SPARC S7-2 and SPARC S7-2L Servers Product Notes

Part No: E73198-16
October 2020

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Contents

Using This Documentation

- **Overview** – Contains late-breaking information for Oracle's SPARC S7-2 and SPARC S7-2L servers.
- **Audience** – Technicians, system administrators, and authorized service providers.
- **Required knowledge** – Advanced experience troubleshooting and replacing hardware.

Product Documentation Library

Documentation and resources for these products and related products are available at http://www.oracle.com/goto/s7-2/docs and http://www.oracle.com/goto/s7-2l/docs.

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Late-Breaking Information

These topics provide important information and late-breaking news about the server. Always check My Oracle Support for the latest updates at `https://support.oracle.com`.

Preinstalled Software

Software	Location	Description
Oracle Solaris 11.3 SRU9 OS	OS is installed on drive 0, using a ZFS file system.	Host OS.
Oracle VM Server for SPARC 3.4	`/opt/SUNWldm`	Manages logical domains. This software component is part of the Oracle Solaris 11 OS distribution.
Oracle VTS 8.1.0	`/usr/sunvts`	Provides hardware validation tests.

Software	Location	Description
Hardware Management Pack 2.3.5.6	`/opt/sun-ssm`	This software component is part of the Oracle Solaris 11 OS distribution. Provides cross platform components to help you manage and configure Oracle's Sun servers. This software component is part of the Oracle Solaris 11 OS distribution.

The preinstalled OS is ready to be configured at the appropriate point when you first apply power to the server.

Mandatory package updates might not be preinstalled. Ensure that you obtain and install all mandatory updates before you put the server into production. See "Mandatory Oracle Solaris 11 OS Package Updates" on page 14.

Refer to the Oracle Solaris documentation for instructions on installing and configuring the Oracle Solaris OS.

You can reinstall the OS along with mandatory package updates or patches instead of using the preinstalled OS. See "Minimum Supported Versions of the Firmware, OS, and Software" on page 13. If you reinstall the OS, confirm your system is not impacted by "S7-2L 12- and 24-Disk Backplane Systems Unable to Enumerate Disks (18712182)" on page 28.

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

Some product features are enabled only when the latest versions of patches or firmware are installed. In order to retain optimal performance, security, and stability, installing the latest available patches or firmware is required.

Confirm that the latest server firmware version is installed.

1. **Check the system firmware.**

   - **From the Oracle ILOM web interface, choose System Information → Summary, then view the property value for the System Firmware Version in the General Information table.**

   - **From the command prompt, type:**

```
-> show /HOST
```

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

   See "Preinstalled Software" on page 11.

3. **If required, download the latest available software release version from My Oracle Support at:**

   `https://support.oracle.com`

4. **If required, update the server firmware.**

   Refer to the information about performing firmware updates in the *Oracle ILOM Administrator's Guide for Configuration and Maintenance*. Ensure that you perform the preparatory steps described in that document before updating the firmware.

Minimum Supported Versions of the Firmware, OS, and Software

You are required to install the latest available and supported versions of the system firmware, OS, and patches, for optimal performance, security, and stability. See "IMPORTANT - Install Latest OS Updates, Patches, and Firmware" on page 12.

Oracle Solaris 11 is the recommended OS for the SPARC S7-2 series servers. Oracle Solaris 11 provides simplified installation and maintenance, enhanced virtualization capabilities, and performance improvements. A more detailed list of Oracle Solaris 11 advantages is available at `http://www.oracle.com/technetwork/server-storage/solaris11/overview/index.html`.

Note - If you configure the server with Oracle VM Server for SPARC, you can install various combinations of the minimum (or later) versions of the OS. For example, use Oracle Solaris 11.3 SRU 9 for the control domain, and Oracle Solaris 10 1/13 in a guest domain.

Software	Minimum Supported Versions
Oracle System Firmware	9.7.2 or later for systems running Aura6 PCIe cards. Firmware 9.7.2. includes Oracle ILOM 3.2.6. For systems running Aura7 PCIe cards, 9.8.3 or later is required, and you must also install the `Hardware_Programmables-1.0.14-SPARC_T7-1+T7-2+T7-4+S7-2+S7-2L.pkg` file.
Oracle Solaris 11	Oracle Solaris 11.3 SRU 9.

Software	Minimum Supported Versions
	For the control domain, guest domains, and nonvirtualized configurations, includes these software components: ■ Oracle VM Server for SPARC ■ Oracle VTS Also see “Mandatory Oracle Solaris 11 OS Package Updates” on page 14.
Oracle Solaris 10 OS	Oracle Solaris 10 1/13. *For virtual guest domains only.* Includes Oracle VTS 7 PS15. To use with Oracle VM Server 3.4, see the required patches listed in the "Fully Qualified Oracle Solaris OS Versions" section of the *Oracle VM Server for SPARC 3.4 installation Guide*.
Java Development Kit	Java applications running on this product require one of these minimum JDK versions: ■ JDK 11 or higher ■ JDK 1.8.0_60 b27 or higher ■ JDK 1.7.0_85 b33 or higher For production use, Oracle recommends using the latest available JDK and JRE versions, and does not recommend using JDK versions that are no longer updated and are in sustaining support. For details, refer to `https://www.oracle.com/technetwork/java/javase/overview/index.html` For information about running older versions of the JDK on SPARC servers, refer to Doc ID 2564392.1 on My Oracle Support.
Oracle Database Enterprise Edition	12.1.0.2, plus required bundle patch. Required on Oracle Solaris 11.3 for in-memory features.

Note - Some PCIe cards and devices have other minimum requirements. For details, including what is required for a device to be bootable, refer to the product notes and other documentation for that device.

Mandatory Oracle Solaris 11 OS Package Updates

If you reinstall the OS, you might need to install certain package updates before you put the server and optional hardware or software components into production. If you reinstall the OS, confirm your system is not impacted by “S7-2L 12- and 24-Disk Backplane Systems Unable to Enumerate Disks (18712182)” on page 28.

Install the most recent Oracle Solaris 11.3 Support Repository Update (SRU). Taking this action ensures that your server has the latest software for the best performance, security, and stability.

Use the `pkg info entire` command to display which SRU is currently installed on your server.

Use the `pkg` command or the package manager GUI to download any available SRUs from `https://pkg.oracle.com/solaris/support`.

Note - To access the Oracle Solaris 11 package update repository, you must have an Oracle support agreement that enables you to install a required SSL certificate and support key.

See "Installing the OS" in the server's installation guide.

Mandatory Oracle Solaris 10 1/13 Patches

This version of the OS is only supported in virtual guest domains.

Installation Order	OS and Patches
1	Oracle Solaris 10 1/13.
2	These mandatory patches: ■ All patches up to October 2015 or later. ■ KU150400-29. To install Oracle Solaris 10 1/13, you must use an image with the miniroot patched with KU150400-29, or higher. The correct image is provided in MOS patch 26032848. This image contains the original Oracle Solaris 10 1/13 software, and a miniroot image which includes kernel patch 150400-48. Downloading and using this image enables the installation of Oracle Solaris 10 1/13 on guest domains via jumpstart without the need to manually patch the packed miniroot. (optional) If, for some reason, you do not want to use the image provided in the MOS patch, you can use the prior method to manually patch the packed miniroot. You must also use this method to patch versions of Oracle Solaris older than Oracle Solaris 10 1/13. Refer to MOS article 1501320.1 for instructions on how to patch a packed miniroot at My Oracle Support (`https://myoraclesupport.com`). You can use the Oracle Solaris 10 JumpStart technology and finish scripts to patch the installed image. If you are unfamiliar with the Oracle Solaris 10 JumpStart technology, contact your support

Installation Order	OS and Patches
	representative or Oracle Support for documentation that describes how to configure an Oracle Solaris 11 zone as an Oracle Solaris 10 1/13 JumpStart server.

What's New About SPARC S7-2 and SPARC S7-2L Servers

The following features are new or changed for this hardware release:

- **S7 Processor** - extends the SPARC portfolio to provide enterprise class performance and Software in Silicon features in significantly lower-cost form factors. The S7 processor provides a high level of system integration, excellent throughput, low memory latency, and high bandwidth IO interconnect.
- **Oracle ILOM Remote System VNC Console** - enables you to remotely redirect the host server keyboard, video, and mouse (KVM) events to a graphical shared desktop display. This functionality replaces the older Oracle ILOM Remote System Console and Oracle ILOM Storage Redirection CLI features, and provides video support for the server consoles.

  For more information, see the "Oracle ILOM Remote KVMS Consoles Supported" section of the *Oracle ILOM Administrator's Guide for Configuration and Maintenance Firmware Release 3.2.x*.
- **Alert Class Faults** - a new diagnostic class called *alert* is now available. Alerts are less severe than faults or defects. They are used for issues when no hardware replacement is required, and they will clear themselves when the error condition is no longer present. Use `fmadm faulty` to show all error classes, use `fmadm faulty list-alert` to show just alerts.
- **Hardware RAID Support** - unlike some past SPARC servers, these servers do not provide built-in hardware RAID support. You cannot use the hardware RAID functions that were provided through Fcode-based RAID utilities and commands (such as `create-raid1-volume`). In place of hardware RAID, consider using the ZFS capabilities provided in Oracle Solaris. For information about creating Oracle Solaris ZFS storage pools and root pools, refer to Managing ZFS File Systems in Oracle Solaris 11.3 at http://docs.oracle.com/cd/E53394_01.

Oracle Solaris Fallback Miniroot Image Must Be Installed on a New SP

When you replace the motherboard in the server, you must install a fallback miniroot image on the new SP that corresponds to the version of Oracle Solaris that you are using. The miniroot image is not part of the OS or firmware image that you install on the server. You must also

update the miniroot image when you install a new version of Oracle Solaris on the server, so the fallback image matches that version and SRU of Oracle Solaris.

Errors will occur if the fallback miniroot is missing from the SP or if the version does not match the OS installed on the server. For example, if the miniroot is missing, output from the Oracle ILOM `show faulty` command will include `defect.ilom.fs.miniroot-missing`.

You must download the fallback miniroot image for your hardware and your Oracle Solaris version from My Oracle Support at `https://support.oracle.com`. Then follow the procedure "How to Update the Fallback Image" in *Booting and Shutting Down Oracle Solaris 11.3 Systems*.

See additional information about use of the fallback miniroot on the SPM in "Uploading a New Solaris Miniroot Package From SP to Host" in *Oracle ILOM Administrator's Guide for Configuration and Maintenance*.

Deprecation Notice for IPMI 2.0 Management Service

Present Behavior: IPMI 2.0 Management Sessions - Enabled (default). Support for IPMI 2.0 client interfaces.

Future Behavior: The following IPMI Management Service changes will occur in future Oracle ILOM firmware releases after firmware version 3.2.7.

- First feature change: Oracle ILOM will add a new client interface as an alternative to the IPMI 2.0 Client interface.
- Second feature change: The default configuration property for IPMI 2.0 Sessions will change from Enabled to Disabled in a future release. Clients relying on IPMI 2.0 will be unable to communicate with Oracle ILOM unless the configuration property for IPMI 2.0 Sessions is manually enabled.
- Third feature change: Removal of IPMI 2.0 client support. IPMI 2.0 clients will no longer be able to communicate with Oracle ILOM.

For future updates about IPMI Management Service support in Oracle ILOM, refer to the latest firmware release information in the *Oracle ILOM Feature Updates and Release Notes for Firmware 3.2.x*.

Deprecation Notice for Default Self-Signed Certificate

Present Behavior: An earlier version of the default SSL self-signed certificate is provided by Oracle ILOM.

Future Behavior: A newer version of the default SSL self-signed certificate will be provided in a future Oracle ILOM firmware release.

Impact to Customer Configuration:

After updating to a future firmware release, users connecting to Oracle ILOM through the web interface will need to accept a newer version of the default SSL self-signed certificate that is provided by Oracle ILOM. Customer provided SSL certificates will not be impacted by this change.

For future updates about the default SSL self-signed certificate that is provided by Oracle ILOM, refer to the latest firmware release information in the *Oracle ILOM Feature Updates and Release Notes for Firmware 3.2.x*.

Shipping SPARC S7-2 or SPARC S7-2L Servers In A Rack

If you plan to ship a SPARC S7-2 or SPARC S7-2L server in a rack, without another component beneath it, you must use the shipping bracket kit option (PN 7111917) to prevent system damage.

If you are planning to ship a SPARC S7-2L server with a 12 LFF drive backplane configuration in a rack, remove the drives prior to shipping. Use appropriate packaging to ship the drives separately.

Information for Shipping a SPARC S7-2 Server After a Disk Backplane Replacement

If you have replaced a disk backplane in a SPARC S7-2 server, then plan to ship that server, contact Oracle Service to obtain the clips required to properly secure the disk backplane during shipping.

Determine Correct Firmware for IO Devices

Some product features are enabled only when the latest versions of patches or firmware are installed. In order to retain optimal performance, security, and stability, installing the latest available patches or firmware is required. Confirm that the latest server firmware version is installed.

To easily determine the latest released version of supported firmware for available IO devices, locate the "IO Options Firmware 1.0" patch (patch number 25393974) on My Oracle Support (MOS).

This patch can be found in a “Product or Family (Advanced)” search, under the “Patches & Update” tab on MOS for any SPARC T7, S7 or M7 platform from Oracle. For example, a query for *SPARC S7-2L* will include *SPARC S7-2L IO Options Firmware 1.0*.

The patch only contains a README, with a table of available IO devices and a pointer to the latest supported firmware patch on MOS for each device.

▼ GFX 550e Graphics Card

Oracle has tested the Raptor GFX550e IHV graphics card (PN 19-0156-02) for use on the SPARC S7 servers with Oracle Solaris 11.3. Note that only one display option for SPARC S7 servers is supported at one time; either `Xorg` for local display or `Xvnc` for remote display. You must enable `Xorg` and disable `Xvnc` for the GFX550e graphics card to function properly in an SPARC S7 server.

To install the card on a SPARC S7 server, follow the directions in the *GFX Quick Installation Guide* that ships with the card, with these modifications:

1. **Install the correct driver.**
   The driver that ships with the card does not work with SPARC S7 servers.

   a. **Download the correct driver (`GFX550e_1.5.tar.Z`) from the TechSource website here: `http://www.eizorugged.com/support/drivers/index.html`.**

   b. **Install the driver using the instructions provided in the README file.**

2. **If not already installed, install the `solaris-desktop` package. Type:**

   ```
   # pkg install solaris-desktop
   ```

3. **After reboot, enable `Xorg` to display Oracle Solaris GUI on a local display.**

   - **If the Oracle Solaris OS installed is S11.3 SRU22 or previous, manually add the `ISVNCPLATFORM=false` setting to the `/usr/bin/Xserver` file as shown below.**

Note - This is a temporary workaround, not a supported solution, to enable `Xorg`. The supported solution to enable `Xorg` is available in S11.3 SRU23 or later, and is documented below.

---

a. **(Optional) Backup the `/usr/bin/Xserver` file before you modify it.**

   This will make it easier to enable VNC for remote display if you need that option in the future.

b. **Add the `ISVNCPLATFORM=false` setting to the `/usr/bin/Xserver` file just above the comment where the script checks to use `Xorg` or `Xvnc`, as shown below:**

```
...
 ...
 ISVNCPLATFORM=false

 # Check if this is a platform that should use Xvnc or Xorg.
 if [[ "${XSERVER}" == "/usr/bin/Xorg" ]] ; then
 ...
```

- **If the Oracle Solaris OS installed is S11.3 SRU23 or later, set the `svc:/application/x11/x11-server` SMF service `vncplatform_override` property to `true` as shown below.**

```
 # svccfg -s svc:/application/x11/x11-server setprop options/vncplatform_override =
boolean: true
   Note: vncplatform_override property needs to be set to false to revert to
default Xvnc mode.
```

4. **Reboot the server.**

Note - While using this graphics card on a SPARC S7 server and running `fbconfig`, you may see the following error message. It is safe to ignore this error.

```
# fbconfig -list
  Device File Name            Device Model     Config Program
  ----------------            ------------     --------------
  /dev/fbs/mko0                                program not available
```

Related Information

- For questions or support issues on the GFX 550e graphics card, contact hotline@techsource.com.
- Oracle Hardware Compatibility List (`http://www.oracle.com/webfolder/technetwork/hcl/data/components/details/techsource_inc/sol_11_2/10870.html`)

Known Issues

Always check My Oracle Support for the latest fixes and updates at `https://support.oracle.com`.

`iostat -E` Is Reporting Illegal Request Against eUSB Device (18745682)

If you run `iostat` and see this error message against the eUSB device (`Product: eUSB DISK`) , and there are no outstanding related FMA faults, you can safely ignore this message.

```
# iostat -En

    c2t0d0        Soft Errors: 0 Hard Errors:0 Transport Errors: 0
    Vendor: MICRON   Product: eUSB DISK  Revision: 1111 Serial No:
    Size: 2.03GB <2030043136 bytes>
    Media Error: 0 Device Not Ready: 0 No Device: 0 Recoverable: 0
    Illegal Request: 39 Predictive Failure Analysis: 0
```

This is a spurious error that does not impact the functionality of the system.

`boot-archive-update` Service Should Avoid Rebooting From Retained Memory (20956341)

When booting an Oracle Solaris system with the retained memory pseudo-device (for example, when the system is attempting to recover from a failed boot pool). The boot archive on the target boot environment might be out of sync. The boot archive SMF service will automatically rebuild the archive, then reboot. Instead of rebooting from the boot pool, the system erroneously attempts to reboot from the (now-nonexistent) retained memory device. This situation causes the reboot to fail, and the user is dropped to the `ok` prompt.

In order for this condition to occur, two situations are required:

- The boot archive on the target boot environment is out of sync.
- The system is booting with a boot archive stored in retained memory as a result of booting from the fallback image stored on the SP (OpenBoot `boot alias 'fallback-miniroot'`).

If this condition occurs, you will see this error:

```
    {0} ok boot fallback-miniroot NOTICE: Entering OpenBoot. NOTICE:
    Fetching Guest MD from HV. NOTICE: Starting additional cpus. NOTICE: Initializing
    LDC services. NOTICE: Probing PCI devices. NOTICE: Probing USB devices.
    NOTICE: Finished USB probing. NOTICE: Finished PCI probing.
    SPARC S7-2, No Keyboard Copyright (c) 1998, 2016, Oracle and/or its affiliates. All
    rights reserved. OpenBoot 4.40.2, 125.2500 GB memory installed, Serial #XXXXXXXXX.
    Ethernet address 0:10:e0:XX:XX:XX, Host ID: XXXXXXXX.


    Boot device: /@300/@1/@0/@2/@0/@1/@0,0  File and args: SunOS Release 5.11 Version
    11.3 64-bit Copyright (c) 1983, 2015, Oracle and/or its affiliates. All rights
 reserved.
    NOTICE: Configuring iSCSI to access the root filesystem... NOTICE: successfully
    copied and retained the boot_archive into memory, rebooting ...
```

```
rebooting... Resetting... NOTICE: Entering OpenBoot. NOTICE: Fetching
Guest MD from HV. NOTICE: Starting additional cpus. NOTICE: Initializing LDC
services. NOTICE: Probing PCI devices. NOTICE: Probing USB devices. NOTICE:
Finished USB probing. NOTICE: Finished PCI probing.
SPARC S7-2, No Keyboard Copyright (c) 1998, 2016, Oracle and/or its affiliates. All
rights reserved. OpenBoot 4.40.2, 125.2500 GB memory installed, Serial #XXXXXXXXX.
Ethernet address 0:10:e0:XX:XX:XX, Host ID: XXXXXXXX.


Boot device: /reboot-memory  File and args: SunOS Release 5.11 Version 11.3 64-bit
Copyright (c) 1983, 2015, Oracle and/or its affiliates. All rights reserved. NOTICE:
Configuring iSCSI to access the root filesystem...
An inconsistency in the boot archive was detected and the boot archive has been
successfully updated. Rebooting
syncing file systems... done rebooting... Resetting... NOTICE: Entering
OpenBoot. NOTICE: Fetching Guest MD from HV. NOTICE: Starting additional cpus.
NOTICE: Initializing LDC services. NOTICE: Probing PCI devices. NOTICE:
Probing USB devices. NOTICE: Finished USB probing. NOTICE: Finished PCI probing.
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rights reserved. OpenBoot 4.40.2, 125.2500 GB memory installed, Serial #XXXXXXXXX.
Ethernet address 0:10:e0:XX:XX:XX, Host ID: XXXXXXXX.


Boot device: /reboot-memory@0:nolabel  File and args: ERROR: /reboot-memory@0: No
reboot memory segment.
Evaluating:
Can't open boot device
{0} ok
```

Recovery: Type the `boot` command again at the `ok` prompt.

`sun4v_pcbe_enable` Warning Appears When Starting a Guest Domain Running Oracle Solaris 10 (21466955)

When running Oracle Solaris 10 in a guest domain, this message appears on the guest domain console upon start up:

```
Boot device: disk  File and args: -k
Loading kmdb...
SunOS Release 5.10 Version Generic_150400-20 64-bit
Copyright (c) 1983, 2014, Oracle and/or its affiliates. All rights reserved.
WARNING: sun4v_pcbe_enable: no HV API found
Hostname: ...
```

This message appears because the Oracle Solaris 10 version of `cpustat(1M)`, and other similar commands, cannot monitor the performance counters in the SPARC S7 processor.

Starting with Oracle Solaris 11.3, the `cpustat(1M)` command can monitor the performance counters in SPARC M7 and S7 processors.

`svc:/system/ocm:default` in Maintenance in Immutable Zone (22128313)

In immutable non-global zones, you might see this service in the maintenance state:

```
svc:/system/ocm:default (Oracle Configuration Manager (OCM)) State:
maintenance since October 30, 2015 12:32:56 AM UTC Reason: Method failed.
...
```

This message is harmless and will not impact the running of system. To see if this service is in maintenance, type:

```
# svcs -xv svc:/system/ocm:default
```

Workaround: To work around this issue, permanently disable the service in the immutable zone (only):

```
# svcadm disable svc:/system/ocm:default
```

With `PARALLEL_BOOT` Disabled, Unable to Stop Running Host After SP Reboot (22548014)

If you are rebooting the SP or performing a SysFW upgrade, you might see the following errors:

- When attempting to start the host:

```
-> start /System -script
   start: Operation not allowed while stop host is in progress.
```

- Or, when stopping the host, the host does not transition status from `Standby` to `Powered Off` and the `operation_in_progress` state remains `Host stop in progress`:

```
-> show /HOST status
   /HOST
       Properties:
           status = Standby


 -> show /HOST operation_in_progress
  /HOST
       Properties:
          operation_in_progress = Host stop in progress
```

This error occurs when the host is powered on, you have `/SP/Policy PARALLEL_BOOT` set to `disabled` (the default is `enabled`), and either the SP has been rebooted or a SysFW upgrade is performed and the SP reboots at the end of the upgrade.

Workaround:

Verify that `/SP/Policy PARALLEL_BOOT` is `enabled` prior to resetting the SP or performing a LiveFW update.

If enabling `/SP/Policy PARALLEL_BOOT` is not an option and you intend to stop the host after rebooting the SP or after performing a SysFW upgrade, stop the host before rebooting the SP or attempting the SysFW upgrade.

Recovery: Force a system stop.

```
->stop   -force /System
reset /SP
```

No Blue LED When `cfgadm -c unconfigure disk` (22724487)

When using the `cfgadm -c unconfigure` command for a disk drive on a 12-disk backplane or 24-disk backplane, the blue OK to Remove LED does not illuminate.

Workaround: Use the `fmadm set-indicator` command to illuminate the corresponding blue OK to Remove LED, which locates the unconfigured disk. For example, to unconfigure HDD3:

1. Find the device path for the drive you want to remove.

```
# diskinfo D:devchassis-path
c:occupant-compdev ---------------------------------  --------------------
/dev/chassis/SYS/HDD0/disk          c0t5000CCA02D0F9E94d0
/dev/chassis/SYS/HDD1/disk          c0t5000CCA02D102F60d0
/dev/chassis/SYS/HDD2/disk          c0t5000CCA02D100F28d0
/dev/chassis/SYS/HDD3/disk          c0t5000CCA02D0F6C44d0
/dev/chassis/SYS/HDD4/disk          c0t5000CCA02D0F6DBCd0
/dev/chassis/SYS/HDD5/disk          c0t5000CCA02D10366Cd0
....
```

2. Check the drive's status.

```
# cfgadm -al Ap_Id
Ap_Id            Type     Receptacle   Occupant     Condition
/SYS/DBP/NVME0          unknown    empty     unconfigured unknown
...
c3::w5000cca02d0eda3d,0  disk-path  connected    configured   unknown
c3::w5000cca02d0f5ca1,0  disk-path  connected    configured   unknown
c3::w5000cca02d0f6c45,0 disk-path  connected    configured   unknown
c3::w5000cca02d0f6dbd,0  disk-path  connected    configured   unknown
...
```

3. Unconfigure the drive.

```
# cfgadm -c unconfigure c3::w5000cca02d0f6c45,0
# cfgadm -al

Ap_Id                    Type       Receptacle   Occupant     Condition
/SYS/DBP/NVME0           unknown    empty        unconfigured unknown
...
c3::w5000cca02d0eda3d,0  disk-path  connected    configured   unknown
c3::w5000cca02d0f5ca1,0  disk-path  connected    configured   unknown
c3::w5000cca02d0f6c45,0  disk-path  connected    unconfigured   unknown
c3::w5000cca02d0f6dbd,0  disk-path  connected    configured   unknown
...
```

4. Turn on the Ok to Remove indicator for that drive.

```
# fmadm set-indicator /dev/chassis/SYS/HDD3/disk ok2rm on
The indicator (ok2rm) has been turned on.
```

5. Confirm the Ok to Remove LED is on.

```
# fmadm get-indicator /dev/chassis/SYS/HDD3/disk ok2rm
The indicator (ok2rm) is set to on.
```

6. It is safe to remove the drive.

`prtdiag -v` Not Listing NVMe Disk Drive as FRU Like HDD, SSD (23040923)

When NVMe drives are present in a system running `prtdiag -v`, the NMVe drives are not listed in output under the FRU section. Also, if a user retrieves SNMP data from Oracle ILOM the `entPhysicalIsFRU` entry for the NVMe drive, entries will be marked as false.

Workaround: Use the `diskinfo` command or the `format` command to see your NMVe drives.

`fwupdate` Does Not See On-board NIC (23286468)

The `fwupdate list` command should show firmware version information for all devices in the system with programmable firmware. However, in this case the on-board 10GBASE-T network ports are omitted from the output of this command.

Device Ready to Remove, Both Blue and Green LEDs Are On, Expect Only Blue (23305988)

When a disk on an 8 DBP, 12 DBP, or 24 DBP system has been prepared to be removed using the `cfgadm -c unconfigure` command or the workaround for CR "No Blue LED When `cfgadm -c unconfigure disk` (22724487)" on page 25 with `fmadm set-indicator /dev/chassis/SYS/HDD3/disk ok2rm on`, the green led remains on, when it should be off at the time the blue led is turned on.

Workaround: None.

S7-2L 12- and 24-Disk Backplane Systems Unable to Enumerate Disks (18712182)

For these specific servers, the enumeration of internal storage can occur during a short window when Oracle Solaris is unable to successfully load new kernel driver modules.

If this occurs, Oracle Solaris will be unable to manage your internal storage. This includes the loss of `fmd(1M)`'s monitoring of disk SMART failures. The most observable symptom of this issue is having `diskinfo(1M)` output fail to show `/SYS/HDD` disks.

If the results of running this command show that you have a '`SPARC-S7-2L`' system with either a '`SPARC-S7-2L-12dbp`' or '`SPARC-S7-2L-24dbp`' internal storage backplane, your server might be affected by this issue.

```
    # /usr/sbin/devprop compatible
    chassis,Sun-Microsystems.SPARC-S7-2L-24dbp.unknown.unknown +
    chassis,Sun-Microsystems.SPARC-S7-2L-24dbp + chassis.SPARC-S7-2L-24dbp +
    chassis,Sun-Microsystems.SPARC-S7-2L.unknown.unknown +  chassis,Sun-Microsystems.
SPARC-S7-2L +
    chassis.SPARC-S7-2L + sun4v
```

```
    # /usr/sbin/devprop compatible
    chassis,Sun-Microsystems.SPARC-S7-2L-12dbp.unknown.unknown +
    chassis,Sun-Microsystems.SPARC-S7-2L-12dbp + chassis.SPARC-S7-2L-12dbp +
    chassis,Sun-Microsystems.SPARC-S7-2L.unknown.unknown +  chassis,Sun-Microsystems.
SPARC-S7-2L +
    chassis.SPARC-S7-2L + sun4v
```

Workaround: The preinstalled OS (Oracle Solaris 11.3 SRU 9) contains a workaround for this issue, in the form of a line added to `/etc/system: forceload: drv/ses`.

- This line is required for CR 18712182.
- Do not remove until an SRU with a fix for 18712182 has been installed.

If you reinstall the server with Oracle Solaris 11.3 SRU 9, ensure that you add the corresponding line to `/etc/system` after re-installation. Once an SRU containing the fix for this CR 18712182 has been installed, remove this line from `/etc/system`.

Reboot the server to activate the changes to the `/etc/system` file.

`prtdiag` Not Showing Proper Slot Information for NVMe Drives Connected to MB (23537630)

On SPARC S7-2L servers with a 12 drive backplane, all NVMe drive configuration, `prtdiag` shows incorrect NAC names for the NVMe drives in slots 3, 4, and 5 as below.

```
========================================= IO Devices
 =========================================
 Slot +            Bus   Name +                            Model      Max Speed  Cur
 Speed
 Status            Type  Path                                         /Width     /Width

-------------------------------------------------------------------------------------------
 ...
 ...
 /SYS/MB/PCIE_SWITCH1 PCIE  nvme-pciexclass,010802       8.0GT/x4   8.0GT/x4
                         /pci@300/pci@2/pci@0/pci@6/nvme@0
 /SYS/MB/PCIE_SWITCH1 PCIE  nvme-pciexclass,010802       8.0GT/x4   8.0GT/x4
                         /pci@300/pci@2/pci@0/pci@7/nvme@0
 ...
 /SYS/MB/CMP1/IOS0 PCIX  nvme-pciexclass,010802          8.0GT/x4   8.0GT/x4
                         /pci@302/pci@2/pci@0/pci@4/nvme@0
...
...
```

With correct NAC names for the NVMe drives in slots 3, 4, and 5, `prtdiag` output would show up as below:

```
 ========================================= IO Devices
 =========================================
 Slot +            Bus   Name +                            Model      Max Speed  Cur
 Speed
 Status            Type  Path                                         /Width     /Width

 -------------------------------------------------------------------------------------------
 ...
 ...
 /SYS/DBP/NVME4    PCIE  nvme-pciexclass,010802        8.0GT/x4   8.0GT/x4
                     /pci@300/pci@2/pci@0/pci@6/nvme@0
 /SYS/DBP/NVME3    PCIE  nvme-pciexclass,010802        8.0GT/x4   8.0GT/x4
                     /pci@300/pci@2/pci@0/pci@7/nvme@0
 /SYS/MB/PCIE5     PCIE  nvme-pciexclass,010802        8.0GT/x4   8.0GT/x4
                     /pci@300/pci@2/pci@0/pci@15/nvme@0
 ...
 ...
```

Workaround: Use the `format` command or the `diskinfo` command to find the correct NAC names and associated device paths for the NVMe drives with this configuration. For example, type:

```
  # diskinfo
        D:devchassis-path                   c:occupant-compdev
        ---------------------------------  ------------------
                              /dev/chassis/SYS/DBP/NVME0/disk      c14t1d0
                              /dev/chassis/SYS/DBP/NVME1/disk      c15t1d0
                              /dev/chassis/SYS/DBP/NVME2/disk      c16t1d0
                              /dev/chassis/SYS/DBP/NVME3/disk      c7t1d0
                              /dev/chassis/SYS/DBP/NVME4/disk      c6t1d0
                              /dev/chassis/SYS/DBP/NVME5/disk      c13t1d0
                              /dev/chassis/SYS/DBP/NVME6/disk      c9t1d0
                              /dev/chassis/SYS/DBP/NVME7/disk      c11t1d0
                              /dev/chassis/SYS/DBP/NVME8/disk      c12t1d0
                              /dev/chassis/SYS/DBP/NVME9/disk      c3t1d0
                              /dev/chassis/SYS/DBP/NVME10/disk     c4t1d0
                              /dev/chassis/SYS/DBP/NVME11/disk     c5t1d0
                              ...

# format
                              Searching for disks...done

                              AVAILABLE DISK SELECTIONS:
                                  0. c14t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                     /pci@302/pci@2/pci@0/pci@17/pci@0/pci@4/nvme@0/
disk@1
                                     /dev/chassis/SYS/DBP/NVME0/disk
                                  1. c15t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                     /pci@302/pci@2/pci@0/pci@17/pci@0/pci@5/nvme@0/
disk@1
                                     /dev/chassis/SYS/DBP/NVME1/disk
                                  2. c16t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                     /pci@302/pci@2/pci@0/pci@17/pci@0/pci@6/nvme@0/
disk@1
                                     /dev/chassis/SYS/DBP/NVME2/disk
                                  3. c7t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                     /pci@300/pci@2/pci@0/pci@7/nvme@0/disk@1
                                     /dev/chassis/SYS/DBP/NVME3/disk
                                  4. c6t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                     /pci@300/pci@2/pci@0/pci@6/nvme@0/disk@1
                                     /dev/chassis/SYS/DBP/NVME4/disk
                                  5. c13t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                     /pci@302/pci@2/pci@0/pci@4/nvme@0/disk@1
                                     /dev/chassis/SYS/DBP/NVME5/disk
                                  6. c9t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
```

```
                                    /pci@302/pci@1/pci@0/pci@13/pci@0/pci@4/nvme@0/
disk@1
                                    /dev/chassis/SYS/DBP/NVME6/disk
                                 7. c11t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                    /pci@302/pci@1/pci@0/pci@13/pci@0/pci@5/nvme@0/
disk@1
                                    /dev/chassis/SYS/DBP/NVME7/disk
                                 8. c12t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                    /pci@302/pci@1/pci@0/pci@13/pci@0/pci@6/nvme@0/
disk@1
                                    /dev/chassis/SYS/DBP/NVME8/disk
                                 9. c3t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                    /pci@300/pci@1/pci@0/pci@11/pci@0/pci@4/nvme@0/
disk@1
                                    /dev/chassis/SYS/DBP/NVME9/disk
                                10. c4t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                    /pci@300/pci@1/pci@0/pci@11/pci@0/pci@5/nvme@0/
disk@1
                                    /dev/chassis/SYS/DBP/NVME10/disk
                                11. c5t1d0 <INTEL-SSDPE2ME016T4S-8DV1-1.46TB>
                                    /pci@300/pci@1/pci@0/pci@11/pci@0/pci@6/nvme@0/
disk@1
                                    /dev/chassis/SYS/DBP/NVME11/disk
```

For additional information about drive errors, see “S7-2L 12- and 24-Disk Backplane Systems Unable to Enumerate Disks (18712182)” on page 28.

`svc:/network/nfs/client:default:` Method or service exit timed out (23547693)

Note - This issue is resolved in firmware patch 24566175 (Firmware version 80002548).

When your server is connected at 10Gbase-T to a switch, you may see NFS timeout messages similar to the following:

```
SunOS Release 5.11 Version 11.3 64-bit
Copyright (c) 1983, 2016, Oracle and/or its affiliates. All rights reserved.
Hostname: orJ21-host
Jun  6 16:30:36 svc.startd[13]: svc:/network/nfs/client:default: Method or
service exit timed out.  Killing contract 116.
.
Jun  6 16:30:36 svc.startd[13]: svc:/network/nfs/client:default: Method
"/lib/svc/method/nfs-client start" failed due to signal KILL.
```

Workaround: Attempt the reboot again.

Recovery: Update your system to the latest firmware with patch 24566175, available at https://support.oracle.com.

T7-x Observes Dropped Characters Running SysFW 9.7.4 (25506535)

If you copy a large amount of text on OBP or Solaris while running SysFW 9.7.4, some the characters might be dropped. In the example below show at OBP, when the text *select /pci@301/pci@1/scsi@0* is copied from line 2 to line 5, the *scsi@0* text is unexpectedly dropped.

```
 {0} ok
{0} ok select /pci@301/pci@1/scsi@0
{0} ok show-sas-wwid
SAS World Wide ID is 50800200 0218f9d0
{0} ok
{0} ok unselect-dev
{0} ok select /pci@303/pci@1/ <-- missing the "scsi@0"
{0} ok show-sas-wwid
show-sas-wwid ?
```

Another possible scenario to encounter the issue is to use script to enter a long OBP or Solaris command.

Workaround: If you encounter this issue, manually type the commands instead of copying a large amount of text.

Workaround: Another option is to disable console logging from Oracle ILOM, however choosing this option means you will not get a log of console output when the SP is degraded for later retrieval. To use this workaround, type this command at the Oracle ILOM prompt:

```
-> set /HOST/console logging=disabled
```

For more information about how to work with Oracle ILOM features, refer to the Oracle ILOM documentation at:

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

Workaround For Erroneous RCD Parity Error (25953561)

If you have SysFW 9.7.5.b installed on SPARC S7-2 or SPARC S7-2L servers with Samsung 64 GB LR DIMMs, erroneous RCD parity errors may be seen. These are invalid errors being reported against good DIMMs.

These RCD parity errors disable the usable system memory for the CMP, and generate ereports against hypervisor, similar to the examples below.

Console log output example:

```
   2017-04-26 14:25:36  0:00:0> WARNING: /SYS/MB/CMP0/MCU0/CH0/D0: RCD detected parity
error on pin None

   2017-04-26 14:25:37  0:00:0> ERROR:   /SYS/MB/CMP0/MCU0/CH0/D0: RCD detected parity
error

   2017-04-26 14:25:37  0:00:0> ERROR:   /SYS/MB/CMP0/MCU0/CH0/D1: DDR channel has
faulted or disabled resource. Not configured

   2017-04-26 14:25:37  0:00:0> WARNING: Running with a nonstandard DIMM configuration.
Refer to service document for details.

   2017-04-26 14:25:48  0:00:0> WARNING: /SYS/MB/CMP0/MCU1/CH0/D0: RCD detected parity
error on pin None

   2017-04-26 14:25:48  0:00:0> ERROR:   /SYS/MB/CMP0/MCU1/CH0/D0: RCD detected parity
error

   2017-04-26 14:25:48  0:00:0> ERROR:   /SYS/MB/CMP0/MCU0/CH1/D0: DIMM population chip
symmetry rule violation. Not configured

   2017-04-26 14:25:48  0:00:0> ERROR:   /SYS/MB/CMP0/MCU0/CH1/D1: DIMM population chip
symmetry rule violation. Not configured

   2017-04-26 14:25:48  0:00:0> ERROR:   /SYS/MB/CMP0/MCU1/CH0/D1: DDR channel has
faulted or disabled resource. Not configured

   2017-04-26 14:25:48  0:00:0> ERROR:   /SYS/MB/CMP0/MCU1/CH1/D0: DIMM population chip
symmetry rule violation. Not configured

   2017-04-26 14:25:48  0:00:0> ERROR:   /SYS/MB/CMP0/MCU1/CH1/D1: DIMM population chip
symmetry rule violation. Not configured
```

```
   2017-04-26 14:25:49  0:00:0> WARNING: Running with a nonstandard DIMM configuration.
Refer to service document for details.

   2017-04-26 14:25:49  0:00:0> ERROR:   /SYS/MB/CMP0: Socket has no usable memory. Not
configured

   2017-04-26 14:25:49  0:00:0> NOTICE:  Idling self

   2017-04-26 14:25:49  0:00:0> FATAL:   No active CMPs

   2017-04-26 14:25:49  0:00:0> NOTICE:  Waiting for poweroff or powercycle from the SP

   2017-04-26 14:25:50      SP> NOTICE:  ERROR HALT: Type 'stop -f /System' when ready
to power off host
```

To view ereports type the following at fault management shell:

```
faultmgmtsp> fmdump -e

TIMESTAMP            EREPORT

2017-04-26/14:42:20  ereport.chassis.sp.restart@/SYS/SP

2017-04-26/14:41:25  ereport.chassis.tli.ok@/SYS

2017-04-26/21:58:11  ereport.hc.dev_fault@/SYS/MB/CMP0/MCU0/CH0/D1

2017-04-26/21:58:12  ereport.hc.component_disabled@/SYS/MB/CMP0/MCU0/CH0/D0

2017-04-26/21:58:12  ereport.hc.dev_fault@/SYS/MB/CMP0/MCU0/CH1/D0

2017-04-26/21:58:12  ereport.hc.component_disabled@/SYS/MB/CMP0/MCU0/CH1/D1

2017-04-26/21:58:13  ereport.hc.dev_fault@/SYS/MB/CMP0/MCU1/CH0/D0

2017-04-26/21:58:13  ereport.hc.component_disabled@/SYS/MB/CMP0/MCU1/CH0/D1

2017-04-26/21:58:13  ereport.hc.component_disabled@/SYS/MB/CMP0

2017-04-26/21:58:14  ereport.hc.abort@/SYS/MB/CMP0
```

Workaround: Update your server to SysFW 9.7.5.c or later.

Net Install of 11.3SRU21b4 and b5 Panics With NVME Devices Installed (26241738)

SPARC T7 and SPARC S7 servers with NVMe disk drives may experience Solaris OS panic during Solaris 11.3 SRU21 OS net install or boot.

For example:

```
Service discovery finished successfully
Process of obtaining install manifest initiated

panic[cpu111]/thread=2a122fd1b80: Deadlock: cycle in blocking chain

000002a122fd12f0 genunix:turnstile_will_prio+218 (2a122fd1b80, 2a12062fb80,
0, 3c, 1, 2087f000)
  %l0-3: 000002a122fd1b80 0000000000000001 0000000000000000 000000002087f108
  %l4-7: 00000000100b5fc0 0000000020121c08 000000001013b400 0000000000000000
000002a122fd13a0 genunix:turnstile_block+170 (c040b04238c38, 0,
c04090aa684c0, 20121c08, 0, 0)
  %l0-3: 000c0408ea1a79a8 0000000000002000 00000000202ffd40 0000000000000001
  %l4-7: 0000000000000000 000002a122fd1b80 0000000000000000 00000000208c0800
000002a122fd1450 unix:mutex_vector_enter+43c (2a12062fb80, 2a12062fb80,
20121c50, c04090aa684c0, 208ae708, 0)
  %l0-3: 0000000000000000 0000115bb3b38222 0000000020121c38 000002a12062fb80
  %l4-7: 0000000000000001 0000000000000000 0000000000000000 0000000000000004
000002a122fd1500 nvme:nvmex_resume+148 (40073a1d0b8, ffffffffffffffff,
c04090aa68000, 1, c04090aa684c0, 704dfc00)
  %l0-3: 0000000000000002 0000000000000050 0000000000000001 000c040b04f86250
  %l4-7: 0000000000000008 000c04090e636520 000c040b0f648690 0000000000000001
000002a122fd15b0 nvme:nvmex_intr_adjust+36c (c04090aa68000, 704df768, 100,
110de748, c04090aa684f0, c04090aa684c0)
  %l0-3: 00000000704df768 0000000000000021 0000000000000021 000c0409cfdf1b80
  %l4-7: 0000000000000021 0000000000000000 00000000110de400 00000000704df400
000002a122fd1680 nvme:nvmex_cbfunc+9c (40073a1d0b8, 0, 4, 0, 704dfe28,
704dfc00)
  %l0-3: 00000000f7499a40 00000000f9861600 0000000000000001 0000000000000001
  %l4-7: 0000000000000000 0000000000000000 0000000006cf7d40 0000000000000001
000002a122fd1730 genunix:i_ddi_irm_notify+d0 (c0409cd01d1d0, 0,
c04090aa9d458, 110e129c, 2, 0)
  %l0-3: 0000040073a1d0b8 000c04090a4182a8 0000000000000021 0000000020846db8
  %l4-7: 0000000000000021 0000000000000002 0000000000000000 0000000000000001
000002a122fd17f0 genunix:i_ddi_irm_balance+1fc (c0409cd01d1d0, 2, 20000, 0,
fffffffffffffffe, c0409cd01d238)
  %l0-3: 000c04090aa9d458 0000000000000000 000c0409cd01d1f8 0000000000000004
  %l4-7: 0000000000000000 0000000000000000 000c0409cd01d218 0000000000010000
000002a122fd18a0 genunix:irm_balance_thread+24 (c0409cd01d1d0, 0, 202ffd40,
```

```
89, c0409cd01d1f0, c0409cd01d202)
  %l0-3: 0000040002f3a0d0 0000000000000000 0000000020847800 000002a113b73b80
  %l4-7: 0000000000000000 000c0409c98e0408 0000000000000200 000000002051a4f0

syncing file systems... 41 40 done
Deferred dump not available.
skipping system dump - no dump device configured and deferred dump not
available
rebooting...
```

Workaround: There is no workaround available at this time.