

SPARC M5-32 and SPARC M6-32 Servers Product Notes

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Using This Documentation

- **Overview** – Describes how to troubleshoot and maintain the server
- **Audience** – Technicians, system administrators, and authorized service providers
- **Required knowledge** – Advanced experience troubleshooting and replacing hardware

Product Documentation Library

Documentation and resources for this product and related products are available at:

- <http://www.oracle.com/goto/m5-32/docs>
- <http://www.oracle.com/goto/m6-32/docs>

Feedback

Provide feedback about this documentation at <http://www.oracle.com/goto/docfeedback>.

Late-Breaking Information

This section provides late-breaking information for Oracle's SPARC M5-32 and SPARC M6-32 servers.

| Description | Links |
|---------------------|--|
| Hardware Notes | “Troubleshooting DCU Boot Problems After Replacing Hardware” on page 9 “Sun Flash Accelerator PCIe Card Support” on page 12 “SPARC M5-32 Server Upgrades” on page 12 |
| Software Notes | “Preinstalled Software” on page 12 “SPARC M6-32 Server Minimum Supported Versions of the Firmware, OS, and Software” on page 13 “SPARC M5-32 Server Minimum Supported Versions of the Firmware, OS, and Software” on page 14 “Oracle VM Server for SPARC Guidelines” on page 14 |
| Patches and Updates | “Required OS Patches and Package Updates” on page 15 “Upgrade SPARC M6-32 Server System Firmware” on page 17 |

Hardware Notes

- [“Troubleshooting DCU Boot Problems After Replacing Hardware” on page 9](#)
- [“EMS and HDD Cage Incompatibility” on page 11](#)
- [“DCU Bootability With Mixed EMSs and HDD Card Cages” on page 10](#)
- [“Sun Flash Accelerator PCIe Card Support” on page 12](#)
- [“SPARC M5-32 Server Upgrades” on page 12](#)

Troubleshooting DCU Boot Problems After Replacing Hardware

If you mix first-generation (1st Gen) and second-generation (2nd Gen) parts in a DCU, the DCU might not boot, or might boot with warnings.

To troubleshoot these problems:

- Know how mixed CMUs can conflict with mixed EMSs and HDD cages. See [“DCU Bootability With Mixed EMSs and HDD Card Cages” on page 10](#).
- Know how to identify 1st Gen and 2nd Gen parts. See [“Identifying 1st Gen and 2nd Gen Components” on page 11](#).
- Know which EMSs and HDD cages are incompatible. See [“EMS and HDD Cage Incompatibility” on page 11](#).

Note - A PDomain will detect and remove an invalid DCU from the PDomain configuration before continuing to boot any remaining DCUs in the configuration.

- [“DCU Bootability With Mixed EMSs and HDD Card Cages” on page 10](#)
- [“Identifying 1st Gen and 2nd Gen Components” on page 11](#)
- [“EMS and HDD Cage Incompatibility” on page 11](#)

DCU Bootability With Mixed EMSs and HDD Card Cages

Note - Revised EMS and HDD card cage were introduced independently of the releases of the SPARC M5-32 and SPARC M6-32 CMUs and servers, so the revised EMS and HDD card cage are known as second-generation (2nd Gen). Consequently, the original SPARC M5-32 EMS and HDD card cage became known as first-generation (1st Gen).

This table summarizes possible combinations of components.

| No. | CMUs | EMSs | HDD Cages | Condition | DCU behavior |
|-----|------------|----------------------|----------------------|------------------------|--------------------|
| 1 | M5 | 1st Gen | 1st Gen | Compatible | DCU boots |
| 2 | M5 | 2nd Gen | 2nd Gen | Compatible | DCU boots |
| 3 | M6 | 1st Gen | 1st Gen | Compatible | DCU boots |
| 4 | M6 | 2nd Gen | 2nd Gen | Compatible | DCU boots |
| 5 | M5 | 1st Gen | 2nd Gen | Partially compatible | Boots with warning |
| 6 | M5 | 2nd Gen | 1st Gen | Partially compatible | Boots with warning |
| 7 | M6 | 1st Gen | 2nd Gen | Partially compatible | Boots with warning |
| 8 | M6 | 2nd Gen | 1st Gen | Partially compatible | Boots with warning |
| 9 | M5 with M6 | Any | Any | Incompatible CMUs | DCU cannot boot |
| 10 | Any | 1st Gen with 2nd Gen | Any | Incompatible EMSs | DCU cannot boot |
| 11 | Any | Any | 1st Gen with 2nd Gen | Incompatible HDD cages | DCU cannot boot |

Supported combinations (rows 1, 2, 3, and 4): EMSs and HDD card cages in a DCU are all of the same generation. The DCU can boot normally.

Unsupported combinations (rows 5, 6, 7, and 8): The system detects 1st and 2nd Gen differences and generates a warning, but the DCU can still boot. See [“EMS and HDD Cage Incompatibility”](#) on page 11.

Unsupported combinations (rows 9, 10, and 11): Mixing generations within a type stops a DCU from booting. Mixing CMUs in a DCU is not allowed. Mixing EMSs in a DCU is not allowed. Mixing HDD cages in a DCU is not allowed.

Use part numbers to identify 1st and 2nd Gen parts in a DCU. See [“Identifying 1st Gen and 2nd Gen Components”](#) on page 11.

Identifying 1st Gen and 2nd Gen Components

Use part numbers to identify 1st and 2nd Gen parts.

| Component | Oracle Part Number |
|-------------------|---|
| EMS, 1st Gen | 7058671 |
| EMS, 2nd Gen | 7074101 |
| HDD cage, 1st Gen | 7058660 |
| HDD cage, 2nd Gen | 7074234 |
| HDDBP | Not available separately. Order the HDD cage instead. |
| SPARC M5 CMU | 7066443 |
| SPARC M6 CMU | 7070507 |

See [“EMS and HDD Cage Incompatibility”](#) on page 11 to learn how mixed parts behave abnormally.

See [“DCU Bootability With Mixed EMSs and HDD Card Cages”](#) on page 10 to learn how mixed parts might cause a DCU to not boot.

EMS and HDD Cage Incompatibility

A DCU can function when it contains one generation of EMSs and a different generation of HDD cages. However, the DCU exhibits the following issues and is not supported.

- The system generates warning messages for the DCU.
- LEDs on HDDs in 1st Gen HDD cages might not operate correctly.

To avoid these issues, do not mix these combinations in the same DCU:

| EMS Type | HDD Cage Type | Compatibility |
|----------|---------------|----------------------|
| 1st Gen | 2nd Gen | Partially compatible |

| EMS Type | HDD Cage Type | Compatibility |
|----------|---------------|----------------------|
| 2nd Gen | 1st Gen | Partially compatible |

Use part numbers to identify 1st and 2nd Gen parts. See “[Identifying 1st Gen and 2nd Gen Components](#)” on page 11.

Sun Flash Accelerator PCIe Card Support

Hot-plugging of the Sun Flash Accelerator F40 and F80 PCIe cards is now supported.

SPARC M5-32 Server Upgrades

These components can upgrade the SPARC M5-32 server:

- **SPARC M6 Xoption CMUs** – Provide increased processing power.
- **Dual-Synthesizer clock boards** – Provide additional reliability.

Note - Before installing these upgrades, you *must* upgrade the SPARC M5-32 server system firmware to version 9.1.1.a or newer versions. The SPARC M6 Xoption CMUs especially need updated firmware to ensure functionality and compatibility.

Refer to *SPARC M5-32 Servers: Firmware Image Software Version Matrix Information (Doc ID 1540816.1)* available at <http://support.oracle.com> for instructions and system firmware download.

For information about installing and servicing the components, refer to the *SPARC M5-32 and SPARC M6-32 Servers Service Manual*. For information about upgrading system firmware, refer to the *SPARC M5-32 and SPARC M6-32 Servers Administration Guide*.

Preinstalled Software

| Software | Location | Description |
|------------------------|--|---|
| Oracle Solaris 11.1 OS | The OS is installed on drive 0, using a ZFS file system. | Host OS. Mandatory package updates and patches might not be preinstalled. Ensure that you obtain and install all mandatory updates for patches before you put the server |

| Software | Location | Description |
|----------------------------|--------------|--|
| Oracle VM Server for SPARC | /opt/SUNWldm | into production. See “Required OS Patches and Package Updates” on page 15. Manages logical domains. |
| Oracle VTS | /usr/sunvts | Provides hardware validation tests. |

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

Review [“Required OS Patches and Package Updates”](#) on page 15 to find out if the preinstalled OS requires package updates.

You can reinstall the OS and install patches instead of using the preinstalled OS. See [“SPARC M5-32 Server Minimum Supported Versions of the Firmware, OS, and Software”](#) on page 14.

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

SPARC M6-32 Server 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.

| Software | Minimum Supported Versions |
|--|---|
| System firmware | 9.5.4 Includes Oracle ILOM 3.2.5.90. Note - 9.1.1.a and Oracle ILOM 3.2.1.6.b are the minimum supported versions, but you are required to install the latest available versions for optimal performance, security, and stability. |
| Oracle Solaris 11 OS | Oracle Solaris 11.2 SRU 5.6 Includes these software components: <ul style="list-style-type: none"> ■ Oracle VM Server for SPARC 3.3 ■ Oracle VTS 7.0 PS 17 Note - Oracle Solaris 11 is the recommended OS for the SPARC M5-32 and SPARC M6-32 servers' guest domains. Oracle Solaris 11 provides simplified installation and maintenance, enhanced virtualization capabilities, and performance improvements. |
| Oracle Solaris 10 OS (noncontrol domains only) | Oracle Solaris 10 9/10 OS plus patches and two packages. |

| Software | Minimum Supported Versions |
|----------|--|
| | <p>Note - If you are patching a previous installation of the Oracle Solaris 10 9/10 OS or the Oracle Solaris 10 8/11 OS, you must install all of the patches and packages identified in “Oracle Solaris 10 OS Patches” on page 16, including the Oracle Solaris 10 1/13 SPARC Bundle, before putting the server into service.</p> |

SPARC M5-32 Server 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.

| Software | Minimum Supported Versions |
|--|--|
| System firmware | <p>9.5.4</p> <p>Includes Oracle ILOM 3.2.5.90.</p> <p>Note - 9.0.1.f and Oracle ILOM 3.2.1.3.f are the minimum supported versions, but you are required to install the latest available versions for optimal performance, security, and stability.</p> |
| Oracle Solaris 11 OS | <p>Oracle Solaris 11.2 SRU 5.6</p> <p>Includes these software components:</p> <ul style="list-style-type: none"> ■ Oracle VM Server for SPARC 3.3 ■ Oracle Electronic Prognostics ■ Oracle VTS 7.0 PS 15 <p>Note - Oracle Solaris 11 is the recommended OS for the SPARC M5-32 and SPARC M6-32 servers' guest domains. Oracle Solaris 11 provides simplified installation and maintenance, enhanced virtualization capabilities, and performance improvements.</p> |
| Oracle Solaris 10 OS (noncontrol domains only) | <p>Oracle Solaris 10 9/10 OS plus patches and two packages.</p> <p>Note - If you are patching a previous installation of the Oracle Solaris 10 9/10 OS or the Oracle Solaris 10 8/11 OS, you must install all of the patches and packages identified in “Oracle Solaris 10 OS Patches” on page 16, including the Oracle Solaris 10 1/13 SPARC Bundle, before putting the server into service.</p> |

Oracle VM Server for SPARC Guidelines

If you plan to configure Oracle VM Server for SPARC on this server, follow these guidelines:

- Do not configure the Oracle Solaris 10 OS in the control domain.
- You can configure Oracle Solaris 10 OS with required patches and packages in the guest, I/O, root, and service domains.

- Be aware that instances of Oracle Solaris 10 with required patches and packages in a single guest domain are limited to 1024 virtual CPUs and 4 TBytes of memory.

The majority of a physical domain's memory can be assigned to logical domains. However, a small portion of the PDomain's memory is preassigned to software components, the hypervisor, and certain I/O devices. To determine which portions of the memory are unavailable for logical domains, log in to the PDomain and type this command:

```
# ldm ls-devices -a mem
```

In the command output, look for the rows that include `_sys_` in the Bound column. These portions of memory are not available for logical domains.

See “Oracle Solaris 10 OS Patches” on page 16 for required patches and packages.

Required OS Patches and Package Updates

If you use the preinstalled OS, or if you reinstall the OS on the server, you might need to install certain patches or package updates before you put the server into service.

Note - Oracle Solaris 11 OS uses package updates rather than patches.

Oracle Solaris 11 OS Package Updates

Install an Oracle Solaris 11.1 Support Repository Update (SRU), if one is available. Doing so ensures that your server has the latest software for the best performance, security, and stability.

No individual package updates are required at this time to use Oracle Solaris 11.1 OS with this server.

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:
<http://pkg.oracle.com/solaris/release>

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. Refer to the article at: <http://www.oracle.com/technetwork/articles/servers-storage-admin/o11-018-howto-update-s11-1572261.html> Go to Oracle's certificate request web site at: <https://pkg-register.oracle.com>.

Oracle Solaris 10 OS Patches

Note - For current information about required patches and updates for optional hardware and software, refer to the documentation for each product.

TABLE 1 Oracle Solaris 10 1/13 OS Required Patches

| Installation Order | OS, Patch, or Packages |
|--------------------|--|
| 1 | Oracle Solaris 10 1/13 OS. |
| 2 | These mandatory patches: <ul style="list-style-type: none"> ■ 148322-07 ■ 148324-06 ■ 148888-03 ■ 149638-01 ■ 149644-01 ■ 150025-01 ■ 150027-01 ■ 150107-01 ■ 150110-01 |

TABLE 2 Oracle Solaris 10 8/11 OS Required Patches

| Installation Order | OS, Patch, or Packages |
|--------------------|--|
| 1 | Oracle Solaris 10 8/11 OS. Note - Until the Oracle Solaris 10 1/13 SPARC Bundle has been installed, Oracle Solaris 10 8/11 OS only supports 512 CPUs and 3840 GBytes of memory. For servers exceeding those resources, reduce the resources until the Oracle Solaris 10 1/13 SPARC Bundle has been installed, or install a later version of the Oracle Solaris OS. |
| 2 | Oracle Solaris 10 1/13 SPARC Bundle. |
| 3 | These mandatory patches: <ul style="list-style-type: none"> ■ 148322-07 ■ 148324-06 ■ 148888-03 ■ 149638-01 ■ 149644-01 ■ 150025-01 ■ 150027-01 ■ 150107-01 ■ 150110-01 |

| Installation Order | OS, Patch, or Packages |
|--------------------|---|
| | Note - While running the Oracle Solaris 10 OS you might encounter this bug, which does not affect the patch installation: 15665037 snmpXdmid registration with DMI failed errors reported after Oracle Solaris boot. |

TABLE 3 Oracle Solaris 10 9/10 OS Required Patches

| Installation Order | OS, Patch, or Packages |
|--------------------|---|
| 1 | Oracle Solaris 10 9/10 OS. Note - Until the Oracle Solaris 10 1/13 SPARC Bundle has been installed, Oracle Solaris 10 9/10 OS only supports 512 CPUs and 1023 GBytes of memory. For servers exceeding those resources, reduce the resources until the Oracle Solaris 10 1/13 SPARC Bundle has been installed, or install a later version of the Oracle Solaris OS. Note - You might encounter these issues, which are resolved by installing the Oracle Solaris 10 1/13 SPARC Bundle: 15712380 S10U10 reports several WARNING Unrecognized token: XXX during jumps. 15704520 Oracle Solaris 10U10 sun4v prtdiag misreports 2.5 GHz CPU frequency. |
| 2 | Oracle Solaris 10 1/13 SPARC Bundle. |
| 3 | These mandatory patches: <ul style="list-style-type: none"> ■ 148322-07 ■ 148324-06 ■ 148888-03 ■ 149638-01 ■ 149644-01 ■ 150025-01 ■ 150027-01 ■ 150107-01 ■ 150110-01 Note - While running the Oracle Solaris 10 OS you might encounter this bug, which does not affect the patch installation: 15665037 snmpXdmid registration with DMI failed errors reported after Oracle Solaris boot. |
| 4 | Use the pkgadd command to install the SUNWust1 and SUNWust2 packages. |

Upgrade SPARC M6-32 Server System Firmware

An issue has been discovered with the M6 processors and system firmware version 9.1.0.x within the SPARC M6-32 server that requires a mandatory system firmware upgrade to version 9.1.1.a or newer. You can download the firmware from:

<http://support.oracle.com>

Instructions for upgrading firmware are provided in the download, and in the *SPARC M5-32 and SPARC M6-32 Servers Administration Guide*, available from:

http://docs.oracle.com/cd/E24355_01

Contact your authorized Oracle Service Provider for assistance.

Note - The system firmware upgrade is required for the SPARC M6-32 server only. The SPARC M5-32 server does not require this upgrade if it is configured with only M5 processors.

Known Issues

This section provides known issues for the servers.

| Description | Links |
|-----------------------------|---|
| Review General Issues | “Known General Issues” on page 19 |
| Understand Software Issues | “Known Direct I/O Issues” on page 20 “Known Oracle ILOM Issues” on page 21 “Known Oracle Solaris Issues” on page 28 “Known Firmware Issue: SP Failover During Upgrading System Firmware From 9.2.1.c or Older to 9.3.0.c or Later (21051993)” on page 32 |
| Understand Hardware Issues | “Known Hardware Issue: EMS RJ45 Ethernet Speed and Activity LEDs Are Dim (16340264)” on page 32 |
| Review Documentation Issues | “Known Documentation Issue: SPARC M5/M6-32 Service Manual Uses Inconsistent Hot-Plug-Swap Terminology (20238762)” on page 33 |

Related Information

- [“Late-Breaking Information” on page 9](#)

Known General Issues

These are the known general issues for the SPARC M6-32 and SPARC M5-32 servers.

- [“Memory Configurations” on page 19](#)
- [“SP Status LEDs” on page 20](#)
- [“EFI GPT Disk Label Support” on page 20](#)

Memory Configurations

Quarter- and half-populated memory configurations are supported. Fully-populated memory configurations require an update to the system firmware by means of patch 168. You can download this patch from:

<http://support.oracle.com>

SP Status LEDs

This table describes the behavior of the green SP LEDs and amber SP Fault LEDs on the front and rear of the server chassis.

Note - The illumination of the green LEDs are independent of the amber LEDs.

| Indicator | Color | State |
|-----------|-------|--|
| SP | Green | Off – No power is being supplied to the SPs. On – An SP is monitoring the server. |
| SP Fault | Amber | Off – No faults have been detected. On – Faults have been detected. |

EFI GPT Disk Label Support

System firmware 9.1.0 and newer support the Extensible Firmware Interface GUID Partition Table (EFI GPT) disk label functionality. Earlier versions of the system firmware fail to boot disks with the EFI GPT label and display an error message similar to this on the host console:

```
{900} ok boot
Bad magic number in disk label
Can't open disk label package
No viable default device found in boot-device variable.
```

To enable the server to boot from EFI GPT labeled disks, update the system firmware to version 9.1.0 or newer.

Known Direct I/O Issues

The issues described in this topic are resolved in Oracle VM Server for SPARC 3.0.0.3. Upgrade your software to avoid these issues.

Note - The term "Static Direct I/O (SDIO)" refers to Direct I/O functionality. More information about Direct I/O is provided in the *Oracle VM Server for SPARC Administration Guide*.

If you do not upgrade to system firmware 9.0.2 or newer, only single-DCU PDomain configurations support SDIO.

This is the known Direct I/O issue for the SPARC M6-32 and SPARC M5-32 servers:

- [“System Sends Sigabrt Explicitly From Hypervisor Calls \(16198869\)” on page 21](#)

System Sends Sigabrt Explicitly From Hypervisor Calls (16198869)

The logical domains manager process `ldmd` might dump core when stopping the `ldmd` SMF service with the `svcadm` command, or on shutdown or reboot of the primary domain. As a result, the `/var/svc/log/ldoms-ldmd:default.log` file might contain messages such as:

- `warning: Bad file number: PRI_WAITGET failed`
- `warning: Bad file number: Error reading message from the hvctl channel, resetting the channel`
- `ioctl VLDC_IOCTL_WRITE_PA failed`

These messages can be safely ignored.

Workaround: There is no workaround. This issue is fixed in Oracle VM Server for SPARC 3.0.0.3 available in SRU6.

Known Oracle ILOM Issues

These are the known Oracle ILOM issues for the SPARC M6-32 and SPARC M5-32 servers:

-
- [“PCIe Faults Reported Nonserviceable and Cannot Be Repaired \(17317884\)” on page 22](#)
- [“Intermittent Recovery Failure From SLINK UEs \(17290820\)” on page 23](#)
- [“Unable to Start Host After Firmware Upgrade and SPP Failover \(17191941\)” on page 25](#)
- [“fmadm faulty Command Shows Duplicate Suspects \(16996677\)” on page 25](#)
- [“Management of SP Does Not Display a Table as Expected \(16607793\)” on page 25](#)
- [“Need to Document How to Recover usbEthernet After PDomain-SPP Failover \(16370459\)” on page 28](#)
- [“Oracle ILOM Reports EMS Hot-Plug Events in Reverse Order \(15822281\)” on page 28](#)

ILOM-8000-AF Description is Misleading (21265789)

The Fault Management Advisor might incorrectly report an SP/SPP SPM as faulted due to ECC errors.

Workaround: Review the logs and SP traces to understand the reason for the fault.chassis.device.sp. The error might be for a hardware component or for software; do not assume that it is necessarily a hardware issue. Replace the SP only when necessary. See Doc ID 1967027.1 for example output at My Oracle Support <https://support.oracle.com>

PCIe Faults Reported Nonserviceable and Cannot Be Repaired (17317884)

Faults that are proxied from Oracle Solaris to Oracle ILOM might get into an unusual state. If Oracle Solaris is shutdown when an attempt is made to repair an Oracle Solaris diagnosed fault from Oracle ILOM, the repair might not complete and I/O related resources might be affected. In this situation, it is not possible to repair the fault from Oracle ILOM.

Suspect faults are identified in the output of the `fmadm faulty` command as having a FRU Status of repair attempted. For example:

```
.
.
.
Suspect 1 of 9
  Fault class : fault.io.pciex.device-interr
  Certainty   : 14%
  Affects     : /SYS/IOU0/IOB0/PCIE_SWITCH1/PCIE_LINK8
  Status      : OK
.
.
.
FRU
  Status      : repair attempted
  Location    : /SYS/IOU0/IOB0
  Manufacturer : Celestica Holdings PTE LTD
  Name        : M4-32 IO Switch IDT Board
  Part_Number : 07041871
  Revision    : 06
.
.
.
```

Workaround: Repair or acquit the fault in Oracle ILOM when Oracle Solaris is up and running. If you are unsuccessful, contact your authorized Oracle Service Provider for support.

Intermittent Recovery Failure From SLINK UEs (17290820)

A red state condition can be identified by host console output similar to this:

```
Redstate trap occurred on socket 4 strand 80
2013-08-08 18:17:03 4:10:0> NOTICE:
```

```
Redstate handler finished
```

After a red state condition, autorecovery is initiated, and although a host's autorunonerror property is set to powercycle, the host might not complete automatic restart. Fault messages similar to these might be seen on the host console during autorecovery.

```
2013-08-08 18:41:51 SP> NOTICE: Faulted /SYS/SSB7/SA/SLINK12 will exclude /SYS/CMU2/CMP1 on future reboots
2013-08-08 18:41:52 SP> NOTICE: Abort boot due to /SYS/SSB7/SA/SLINK12. Power Cycle Host
2013-08-08 18:41:53 SP> NOTICE: Faulted /SYS/CMU2/CMP1/SLINK4 will exclude /SYS/CMU2/CMP1 on future reboots
2013-08-08 18:41:56 SP> NOTICE: Start Host in progress: Step 6 of 9
2013-08-08 18:42:04 SP> NOTICE: Faulted /SYS/SSB7/SA/SLINK13 will exclude /SYS/CMU0/CMP1 on future reboots
.
.
.
2013-08-08 18:43:13 SP> NOTICE: Check for usable CPUs in /SYS/DCU0
2013-08-08 18:43:14 SP> NOTICE: Exclude /SYS/CMU0/CMP0. Reason: Prior fault on dependent resource
2013-08-08 18:43:15 SP> NOTICE: Exclude /SYS/CMU0/CMP1. Reason: Prior fault on dependent resource
.
.
.
2013-08-08 18:43:19 SP> NOTICE: Apply configuration rules to /SYS/DCU0
2013-08-08 18:43:20 SP> NOTICE: Exclude all of /SYS/DCU0. Reason: No configurable CPU in an even slot
2013-08-08 18:43:21 SP> NOTICE: HOST0 cannot be restarted. Reason: No configurable CPUs
2013-08-08 18:44:03 SP> NOTICE: Host is off
```

Workaround: Manually stop the hosts, acquit the faults, and start the hosts.

1. Stop all hosts.

```
-> stop /Servers/PDomains/PDomain_x/HOST
```

where x is 0, 1, 2, and 3.

2. Start the Oracle ILOM fault management shell.

```
-> start -script /SP/faultmgmt/shell
```

3. List the faults.

```
faultmgmtsp> fmadm faulty
```

- Record the UUIDs of the faults that affect SLINKs.

For example:

```

Time                UUID                msgid                Severity
-----
2013-08-16/12:56:32 09135d98-eafb-ee84-8643-fd8bb879cb6f SPSUN4V-8001-83 Critical
.
.
.
Suspect 1 of 2
  Fault class   : fault.asic.switch.c2c-uc
  Certainty    : 50%
  Affects      : /SYS/SSB7/SA/SLINK13
  Status       : faulted
.
.
.
Suspect 2 of 2
  Fault class   : fault.cpu.generic-sparc.c2c-uc
  Certainty    : 50%
  Affects      : /SYS/CMU0/CMP1/SLINK4
  Status       : faulted
.
.
.

```

The UUID of the faults affecting SLINKs /SYS/SSB7/SA/SLINK13 and /SYS/CMU0/CMP1/SLINK4 is 09135d98-eafb-ee84-8643-fd8bb879cb6f.

- Acquit the faults.

```
faultmgmtsp> fmadm acquit UUID
```

where *UUID* is the UUID of the fault. For example:

```
faultmgmtsp> fmadm acquit 09135d98-eafb-ee84-8643-fd8bb879cb6f
```

- Repeat Step 5 for all respective faults.
- Exit the Oracle ILOM fault management shell.

```
faultmgmtsp> exit
->
```

- Start all hosts.

```
-> start /Servers/PDomains/PDomain_x/HOST
```

where x is 0, 1, 2, and 3.

Unable to Start Host After Firmware Upgrade and SPP Failover (17191941)

In a default configuration, all DCUs are assigned to /HOST0, and SPP0 is assigned to /HOST0, with all other SPPs set to standby for failover. If you perform a system firmware upgrade in nonpreserve mode (invoking a fallback to the default configuration) and after which a failover from SPP0 occurs, you might be unable to start /HOST0.

Workaround: Start /HOST0 with the -f option. For example:

```
-> start -f /Servers/PDomains/PDomain_0/HOST
```

fmadm faulty Command Shows Duplicate Suspects (16996677)

The Oracle ILOM `fmadm faulty` command displays components suspected to have faulted and their probability of originating the fault, called a certainty. Certainty is expressed as a percent. Regardless of the number of suspects, the sum of all of the certainties must equal 100%.

In some situations, the `fmadm faulty` command displays suspect components more than once, and the certainties add up to a value greater than 100%.

Workaround: You can ignore the duplicate suspect components and their certainties. Alternatively, use the Oracle ILOM event log to correctly display the suspect FRUs and their probabilities (certainties).

Management of SP Does Not Display a Table as Expected (16607793)

When you use the Oracle ILOM web interface to manage the SP, clicking System Log displays the system log in a table. At the bottom of the table are icons that allow you to page through the system log or display all the pages of the system log as a single page:



However, when you click any one of the icons, the web interface displays this error message instead of the system log:



Click on System Log to display the system log again.

Workaround: There are two workarounds to view the system log:

- To display multiple pages as one page, see [“Set the Number of Displayed Rows to a Maximum of 999” on page 26](#).
- To display sequential pages, see [“Display the System Log With Page Breaks” on page 27](#).

Set the Number of Displayed Rows to a Maximum of 999

Note - This workaround allows you to display only the most recent system log entries, up to 999 of them. It is not possible to display any entries older than this limit in the web interface. To view log entries older than the latest 999, use the second workaround, [“Display the System Log With Page Breaks” on page 27](#).

1. Click this icon on the System Log page.



The Table Preferences pane opens.

2. Set the Rows Per Page value to 999.
3. Click OK.

The system log table is redisplayed to a maximum of 999 rows long.

Display the System Log With Page Breaks

1. At the Oracle ILOM CLI interface, display the system log.

```
-> show /System/Log/List/
Log
ID      Date/Time          Event Type          Subsystem
-----
211    Tue Apr  9 07:12:13 2013  CMU Service Required  Domain
Configuration Unit
  Component:CMU12 (Processor Board 12)
  During poweron testing, a lane failover has occurred on an interconnect
  between a CPU chip and a switch chip (Probability:100,
  UUID:ad389dc3-9fbf-4deb-8091-8befb50cb351, Part Number:07049779, Serial
  Number:465769T+1221WV0017, Reference
  Document:http://support.oracle.com/msg/SPSUN4V-8001-6Q)
210    Tue Apr  9 07:11:42 2013  CMU Service Required  Domain
Configuration Unit
  Component:CMU11 (Processor Board 11)
  A CRC error has occurred in the interconnect between two CPU chips.
  While no data has been lost, a lane failover has taken place.
.
.
.
Paused: press any key to continue, or 'q' to quit
```

Note - The width of the output and number of log entries displayed per page is dependent upon the geometry of the terminal window when the command is typed.

2. Press the spacebar to display the next page of the system log, or press the Q key to stop the output.

Need to Document How to Recover usbEthernet After PDomain-SPP Failover (16370459)

As of the availability of these product notes, there is no configuration possible that allows automatic recovery of USB over Ethernet after an SPP failover.

Workaround: Rebooting the host initiates discovery and configuration of the usbEthernet device during Oracle Solaris startup.

Oracle ILOM Reports EMS Hot-Plug Events in Reverse Order (15822281)

For example, if a component is hot-plug removed from one slot and a different component is hot-plug inserted into another slot, Oracle ILOM might report the insertion occurring before the removal.

Oracle ILOM monitors each slot in the server in a sequential manner. Checking all slots completes a cycle. If after the cycle completes Oracle ILOM detects a change, it reports the change to the log file. If components are inserted into or removed from slots after the slots have been checked, Oracle ILOM might not report any change until the end of the next cycle.

Consider the example situation where a component is removed from slot A after Oracle ILOM has checked that slot, and the same component is inserted into a different slot F before Oracle ILOM has checked that slot. At the end of the cycle, Oracle ILOM reports that the component was inserted into slot F. In the next cycle, Oracle ILOM checks slot A and finds the component missing. At the end of this cycle, Oracle ILOM reports that the component was removed from slot A.

Workaround: Wait for at least 60 seconds between any hot-plug removal or hot-plug insertion operations to allow Oracle ILOM to cycle through the slots several times. The hot-plug operations should be reported in the order they occurred.

Known Oracle Solaris Issues

These are the known Oracle Solaris issues for the SPARC M6-32 and SPARC M5-32 servers.

- [“statvfs Fails on 32 TB Memory Configurations \(17362334\)” on page 29](#)
- [“drand48 Routine Never Completes \(17169064\)” on page 29](#)
- [“I/O Domains in Transition State After Reboot of Primary Domain \(17020481\)” on page 30](#)

- [“Oracle Solaris px Driver Needs to Support PCI_IOV_SDI0_GROUP Version 2.1 \(16739540\)” on page 30](#)
- [“Dual Path Disk LED Status Control Support \(16458281\)” on page 31](#)
- [“CPU Power Management Can Drastically Lower Disk IOPS Performance \(16355418\)” on page 31](#)

statvfs Fails on 32 TB Memory Configurations (17362334)

If your server is configured with 32 Terabytes of memory, a `statvfs` system call to the `tmpfs` filesystem might fail with an overflow error. For example, a message similar to this might be seen on the host console:

```
Sep 10 22:10:51 sca-m432-108-pd0 svc.startd[11]: [ID 652011 daemon.warning]
svc:/system/fmd:default: Method "/lib/svc/method/svc-fmd" failed with exit
status 1.
```

The overflow originates from the member of the data structure that provides the maximum allowed file count for the `tmpfs` filesystem.

Workaround: In the `/etc/system` file, limit the number of files that `tmpfs` is allowed to avoid the overflow.

```
set tmpfs:tmpfs_maxkmem = 1200000000000
```

drand48 Routine Never Completes (17169064)

The `drand48` routine is used to generate random numbers. Also, consider the situation where an application creates the same number of threads as the number of vCPUs. If there are more than 1024 threads and each thread calls the `drand48` routine simultaneously, application performance might be reduced.

Workaround: There are two workarounds:

- Design multithreaded applications so that only an optimal number of threads call the `drand48` routine to avoid lock contention issues.
- Use other randomizing routines which do not compete for the same lock or do not take locks at all when generating random numbers.

I/O Domains in Transition State After Reboot of Primary Domain (17020481)

In servers configured with logical domains and a large number of virtual functions, and where the `failure-policy` parameter is set to `reset`, if the primary domain is rebooted, the I/O and guest domains might hang in a transitional state.

Workaround: Before rebooting the primary domain, perform this procedure for each logical domain.

1. From the primary domain console, use the `telnet` command to access the OpenBoot on the logical domain.
2. At the OpenBoot prompt, set the `boot-device` parameter:

```
ok> setenv boot-device disk net
```

Note - The number of `disk` entries following `setenv boot-device` varies according to the number of virtual functions configured. The example provided is sufficient when more than 200 virtual functions are configured. When there are fewer virtual functions, fewer `disk` entries are required.

3. Verify the `boot-device` parameter with the `printenv` command.
4. Return to the primary domain console.

Note - Do not boot the logical domain.

5. Repeat Step 1 through Step 4 for all logical domains on the system.
6. Reboot the primary domain.

Oracle Solaris `px` Driver Needs to Support `PCI_IOV_SDIO_GROUP` Version 2.1 (16739540)

A PCI device can be loaned out to a guest domain by means of SDIO. If during normal use some problem or fault with the loaned-out device is detected, the Oracle Solaris primary domain retires that device without notifying the Hypervisor.

Because the device is retired, the Oracle Solaris primary domain never instructs the Hypervisor to enable PCI access for that device. The state of the PCI device becomes indeterminate.

When the guest domain associated with the device is subsequently restarted, the guest domain hangs during the OpenBoot probe of PCI devices. The hang is identified by this message being displayed on the guest domain's console:

```
NOTICE: Probing PCI devices
```

Workaround: Remove the device that transitioned into an indeterminate state from that guest domain. Perform these steps on the Oracle Solaris primary domain.

1. Stop the affected guest domain.
2. Remove the device in an indeterminate state from the guest domain using the `ldm rm-io` command.
3. Restart the guest domain.

Dual Path Disk LED Status Control Support (16458281)

As shipped, the server's internal hard drives are configured as multipath (`mpxio`) devices, and you must issue the `cfgadm unconfigure` command for both paths to the drive before removing it. After unconfiguring the first path to the drive, the blue OK to Remove LED illuminates. Do not remove the drive at this time. It is not safe to remove the drive until the second path has been unconfigured.

Workaround: Do not rely upon the blue OK to Remove LED for permission to remove the hard drive. Instead, use the `cfgadm -al` or `format` commands to verify that both paths have been unconfigured, and that it is truly safe to remove the drive.

CPU Power Management Can Drastically Lower Disk IOPS Performance (16355418)

Workloads that attempt to perform a very high number of small I/O operations in short bursts might exhibit poor performance, even on an otherwise unloaded server. This situation is in comparison to workloads of a low number of large I/O operations, where performance is not impacted.

Workaround: There are two workarounds available to disable CPU power management. After either workaround, performance is improved, but power consumption is increased. Both workarounds can be used in the same server, so long as their restrictions are followed.

Note - It is not necessary to reboot the PDomain after applying the workarounds. The effects of the workarounds survive a reboot.

- To apply the workaround to all logical domains within a given PDomain, type this command from within the Oracle ILOM CLI interface on the active SP.

```
-> set /Servers/Pdomains/Pdomain_x/SP/powermgmt policy=disabled
```

where x is the number of the affected PDomain (0 to 3).

Note - This workaround functions only for logical domains where the administrative-authority property has the value of platform. If the administrative-authority is other than platform, see the next workaround.

- To apply the workaround selectively for each logical domain, or if the administrative-authority property of the logical domain has a value other than platform, type this command at the Oracle Solaris prompt within the logical domain.

```
# poweradm set administrative-authority=none
```

If the issue persists, contact your authorized Oracle Service Provider for support.

Known Firmware Issue: SP Failover During Upgrading System Firmware From 9.2.1.c or Older to 9.3.0.c or Later (21051993)

When upgrading system firmware from 9.2.1.c or older to 9.3.0.c or later, you may experience an unexpected SP failover during the process.

Workaround: Ignore the SP failover. This behavior does not indicate any problem with the system.

Known Hardware Issue: EMS RJ45 Ethernet Speed and Activity LEDs Are Dim (16340264)

The LEDs on the EMS RJ-45 Ethernet connectors might be too dim to interpret their status.

Workaround: Use the `dladm show-phys` command from the Oracle Solaris prompt to display the Ethernet port state and speed. For example:

```
# dladm show-phys
LINK          MEDIA          STATE    SPEED  DUPLEX  DEVICE
net0          Ethernet       up       100    full    ixgbe0
net1          Ethernet       down     0      unknown ixgbe1
```

Use this table to translate the STATE values displayed by the `dladm show-phys` command to activity LED state.

| STATE Value | Activity LED State | Comment |
|-------------|--------------------|---|
| up | Blinking | Link is up and data is being transferred. |
| up | On | Link is up. |
| down | Off | Link is down or no link at all. |

Use this table to translate the SPEED values displayed by the `dladm show-phys` command to speed LED color.

| SPEED Value | Speed LED Color | Comment |
|-------------|-----------------|---------------------|
| 10000 | Amber | 10 Gigabit Ethernet |
| 1000 | Green | 1 Gigabit Ethernet |
| 100 | Off | 100BASE-T |

Known Documentation Issue: SPARC M5/M6-32 Service Manual Uses Inconsistent Hot-Plug-Swap Terminology (20238762)

The *SPARC M6-32 and SPARC M5-32 Servers Service Manual* uses the terms hot-plug and hot-swap without defining the terms. These terms will be added to the glossary:

Hot-Plug

Hot-plug is a feature which allows the Oracle Solaris OS to continue running while a SPARC M5-32 or SPARC M6-32 component is inserted or removed. However, the Oracle Solaris OS and platform must be prepared before and after a hot-pluggable component is replaced.

Disk drives and I/O cards are examples of hot-pluggable components. See the service procedure for a specific hot-pluggable component to learn which preparatory steps apply. See also [“Hot-Swap” on page 34](#).

Hot-Swap

Hot-swap is a feature which requires no assistance or preparation of the Oracle Solaris OS and server when a hot-swappable SPARC M5-32 or SPARC M6-32 component is replaced.

Power supplies and fan modules are hot-swappable components and in most cases can be replaced while the system continues to run, with no setup commands required. See also “[Hot-Plug](#)” on page 33.

Issues Resolved With Firmware Update

Refer to the readme file for the firmware version you install for a list of the issues that are resolved when you install new system firmware on the SPARC M6-32 and SPARC M5-32 servers.

To access the readme file, visit:

<https://support.oracle.com/>