Prognostics on the server host	• 1.2 with Oracle Solaris 11 • 1.1 with Oracle Solaris 10
System firmware	8.0.1.e or higher

OS Package and Patch Updates

Note – You should install the latest patches or package updates available for the version of the Oracle Solaris OS installed on your system.

Determining Oracle Solaris 11 OS Package Update Version

Updates to Oracle Solaris 11 are provisioned using package updates called Support Repository Updates (SRUs) instead of patches. SRUs are part of a new OS provisioning scheme called the Image Packaging System (IPS).

To determine the package version of the Oracle Solaris 11 OS installed on your system, run the `pkg info kernel` command and then interpret the FMRI value displayed in the output. This is an example:

```
# pkg info kernel
          Name: system/kernel
       Summary: Core Kernel
   Description: Core operating system kernel, device drivers and other modules.
      Category: System/Core
         State: Installed
     Publisher: solaris
       Version: 0.5.11
 Build Release: 5.11
        Branch: 0.175.0.2.0.2.1
Packaging Date: Wed Oct 19 07:57:11 2011
          Size: 17.99 MB
          FMRI: pkg://solaris/system/kernel@0.5.11,5.11-0.175.0.2.0.2.1:
                  20111128T20503
```

Then evaluate the following three fields in the FMRI value:

- 175 -- The value 175 indicates that the system has Oracle Solaris 11 OS installed. This value is a constant for Oracle Solaris 11.
- 0 -- The first field to the right of "175" indicates the update release. In this example, there have been no updates to the initial release.
- 2 -- The next field contains the SRU value. In this example, the second patch bundle (called SRU2) has been installed on Oracle Solaris 11, update 0.

You can ignore the other fields in the FMRI package description.

When you know which version of the OS is installed, you can access a list of all the packages contained in that release from the following web page:

http://pkg.oracle.com/solaris/release/en/index.shtml

To list the packages contained in a particular Oracle Solaris 11 release, select that release in the Release and Branch pull-down menu and press the Browse button. Or you can search for individual packages in the Search for: window.

Determining Oracle Solaris 10 Patch Revision

If your system is currently running Oracle Solaris 10, you can find its patch level with the commands `showrev`(1M) and `uname(1)`. This is shown in the following example:

```
# showrev
Hostname: *********
Host id: *********
Release: 5.10
Kernel architecture: sun4v
Application architecture: sparc
Hardware provider: Sun_Microsystems
Domain: Ecd.East.Sun.COM
Kernel version SunOS 5.10 Generic_142909-17
# uname -a
SunOS ********* Generic_142909-17 sun4v sparc sun4v
# showrev -p | tail -3
Patch: 143525-01 Obsoletes: Requires: 118833-36, 127127-11 Incompatibles:
    Packages:SUNWcsu
Patch: 143125-01 Obsoletes: 138079-01 138089-01 Requires: 120011-14
    Incompatibles: Packages: SUNWcsu
Patch: 121557-01 Obsoletes: Requires: Incompatibles: Packages: SUNWpiclu
#
```

Minimum Required Patchset for Oracle Solaris 10 08/11 OS

No additional patches are required before using the server with the Oracle Solaris 10 08/11 OS. However, you should download and install "Recommended OS Patchset Solaris 10 SPARC". This patchset contains Oracle Solaris 10 OS patches that address current Sun Alerts.

Note – The download of the Solaris 10 8/11 SPARC Bundle is identified by the number 14158708 at `http://support.oracle.com`.

Minimum Required Patchset for Oracle Solaris 10 09/10 OS

Install the patches listed in TABLE 1-3 before using the server with the Oracle Solaris 10 09/10 OS.

TABLE 1-3 Minimum Required Patchset for Oracle Solaris 10 09/10

143647-08
144567-01
145098-02
145868-01

In addition, you should download and install "Recommended OS Patchset Solaris 10 SPARC". This patchset contains Oracle Solaris 10 OS patches that address current Sun Alerts.

Note – The download of the Solaris 10 09/10 SPARC Bundle is identified by the number 13153809 at http://support.oracle.com.

Minimum Required Patchsets and SPARC Bundle for Oracle Solaris 10 10/09 OS

To use the server with the Oracle Solaris 10 10/09 OS, install the patches listed in TABLE 1-3, as well as the Oracle Solaris 10 09/10 SPARC Bundle. In addition, you should download and install "Recommended OS Patchset Solaris 10 SPARC". This patchset contains Oracle Solaris 10 OS patches that address current Sun Alerts.

Note – The download of the Solaris 10 8/11 SPARC Bundle is identified by the number 13153814 at http://support.oracle.com.

Rules for I/O Slot Use by Certain Cards

Some optional I/O cards are restricted to specific I/O slots to meet system cooling requirements. Other I/O cards provide better performance when installed in particular slots. TABLE 1-4 lists these slot requirements and recommendations.

Note – This table lists only I/O cards that have specific slot or quantity restrictions or other requirements. It does not list I/O cards that are supported by the SPARC T3-2 server but are not subject to slot or quantity restrictions.

TABLE 1-4 PCIe Slot Usage Rules for Certain I/O Cards

Description	Part Number	Maximum	Restrictions
SAS Host Bus Adaptor PCIe			
Sun Storage 6 Gb SAS PCIe RAID HBA, Internal: 8 port and 512 MB memory*	SGX-SAS6-R-INT-Z	1	
SAS cable kit for installation of internal RAID card	SE3X4A11Z	1	
Sun Storage 6 Gb SAS PCIe HBA, Internal	SGX-SAS6-INT-Z	1	
Sun StorageTek (TM) 8-port external SAS PCI-Express HBA, External	SG-XPCIE8SAS-E-Z-N	1	
Network Interface Card			
Sun x8 PCI-E Quad Gigabit Ethernet UTP	X4447A-Z-N	9	Not supported in slot 0
Sun Dual 10GbE SFP+ PCIe 2.0 Low Profile adapter supporting pluggable SFP+ Transceivers	X1109A-Z	4	Two cards per socket
10Gbps Dual rate SFP+SR Transceiver, MMF, support 1G and 10G dual rate	X2129A-N	8	
SPARC T3-2 10GbE Network Module	SE4X5XC1Z	1	
10Gbps QSFP Short Wavelength Transceiver Pluggable, Parallel Fiber Optics Transceiver	X2124A-N	1	
InfiniBand			
Sun InfiniBand QDR Host Channel Adapter PCIe	X4242A	2	
Miscellaneous			
Sun Crypto Accelerator 6000 PCIe Card	X6000A-N	2	

* Requires SE3Y4A11Z cable kit.

Updating the System Firmware

You can update the system firmware by downloading and installing the latest version of the 147316-*xx* patch. You can download the latest version of the 147316-*xx* patch from the My Oracle Support web site:

https://support.oracle.com/

Refer to the *SPARC T3 Series Servers Administration Guide*, and any documentation included with the patch, for installation instructions.

Mandatory System Firmware Patch

Initial SPARC T3-2 servers shipped with system firmware that set the power supply fan speed at a level that did not adequately cool the power supplies and front drives. Updating the system firmware to version 8.0.1.e (or to the latest firmware version) will set the fan speed to the correct level.

To display the firmware version of your system, type the following command at the Oracle ILOM prompt (->):

```
-> show /HOST sysfw_version

 /HOST
 Properties:
 sysfw_version = Sun System Firmware 8.0.1.e date time
```

Caution – If the system's firmware revision is less than 8.0.1.e, you *must* download and install the latest version of the system firmware patch. See "Updating the System Firmware" on page 8 for downloading instructions.

ALOM CMT Compatibility Shell Not Supported

The SPARC T3-2 server does not support the Advanced Lights Out Manager (ALOM) CMT command-line compatibility shell (`cli_mode=alom`) that was available in previous platforms. For more information about the supported Oracle Integrated Lights Out Manager (Oracle ILOM) features, refer to the *SPARC T3 Series Servers Administration Guide*.

CHAPTER 2

Known Product Issues

This chapter contains the following sections:

Hardware Issues

This section describes the known hardware-related issues.

SPARC T3 and T4 Platforms Might See Dropped or Double Character Input From USB Keyboards (CR 7067025)

On Oracle's SPARC T3 and T4 servers, all USB ports/connectors available to users are connected to an internal USB 2.0 (ehci) controller through an onboard USB 2.0 hub.

When a full/low speed USB 1.0/1.1 keyboard and mouse are connected to a USB port through this USB 2.0 hub, keyboard input might drop characters or might display double characters.

Note – These errors occur when the ehci (USB 2.0) driver fails to detect keystrokes and mouse control input.

Workaround: Currently, a workaround has been implemented for this issue where an internal USB hub is manually bound to the ohci (USB 1.0/1.1) driver. This binding causes a variable named ehci_forced_port_to_companion to instruct the ehci (USB 2.0) driver to transfer ownership of a specific port on the USB controller to the ohci (1.0/1.1) driver. Once the ohci driver is bound to a particular port on the USB controller, the ohci driver will also be used by the internal USB hub connected to that port and all USB connectors on that hub.

This workaround is available in the following forms:

- Oracle Solaris 11 OS – Oracle Solaris 11 Support Repository Update 3 (SRU3)
- Oracle Solaris 10 8/11 – Patch 147004-03

For earlier supported versions of Oracle Solaris 10, apply the Solaris 10 8/11 SPARC Bundle, followed by patch 147004-03.

Note – As a general practice, you should download and install all the latest available patches (for Oracle Solaris 10 OS) or latest SRU package (for Oracle Solaris 11 OS). To download Oracle Solaris patches and/or SRU packages, go to: `http://support.oracle.com`

Supplementary Notes

On T3-1, T4-1, T3-2, and T4-2, the rear USB connectors as well as the virtual keyboard, virtual mouse, virtual CD-ROM, and virtual USB ethernet connection to the service processor (a.k.a RKVMS) are all beneath a hub connected to port 2 on the USB controller.

The front USB connectors are connected through a hub to port 4 of the USB controller.

Likewise, on the T3-4 and T4-4 platforms, the rear USB connector is beneath a hub that is connected to port 3 of the USB controller and the front USB connector and the virtual mouse, keyboard, CD-ROM and virtual USB ethernet connection to the service processor are beneath a hub that is connected to port 2 of the USB controller.

To use a physical keyboard and mouse with this workaround, apply the fix (either patch 147004-03 or SRU3) and then perform the following recommended steps:

- On SPARC T3-1, T4-1, T3-2, and T4-2 systems:

1. Connect the input devices to a *front* USB connector.
2. Add the following line to `/kernel/drv/ehci.conf`:

```
ehci-port-forced-to-companion = 4
```

3. Reboot.

- On SPARC T3-4 and T4-4 systems:

1. Connect the input devices to a *rear* USB connector.

2. Add the following line to `/kernel/drv/ehci.conf`:

```
ehci-port-forced-to-companion = 3
```

3. Reboot.

To use a virtual keyboard and mouse with this workaround, first apply the fix (either patch 147004-03 for Oracle Solaris 10 or SRU3 for Oracle Solaris 11) and then add the following line to `/kernel/drv/ehci.conf` and reboot:

```
ehci-port-forced-to-companion = 2
```

All other devices connected to the hub that services the virtual keyboard and mouse will be forced to operate at the lower USB 1.0/1.1 speed. These include:

- The virtual USB ethernet connection to the service processor.
- The physical USB connectors:
  - Rear connectors on the T3-1, T4-1, T3-2, and T4-2 servers.
  - Front connectors on the T3-4 and T4-4 servers.

Note – If you use the virtual keyboard and mouse with this workaround, some devices connected to the hub, such as a Virtual CD-ROM and Ethernet over a USB connection to the service processor, may not come up properly following a reboot.

When these devices do not come up, messages similar to the following will be displayed on the console and written to system logs:

```
WARNING: /pci@400/pci@2/pci@0/pci@f/pci@0/usb@0,1/hub@1/hub@3 (hubd4):
Connecting device on port 2 failed
```

```
WARNING: /pci@400/pci@2/pci@0/pci@f/pci@0/usb@0,1/hub@1/hub@3 (hubd4):
Connecting device on port 3 failed
```

Caution – At this time, there is no fix or workaround for the failure of these devices to come up when the missing micro-frame workaround is configured to support a virtual keyboard and mouse.

For this reason, you should limit use of following USB ports when using virtual keyboard and mouse functionality:

- Rear USB connectors on the T3-1, T4-1, T3-2, and T4-2
- Front USB connectors on the T3-4 and T4-4

All other virtual devices (such as virtual keyboard and virtual mouse) will continue to function, but will be limited to operating at the lower speed.

Oracle VM Server for SPARC Direct I/O Support

Only certain PCIe cards can be used as direct I/O endpoint devices on an Oracle VM Server for SPARC I/O domain. You can still use other cards in your Oracle VM Server for SPARC environment, but these cards cannot be used with the Direct I/O feature. Instead, the PCIe cards can be used for service domains and for I/O domains that have entire root complexes assigned to them.

For an updated list of PCIe cards that support the direct I/O feature, refer to:

https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&doctype=REFERENCE&id=1325454.1

Not Oracle Certified DIMM Warning Message (CR 7034912)

After installing supported optional component DIMMs shipped from the Oracle Corporation or from a certified Oracle reseller, or after replacing a failed DIMM with a field-replaceable unit (FRU) DIMM, you might see warning messages similar to the following:

```
[CPU 0:0:0] WARNING: /SYS/MB/CMP0/BOB0/CH0/D0: Not Oracle Certified
```

The system displays these messages because optional component and FRU DIMMS have not been marked as certified. Oracle certifies only DIMMs that ship installed in a system from the factory. Although Oracle has not certified these DIMMs, they are still supported. You can safely ignore these warning messages.

Workaround: Install the latest system firmware patch. This issue was corrected in system firmware version 8.1.4.d.

Custom `nvalias` Settings Will Not Change During a System Reconfiguration

If you use the `nvalias` OBP command to make custom system settings, you must update these settings if the system reconfigures itself after a hardware failure.

For example, if the system experiences a hardware failure such as a failed CMP, the system will reconfigure the I/O device paths during the next reboot. If you set a custom device path to a boot disk using the `nvalias` command, the system will not reconfigure the custom device path and the server will not boot the operating system. You must rediscover the device path to the boot disk and update the `nvalias` setting accordingly.

SPARC T3 Series Servers Do Not Support Sun Type 6 Keyboards

Sun Type 6 keyboards cannot be used with SPARC T3 series servers.

Large Third-Party PCIe Cards Are Not Supported in PCIe Slot 8

A capacitor installed on the SPARC T3-2 server motherboard extends into the PCIe slot 8 about 1.60 mm (0.06 in.) higher than PCI Express specifications permit. You cannot install large third-party PCIe cards (for example, certain quad-Ethernet PCIe cards) into slot 8, since the capacitor will interfere with the PCIe card installation.

Workaround: Only install smaller PCIe cards into PCIe slot 8.

Front-Panel Video Port Does Not Support Resolutions Greater Than 1024 x 768 (CR 7021609)

The SPARC T3-2 server contains two video HD-15 ports, one in the front of the server and one in the rear of the server. The front video port does not support screen resolutions greater than 1024 x 768.

If you require screen resolutions greater than 1024 x 768, connect the monitor to the server's rear video port. The rear video port supports resolutions up to 1280 x 1024. Refer to the *SPARC T3 Series Servers Administration Guide* and the `fbconfig`(1M) man page for instructions on using a local graphics monitor.

Cannot Plumb Sun Quad GbE x8 PCIe Low Profile Adapter in PCIe Slot 0 When More Than Five Are Installed (CR 6993897)

The Ethernet ports of a Sun Quad GbE x8 PCIe Low Profile adapter installed in PCIe slot 0 cannot be plumbed if there are more than five Sun Quad GbE x8 PCIe Low Profile adapters installed in the server. However, up to nine Sun Quad GbE x8 PCIe Low Profile adapters are supported in the server when one of these adapters is not installed in slot 0.

Workaround: Do not install a Sun Quad GbE x8 PCIe Low Profile adapter in PCIe slot 0.

Blue Ready-to-Remove LED Might Not Illuminate After Being Prepared for Removal Using the MegaRAID Storage Manager (CR 6929361)

When using the MegaRAID Storage Manager (MSM) software to prepare a drive for removal, the MSM software will report that the drive is ready to remove, but the drive's blue ready-to-remove LED might only illuminate briefly, or not illuminate at all.

Workaround: Once the MSM software reports that the drive is ready to remove, it is safe to remove the disk. If you need to locate the selected drive, use the MSM locate function, the MegaCLI command-line utility, or the WebBIOS configuration utility.

Refer to the MSM documentation for more information.

MegaRAID Storage Manager Does Not Discover Sun Storage 6 Gb SAS PCIe RAID HBA, Internal (CR 6971789)

The MegaRAID Storage Manager (MSM) software cannot discover, configure, or monitor an installed Sun Storage 6 Gb SAS PCIe RAID HBA, Internal.

Workaround: Use the MegaCLI command-line utility to discover, configure, and monitor the Sun Storage 6 Gb SAS PCIe RAID HBA, Internal.

Installing Sun Storage 6 Gb SAS PCIe RAID HBA, Internal, Disables the DVD Drive

After installing a Sun Storage 6 Gb SAS PCIe RAID HBA into the server, you will no longer be able to use the front-panel DVD drive.

Inside the SPARC T3-2 server, up to six drives and the optional DVD drive connect to the same hard disk drive backplane. Two internal cables connect the hard disk drive backplane to the motherboard assembly.

Note – The Sun Storage 6 Gb SAS PCIe RAID HBA, Internal, must be installed in PCIe slot 0. See "Sun Storage 6 Gb SAS PCIe RAID HBA, Internal, Must Be Installed In PCIe2 Slot 0 (CR 6982358)" on page 19 for more information.

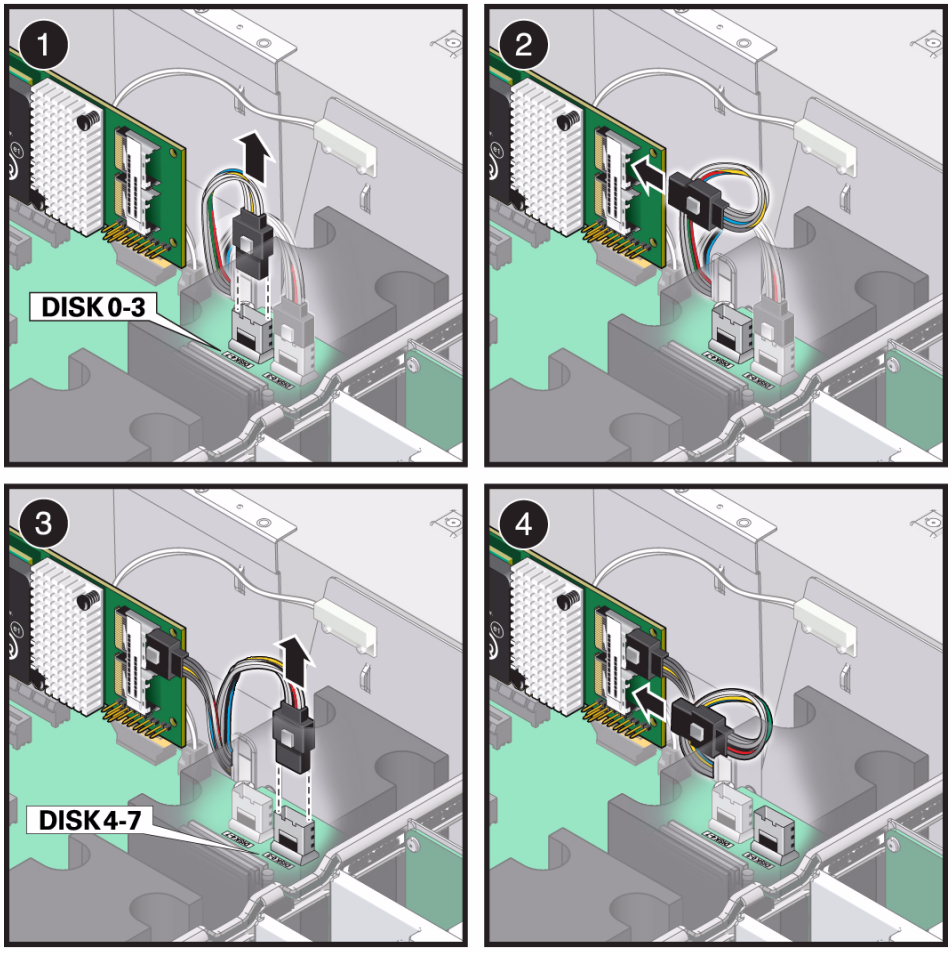
When installing the Sun Storage 6 Gb SAS PCIe RAID HBA, you must use these same cables to connect the HBA ports to the hard disk drive backplane. (In order to support RAID 5, both cables *must* be connected.)

- Remove the SAS cable from the motherboard port labeled DISK0-3 and connect it to the top HBA port labeled PORT 0-3.
- Remove the SAS cable from the motherboard port labeled DISK4-7 and connect it to the bottom HBA port labeled PORT 4-7.

Note – The HBA does not provide the SATA data signals required by the front-panel DVD drive, so you will no longer be able to use the DVD drive.

Refer to the *Sun Storage 6 Gb SAS PCIe RAID HBA, Internal Installation Guide For HBA Models SGX-SAS6-R-INT-Z and SG-SAS6-R-INT-Z* for additional installation instructions:

`http://www.oracle.com/pls/topic/lookup?ctx=E19221-01`



Workaround:

To access a DVD drive after installing the Sun Storage 6 Gb SAS PCIe RAID HBA:

- Connect an external USB DVD drive to one of the four USB ports on the server.
- Use the Oracle ILOM Remote Console to control a networked DVD drive remotely.

  The Oracle ILOM Remote Console is a Java application that enables you to redirect and control the keyboard, video, mouse, and storage (KVMS) devices of a host server remotely. Refer to the Oracle ILOM documentation for instructions on using the Oracle ILOM Remote Console.

Sun Storage 6 Gb SAS PCIe RAID HBA, Internal, Must Be Installed In PCIe2 Slot 0 (CR 6982358)

If you plan to install the Sun Storage 6 Gb SAS PCIe RAID HBA, Internal, into the server, you must install the card in PCIe2 slot 0 (the slot closest to the power supplies). Installing this card into any other PCIe2 slot is not supported.

Note – Installing a Sun Storage 6 Gb SAS PCIe RAID HBA, Internal, into the system will disable the front-panel DVD drive. See "Installing Sun Storage 6 Gb SAS PCIe RAID HBA, Internal, Disables the DVD Drive" on page 17 for more information and for installation instructions.

TCP Performance Lags When Using Three or More Ports on Multiple Sun Dual 10 GbE SFP+ PCIe Cards (CR 6943558)

Excessive packet loss has been seen when three or more ports are used across multiple Sun Dual 10GbE SFP+ PCIe cards. As a result, the transmit and receive performance was significantly degraded. When only two ports are used, packet loss is minimal and transmit/receive performance is as expected.

Workaround: Use one of the following procedures to enable flow control for the interfaces. Enabling flow control will greatly reduce packet loss and improve performance.

▼ Enable Flow Control (With a System Reboot)

1. **Add the following lines in the** `/kernel/drv/ixgbe.conf` **file:**

```
fm_capable = 0;
flow_control = 3;
tx_queue_number = 2;
rx_queue_number = 6;
intr_throttling = 1000;
```

2. **Reboot the system to make these driver changes take effect.**

▼ Enable Flow Control (Without a System Reboot)

1. **Add the following lines in the** `/kernel/drv/ixgbe.conf` **file:**

```
fm_capable = 0;
flow_control = 3;
tx_queue_number = 2;
rx_queue_number = 6;
intr_throttling = 1000;
```

2. **Unplumb all the** `ixgbe` **interfaces.**

3. **Type the** `update_drv ixgbe` **command:**

```
# update_drv ixgbe
```

4. **Plumb all the** `ixgbe` **interfaces.**

PARALLEL_BOOT/HOST_LAST_POWER_STATE= enabled Failed, Unexpected Power State (Off) After AC Cycle (CR 6994047)

When `HOST_LAST_POWER_STATE` is set to `enabled` and then the system goes through an AC power cycle, the host sometimes is shown as `OFF` when the power up operation completes. This status information might be false.

Recovery: Power cycle the system again to clear the false status information.

Server Panics When Booting From a USB Thumbdrive Attached to the Front USB Ports (CR 6983185)

When attempting to boot a USB thumbdrive (portable USB flash drive) inserted in one of the front USB ports (USB2 or USB3), the server will panic and fail to boot.

Workaround: Use the server's rear USB ports (USB0 or USB1) whenever booting off of an external USB thumbdrive.

Copper QSFP Cables Not Supported (CR 6941888)

The SPARC T3-2 Server 10 Gb Network Module does not support copper QSFP cables. The network module supports only optical QSFP transceiver modules and cables.

When Two Or More 10 Gb Network Module Devices Are Plumbed, Memory DR Remove Operations Might Hang (CR 6983286)

Plumbing two or more SPARC T3-2 Server 10 Gb Network Module devices in a domain creates a condition in the Oracle Solaris kernel that can cause a dynamic reconfiguration (DR) operation to hang when memory is being removed from the domain.

Workaround: If you plan on using memory DR remove operations, do not plumb more than one SPARC T3-2 Server 10 Gb Network Module device.

Recovery: If a DR operation hangs, reboot the domain to clear it.

Cannot Initiate Two Consecutive `probe-scsi-all` Commands in Systems With Sun StorageTek 8 Gb FC PCIe HBAs (CR 6983959)

On systems containing one or more Sun StorageTek 8 Gb FC PCIe HBAs, Emulex, you cannot use the OpenBoot PROM (OBP) `probe-scsi-all` command more than once. You must reset the system using the OBP `reset` command before you can use the `probe-scsi-all` command again.

The first execution of the `probe-scsi-all` command will run successfully. If the command is issued again before resetting the system using the OBP `reset` command, the second `probe-scsi-all` execution will fail, with an error message similar to the following example:

```
FCode Version 1.00.54, MPT Version 2.00, Firmware Version 5.00.17.00
Target 9
  Unit 0   Disk   HITACHI  H103030SCSUN300G A2A8    585937500 Blocks, 300 GB
  SASDeviceName 5000cca00ab4403c  SASAddress 5000cca00ab4403d  PhyNum 0
Target a
  Unit 0   Disk   HITACHI  H103030SCSUN300G A2A8    585937500 Blocks, 300 GB
  SASDeviceName 5000cca00ab2551c  SASAddress 5000cca00ab2551d  PhyNum 1
```

```
[...]
/pci@600/pci@2/pci@0/pci@5/pci@0/pci@3/SUNW,emlxs@0,1
Cannot Init Link.
/pci@600/pci@2/pci@0/pci@5/pci@0/pci@3/SUNW,emlxs@0
Cannot Init Link.
[...]
Cannot initialize port.
READ_LA Failed.
```

Workaround: Reset the system using the OBP `reset` command between two `probe-scsi-all` executions.

Installing Multiple Sun Flash Accelerator F20 PCIe Cards Causes Errors On First Boot (CR 6988352)

After installing multiple Sun Flash Accelerator F20 PCIe cards, the server will display the following error messages when you boot the server for the first time:

```
date machinename scsi: [ID 243001 kern.info] smp: smp_do_attach: failed to allocate
softstate, device unit-address @w508002000000377f
date machinename scsi: [ID 243001 kern.info] smp: smp_attach(), device unit-address
@w508002000000377f failed
date machinename scsi: [ID 243001 kern.warning] WARNING:
/pci@400/pci@2/pci@0/pci@0/LSILogic,sas@0 (mpt2):
date machinename failed to configure smp w508002000000377f
```

You can safely ignore these error messages.

Workaround: Reboot the server once more, and you will no longer see these error messages.

Error Messages Not Retained After UE and CE Memory Failures (CR 6990058)

If your server's memory experiences a uncorrectable error (UE) followed by a correctable error (CE), the correct error messages will not be generated and they will not be retained by the service processor. You will not be able to diagnose the memory problem.

Workaround: Reboot the system. If memory problems persist, contact your service representative for assistance.

Replace Faulty DIMMs With Uncorrectable Errors (UEs) As Soon As Possible (CR 6996144)

If a DIMM has an uncorrectable error (UE), the server will generate a `fault.memory.bank` error that labels a DIMM as faulty. You can view this error using the Oracle ILOM `show faulty` command or the `fmdump -v` command.

If a DIMM in your system contains a persistent uncorrectable error (an error that continually occurs even after multiple reboots), replace this DIMM as soon as possible to avoid any server downtime.

Workaround: Instead of scheduling downtime to replace the faulty DIMMs, replace the faulty DIMMs as soon as possible. Contact your service representative for assistance.

`create-raid10-volume` Command Fails to Create a RAID 10 Volume on a Sun Storage 6 Gb SAS PCIe HBA (CR 6943131)

The Sun Storage 6 Gb SAS PCIe HBA supports RAID types 0, 1, and 10. When attempting to create a RAID 10 volume, the `create-raid10-volume` OpenBoot PROM (OBP) command will fail. In the OBP environment, there is no command that allows you to create a RAID 10 volume.

However, you can use the `create-raid1e-volume` OBP command to create a RAID 1E volume, which is an enhanced RAID 1 volume that includes mirroring and striping.

Workaround: Create a RAID 1E volume using the OBP `create-raid1e-volume` command.

Cannot Use GbE Ports of a Sun Quad GbE x8 PCIe Low Profile Adapter Installed in PCIe Slot 0 (CR 6993897)

When six or more than Sun Quad GbE x8 PCIe Low Profile adapters are installed in the server, you will not be able to use the GbE ports of the Sun Quad GbE x8 PCIe Low Profile adapter installed in PCIe slot 0. For example, if you install six Sun Quad GbE x8 PCIe Low Profile adapters into PCIe slots 0 to 5, you will not be able to plumb the GbE interfaces of the adapter installed in Slot 0.

Workaround: Do not install a Sun Quad GbE x8 PCIe Low Profile adapter into PCIe slot 0. The server supports up to nine Sun Quad GbE x8 PCIe Low Profile adapters installed in PCIe slots 1 to 9.

Oracle Solaris OS Issues

This section describes issues related to the Oracle Solaris OS in this release.

Cold Reset Adds One Day to System Time (CR 7127740)

After a cold reset, the server might add one day to the Oracle Solaris OS date and time. This possible date change will only occur on the first cold reset after January 1, 2012. Once you set the correct date using the Oracle Solaris OS `date`(1) command, the corrected date and time will persist across future resets.

A cold reset is when you halt the OS and restart the service processor (SP). For example, you can use one of the following Oracle Solaris OS commands to halt the OS:

```
# shutdown -g0 -i0 -y
```

```
# uadmin 1 6
```

```
# init 5
```

```
# poweroff
```

Then, at the ILOM prompt, use the following commands to reset the host:

```
-> stop /SYS
. . .
-> start /SYS
```

Refer to the service manual, the administration guide, and the Oracle Solaris OS documentation for more information.

Workaround: Install the latest system firmware patch. This issue was fixed in the system firmware version 8.1.4.e.

After the first cold reset of the system, verify that the system date and time are correct. If the date has been impacted by this issue, use the Oracle Solaris OS `date`(1) command to set the correct date and time.

For example, to set the date and time to be February 26, 9:00am, 2012, type:

```
# date 022609002012
```

Refer to the `date`(1) man page and the Oracle Solaris OS documentation for more information.

Oracle Solaris OS Has Changed How It Specifies Logical Device Names

The Oracle Solaris OS now uses SAS 2.0 World Wide ID (WWID) in place of the `t`*n* (target ID) field in logical device names. This change will affect how you identify the target disk when downloading the OS over a network. The following points are key to understanding the impact of this change:

- When downloading the OS over a network, you should specify the disk in HDD slot 0 as the download destination. This is the disk that OBP uses as the default boot device.
- Before the change to using WWIDs, this disk would be known to the OS by the logical name `c0t0d0`.
- With the change, the device identifier for the default boot device is now referred to as `c0t`*WWID*`d0`, where *WWID* is a hexadecimal value. This WWID value does not map in a predictable way to the physical ID of the disk in HDD slot 0.

Note – By default, the Oracle Solaris OS is installed on the disk in HDD slot 0. If you want to install the OS on a disk in another slot, specify the disk in the preferred slot number.

To reliably specify HDD slot 0 for the OS download operation, you must determine the correspondence between the WWID value for that disk and its physical location. You can do this by running `probe-scsi-all` and reading the output.

In the `probe-scsi-all` output, look for the following disk identifiers:

- `SASDeviceName` – This is the disk WWID that the Oracle Solaris OS recognizes.
- `SASAddress` – This is the disk WWID that the OBP references.
- `PhyNum` – This is the physical HDD slot that the disk occupies. It is also expressed as a hexadecimal value.
- `VolumeDeviceName` – This number is the RAID volume's WWID that the Oracle Solaris OS recognizes.
- `VolumeWWID` – This is the RAID volume's WWID that OBP references.

A SPARC T3-2 server has one on-board SAS controller, which controls all six connected drives. The following example `probe-scsi-all` output is for a SPARC T3-2 server with six drives.

Note – In the example `probe-scsi-all` output, the disk installed in HDD slot 0 has a `PhyNum` value of `0`, and the `SASDeviceName` is `5000c5001cb4a637`, and a Target number of `9`.

```
ok probe-scsi-all
/pci@400/pci@2/pci@0/pci@e/scsi@0 <---- SAS Controller

FCode Version 1.00.54, MPT Version 2.00, Firmware Version 5.00.17.00

Target 9
  Unit 0   Disk   SEAGATE  ST930003SSUN300G 0868    585937500 Blocks, 300 GB
  SASDeviceName 5000c5001cb4a637  SASAddress 5000c5001cb4a635  PhyNum 0
Target a
  Unit 0   Removable Read Only device   TEAC    DV-W28SS-R      1.0C
  SATA device  PhyNum 7
Target b
  Unit 0   Disk   SEAGATE  ST930003SSUN300G 0868    585937500 Blocks, 300 GB
  SASDeviceName 5000c5001cb477cb  SASAddress 5000c5001cb477c9  PhyNum 1
Target c
  Unit 0   Disk   SEAGATE  ST930003SSUN300G 0868    585937500 Blocks, 300 GB
  SASDeviceName 5000c5001cb47f93  SASAddress 5000c5001cb47f91  PhyNum 2
Target d
  Unit 0   Disk   SEAGATE  ST930003SSUN300G 0868    585937500 Blocks, 300 GB
  SASDeviceName 5000c5001cb47f7f  SASAddress 5000c5001cb47f7d  PhyNum 3
Target e
  Unit 0   Disk   HITACHI  H103030SCSUN300G A2A8    585937500 Blocks, 300 GB
  SASDeviceName 5000cca00a7dfde0  SASAddress 5000cca00a7dfde1  PhyNum 4
Target f
```

```
  Unit 0   Disk   HITACHI  H103030SCSUN300G A2A8    585937500 Blocks, 300 GB
  SASDeviceName 5000cca00a7e1a18  SASAddress 5000cca00a7e1a19  PhyNum 5


/pci@400/pci@1/pci@0/pci@b/pci@0/usb@0,2/hub@2/hub@3/storage@2
  Unit 0   Removable Read Only device    AMI     Virtual CDROM   1.00
```

The following `probe-scsi-all` example output shows a RAID configuration. The RAID volume's `VolumeDeviceName` is `3ce534e42c02a3c0.`

```
ok probe-scsi-all
/pci@400/pci@2/pci@0/pci@e/scsi@0

FCode Version 1.00.54, MPT Version 2.00, Firmware Version 5.00.17.00

Target 9
  Unit 0   Disk   SEAGATE  ST930003SSUN300G 0868    585937500 Blocks, 300 GB
  SASDeviceName 5000c5001cb4a637  SASAddress 5000c5001cb4a635  PhyNum 0
Target a
  Unit 0   Removable Read Only device   TEAC    DV-W28SS-R      1.0C
  SATA device  PhyNum 7
Target d
  Unit 0   Disk   SEAGATE  ST930003SSUN300G 0868    585937500 Blocks, 300 GB
  SASDeviceName 5000c5001cb477cb  SASAddress 5000c5001cb477c9  PhyNum 1
Target e
  Unit 0   Disk   SEAGATE  ST930003SSUN300G 0868    585937500 Blocks, 300 GB
  SASDeviceName 5000c5001cb47f93  SASAddress 5000c5001cb47f91  PhyNum 2
Target f
  Unit 0   Disk   SEAGATE  ST930003SSUN300G 0868    585937500 Blocks, 300 GB
  SASDeviceName 5000c5001cb47f7f  SASAddress 5000c5001cb47f7d  PhyNum 3
Target 389 Volume 0
  Unit 0   Disk   LSI      Logical Volume   3000    583983104 Blocks, 298 GB
  VolumeDeviceName 3ce534e42c02a3c0  VolumeWWID 0ce534e42c02a3c0

/pci@400/pci@1/pci@0/pci@b/pci@0/usb@0,2/hub@2/hub@3/storage@2
 Unit 0   Removable Read Only device    AMI     Virtual CDROM   1.00
```

Oracle Solaris Jumpstart Examples

The following Oracle Solaris Jumpstart profile example shows how to use the WWID syntax when installing the OS on a specific disk drive. The `SASDeviceName` is taken from the previous six-drive configuration listing.

Note – The Oracle Solaris syntax rules require all alpha characters in the WWID be capitalized.

```
#
install_type flash_install
boot_device c0t5000C5001CB4A637d0s0 preserve

archive_location nfs
129.148.94.249:/export/install/media/solaris/builds/s10u9/flar/latest.flar

# Disk layouts
#
partitioning explicit
filesys rootdisk.s0         free /
filesys rootdisk.s1         8192 swap
```

The following Oracle Solaris Jumpstart profile example shows how to use the WWID syntax when installing the OS on a RAID volume. The `VolumeDeviceName` is taken from the previous RAID `probe-scsi-all` example.

```
#
install_type flash_install
boot_device c0t3CE534E42C02A3C0d0s0 preserve

archive_location nfs
129.148.94.249:/export/install/media/solaris/builds/s10u9/flar/latest.flar

# Disk layouts
#
partitioning explicit
filesys rootdisk.s0         free /
filesys rootdisk.s1         8192 swap
```

Interactive Installation Example

In an interactive install, you will be asked to specify one or more disks as the targets for the OS installation. The purpose of this step is to ensure that enough disk capacity is being provided for the installation. For this step, specify the disk with the WWID value corresponding to the drive on which you want to install the software.

These WWID values are illustrated in the following interactive example, which is based on the same six-disk environment used in the previous examples. The drive selected as the install target is located in HDD slot 0—the default OBP location.

Note – If some other disk is preferred, you can specify it instead of the one in HDD slot 0.

```
_ Select Disks_____________________________________________________________________

On this screen you must select the disks for installing Solaris software. Start
by looking at the Suggested Minimum field; this value is the approximate space
needed to install the software you've selected. Keep selecting disks until the
Total Selected value exceeds the Suggested Minimum value.
NOTE: ** denotes current boot disk

Disk Device                                                    Available Space
================================================================================
[ ]    c0t5000C5001CB477CBd0                                   286090 MB
[ ]    c0t5000C5001CB47F7Fd0                                   286090 MB
[ ]    c0t5000C5001CB47F93d0                                   286090 MB
[X]    c0t5000C5001CB4A637d0                                  286090 MB  (F4 to edit)
[ ]    c0t5000CCA00A7DFDE0d0                                   286090 MB
[ ]    c0t5000CCA00A7E1A18d0                                   286090 MB


                  Total Selected: 286090 MB
                Suggested Minimum:   5032 MB


________________________________________________________________________________
  Esc-2_Continue    F3_Go Back    F4_Edit    F5_Exit    F6_Help
```

`sas2ircu` Warning Message That RAID Volume Sizes Other Than "MAX" Are Not Supported Needs Clarification (CR 6983210)

If you attempt to create a RAID volume smaller than MAX (the entire available space), the following messages are displayed:

```
You are about to create an IR volume.

WARNING: Proceeding with this operation may cause data loss or data
corruption. Are you sure you want to proceed (YES/NO)? yes

WARNING: Volume created with size other than "MAX" is not supported.
```

```
Do you want to continue with volume creation (YES/NO)? n
SAS2IRCU: you must answer "YES" or "yes" to proceed; operation aborted!
SAS2IRCU: Error executing command CREATE.
```

While it is true that RAID volumes smaller than MAX are not supported, if you want to create a volume below MAX size for non-production use, the software will allow you to do so. This ability is not clear from the message.

Workaround: Ignore the warning messages and answer yes for the question: "Do you want to continue with volume creation (YES/NO)?"

Multiple Uncorrectable Errors Might Cause an Unexpected `bad kernel MMU` Panic (CR 6947664)

If your server generates multiple uncorrectable errors, the server might halt with a `bad kernel MMU miss` panic.

Workaround: Install the latest compatible version of the 144488-04 patch. You can download this patch from the My Oracle Support web site:

`https://support.oracle.com/`

If your system still experiences problems after installing the patch, contact your service representative for assistance.

Gigabit Ethernet (`nxge`) Driver Not Loading on Systems With Oracle Solaris 10 10/09 OS and Solaris 10 9/10 Patch Bundle (CR 6995458)

If you installed the Oracle Solaris 10 10/09 OS and the Solaris 10 9/10 Patch Bundle on the server, the 10/1 Gigabit Ethernet (`nxge`) driver will not attach to 10 GbE devices.

Workaround: Add the following line to the `/etc/driver_aliases` file:

```
nxge "SUNW,niusl-kt"
```

Then reboot the server and configure the Gigabit Ethernet devices normally.

Cannot Boot Oracle Solaris OS 10 10/09 OS DVD From the Internal DVD Drive

You cannot use the built-in DVD drive to boot an Oracle Solaris 10 10/09 DVD.

Workaround: To boot the Oracle Solaris 10 10/09 DVD, use an external DVD drive connected to one of the rear ports on the server. You can also use the Oracle ILOM Remote Console to boot a networked DVD drive or ISO image remotely. Refer to the Oracle ILOM documentation for instructions on using the Oracle ILOM Remote Console.

`fault.memory.memlink-uc` Interconnect Fault Did Not Cause Panic as Stated by Knowledge Article (CR 6940599)

When a `fault.memory.memlink-uc` interconnect fault is detected, the system should shut down to protect memory integrity. On intermittent occasions, this fault has been reported during boot operations without the system shutting down.

Although it is possible that this irregular behavior indicates that the system was able to recover from the memory link error and restore a healthy boot-up state, the safest course is to perform a power-down/power-up sequence.

Recovery: Power cycle the system.

`prtpicl` Command Does Not Display Drive Information (CR 6963594)

On previous systems, the `prtpicl -v` command will display the state, location, and device paths for the system drives under a `disk_discovery` heading. On SPARC T3 systems, the `prtpicl` command will no longer display this drive information.

Spurious Error Message During Initial Oracle Solaris OS Installation (CR 6971896)

The miniroot is a bootable root file system that includes the minimum Oracle Solaris OS software required to boot the server and configure the OS. The miniroot runs only during the installation process.

When the server boots the miniroot for the initial configuration, you might see the following messages in the system console:.

```
Fatal server error:
InitOutput: Error loading module for /dev/fb

giving up.
/usr/openwin/bin/xinit:  Network is unreachable (errno 128):
unable to connect to X server
/usr/openwin/bin/xinit:  No such process (errno 3):  Server error.
```

The messages indicate the Xsun server in the Oracle Solaris OS miniroot cannot find a supported driver for the AST graphics device in the service processor. These messages are fully expected, as the miniroot contains only the Xsun environment, and the AST framebuffer (`astfb`) is supported only in the Xorg environment. The Xorg environment is included in the installed system, so the graphics device may be used when running the installed Oracle Solaris OS.

Workaround: You can safely ignore this message.

Spurious Interrupt Message in System Console (CR 6963563)

During the normal operation of the server, and when running the Oracle VTS system exerciser, you might see the following message in the system console:

```
date time hostname px: [ID 781074 kern.warning] WARNING: px0: spurious
interrupt from ino 0x4
date time hostname px: [ID 548919 kern.info] ehci-0#0
date time hostname px: [ID 100033 kern.info]
```

Workaround: You can safely ignore this message.

SP Unavailable Error Report Event (ereport) Not Generated for a Degraded Service Processor (CR 6978171)

The following error report event (ereport) is generated if the service processor is operating in a degraded state (ereport.fm.fmd.module):

```
Aug 18 2010 08:47:32.905536867 ereport.fm.fmd.module
nvlist version: 0
        version = 0x0
        class = ereport.fm.fmd.module
        detector = (embedded nvlist)
        nvlist version: 0
                version = 0x0
                scheme = fmd
                authority = (embedded nvlist)
                nvlist version: 0
                        version = 0x0
                        product-id = sun4v
                        server-id = wgs94-63
                (end authority)

                mod-name = etm
                mod-version = 1.2
        (end detector)

        ena = 0x2653413e3403001
        msg = error: bad conn open during ver negot: errno 5
        __ttl = 0x1
        __tod = 0x4c6bd664 0x35f96563
```

A degraded service processor should also generate the following ereport, but it is not generated currently:

ereport.chassis.sp.unavailable

To view ereport events, use the fmdump -eV command. Refer to the fmdump(1M) man page for instructions.

e1000g Driver Generates ereports When Installing Oracle Solaris OS Over a Sun PCIe Dual Gigabit Ethernet Adapter (CR 6958011)

When installing the Oracle Solaris OS on domains controlled by way of Sun PCIe Dual Gigabit Ethernet (UTP or MMF) adapters, the e1000g Gigabit Ethernet driver will generate error report events (ereports) on the static direct I/O (SDIO) and primary domains. See the following for an example ereport:

```
Jun 01 2010 15:35:26.512234400 ereport.io.pciex.tl.ca
nvlist version: 0
        ena = 0x298a9f62243802
        detector = (embedded nvlist)
        nvlist version: 0
                scheme = dev
                device-path = /pci@400/pci@1
        (end detector)

        class = ereport.io.pciex.tl.ca
        dev-status = 0x2
        ue-status = 0x8000
        ue-severity = 0x62030
        adv-ctl = 0xf
        source-id = 0x600
        source-valid = 1
        __ttl = 0x1
        __tod = 0x4c058b2e 0x1e8813a0
```

The e1000g driver will also generate ereport.io.pci.sec-sta and ereport.io.pciex.tl.ur ereports.

Workaround: You can safely ignore these ereports and continue to install the Oracle Solaris OS on the SDIO domain.

On-Board Ethernet Devices Fail to Connect After a Faulty CPU Reconfigures Back to the Host (CR 6984323)

When rebooting the server after a failed or disabled CPU reconfigures back to the host, the onboard Gigabit Ethernet connections will not connect to network. The following example messages will display on the system console:

```
igb0: DL_ATTACH_REQ failed: DL_SYSERR (errno 22)
igb0: DL_BIND_REQ failed: DL_OUTSTATE
igb0: DL_PHYS_ADDR_REQ failed: DL_OUTSTATE
igb0: DL_UNBIND_REQ failed: DL_OUTSTATE
Failed to plumb IPv4 interface(s): igb0
```

Workaround: Reboot the server two additional times. If the problem persists, contact your service representative for assistance.

Upgrading the Server Hardware Might Create Incorrect Device Instances (CR 6974219)

If you add hardware to a fully configured system, device (instance) names might not be correctly associated with the corresponding hardware components. This issue would prevent the system from operating properly.

Workaround: Reboot the server twice. If the problem persists, contact your service representative for assistance.

`hostconfig` Command Does Not Update CPU Serial Number in the Physical Resource Inventory Machine Descriptor (PRI MD) (CR 6989166)

When a CPU thread faults, the record of that fault is retained when the system reboots, even if the cause of the fault has been corrected. The presence of this record will cause the CPU thread to be off-lined when the system reboots.

Recovery: Enable the faulted thread(s) explicitly.

False `nxge` Warning Messages (CR 6938085)

During the normal operation of your server, you might see warning messages like the following in the system console:

```
date time machinename nxge: [ID 752849 kern.warning] WARNING: nxge0 : nxge_hio_init:
hypervisor services version 2.0
```

These messages are not true warning messages. These Gigabit Ethernet driver (`nxge`) messages display the version number of the hypervisor since the driver can operate on multiple hypervisor versions. These messages should labeled as a INFO or NOTICE messages instead of WARNING messages.

Workaround: You can safely ignore these messages.

`mptsas request inquiry page 0x89 for SATA target:a` Failed Messages (CR 6986482)

Error messages indicating a failed inquiry to page 0x89 for a SATA target might be logged when the system boots. The following example displays the types of messages that might be logged in the `/var/adm/messages` file.

```
date time machinename genunix: [ID 936769 kern.info] mpt_sas5 is
/pci@400/pci@2/pci@0/pci@e/scsi@0/iport@80
date time machinename genunix: [ID 408114 kern.info]
/pci@400/pci@2/pci@0/pci@e/scsi@0/iport@80 (mpt_sas5) online
date time machinename scsi: [ID 243001 kern.warning] WARNING:
/pci@400/pci@2/pci@0/pci@e/scsi@0 (mpt_sas0):
date time machinename mptsas request inquiry page 0x89 for SATA target:a failed!
```

Workaround: You can safely ignore these messages.

`qlge` Driver Panics When the MTU Is Set to 9000 (CR 6964519)

The `qlge` 10 Gigabit Ethernet driver might panic the system when memory allocation errors occur. These memory allocation errors have been seen when the `qlge` driver's maximum transmission unit (MTU) is set to 9000. The errors have not been seen when the MTU is set to 1500 and there are no more than three Sun Storage 10 GbE FCoE Converge PCIe Network Adapters installed.

Workaround: Set the MTU setting to 1500 and limit the number of Sun Storage 10 GbE FCoE Converge PCIe Network Adapters to no more than three.

Missing Interrupt Causes USB Hub Hotplug Thread to Hang, Resulting In Process Hangs (CR 6968801)

When running the Oracle VTS software on SPARC T3 series servers, it is possible (although rare) for a Oracle VTS test to hang. If this test process hangs, the hung process might cause other processes and commands to hang, including the fault management configuration tool (`fmadm`) and the print system configuration command (`prtconf`). These hung processes cannot be killed.

Workaround: Reboot the system. If the problem repeats, contact your service representative for assistance. Avoid running the Oracle VTS software in production environments.

Oracle Enterprise Manager Process Hangs and Becomes Unkillable (CR 6994300)

The Oracle Enterprise Manager Java process can hang and become unkillable on the server. When the Enterprise Manager process hangs, it continues to listen on its Web UI port, which makes the process unkillable. This problem has been seen on servers running both the Java SE 5.0 version that is bundled with Oracle Database software and with the most recent downloadable Java SE 6 Update 22 version.

Workaround: Reboot the system. If the problem repeats, contact your service representative for assistance.

`cfgadm` Command Takes a Long Time to Print Output (CR 6937169)

The `cfgadm`(1M) command for configuring or unconfiguring hotplug devices takes a long time to complete. For example, the `cfgadm -al` command could take more than five minutes before it lists the attachment points for all the hotplug devices.

Adding a PCIe End-Point Device to a Guest Domain Might Result in a Hypervisor Abort and Shutdown (CR 6999227)

Your Oracle VM Server for SPARC 2.0 system might encounter one of the following problems if you reboot the root domain after adding a PCIe end-point device to a guest domain:

- Experience a hypervisor abort and shut down
- Fail to return to the OpenBoot PROM
- Fail to return to the Oracle Solaris OS

These problems only occur if you did not start the guest domain after adding the PCIe device. By not starting the guest domain, previously configured virtual interfaces might not have been properly cleaned up.

Workaround: If these problems occur, restart the system. To avoid these problems, start a guest domain after adding an I/O resource to it. If you do not want the domain to be active at this time, stop the guest domain after it has been started.

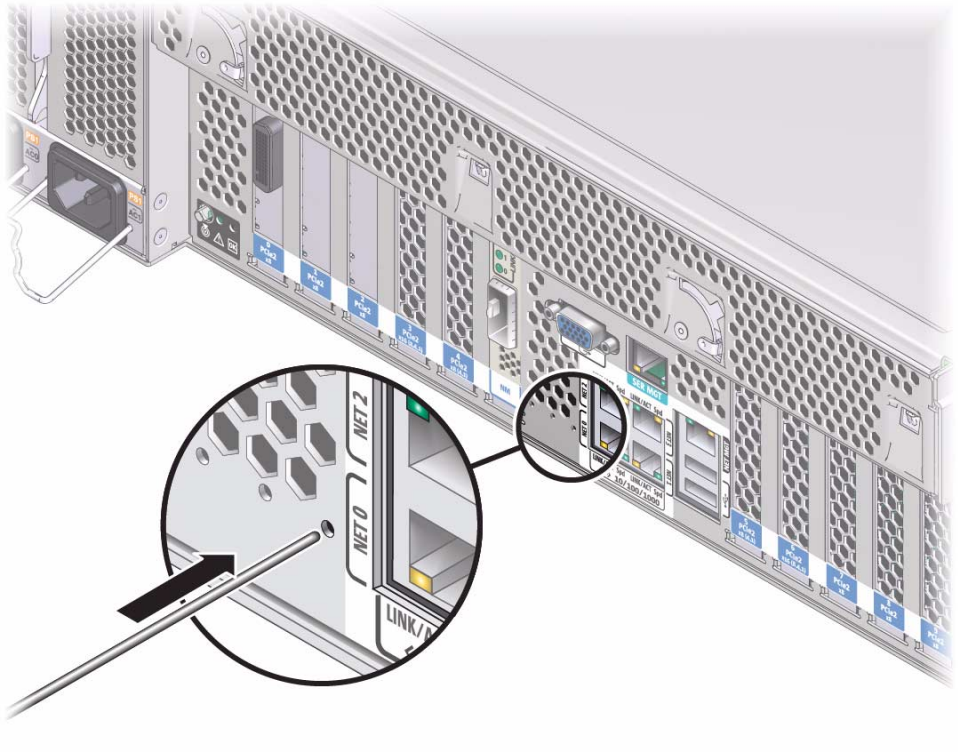
Firmware Issues

This section describes issues related to the system firmware.

Proving Physical Presence When Recovering a Lost Oracle ILOM SP Password

The Oracle ILOM documentation includes instructions for recovering a lost SP password. During the procedure, you are instructed to log in to the SP over a serial connection using the `default` user account. You will then be asked to prove that you are physically at the system.

To prove physical presence, insert an unbent paperclip into the pinhole to the left of the NET0 Ethernet port.



After proving that you are physically at the system, continue with the procedure to recover the lost SP password. Refer to the Oracle ILOM documentation for the complete instructions.

Oracle ILOM `break` Followed By OBP `sync` Will Result in an Aborted Panic Dump (CR 6923763)

If you shut down the system using the following Oracle ILOM `break` command:

```
-> set /HOST send_break_action=break
```

And then try to force the system to create a crash dump file using the OpenBoot PROM `sync` command, you will timeout and you will see a `dump aborted` error message. A crash dump file will not be saved.

Workaround: Use the following Oracle ILOM command to shut down the system and save a crash dump file:

```
-> set /HOST send_break_action=dumpcore
```

`sas2flash` Utility Fails When Six or More Sun Storage 6 Gb SAS RAID PCIe HBAs, External, Are Installed (CR 6983246)

The LSI Corporation `sas2flash` utility fails when there are six or more Sun Storage 6 Gb SAS RAID PCIe HBAs, External, installed in the system. For example, when attempting to list the HBAs using the `sas2flash -listall` command, you might see the following error message:

```
6   SAS2008(??)         ERROR: Failed to Upload Image!
-----------  ---------- ERROR: Failed to Upload Image!
```

Workaround: Install five or less Sun Storage 6 Gb SAS RAID PCIe HBAs, External, in the system.

Oracle Solaris OS Fails to Update EEPROM for Automatic Rebooting When `diag-switch?` is Set to `true` (CR 6982060)

When installing the Oracle Solaris OS to a device when the OPB `diag-switch?` parameter is set to `true`, the Oracle Solaris OS installer fails to update the `boot-device` parameter with the new device path where the OS was installed. Therefore, this new device path will not be used during the subsequent automatic system reboots.

When attempting to install the Oracle Solaris OS to a device when the `diag-switch?` parameter is set to `true`, the server will display the following error message and you will not be able to reboot from the device:

```
Installing boot information
        - Installing boot blocks (cxtxdxsx)
        - Installing boot blocks (/dev/rdsk/cxtxdxsx)
        - Updating system firmware for automatic rebooting
WARNING: Could not update system for automatic rebooting
```

On previous systems, the OBP `diag-device` parameter used to set the new device path to the boot device when the `diag-switch?` parameter was set to `true`. On SPARC T3 systems, the `diag-device` parameter is no longer supported and the Oracle Solaris OS installer warns that setting the OBP `boot-device` parameter is not possible.

Workaround: From the Oracle ILOM prompt, set the OBP `diag-switch?` parameter to `false`:

```
-> set /HOST/bootmode script="setenv diag-switch? false"
```

Alternatively, you can set this parameter at the OBP `ok` prompt:

```
ok setenv diag-switch? false
```

Four or Fewer Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapters Are Supported (CR 6977073)

On servers with more than four Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile adapters, the 10 GbE driver (`ixgbe`) cannot attach all of the available 10 GbE ports. The `ixgbe` driver currently uses too much direct memory access (DMA) memory and input/output memory management unit (IOMMU) space per driver instance. Therefore, on systems with more than four 10 GbE cards, the `ixgbe` driver runs out of memory and will fail to attach all of the available 10 GbE ports.

Workaround: Install four or fewer Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile adapters into the server.

Additionally, you must install the Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile adapters into specific server PCIe2 slots. Install no more than two adapters in the following even-numbered PCIe2 slots: 0, 2, 4, 6, 8. Install no more than two additional adapters into the odd-numbered PCIe2 slots: 1, 3, 5, 7, and 9.

Memory Allocation Issues With Multiple Emulex 8 Gb FC HBAs in an Attached Magma EB7-X8G2-RAS I/O Box (CR 6982072)

When four or more Sun StorageTek 8 Gb FC PCI-Express HBAs, Emulex, are used with a Magma EB7-X8G2-RAS I/O expansion box, memory allocation errors might occur. The following examples show the types of messages that might be logged in the `/var/adm/messages` file when experiencing these memory allocation issues.

```
date time machinename emlxs: [ID 349649 kern.info] [13.02D8]emlxs19:
NOTICE: 200: Adapter initialization. (Firmware update not needed.)
date time machinename emlxs: [ID 349649 kern.info] [13.02D8]emlxs24:
NOTICE: 200: Adapter initialization. (Firmware update not needed.)
date time machinename emlxs: [ID 349649 kern.info] [13.02D8]emlxs22:
NOTICE: 200: Adapter initialization. (Firmware update not needed.)
date time machinename emlxs: [ID 349649 kern.info] [13.02D8]emlxs20:
NOTICE: 200: Adapter initialization. (Firmware update not needed.)
date time machinename emlxs: [ID 349649 kern.info] [ B.1CE4]emlxs22:
ERROR: 301: Memory alloc failed. (ddi_dma_addr_bind_handle failed:
status=ffffffff count=1 size=400 align=20 flags=11)
date time machinename emlxs: [ID 349649 kern.info] [ B.1CE4]emlxs20:
ERROR: 301: Memory alloc failed. (ddi_dma_addr_bind_handle failed:
status=ffffffff count=1 size=400 align=20 flags=11)
```

Workaround: Install no more than three Sun StorageTek 8 Gb FC PCI-Express HBAs, Emulex in a Magma EB7-X8G2-RAS I/O expansion box connected to the system.

System Hangs During Boot Process (CR 6956116)

Under rare conditions, the system might hang during the boot process after only displaying the SunOS 5.10 banner message. The SunOS banner message is similar to the following:

```
SunOS Release 5.10 Version 6956116_142909-17 64-bit
Copyright (c) 1983, 2010, Oracle and/or its affiliates. All rights reserved.
```

Note – This condition has only been observed in simulation environments and it has not yet been seen on any production servers.

Workaround: Reboot the system. If another hang occurs, contact your service representative for assistance.

cdrom Device Alias Missing From OpenBoot PROM (CR 7019439)

The cdrom device alias is missing from the SPARC T3-2 server OpenBoot PROM (OBP). You cannot currently use the boot cdrom OBP command to boot a disk in the server's DVD drive. The cdrom device alias will be added in a future firmware update.

Workaround: You can use the dvd device alias to boot either a CD-ROM or a DVD-ROM:

```
ok boot dvd
```

You can also use the nvalias OBP command create a new cdrom device alias:

```
ok nvalias cdrom  /pci@400/pci@2/pci@0/pci@e/scsi@0/disk@p7
ok boot cdrom
```

Product Documentation Errata

These is no known issues related to Oracle's SPARC T3-2 documentation.

Note – If you install optional hardware components or software packages, refer to the component or software documentation for the latest information about their required patches and updates.
