

# Sun SPARC Enterprise T5140 and T5240 Servers

## Product Notes



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**Late-breaking information about the server. An HTML document collection is also available.**

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# SPARC Enterprise T5140 and T5240 Product Notes

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These product notes contain important and late-breaking information about the Sun SPARC Enterprise<sup>®</sup> T5140 and T5240 servers from Oracle.

This information is organized into the following sections:

- [“General Information” on page 1](#)
- [“Supported Versions of Oracle Solaris and System Firmware” on page 2](#)
- [“Oracle Solaris OS and Firmware Requirements for Certain Features” on page 4](#)
- [“Preinstalled Software” on page 5](#)
- [“Patch Information” on page 6](#)
- [“Rules for PCIe Slot Use by Certain HBA Cards” on page 8](#)
- [“FB-DIMM Voltage Compatibility” on page 8](#)
- [“Known Product Issues” on page 9](#)
- [“Product Documentation Errata” on page 21](#)

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## General Information

This section contains information of a general interest.

## Major New Features

The following new feature has been added to the servers in this release:

- Firmware release 7.3.0.c, which includes support for the following new features:

- Support for the Oracle VM for SPARC 2.0 software
- Support for new and legacy power supply units (PSUs) in the same chassis.

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## Documentation, Support, and Training

These web sites provide additional resources:

- Documentation <http://www.oracle.com/technetwork/indexes/documentation/index.html>
- Support <https://support.oracle.com>
- Training <https://education.oracle.com>

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**Note** – Information in these product notes supersedes the information in the SPARC Enterprise T5140 and T5240 documentation sets.

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## Supported Versions of Oracle Solaris and System Firmware

The following table lists the versions of the Oracle Solaris Operating System (Oracle Solaris) and system firmware supported in this release.

Your server is preinstalled with the latest supported OS, patches and firmware. If you decide to install some other supported version, be certain to also install the patches required by that version. For information on OS patch requirements, see the following:

- [“Patches Required for the Oracle Solaris 10 10/08 OS”](#) on page 6
- [“Patches Required for the Oracle Solaris 10 5/08 OS”](#) on page 6
- [“Patches Required for the Oracle Solaris 10 8/07 OS”](#) on page 7.

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**Note** – If you install an OS over the preinstalled OS (even if it is the same version) you will overwrite the supplementary software that was preinstalled at the factory. See [“Preinstalled Software” on page 5](#) for more information on this additional preinstalled software.

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**TABLE 1** Supported Versions of the Operating System and Firmware

<b>Component</b>	<b>Supported Versions</b>
OS	Oracle Solaris 10 8/07 OS (U4) plus mandatory patches – Minimum supported OS
	Oracle Solaris 10 5/08 OS (U5) plus patches
	Oracle Solaris 10 10/08 OS (U6)
	Oracle Solaris 10 5/09 OS (U7)
	Oracle Solaris 10 5/10 OS (U9)
Firmware	System Firmware 7.1.0.b – Minimum supported System Firmware version
	System Firmware 7.1.0.g
	System Firmware 7.1.3.d
	System Firmware 7.1.3.e
	System Firmware 7.1.6
	System Firmware 7.1.6.d
	System Firmware 7.1.8
	System Firmware 7.2.0
	System Firmware 7.2.2.d
	System Firmware 7.2.2.e
	System Firmware 7.2.4.e
	System Firmware 7.2.7.g
	System Firmware 7.2.10.a (preinstalled)
	System Firmware 7.3.0
	System Firmware 7.3.0.c or later

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# Oracle Solaris OS and Firmware Requirements for Certain Features

The following table identifies the minimum OS and firmware versions required to support certain features.

**TABLE 2** Minimum Firmware Version Requirements for Certain Features

Feature	Minimum Firmware Version	Minimum OS Version
12 or 24 FB-DIMM system configuration	7.1.0.g	N/A
Systems operating with DC power supplies	7.1.6.d	Oracle Solaris 10 10/08 OS
Systems using the External I/O Expansion Unit	7.1.6.d	Oracle Solaris 10 10/08 OS
Systems using low voltage (LV) 1.5V FB-DIMMs*	7.1.6.d	N/A
Different FB-DIMM capacities on different CPUs*	7.1.7.f	N/A
Oracle ILOM 2.0 firmware (with 1.2- or 1.4-GHz processors)	7.1.8	N/A
Oracle ILOM 3.0 firmware	7.2.0	N/A
1.6 GHz processors	7.2.2.e	Oracle Solaris 10 8/07 OS
LDOMs 1.2	7.2.2.e	Oracle Solaris 10 5/09 OS
Flash Accelerator F20 PCIe Card	7.2.4.e	N/A
LDoms 1.3	7.2.7.d	Oracle Solaris 10 10/09 OS OpenOracle Solaris 2009.06 OS
Oracle VM for SPARC 2.0	7.3.0.c or later	Oracle Solaris 10 5/10 OS

\* Follow all system memory configuration rules and restrictions as defined in the *SPARC Enterprise T5140 and T5240 Servers Service Manual*.

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**Note** – To benefit from the accumulated features, enhancements, and fixes, upgrade your system firmware to the most recent version available.

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## Preinstalled Software

The following table lists the software preinstalled on your server.

**TABLE 3** Preinstalled Software

Software	Location	Function
Oracle Solaris 10 10/09	Root disk Slice 0 (and on Slice 3 in the ABE) with patches	Operating system
Oracle Studio 1.2 U1 developer tools	/opt/sunstudio12.1	C, C++, and Fortran compiler
LDoms Manager 1.3	/opt/SUNWldm/	Manages Logical Domains
LDoms MIB	/opt/SUNWldmib	LDoms Management Information Base
CMT Tools 1.2	/opt/sunstudio12.1/bin /opt/sunstudio12.1/prod/bin	Sun Studio Developer Tools
Code Generator for SPARC Systems 4.3.2	/opt/gcc and /opt/SUNW0scgfss	GCC compiler for SPARC Systems

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**Note** – The Oracle Solaris OS is preinstalled both in root disk Slice 0 for normal operations, and in Slice 3 along with Live Upgrade software to provide an Alternate Boot Environment (ABE). The ABE enables you to upgrade the OS or perform system maintenance tasks without reducing performance. An identical (bootable) copy of the root partition (including the OS, EIS, and applications) is installed as an ABE in Slice 3.

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# Patch Information

This section provides information about patch requirements.

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**Note** – You should install the latest Oracle Solaris OS kernel update (KU) patch to be certain your system has the most current fixes.

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## Patches Required for the Oracle Solaris 10 10/08 OS

At the time this document is published, no patches are required for this distribution.

## Patches Required for the Oracle Solaris 10 5/08 OS

The following table identifies the mandatory patches for the Oracle Solaris 10 5/08 OS.

**TABLE 4** Mandatory Patches for the Oracle Solaris 10 5/08 OS

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Patch ID	Description
137111-01 or later	Kernel patch
137291-01 or later	n2cp driver patch
138048-01 or later	nxge patch

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# Patches Required for the Oracle Solaris 10 8/07 OS

The following table identifies the mandatory patches for the Oracle Solaris 10 8/07 OS.

**TABLE 5** Mandatory Patches for the Oracle Solaris 10 8/07 OS

<b>Patch ID</b>	<b>Description</b>
124235-02 or later	libpam.so.1 patch
125369-13 or later	Fault Manager patch
125416-06 or later	UFS utilities patch
125476-02 or later	libc_psr_hwcap.so.1 patch
126434-05 or later	raidctl patch
127127-11 or later	Kernel patch
137111-01 or later	Kernel patch

## Patches for Option Cards

If you add option cards to your server, refer to the documentation and README files for each card to determine if additional patches are needed.

# Rules for PCIe Slot Use by Certain HBA Cards

Some optional I/O cards are restricted to particular PCIe slots to enable more effective cooling for themselves and other components in the chassis. The following chart identifies the cards that have this restriction.

**TABLE 6** PCIe Slot Usage Rules for Certain HBA Cards

System	HBA Card	PCIe Slots Allowed	Notes
T5140	Flash Accelerator F20 PCIe Card	1, 2	Limit, 2 cards per system Internal connectors cannot be used
	StorageTek x8 SAS RAID HBA	1	Limit, 1 card per system
	StorageTek SAS RAID External HBA	1	Limit, 1 card per system
	PCI Express Quad Gigabit Ethernet UTP	1, 2	This card is <i>not</i> allowed in slot 0.
	PCI Express Dual 10-Gigabit Ethernet Fiber	1, 2	This card is <i>not</i> allowed in slot 0.
T5240	Flash Accelerator F20 PCIe Card	2, 5	Limit, 2 cards per system Internal connectors cannot be used
	StorageTek x8 SAS RAID HBA	1	Limit, 1 card per system
	StorageTek SAS RAID External HBA	1, 2, 4, 5	Limit, 4 cards per system
	PCI Express Quad Gigabit Ethernet UTP	1, 2, 3*, 4, 5	In 8-disk systems, this card is <i>not</i> allowed in slot 0. * In 16-disk systems, this card is <i>not</i> allowed in slot 0 or slot 3.
	PCI Express Dual 10-Gigabit Ethernet Fiber	1, 2, 3*, 4, 5	In 8-disk systems, this card is <i>not</i> allowed in slot 0. * In 16-disk systems, this card is <i>not</i> allowed in slot 0 or slot 3.

# FB-DIMM Voltage Compatibility

Servers were originally shipped with 1.8 V FB-DIMMs in early 2008 until 1.5 V FB-DIMMs were qualified in late 2008. If you want to add additional memory to a server purchased before the release of 1.5 V FB-DIMMs, you must replace all 1.8 V FB-DIMMs with 1.5 V FB-DIMMs and upgrade to Firmware 7.1.6 or later.

Mixing of 1.8 V and 1.5 V FB-DIMMs is not supported.

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## Known Product Issues

This section describes issues that are known to affect the T5140 and T5240 servers. The issue descriptions are organized as follows:

- [“Hardware and Mechanical Issues” on page 9](#)
- [“Firmware Issues” on page 13](#)
- [“Oracle Solaris OS Issues” on page 14](#)

## Hardware and Mechanical Issues

This section describes hardware issues known to exist at this release of the servers.

**TABLE 7** Hardware-Related Issues on the Sun SPARC Enterprise T5140 and T5240 Servers

CR ID	Description	Workaround
N/A	When the server is plugged in, but is idle or not turned on, it is possible for the internal temperature sensor to falsely report a low-temperature warning. This might happen if the ambient temperature is at the low end of the allowed temperature range. A -7 degree C offset is built into the sensor circuit to compensate for the influence of heat sources near the thermocouple.	If <code>show environment</code> reports a low temperature warning while the server is not running, verify that the ambient temperature is within the range specified in the Site Planning Guide.
N/A	When the system is initialized, firmware is loaded and occupies approximately 128 MB to 352 MB of the host memory. The banner and other software utilities report an amount of memory minus the amount of memory that is occupied by firmware.	Be aware that the banner reports the amount of memory less the amount used by the firmware.
N/A	When a RAID volume is created using internal drives, the LEDs on the drives configured in the RAID volume all blink simultaneously at an interval of approximately 16 seconds.	This behavior is normal and can be ignored.
N/A	The On/Standby portion of the service label contains an error. It says to press and hold the On/Standby button for “5 seconds”. It should say “4 seconds”.	<b>Note</b> - This error appears on all SPARC Enterprise T5140 and T5240 server configurations.

**TABLE 7** Hardware-Related Issues on the Sun SPARC Enterprise T5140 and T5240 Servers (*Continued*)

CR ID	Description	Workaround
N/A	Two illustrations in the service label show the top cover button in the wrong location. The button is near the right edge of the server.	<b>Note</b> - This error appears on all SPARC Enterprise T5140 and T5240 servers.
N/A	The portion of the service label that cautions about the weight of the server gives the wrong weight. It should say "42 lb" and "19 kg".	<b>Note</b> - This error appears on SPARC Enterprise T5140 server configurations.
N/A	In the Interior Service Label CRU and FRU Procedures portion of the service label, the letters "PBD" should say "PDB".	<b>Note</b> - This error appears on all SPARC Enterprise T5140 and T5240 servers.
N/A	The FM Status Indicator portion of the service label has an erroneous statement. Where it says, "In front of FM on FanBD" it should say, "on top of FM".	<b>Note</b> - This error appears on SPARC Enterprise T5240 server configurations.
N/A	The drawing showing the cable management arm being rotated represents the wrong server model. It should show the SPARC Enterprise T5240 server,	<b>Note</b> - This error appears on SPARC Enterprise T5240 server configurations.
6793093	When using a Type 6 keyboard attached directly to the server, the server might hang during initial boot.	Only Type 7 keyboards are supported for local connections. Do not use any other keyboard type.
N/A	A faulty USB port constantly asserts and de-asserts itself. This condition produces errors in the system log, such as the following: Current : /MB/I_USB1 : Predictive Failure Asserted Current : /MB/I_USB1 : Predictive Failure Deasserted	There is no workaround for this error.

## False Intermittent SATA Errors Seen on SPARC Enterprise T5120, T5220, T5140, and T5240 Systems (CR 6880299)

While booting, some systems with SATA DVD devices intermittently log extraneous port failure errors in `/var/adm/messages`. The following shows an example of typical error messages for the T5x40 server:

```
/pci@400/pci@0/pci@1/pci@0/usb@0,1 (ohci1): Connecting device on port 1 failed
/pci@400/pci@0/pci@1/pci@0/usb@0,2 (ehci0): Connecting device on port 2 failed
```

*Workaround:* You can ignore these messages.

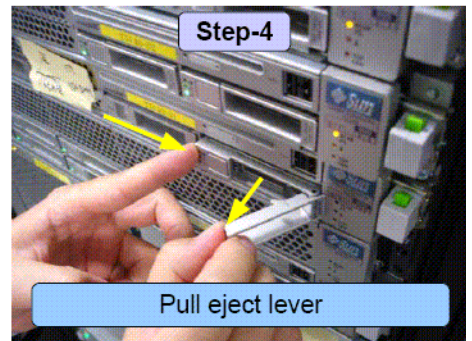
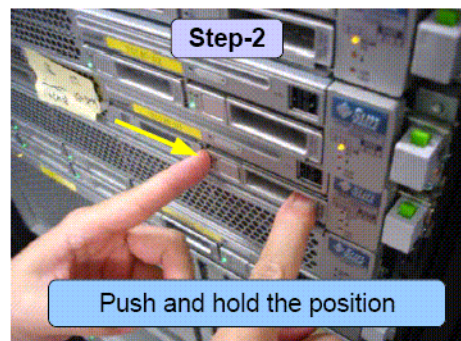
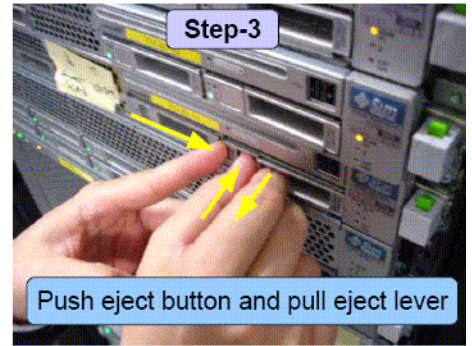
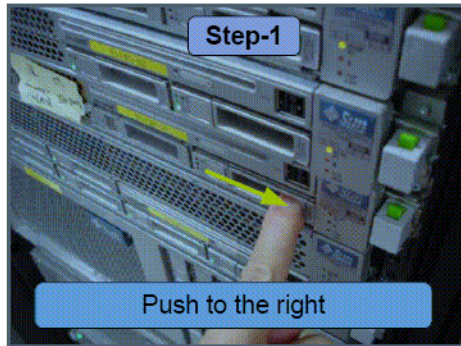
# Hard Drives Can Be Difficult to Remove From Right-Side Drive Bays

Hard drives in the right-side drive bays can be difficult to remove.

*Workaround:* Until a mechanical fix is implemented, use the following procedure to remove hard drives from right-side drive bays.

## ▼ Hard Drive Removal Procedure

- 1. Press the drive to the right.**  
See Step 1 in the following figure.
- 2. Push in on the drive, while holding it pressed to the right.**  
See Step 2 in the following figure.
- 3. Press the drive eject button and pull the eject lever.**  
See Step 3 in the following figure.
- 4. Use the eject lever to slide the drive out of the bay.**  
See Step 4 in the following figure.



## Misalignment of Backplane to HDD Cage in Some 8- and 16-Disk Systems

It has been found in some 8-disk and 16-disk systems that SSDs and/or disk drives cannot be fully inserted the hard drive bays. This problem can result from misalignment between the backplane and hard drive cage.

If you have a system that exhibits this problem, you may be able to correct the backplane misalignment using a retention bracket. This is an orderable FRU (field replaceable unit), part number 542-0355.

Instructions for using the retention bracket are included with the part.

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**Note** – In some cases, the retention bracket can be installed without removing the HDD cage. In cases where the HDD cage must be removed, the procedure must be performed by qualified service personnel.

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## Note on Bus Bar Assembly Between Power Distribution Board and Motherboard

The motherboard is connected to the power distribution board with a ribbon cable and a bus bar assembly. When installing a motherboard, you must ensure that the bus bar screws are tightened securely.

In addition, when installing a replacement power distribution board (PDB), you must transfer the bus bar assembly from the old PDB to the new PDB.

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**Note** – The PDB on the SPARC Enterprise T5240 has additional bus bar connections to the power supply backplane.

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When reassembling the system, ensure that *all* bus bar screws are tightened securely.



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**Caution** – Loose bus bar screws can cause arcing between the bus bar assembly and other internal components, potentially damaging the server and posing a fire hazard.

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For detailed motherboard and power distribution board installation procedures, see the *Sun SPARC Enterprise T5140 and T5240 Servers Service Manual*.

## Firmware Issues

This section describes issues present in the system or component firmware.

### SCSI Transport Errors Under Heavy Load in Some Systems Equipped with 4 USB Drives (CR 6945900)

Under very heavy load to the USB subsystem, some SCSI errors might appear. Perform a power supply reset to fix the errors.

### Incorrect Margin Voltage 1.320V Exceeded High Limit Warnings Appear After Service Processor Warm Reset (CR 6998751)

In some cases, incorrect margin voltage exceeded errors appear after a warm reset of the service processor. For example, the following may appear in the `vbsc.log` file:

```
Nov 6 11:28:28 NOTICE: [CMP0 ] Adjusted vcore voltage 1.320V
```

The `show /SYS/MB/V_VCOREL` command also reports the voltage 1.320V exceeded high limit warning:

```
-> show /SYS/MB/V_VCOREL

/SYS/MB/V_VCOREL
  Targets:

  Properties:
    type = Voltage
    ipmi_name = /MB/V_VCOREL
    class = Threshold Sensor
    value = 1.320 Volts
    upper_nonrecov_threshold = 1.452 Volts
    upper_critical_threshold = 1.416 Volts
    upper_noncritical_threshold = 1.380 Volts
    lower_noncritical_threshold = 1.272 Volts
    lower_critical_threshold = 1.224 Volts
    lower_nonrecov_threshold = 1.188 Volts
    alarm_status = cleared
```

This issue causes the system processor(s) to operate at a reduced voltage.

*Resolution:* Do one of the following:

- Power cycle the system.
- Install System Firmware 7.3.0.c or later.

## SATA DVD Device Disappears After Attempted Write (CR 7050587)

In some situations, the SATA DVD device disappears from OBP and the Oracle Solaris OS after an attempted large-file write operation to DVD-R or DVD-RW media.

*Workaround:*

Reboot the server and attempt the DVD write operation with a different media type. If the write operation still fails, contact Oracle Support for a firmware update for the USB/SATA controller.

## SSDs and RAID HBAs Require Firmware Updates To Support RAID Configurations With SSDs

To use the Storage 32GB SLC SATA Solid State Drives with StorageTek SAS RAID HBAs, the SSD firmware and HBA firmware must be at the following levels:

- Minimum SSD firmware level: 8855
- Minimum RAID HBA firmware level: 16732

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**Note** – The RAID HBA firmware requirement applies to both StorageTek x8 SAS RAID HBAs and StorageTek SAS RAID External HBAs.

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To do this, download and install the patch kits that apply to your platform's operating system. For additional patch information and instructions for downloading and installing the required patches, go to (<http://www.sunsolve.sun.com>).

## Oracle Solaris OS Issues

This section describes issues related to the Oracle Solaris OS known to affect this release of the SPARC Enterprise T5140 and T5240 servers.



# Boot Drive May Report “drive type unknown” for Oracle Solaris format Command (CR 6886514)

During a period extending from mid-September to early October 2009 (approximately 3 weeks) a patch was preinstalled on some servers, which introduced a latent bug into those systems. The bug is described as “latent” because it is activated only when the Oracle Solaris format command is used. Otherwise, the bug has no effect on system behavior or performance.

When a system administrator or other user with `root (/)` privileges enters the `format` command on a system containing this bug, the boot drive will report “drive type unknown”. This fault condition presents two problems for the administrator:

- The administrator will be unable to access unused portions of the boot drive because of the unknown drive type error.
- The presence of mounted partitions blocks use of the `format` utility’s auto configure feature. Attempts to bypass this restriction by booting from the network or removable media could put the system in an unbootable state.

The *Workaround* section below describes a procedure you can use to recover from this “drive type unknown” fault mode without the risks associated with the network and media boot methods.

Workaround: Perform the sequence of steps shown in [EXAMPLE 1](#). To simplify tracking of the procedure, the steps are organized into nine sections:

- Determine whether or not the system’s boot device is affected.
- Shut the server down and restart in single user mode with the `root` file system mounted read only.
- Mount the `tmpfs /tmp` filesystem to provide a working area.
- Capture the boot drive’s existing `vtoc` in a file stored in `/tmp`.
- Make a copy of the `fmthard` utility for use in the `/tmp` work area.
- Set and export the `NOINUSE_CHECK` variable to allow the `format` command full access to the boot drive.
- Run the `format` utility to restore the drive’s “type.”
- Use the `fmthard` command and stored information to complete the recovery.
- Verify the success of the recovery.

**EXAMPLE 1** Procedure for Recovering a Boot Drive's "drive type"

1. Determine if the boot drive is affected:

```
root@host-1 # uname -a
SunOS host-1 5.10 Generic_141414-10 sun4v sparc SUNW,SPARC-Enterprise-T5240
root@host-1 # mount -p | head -1
/dev/dsk/c0t0d0s0 - / ufs - no rw,intr,largefiles,logging,xattr,onerror=panic
root@host-1 # format c0t0d0s0 <===== boot device determined previously
/dev/dsk/c0t0d0s0 is currently mounted on /. Please see umount(1M).
/dev/dsk/c0t0d0s1 is currently used by swap. Please see swap(1M).
```

FORMAT MENU:

```
disk      - select a disk
type      - select (define) a disk type
partition - select (define) a partition table
current   - describe the current disk
format    - format and analyze the disk
repair    - repair a defective sector
label     - write label to the disk
analyze   - surface analysis
defect    - defect list management
backup    - search for backup labels
verify    - read and display labels
save      - save new disk/partition definitions
inquiry   - show vendor, product and revision
volname   - set 8-character volume name The jumpstart install process
!<cmd>    - execute <cmd>, then return
quit
```

format> **disk**

The jumpstart install process

AVAILABLE DISK SELECTIONS:

```
0. c0t0d0 <drive type unknown> <===== problem indication
   /pci@0/pci@0/pci@2/scsi@0/sd@0,0
Specify disk (enter its number)[0]: ^C <===== quit with <ctrl>C
format> quit
root@host-1 #
```

2. Shut the server down; then bring it up in single user mode with root filesystem mounted read only.

```
root@host-1 # init 0
Oct 20 16:26:56 host-1 syslogd: going down on signal 15
svc.startd: The system is down.
syncing file systems... done
Program terminated
```

```
SPARC Enterprise T5240, No Keyboard
Copyright 2011 Oracle and/or its affiliates. All rights reserved.
OpenBoot 4.30.4, 3968 MB memory available, Serial #xxxxxxx.
Ethernet address xx:xx:xx:xx:xx:xx, Host ID: xxxxxxxx.
```

```
{0} ok boot -m milestone=none
Boot device: /pci@0/pci@0/pci@2/scsi@0/disk@0,0:a File and args: -m
milestone=none
Copyright 1983-2011 Oracle and/or its affiliates. All rights reserved.
Use is subject to license terms.
Booting to milestone "none".
Requesting System Maintenance Mode
(See /lib/svc/share/README for more information.)
Console login service(s) cannot run
```

```
Root password for system maintenance (control-d to bypass): <===== login
single user mode single-user privilege assigned to /dev/console.
Entering System Maintenance Mode
```

```
Oct 20 18:06:11 su: 'su root' succeeded for root on /dev/console
```

```
Sourcing //.profile-EIS.....
```

3. Mount the tmpfs /tmp filesystem to provide a working area.

```
root@ # mount -F tmpfs /tmp
root@ # cd /tmp
```

4. Capture the boot drive's existing vtoc in a file stored in /tmp. Use the raw device of the boot device determined at the beginning -- i.e ., use /dev/rdisk/c?t?d?s? not /dev/dsk/c?t?d?s?

```
root@ # prtvtoc /dev/rdisk/c0t0d0s0 > /tmp/vtoc <==== boot disk vtoc saved
in /tmp/vtoc
```

5. Make a copy of the fmthard utility for use in the /tmp work area.

```
root@ # cp /usr/sbin/fmthard /tmp
```

6. Set and export the NOINUSE\_CHECK variable:

```
root@ # setenv NOINUSE_CHECK=1
root@ # export NOINUSE_CHECK
```

7. Run the format utility to restore the drive's "type".

```
root@ # format
Searching for disks...done
```

```
AVAILABLE DISK SELECTIONS:
```

```
0. c0t0d0 <drive type unknown> <===== drive type unknown is the issue
  /pci@0/pci@0/pci@2/scsi@0/sd@0,0
Specify disk (enter its number): 0
```

Format will now present the following menu, choose 0. Auto configure

AVAILABLE DRIVE TYPES:

- 0. Auto configure
- 1. Quantum ProDrive 80S
- 2. Quantum ProDrive 105S
- [...]
- 17. Zip 250
- 18. Peerless 10GB
- 19. other

Specify disk type (enter its number): 0

```
c0t0d0: configured with capacity of 68.35GB <===== drive type corrected
<SUN72G cyl 14087 alt 2 hd 24 sec 424> <===== drive type corrected
selecting c0t0d0
[disk formatted]
```

Following Auto configure, the correct drive value should be reported.

FORMAT MENU:

```
disk      - select a disk
type      - select (define) a disk type
partition - select (define) a partition table
current   - describe the current disk
format    - format and analyze the disk
repair    - repair a defective sector
label     - write label to the disk
analyze   - surface analysis
defect    - defect list management
backup    - search for backup labels
verify    - read and display labels
save      - save new disk/partition definitions
inquiry   - show vendor, product and revision
volname   - set 8-character volume name The jumpstart install process
!<cmd>   - execute <cmd>, then return
quit

format> label
Ready to label disk, continue? y
format> quit
root@ #
```

8. Use the `fmthard` command and stored information to complete the recovery.

```
root@ # /tmp/fmthard -s /tmp/vtoc /dev/rdisk/c0t0d0s0 <=== raw boot device
used to capture vtoc.
```

```
fmthard: New volume table of contents now in place.
root@ #
```

9. Verify the success of the recovery.

```
root@ # format
Searching for disks...done
```

AVAILABLE DISK SELECTIONS:

```
0. c0t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
   /pci@0/pci@0/pci@2/scsi@0/sd@0,0
Specify disk (enter its number): 0
selecting c0t0d0
[disk formatted]
```

FORMAT MENU:

```
disk      - select a disk
type      - select (define) a disk type
partition - select (define) a partition table
current   - describe the current disk
format    - format and analyze the disk
repair    - repair a defective sector
label     - write label to the disk
analyze   - surface analysis
defect    - defect list management
backup    - search for backup labels
verify    - read and display labels
save      - save new disk/partition definitions
inquiry   - show vendor, product and revision
volname   - set 8-character volume name The jumpstart install process
!<cmd>    - execute <cmd>, then return
quit
```

```
format> partition
```

PARTITION MENU:

```
0      - change '0' partition
1      - change '1' partition
2      - change '2' partition
3      - change '3' partition
4      - change '4' partition
5      - change '5' partition
6      - change '6' partition
7      - change '7' partition
select - select a predefined table
modify - modify a predefined partition table
name   - name the current table
print  - display the current table
label  - write partition map and label to the disk
```

```

!cmd> - execute <cmd>, then return
quit
partition> print
Current partition table (original):
Total disk cylinders available: 14087 + 2 (reserved cylinders)

Part   Tag          Flag   Cylinders      Size          Blocks
0      root          wm     825 - 3298     12.00GB      (2474/0/0)   25175424
1      swap          wu     0 - 824        4.00GB      (825/0/0)    8395200
2      backup        wm     0 - 14086     68.35GB     (14087/0/0) 143349312
3      unassigned    wm     3299 - 5772   12.00GB     (2474/0/0)   25175424
4      unassigned    wu     0              0            (0/0/0)      0
5      unassigned    wu     0              0            (0/0/0)      0
6      unassigned    wu     0              0            (0/0/0)      0
7      unassigned    wu     0              0            (0/0/0)      0

partition> quit

```

FORMAT MENU:

```

disk      - select a disk
type      - select (define) a disk type
partition - select (define) a partition table
current   - describe the current disk
format    - format and analyze the disk
repair    - repair a defective sector
label     - write label to the disk
analyze   - surface analysis
defect    - defect list management
backup    - search for backup labels
verify    - read and display labels
save      - save new disk/partition definitions
inquiry   - show vendor, product and revision
volname   - set 8-character volume name The jumpstart install process
!cmd> - execute <cmd>, then return
quit

```

format> **disk**

AVAILABLE DISK SELECTIONS:

```

0. c0t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
   /pci@0/pci@0/pci@2/scsi@0/sd@0,0
Specify disk (enter its number)[0]:
selecting c0t0d0
[disk formatted]
format> quit

```

The drive type recovery is complete, reboot the server:

```

root@ # reboot
syncing file systems... done

```

```
rebooting...
Resetting...
#

SPARC Enterprise T5240, No Keyboard
Copyright 2011 Oracle and/or its affiliates. All rights reserved.
OpenBoot 4.30.4, 3968 MB memory available, Serial #xxxxxxx.
Ethernet address xx:xx:xx:xx:xx:xx, Host ID: xxxxxxxx.

Boot device: /pci@0/pci@0/pci@2/scsi@0/disk@0,0:a File and args:
SunOS Release 5.10 Version Generic_141414-10 64-bit
Copyright 1983-2011 Oracle and/or its affiliates. All rights reserved.
Use is subject to license terms.
Hostname: host-1
The / file system (/dev/rdisk/c0t0d0s0) is being checked.
Reading ZFS config: done.
host-1 console login:
```

## Boot From SATA DVD Limitation

Oracle Solaris 10 10/08 is the first Oracle Solaris OS to support for booting from a SATA DVD. Miniroot software in Oracle Solaris S10 8/07 and S10 5/08 lack SATA driver compatibility, which prevents successful booting from a SATA DVD.

Each version of the Oracle Solaris OS requires a different miniroot update procedure. They are described separately in an article at the following BigAdmin location:

[http://www.sun.com/bigadmin/features/articles/sparc\\_sata\\_patchm.ini.jsp](http://www.sun.com/bigadmin/features/articles/sparc_sata_patchm.ini.jsp)

---

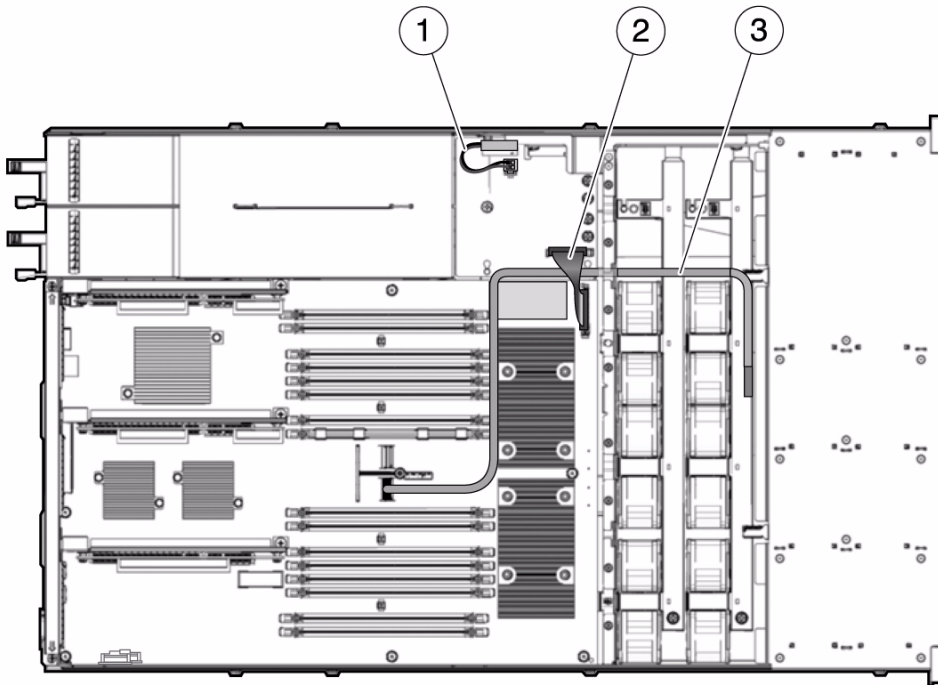
## Product Documentation Errata

This section describes errors or omissions in the current product documentation.

# Incorrect Data Cable Routing Diagram for Sun SPARC Enterprise T5140 Servers With 4-Disk Backplanes

The service manual data cable routing diagram for 4-disk capable backplanes is wrong. It shows the cable connected to SAS1. It should be connected to SAS0. This is the correct diagram:

**FIGURE 1** Internal Cables for the Onboard SAS Controller Card (Four-Disk Capable SPARC Enterprise T5140 Servers)

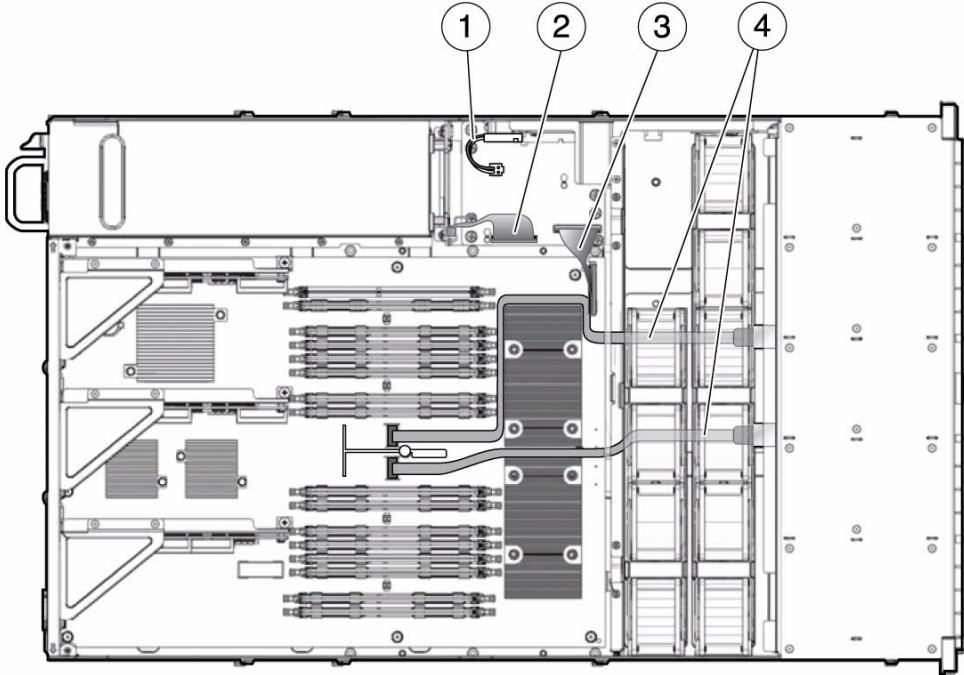




# Incorrect Data Cable Routing Diagram for Sun SPARC Enterprise T5240 Servers With 8-Disk Backplanes

The service manual data cable routing diagram for 8-disk capable backplanes in T5240 servers is wrong. It shows a single data cable. There should be two. This is the correct diagram:

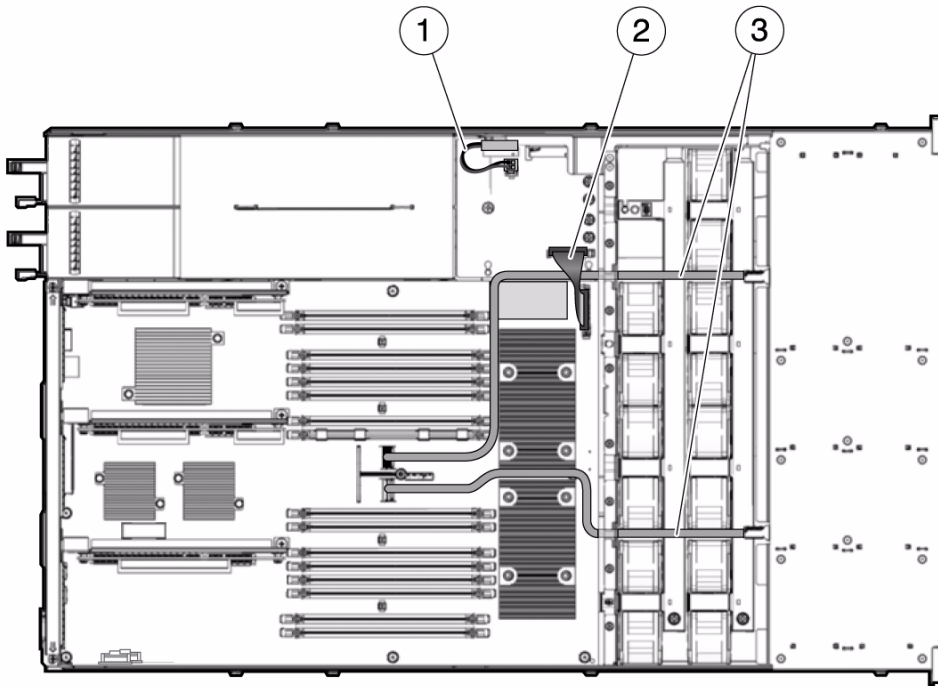
**FIGURE 2** Internal Cables for Onboard SAS Controller Cards (Eight-Disk Capable SPARC Enterprise T5240 Servers)



# Fan Module Missing in Data Cable Routing Diagram

The service manual cable routing diagram for 8-disk capable backplanes in T5140 servers is missing a fan module in the upper right corner. This is the correct diagram:

**FIGURE 3** Internal Cables for the Onboard SAS Controller Card (Eight-Disk Capable SPARC Enterprise T5140 Servers)



## Incorrect SAS RAID HBA Data Cable Routing Information for Systems With 8- or 16-Disk Capable Backplanes (CR 6776592)

The following manuals contain incorrect descriptions of data cable routing between SAS RAID HBA ports and 8- or 16-disk capable backplanes:

- *SPARC Enterprise T5140 and T5240 Servers Service Manual*
- *Installing the StorageTek SAS RAID HBA Into the SPARC T5120 and T5220 Servers*

Corrections for these manuals are described separately below.

---

**Caution** – Do *not* change cable routing in a system that has disk volumes already built and that are being used successfully. If you change the data cable connections, you will need to swap hard drives in the backplane so the logical mapping of the data stored on the drives will be retained.

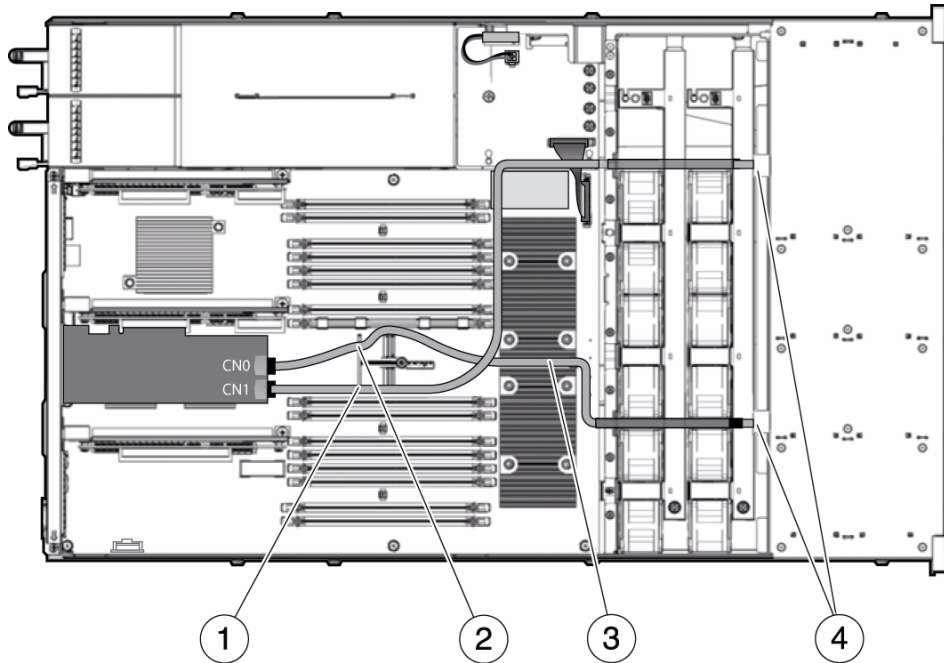
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## Corrections for the Service Manual

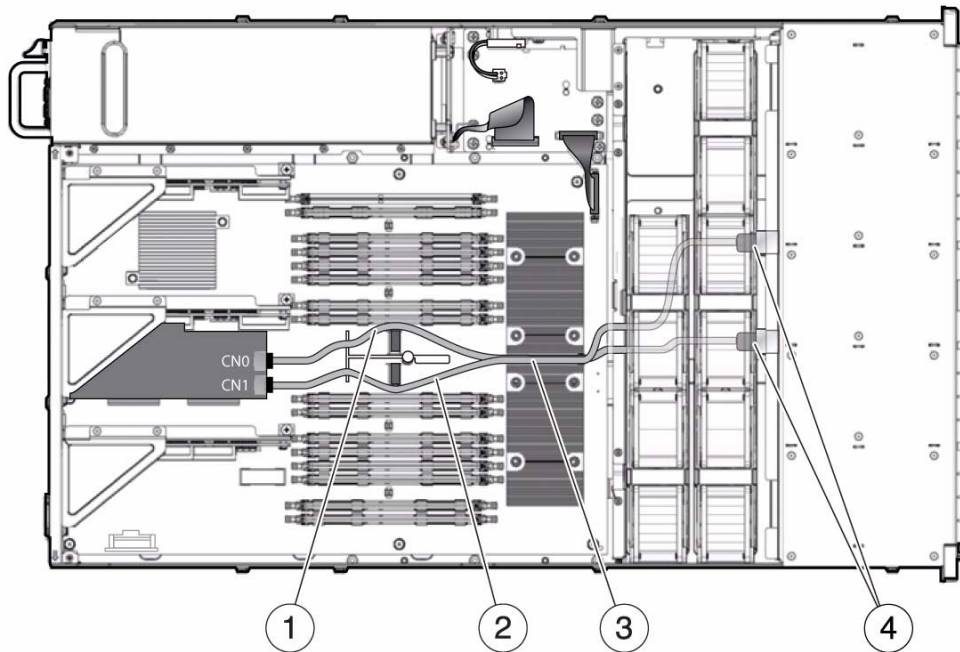
Currently, the CN0 and CN1 port connections are the opposite of what they should be. The following list describes the correct SAS data cable connections and provides illustrations of the correct cable routing:

- CN0 <--> P2 (J0301)
- CN1 <--> P3 (J0302)
- [FIGURE 4](#) in this manual shows the correct cable routing information for eight-disk capable T5140 servers. Use it in place of the figure shown on page 194 of the Service Manual.
- [FIGURE 5](#) in this manual shows the correct cable routing information for eight- or sixteen-disk capable T5240 servers. Use it in place of the figure shown on page 207 of the Service Manual.

**FIGURE 4** HDD Data Cable Routing for SAS RAID Controller Card in Eight-Disk Capable SPARC Enterprise T5140 Servers



**FIGURE 5** HDD Data Cable Routing for SAS RAID Controller Cards in Eight- or Sixteen-Disk Capable SPARC Enterprise T5240 Servers



## Corrections for the HBA Installation Manual

The corrections for the HBA Installation Manual are summarized below:

- Use [FIGURE 4](#) from this manual in place of Figure 7 in the HBA Installation Manual.
- Use [FIGURE 5](#) from this manual in place of Figure 11 in the HBA Installation Manual.
- For T5140 servers, change all CN0 and CN1 routing instructions associated with these figures so that the longer data cable connects CN0 to P2 (J0301) and the shorter data cable connects CN1 to P3 (J0302).
- For T5240 servers, change all CN0 and CN1 routing instructions associated with these figures so that one data cable connects CN0 to P2 (J0301) and the other data cable connects CN1 to P3 (J0302).

- Use the following table in place of the table shown in Step 6 on page 14 of the HBA Installation Manual.

Server Model	Cable Length	Part Number (see label on cable)	HBA Connector	Hard Drive Backplane Connector	Figure Reference
T5140					
4-disk backplane	60 cm	530-3893	CN0	P1	Figure 7
8-Disk backplane	45 cm	530-3891	CN0	P2	Figure 8
	40 cm	530-4077	CN1	P3	
T5240					
8-disk backplane	40 cm	530-4077	CN0	P2	Figure 11
	40 cm	530-4077	CN1	P3	
16-disk backplane	40 cm	530-4077	CN0	P2	Figure 11
	40 cm	530-4077	CN1	P3	

## Corrected FB-DIMM Removal Procedure

In the *Sun SPARC Enterprise T5140 and T5240 Servers Service Manual*, the FB-DIMM removal procedure mentions FB-DIMM slot fillers.

FB-DIMM slot fillers are not available, and are not required. Use the following FB-DIMM removal procedure instead.

### ▼ Remove FB-DIMMs

Before beginning this procedure, ensure that you are familiar with the cautions and safety instructions described in the *Sun SPARC Enterprise T5140 and T5240 Servers Service Manual*.

1. **Extend the server to the maintenance position.**
2. **Remove power from the server.**
3. **Remove the top cover.**
4. **For SPARC Enterprise T5140 servers, disconnect and stow the hard drive data cable:**
  - a. **Unplug the hard drive data cable from J6401 on the motherboard.**
  - b. **Remove the hard drive data cable from its seat on the CMP air duct.**

- c. Place the hard drive cable end out of the way of the air duct.
5. Rotate the air duct up and toward the front of the system.
6. Press the Fault Locator button on the motherboard to identify the FB-DIMMs that need to be replaced.

---

**Tip** – Make a note of the faulty FB-DIMM location.

---

---

**Note** – For memory configuration information, see the *Sun SPARC Enterprise T5140 and T5240 Servers Service Manual*.

---

7. Push down on the ejector tabs on each side of the FB-DIMM until the FB-DIMM is released.

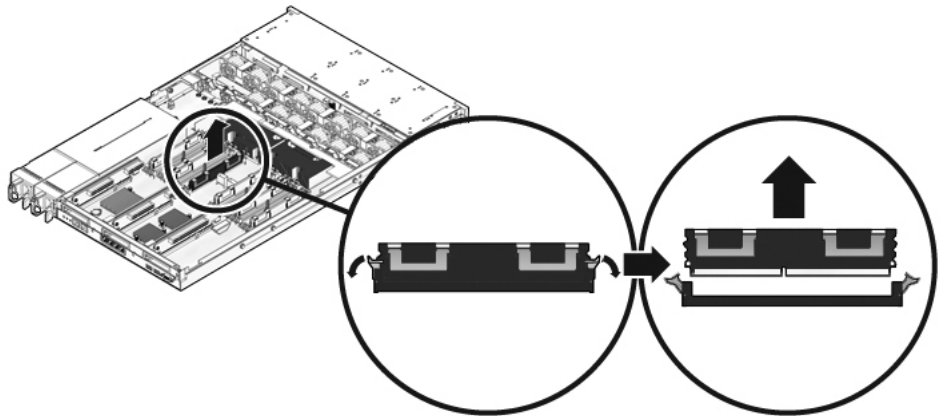


---

**Caution** – FB-DIMMs and heat sinks on the motherboard may be hot.

---

**FIGURE:** Removing FB-DIMMs



8. Grasp the top corners of the faulty FB-DIMM and lift it out of its slot.
9. Place the FB-DIMM on an antistatic mat.
10. Repeat [Step 7](#) through [Step 9](#) for any other FB-DIMMs you intend to remove.

# Corrected Motherboard Removal Procedure

The motherboard removal procedure published in the *Sun SPARC Enterprise T5140 and T5240 Servers Service Manual* contains a typo in one of the steps. The following provides the corrected motherboard removal procedure.

See the *Sun SPARC Enterprise T5140 and T5240 Servers Service Manual* for additional service procedures.

## ▼ Remove the Motherboard Assembly



---

**Caution** – This procedure requires that you handle components that are sensitive to electrostatic discharge. This discharge can cause server components to fail.

---

1. **Run the `showsc` command and make a note of any SP variables that have been modified from the factory default.**

-> **showsc**

2. **Stop Oracle Solaris OS to get the OpenBoot PROM prompt.**
3. **Run the `printenv` command to make a note of any OpenBoot PROM variables that have been modified**

4. **Power off the server.**

See the procedure in the SPARC Enterprise T5140 and T5240 Servers Service Manual.

5. **Remove the server from the rack.**

See the procedure in the SPARC Enterprise T5140 and T5240 Servers Service Manual.

6. **Attach an antistatic wrist strap.**

7. **Remove the top cover.**

See the procedure in the SPARC Enterprise T5140 and T5240 Servers Service Manual.

8. **Remove the air duct.**

See the procedure in the SPARC Enterprise T5140 and T5240 Servers Service Manual.

9. **Remove all PCIe/XAUI riser assemblies.**

See the procedure in the SPARC Enterprise T5140 and T5240 Servers Service Manual.



---

**Note** – Make note of the location of expansion cards in PCIe/XAUI risers 0 and 1.

---

10. **Disconnect the motherboard-to-power distribution board ribbon cable.**

11. **Disconnect the hard drive data cables:**

a. **Press the latching mechanism on the connector to release the cable plug.**

If you have difficulty releasing the cable plug, first push the plug slightly into the connector, then press the latching mechanism.

b. **Keeping the latching mechanism pressed, pull the plug from the connector on the hard drive backplane.**



---

**Caution** – The hard drive data cables are delicate. Ensure they are safely out of the way when servicing the motherboard.

---

12. **If you are replacing the motherboard, remove the following components:**

- All FB-DIMMs. Note the memory configuration so that you can install the FB-DIMMs in the replacement motherboard.
- SCC PROM.

13. **Using a No. 2 Phillips screwdriver, remove the four screws that secure the motherboard assembly to the bus bar.**



---

**Caution** – If you touch the heat sink when removing the bus bar screw, you might get burned.

---

---

**Note** – Set the four screws aside. You must use these screws to attach the motherboard to the bus bar during installation.

---

14. **Loosen the captive screw securing the motherboard to the chassis.**

The captive screw is green, and is located to the left of the bus bar screws.

15. **Using the green handle, slide the motherboard toward the back of the system and lift it out of the chassis.**

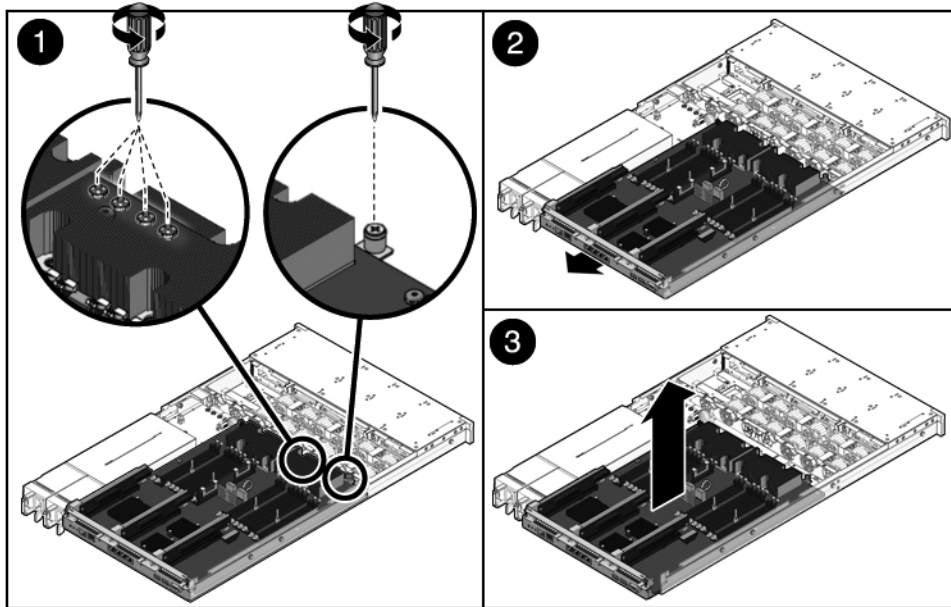


---

**Caution** – Some components on the motherboard might be hot. Use caution when handling the motherboard, especially near the CMP heat sinks.

---

**FIGURE 1** Removing the Motherboard



**Figure Legend**

- 1 Loosen the captive screws.
- 2 Slide the motherboard toward the back of the chassis.
- 3 Lift the motherboard up and out of the chassis.

**16. Place the motherboard assembly on an antistatic mat.**

## Verify Proper Seating of Preinstalled PCIe/XAUI Cards

The server installation procedure should include instructions for verifying that any preinstalled PCIe and/or XAUI cards and their risers have not worked loose during shipping. This procedure should also include instructions for verifying that internal cables are properly routed and that their connections are secure.

*Workaround:* When installing a newly arrived server that has preinstalled PCIe and/or XAUI cards, open it and verify that the cards and their risers are securely seated. Also verify that the internal cables are correctly routed and securely

connected. Refer to the *SPARC Enterprise T5140 and T5240 Servers Service Manual* for information about the PCIe/XAUI cards and their risers as well as information about internal cable routing.

## Site Planning Guide Contains Incorrect Values for Idle Input Power Requirements in Minimum Server Configurations

The Power Source Requirements section of the *SPARC Enterprise T5140 and T5240 Site Planning Guide* contains tables that identify power specifications for various server configurations. These specifications include values for idle power use in minimum server configurations. That is, server configurations that have the smallest amount of memory possible as well as no hard drives and no PCIe I/O cards installed.

The idle power values in the published version of the Site Planning Guide are incorrect because they were calculated based on servers with one hard drive installed instead of no hard drives. Consequently, the idle power value for each configuration is too high by 8 Watts. The following table provides the correct values (as well as the current incorrect values) for each SPARC Enterprise T5140 and T5240 server configuration.

Configurations Described by Tables	Incorrect Idle Input Power Value (AC source)	Correct Idle Input Power Value (AC source)	Incorrect Idle Input Power Value (DC source)	Correct Idle Input Power Value (DC source)
T5140, 1.2 GHz CPU, 4-disk backplane	287.0 W	279.0 W	268.1 W	260.1 W
T5140, 1.2 GHz CPU, 8-disk backplane	287.0 W	279.0 W	N/A	N/A
T5140, 1.4 GHz CPU, 4-disk backplane	329.0 W	321.0 W	N/A	N/A
T5240, 1.2 GHz CPU, 8-disk backplane	315.0 W	307.0 W	294.2 W	286.2 W
T5240, 1.4 GHz CPU, 8-disk backplane	360.0 W	352.0 W	336.6 W	328.6 W
T5240, 1.4 GHz CPU, 16-disk backplane	360.0 W	352.0 W	336.6 W	328.6 W
T5240, 1.6 GHz CPU, 8-disk backplane	418.0 W	410.0 W	390.4 W	382.4 W
T5240, 1.6 GHz CPU, 16-disk backplane	418.0 W	410.0 W	390.4 W	382.4 W

**Note** – Power and cooling specifications are subject to change without notice.

# Site Planning Guide Contains Incorrect Operating Input Voltage Value for the 1.4 GHz, 8-Disk Configuration

The table that describes input power requirements for the SPARC Enterprise T5240 server configuration with 1.4 GHz CPUs and an 8-disk capable backplane states the wrong operating input voltage value in two places. It also does not include the maximum operating current value for this configuration. The following table describes the necessary correct values.

Location of Incorrect Values	Incorrect Value	Correct Value
Table for T5240 Server, 1.4 GHz CPU, 8-disk backplane		
Operating input voltage range	200 to 240 VAC	100 to 240 VAC
Maximum operating input power	At 200 VAC: 1116.1 W	At 100 VAC: 1116.1 W

---

**Note** – The operating input voltage range for the DC input model is correct.

---

---

**Note** – The 200 to 240 VAC operating input voltage range is required *only* for servers equipped with 16-disk capable backplanes. All other configurations support the 100 to 240 VAC operating voltage range.

---

---

**Note** – Power and cooling specifications are subject to change without notice.

---

## Site Planning Guide Contains Incorrect Operating Input Voltage Value for the 1.6 GHz, 8-Disk Configuration

The table that describes input power requirements for Oracle's SPARC Enterprise T5240 server configuration with 1.6 GHz CPUs and an 8-disk capable backplane states the wrong operating input voltage value in two places. It also does not include the maximum operating current value for this configuration. The following table describes the necessary correct values

Location of Incorrect Values	Incorrect Value	Correct Value
Table for T5240 Server, 1.6 GHz CPU, 8-disk backplane		
Operating input voltage range	200 to 240 VAC	100 to 240 VAC
Maximum operating input current	At 100 VAC: <n/a>	At 100 VAC: 14.0A
Maximum operating input power	At 200 VAC: 1210.2 W	At 100 VAC: 1210.2 W

---

**Note** – The operating input voltage range for the DC input model is correct.

---

---

**Note** – The 200 to 240 VAC operating input voltage range is required *only* for servers equipped with 16-disk capable backplanes. All other configurations support the 100 to 240 VAC operating voltage range.

---

---

**Note** – Power and cooling specifications are subject to change without notice.

---

## *Oracle Integrated Lights Out Manager (ILOM) 3.0 Daily Management Concepts Guide Lists Incorrect Number of Simultaneous Oracle ILOM Sessions*

The *Oracle Integrated Lights Out Manager (ILOM) 3.0 Daily Management Concepts Guide* states that the server can accept up to 10 simultaneous Oracle ILOM sessions. However, the Sun SPARC Enterprise T5140 and T5240 servers have a limit of five simultaneous Oracle ILOM sessions.

