Sun SPARC Enterprise T5120 and T5220 Servers

Product Notes

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FUJITSU LIMITED provided technical input and review on portions of this material.

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Sun SPARC Enterprise T5120 and T5220 Product Notes

These product notes contain important and late-breaking information about Oracle's Sun SPARC Enterprise T5120 and T5220 servers.

This information is organized into the following sections:

General Information

This section contains information of a general interest.

Major New Features

The following new feature has been added to the Sun SPARC Enterprise T5120 and T5220 servers in this release:

- Firmware support for the following new features:
  - Support for lifespan monitoring of the Sun Flash Accelerator F20 PCIe Card's Energy Storage Module (ESM).

    See the Sun Flash Accelerator F20 PCIe Card documentation for specific instructions and service requirements for this card.
  - Support for the LDoms 1.3 software.

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

Note – Information in these product notes supersedes the information in the SPARC Enterprise T5120 and T5220 documentation sets.

Supported Versions of Oracle Solaris and Sun System Firmware

TABLE 0-1 lists the versions of the Oracle Solaris Operating System (OS) and system firmware that is 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 "Patch Information" on page 5.

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.

TABLE 0-1 Supported Versions of the Operating System and Firmware

Component	Supported Versions
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 10/09 OS (U8) – preinstalled
	Oracle Solaris 10 9/10 OS (U9)
Firmware	System Firmware 7.0.3.b – Minimum supported System Firmware
	System Firmware 7.1.6.d
	System Firmware 7.1.6.j
	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.d
	System Firmware 7.2.9.a

TABLE 0-1 Supported Versions of the Operating System and Firmware *(Continued)*

Component	Supported Versions
	System Firmware 7.2.10.a
	System Firmware 7.3.0
	System Firmware 7.3.1.a or later (preinstalled)

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 0-2 Minimum Firmware Version Requirements for Certain Features

Feature	Minimum Firmware Version	Minimum OS Version
Systems operating with DC power supplies	7.1.6.d	Oracle Solaris 10 10/08 OS
Systems using the Sun External I/O Expansion Unit	7.1.6.d	Oracle Solaris 10 10/08 OS
Oracle ILOM 3.0 firmware	7.2.0	N/A
1.6 GHz processors	7.2.2.e	N/A
LDOMs 1.2	7.2.2.e	Oracle Solaris 10 5/09 OS*
Sun Flash Accelerator F20 PCIe Card	7.2.4.e	N/A
LDoms 1.3	7.2.7.d	Oracle Solaris 10 10/09 OS†
Oracle VM for SPARC 2.0	7.3.0.c or later	Oracle Solaris 10 5/10 OS

* For informaiton about patch requirements for LDoms 1.2 compatibility with earlier OS versions, see the *Logical Domains 1.2 Release Notes*.

† For informaiton about patch requirements for LDoms 1.3 compatibility with earlier OS versions, see the *Logical Domains 1.3 Release Notes*.

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

Preinstalled Software

The following table lists the software preinstalled on your server.

TABLE 0-3 Preinstalled Software for Standard Configurations

Software	Location	Function
Oracle Solaris 10 10/09	The `root` (`/`) partition is installed on Slice 0. The core OS is on Slice 3, serving as a Live Upgrade alternate boot environment (ABE).	Operating system
CMT Tools 1.2	`/opt/SUNWspro/extra/bin`	Sun Studio Developer Tools
Cool Tools GCC 4.3.2	`/opt/gcc` and `/opt/SUNW0scgfss`	GCC compiler for SPARC systems
LDoms Manager 1.3	LDoms Manager: • `/opt/SUNWldm` LDoms MIB: • `/opt/SUNWldmib`	Manages Logical Domains
Oracle Studio 12 U1 Developer Tools	`/opt/`sunstudio12	C, C++, and Fortran compiler

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.

Patch Information

This section provides information about patch requirements.

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

Patches Required for the Oracle Solaris 10 9/10 OS

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

Patches Required for the Oracle Solaris 10 5/09 OS

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

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 8/07 OS

The following table identifies the patches known to be required for the Oracle Solaris 10 8/07 OS at the time this document is published.

TABLE 0-4 Mandatory Patch for Servers Installed with the Oracle Solaris 10 8/07 OS

Patch IDs	Description	Fixes Provided
127127-11 or later	SunOS 5.10: kernel patch	Includes the following fixes: • CR 6590132: System panics (`n2cp` alignment error) in IPsec testing • Issues regarding data integrity in the nxge driver as reported by Sun Alert ID 103076 • CR 6568352: IPsec performance does not scale using hardware crypto providers

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 0-5 PCIe Slot Usage Rules for Certain HBA Cards

System	HBA Card	PCIe Slots Allowed	Notes
T5120	Sun Flash Accelerator F20 PCIe Card	0, 2	Limit, 2 cards Internal connectors cannot be used
	Sun StorageTek x8 SAS RAID HBA	2	Limit, 1 card
	Sun 10-gigabit Ethernet XFP SR PCIe card and Sun Dual 10-gigabit Ethernet XFP 2 SR PCIe card	Any	Limit, 2 single- and/or dual-port cards in any combination
	Sun StorageTek SAS RAID External HBA	2	Preferred for performance
	Sun Storage 6GbSAS PCI RAID HBA	0	Secondary choice Limit, 1 card
T5220	Sun Flash Accelerator F20 PCIe Card	0, 2, 3, 4, 5	Limit, 5 cards in 8-disk systems
	Sun Flash Accelerator F20 PCIe Card	0, 2, 5	Limit, 3 cards in 16-disk systems Internal connectors cannot be used
	Sun StorageTek x8 SAS RAID HBA	2, 5	Limit, 1 card
	Sun 10-gigabit Ethernet XFP SR PCIe card and Sun Dual 10-gigabit Ethernet XFP 2 SR PCIe card	Any	Limit, 4 single- and/or dual-port cards in any combination
	Sun StorageTek SAS RAID External HBA	2, 5	Preferred for performance
	Sun Storage 6GbSAS PCI RAID HBA	0, 3*	Secondary choice Limit, 1 card per system

* This card is not allowed in slot 3 in systems shipped with part number 501-7760-0x backplanes.

Known Product Issues

This section describes issues that are known to affect the T5120 and T5220 servers. The issue descriptions are organized as follows:

Hardware and Mechanical Issues

This section describes hardware issues known to exist at this release of the SPARC Enterprise T5120 and T5220 servers.

TABLE 0-6 Hardware-Related Issues on the Sun SPARC Enterprise T5120 and T5220 Servers

CR ID	Description	Workaround
6480945	If a hard drive fails in RAID 0 or RAID 1 configurations, error messages might not be displayed on the console or in the log files.	If you encounter failed disks in RAID 0 or RAID 1 configurations, and you see the following scenario, the disk drive should be replaced: • The Fault LED is lit on a disk drive that is part of a RAID 0 or RAID 1 volume. • The error condition can be displayed remotely by running the showenvironment command on the service processor. • The hard drive that has the Fault LED illuminated displays a status of Failed and the service indicator is set to on. Replace the disk drive with the lit Fault LED.
6823163	In servers with 8- and 16-disk backplanes, the 32GB SATA SSD drive may not install in some drive bay slots.	1. Loosen all the screws on the backplane. 2. Install SSDs in the corner drive bays. 3. Tighten all backplane screws. 4. Install remaining SSDs (if any).
6840287	When a server is power cycled with DVD media installed, the message "Device is gone" will be displayed approximately 30 minutes after the OS is booted up.	Ignore the message.

TABLE 0-6 Hardware-Related Issues on the Sun SPARC Enterprise T5120 and T5220 Servers *(Continued)*

CR ID	Description	Workaround
6857080	Systems with firmware version 7.2.2.x have low fan speed (5000 rpms). The low fan speed condition can result in SC Alerts that warn of the low fan speed.	Ensure that the air flowing into the server is within the ambient temperature specification.
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.	When viewing the amount of memory in the banner, be aware that the banner reports the amount less what is used by the firmware.
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".	**Note** - This error appears on the service labels on all Sun SPARC Enterprise T5120 and T5220 server configurations.
N/A	Some service labels show an extra fan module in step 2 of the four-step fan board diagram. The extra fan is on the right half of FanBD0.	**Note** - This error appears on the service label for Sun SPARC Enterprise T5120 servers with 4-disk capable backplanes.
N/A	On service labels that show the locations of PCIe and XAUI slots, the XAUI callouts are wrong. They should point to the lower slots.	**Note** - This error appears on the service labels for Sun SPARC Enterprise and T5220 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".	**Note** - This error appears on the service labels for Sun SPARC Enterprise T5220 servers.
N/A	The drawing showing the cable management arm being rotated represents the wrong server model. It should show the Sun SPARC Enterprise T5220 server,	**Note** - This error appears on the service labels for Sun SPARC Enterprise T5220 servers.
N/A	The Fan Module Configuration portion of the service label is wrong. It should show a fan module in location FANBD1, FM1.	**Note** - This error appears on the service labels for Sun SPARC Enterprise T5220 servers with 16-disk capable backplanes.

False Intermittent SATA Errors (CR 6880299)

When booting the Oracle Solaris 10 5/08 OS (S10 U5), some systems with SATA DVD devices intermittently log port failur errors in /var/adm/messages. The following shows an example of typical error messages:

```
/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.

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 available as an orderable FRU (field replaceable unit), part number 542-0355.

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

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.

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.

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.

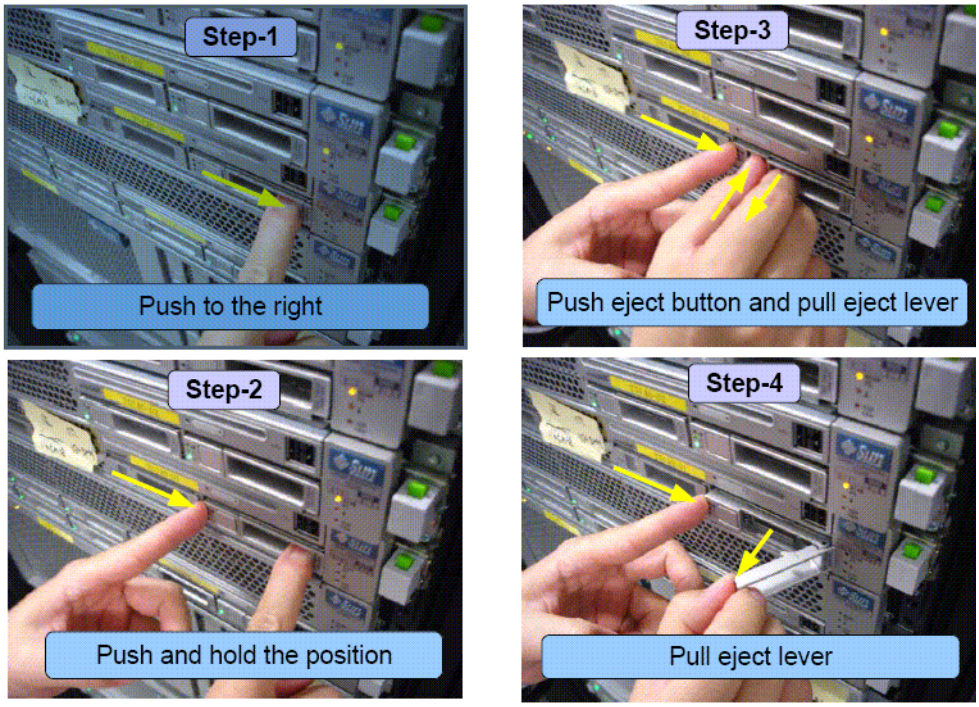
   See *Step 2* in the following figure.

3. Press the drive eject button and pull on 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.



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.

Note – The PDB on the SPARC Enterprise T5220 has additional bus bar connections to the power supply backplane.

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

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.

Fordetailed motherboard and power distribution board installation procedures, see the *SPARC Enterprise T5120 and T5220 Servers Service Manual*.

Ethernet Interface Related Issues

There are no issues related to the Ethernet interface in this release.

Oracle Solaris OS Issues

This section describes issues related to the Oracle Solaris OS known to affect this release of the Sun SPARC Enterprise T5120 and T5220 servers.

TABLE 0-7 Oracle Solaris OS Issues

CR	Description	Workaround

6373437 (6588499)	A Oracle Solaris OS shutdown might hang and result in fewer system services.
	Rarely, a shutdown performed immediately after the Oracle Solaris OS boots might cause the system to hang because some system services are attempting to stop while others are still in the process of starting. The hang occurs with a message similar to the following:
	`svc.startd: The system is coming down. Please wait`
	`svc.startd: 74 system services are now being stopped`
		Reboot the system by dropping to the service processor (SP). Then power cycle the host system using one of the following methods:
		• From the Oracle ILOM CLI:
		`-> stop /SYS`
		`-> start /SYS`
		• From the ALOM CMT compatibility CLI:
		`sc> poweroff`
		`sc> poweron`
		`sc> powercycle`

6607315	The login prompt resets five seconds after the Oracle Solaris OS boots. This only occurs when using a local keyboard as the input device (`input-device=keyboard`). This issue does not occur with the virtual-console.	Use the virtual console as the input device.
N/A	The output of the `raidctl -h` command and the `raidctl` man page display some unsupported features.	The Sun SPARC Enterprise T5120 and T5220 servers currently only support RAID 0 and RAID 1 for the on board SAS disk controller. The `raidctl` utility can be used to create and delete RAID 0 & RAID 1 volumes. Refer to the *Sun SPARC Enterprise T5120 and T5220 Servers Administration Guide* for supported RAID information.

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 Sun SPARC Enterprise T5120 and T5220 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

Workaround: Use the procedure described below to recover from this "drive type unknown" fault mode without the risks associated with the network and media boot methods.

Note – The following sequence of steps must be followed exactly as shown.

---

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-T5220
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 file system 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 T5220, No Keyboard
Copyright 2009 Sun Microsystems, Inc.  All rights reserved.
OpenBoot 4.30.4, 3968 MB memory available, Serial #xxxxxxxx.
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
SunOS Release 5.10 Version Generic_141414-10 64-bit
Copyright 1983-2009 Sun Microsystems, Inc.  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
Sun Microsystems Inc.SunOS 5.10GenericJanuary 2005
Sourcing //.profile-EIS.....
```

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

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

4. Capture the boot drive's existing `vtoc` ins a file stored in `/tmp`. Use the raw device of the boot device determined at the beginning. That is, use `/dev/rdsk/c?t?d?`, not /dev/dsk/c?t?d?s?.

```
root@ #  prtvtoc /dev/rdsk/c0t0d0s0 > /tmp/vtoc <======boot disk vtoc saved
/dev/dsk/c?t?d?s?
```

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@ # 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/rdsk/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 T5220, No Keyboard
Copyright 2009 Sun Microsystems, Inc.  All rights reserved.
OpenBoot 4.30.4, 3968 MB memory available, Serial #xxxxxxxx.
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 1983-2009 Sun Microsystems, Inc.  All rights reserved.
Use is subject to license terms.
Hostname: host-1
The / file system (/dev/rdsk/c0t0d0s0) is being checked.
Reading ZFS config: done.
host-1 console login:
```

Firmware, Oracle ILOM, POST, and SP Issues

TABLE 0-8 lists the late-breaking issues for the firmware, Oracle ILOM (including ALOM compatibility CLI), POST, and service processor (SP). Additional information for some of the change request (CR) issues is provided following the table.

TABLE 0-8 Firmware, Oracle ILOM, POST, and SP Issues

CR	Description	Workaround
6583567	A communication channel between the primary domain and the service processor (SP) could hang and disable communication over the channel.	See "Communication Channel Between the Primary Domain and the Service Processor (SP) Might Hang (CR 6583567)" on page 21.

N/A	As of System firmware 7.1.6.d, the following type of message might be displayed on the console and in the logs:
	`Chassis | major: Hot insertion of /SYS/MB/CMP0/P0`
	or
	`SC Alert: [ID 639621 daemon.error] SC unretrieved msg: [Chassis | major: Hot insertion of /SYS/MB/CMP0/P3]`
		Be aware that these messages are not necessarily error messages.
		Messages referring to hot-insertions of CPUs are displayed at power on if the system has had a firmware upgrade or system component change. Once the components have been identified, no subsequent messages are displayed unless Oracle ILOM detects a change in the system configuration or if a CPU thread or a core fails.

SSDs Require Firmware Updates To Be Used In Sun StorageTek SAS RAID Configurations

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

- Minimum SSD firmware level: 8850
- Minimum RAID HBA firmware level: 16732

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

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://support.oracle.com).

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 of these two versions 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_patchmini.jsp)

Communication Channel Between the Primary Domain and the Service Processor (SP) Might Hang (CR 6583567)

Rarely, a communication channel between the primary domain and the SP might hang and disable communication over the channel.

Workarounds:

- If the channel is used by a primary domain service or application other than the fault management daemon (`fmd`), for example the LDoms Manager `ldmd`, you might see warning or error messages concerning communication failures. In this case, the channel can be brought back up by restarting the affected service or application.
- If the channel is the one used by `fmd`, there are no warning or error messages. The `fmd` will not receive ereports, and diagnosis of the errors does not occur.
- If the channel is the one used by the Oracle Solaris OS to communicate with the SP, you could see warning or error messages regarding failure to obtain the PRI, failure to access ASR data, or failure to set LDoms variables or failure in SNMP communication. In this case, the channel can be brought back up by resetting the SP. If the SP is reset, restart the `fmd` on the primary domain. If resetting the SP fails to bring the channel back up, then it might also be necessary to reboot the primary domain.
- If a domain crashes or a service spontaneously restarts without any associated fault messages, you must recover as follows to minimize potential loss of error telemetry.

Diagnostic Routine That Runs at Startup (IBIST) Might Accidentally Disconnect the MCU (CR 6618773)

This issue is resolved for servers running System Firmware 7.0.9. If your server has a lower version, in some cases, the MCU is disconnected from corresponding DIMM modules and CPU cores, and the following messages are reported to the console.

For example:

```
Chassis | major: Host has been powered on
Chassis | major: Dec 19 08:45:11 ERROR: MB/CMP0/MCU2 Failed IBIST,
disabled
Fault | critical: SP detected fault at time Wed Dec 19 08:45:12
2007. /SYS/MB/CMP0/MCU2 Forced fail (IBIST)
Chassis | major: Dec 19 08:45:13 ERROR: MB/CMP0/MCU3 unused because
MB/CMP0/MCU2 is not configured
Chassis | major: Dec 19 08:45:13 ERROR: MB/CMP0/L2_BANK4,
MB/CMP0/L2_BANK5 unused because MB/CMP0/MCU2 is not configured
Chassis | major: Dec 19 08:45:13 ERROR: MB/CMP0/L2_BANK6,
MB/CMP0/L2_BANK7 unused because MB/CMP0/MCU3 is not configured
Chassis | major: Dec 19 08:45:13 ERROR: Degraded configuration:
system operating at reduced capacity
Chassis | major: Dec 19 08:45:13 ERROR: System DRAM Available:
008192 MB
Chassis | major: Dec 19 08:45:13 ERROR: Only 4 cores, up to 32 cpus
are configured because some L2_BANKS are unusable
```

Workaround: Install Patch 127580-04 or later and update the System Firmware to version 7.1.6.d or later.

Some Servers Equipped with the XVR300 Video Card Become Unresponsive During Boot from DVD-ROM Drive (CR 6865225)

On servers equipped with the XVR300 and keyboard and mouse plugged in to the rear USB ports, the server might fail to boot from the DVD drive. The server might hang and become unresponsive and/or issue the following error message:

```
ok>  boot cdrom
ok>  ....
ok>  HCHalted bit is set - Usb Host Controller has stopped running
```

Workaround:

Plug the keyboard and mouse to the front USB ports.

In a Small Number of SPARC Enterprise T5120 Servers, Oracle ILOM identifies the wrong PSU when there is PSU failure (CR 7020694)

In Sun SPARC Enterprise T5120 systems equipped with system firmware 7.3.0.c or earlier and power distribution boards with part number 511-1604-01, Oracle ILOM identifies the wrong PSU when there is PSU failure.

Workaround:

Use the Oracle ILOM `show /SYS/PDB` command to view the part number of the power distribution board on your system.

On systems equipped with system firmware 7.3.0.c or earlier and power distribution boards with part number 511-1604-01, identify which PSU is faulted by looking at the PSU LEDs, instead of relying on the Oracle ILOM system event log.

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.

Product Documentation Errata

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

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

The *SPARC Enterprise T5120 and T5220 Servers Service Manual* contains incorrect descriptions of data cable routing between SAS RAID HBA ports and 8- or 16-disk capable backplanes.

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.

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 0-1 in this manual shows the correct cable routing information for eight-disk capable T5120 servers. Use it in place of the figure shown on page 194 of the Service Manual.
- FIGURE 0-2 in this manual shows the correct cable routing information for eight-disk capable T5220 servers. Use it in place of the figure shown on page 207 of the Service Manual.

FIGURE 0-1 Hard Drive Data Cable Routing for SAS RAID Controller Card in 8-Disk Capable Sun SPARC Enterprise T5120 Servers

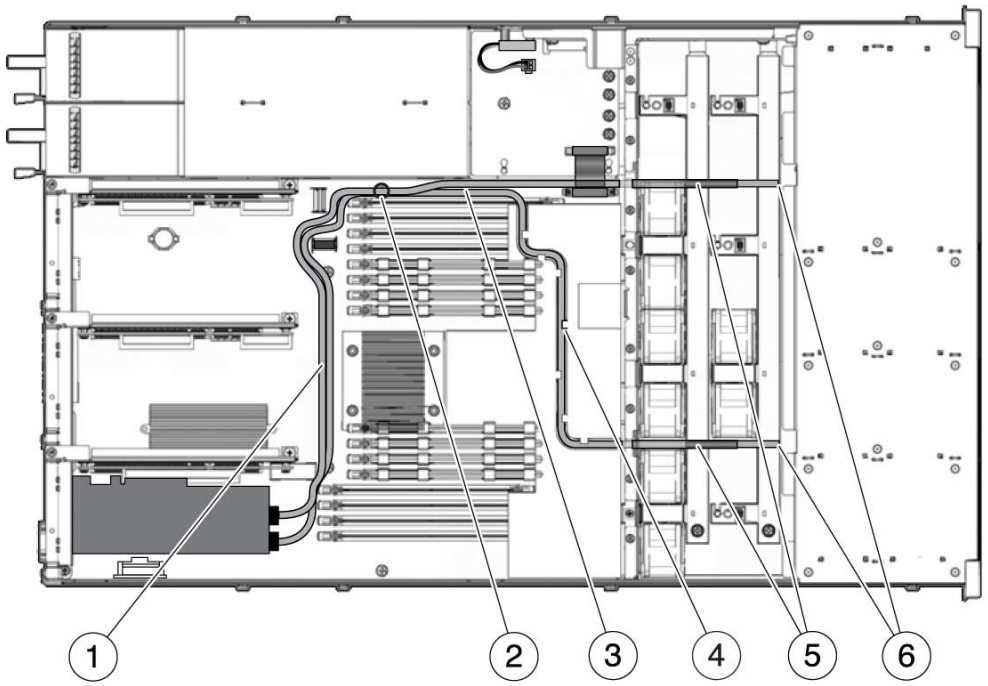
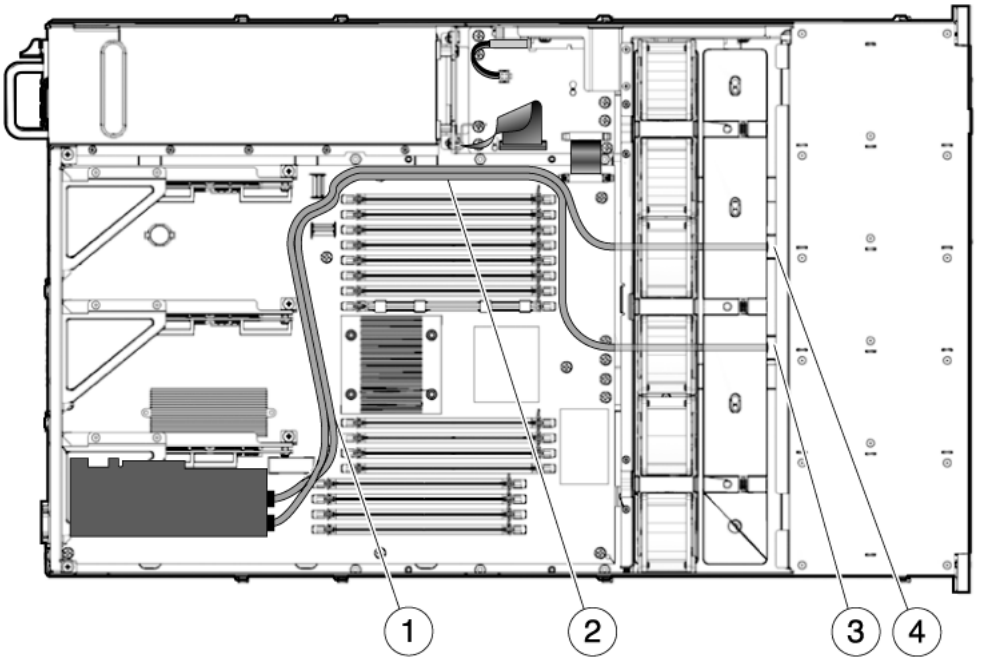


FIGURE 0-2 Hard Drive Data Cable Routing for SAS RAID Controller Card in 8-Disk Capable Sun SPARC Enterprise T5220 Servers



Fan Configuration Diagram is Incorrect for Systems With 16-Disk Backplanes

The diagram in the service manual that shows the fan configuration for 16-disk capable systems is incorrect. It shows three fan modules. This is the correct configuration:

TABLE 0-9 Fan Module Locations and FRU Names for Sun SPARC Enterprise T5220 Servers With a 16-Disk Capable Backplane

(Empty)	/SYS/FANBD1/FM1	(Empty)
/SYS/FANBD0/FM0	/SYS/FANBD0/FM1	/SYS/FANBD0/FM2
	Front of System	

Corrected FB-DIMM Removal Procedure

In the *SPARC Enterprise T5120 and T5220 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 *SPARC Enterprise T5120 and T5220 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 T5120 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 *SPARC Enterprise T5120 and T5220 Servers Service Manual*.

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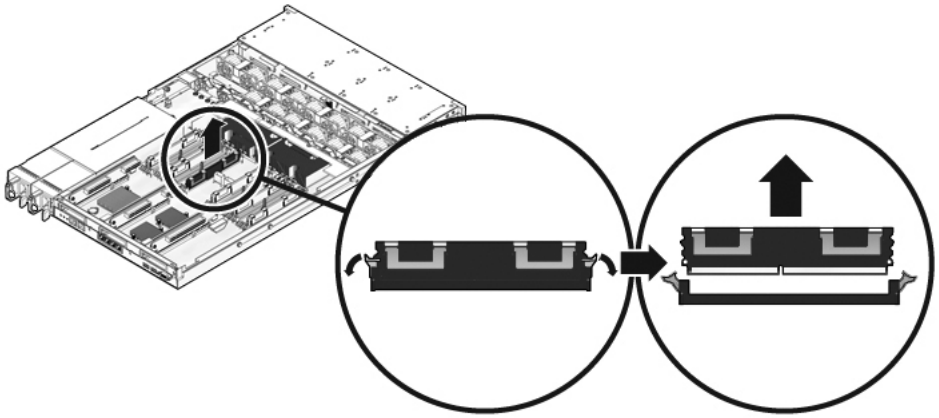
7. **Push down on the ejector tabs on each side of the FB-DIMM until the FB-DIMM is released.**

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.**

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 *Sun SPARC Enterprise T5120 and T5220 Servers Service Manual* for information about the PCIe/XAUI cards and their risers as well as information about internal cable routing.

Incorrect Values for the 1.6 GHz SpecJBB Test in the *Sun SPARC Enterprise T5120 and T5220 Site Planning Guide*

Tables 5, 7, and 8 of the Site Planning Guide contain incorrect values for the peak input power when running SpecJBB in a system with 1.6 GHz CPUs and a maximum memory, HDD, and PCIe card configuration. The following tables provide the correct values.

Table 5: Sun SPARC Enterprise T5120 Server (4-Disk Capable) Power Specifications

Maximum Server Configuration Specifications **8 core, 1.6 GHz processor, with sixteen 4 GB FBDIMMs, 4 HDDs, 3 PCIe I/O cards**				
	Incorrect Value (AC Input)	Correct Value (AC Input)	Incorrect Value (DC Input)	Correct Value (DC Input)
Peak input power running SpecJBB	615.3W	624.3W	574.7W	583.1W

Table 7: Sun SPARC Enterprise T5220 Server (8-Disk Capable) Power Specifications

Maximum Server Configuration Specifications **8 core, 1.6 GHz processor, with sixteen 4 GB FBDIMMs, 8 HDDs, 6 PCIe I/O cards**				
	Incorrect Value (AC Input)	Correct Value (AC Input)	Incorrect Value (DC Input)	Correct Value (DC Input)
Peak input power running SpecJBB	807.4W	814.4W	754.1W	760.7W

Table 8: Sun SPARC Enterprise T5220 Server (16-Disk Capable) Power Specifications

Maximum Server Configuration Specifications **8 core, 1.6 GHz processor, with sixteen 4 GB FBDIMMs, 16 HDDs, 6 PCIe I/O cards**				
	Incorrect Value (AC Input)	Correct Value (AC Input)	Incorrect Value (DC Input)	Correct Value (DC Input)
Peak input power running SpecJBB	901.5W	908.5W	842.0W	848.6W

Incorrect Idle Input Power Values Specified in the *Sun SPARC Enterprise T5120 and T5220 Site Planning Guide*

Four tables in the *Sun SPARC Enterprise T5120 and T5220 Site Planning Guide* contain incorrect values for the idle input power. The following four tables show the correct information for those tables:

Table 5: Sun SPARC Enterprise T5120 Server (4-Disk Capable) Power Specifications

Minimum Server Configuration Specifications **4 core, 1.2 GHz processor, with four 1 GB FBDIMMs, no HDDs, no PCIe I/O cards**				
	Incorrect Value (AC Input)	Correct Value (AC Input)	Incorrect Value (DC Input)	Correct Value (DC Input)
Idle input power	187.0W	179.0W	174.7W	167.2W

Table 6: Sun SPARC Enterprise T5120 Server (8-Disk Capable) Power Specifications

Minimum Server Configuration Specifications **4 core, 1.2 GHz processor, with four 1 GB FBDIMMs, no HDDs, no PCIe I/O cards**				
	Incorrect Value (AC Input)	Correct Value (AC Input)	Incorrect Value (DC Input)	Correct Value (DC Input)
Idle input power	187.0W	179.0W	174.7W	167.2W

Table 7: Sun SPARC Enterprise T5220 Server (8-Disk Capable) Power Specifications

Minimum Server Configuration Specifications **4 core, 1.2 GHz processor, with four 1 GB FBDIMMs, no HDDs, no PCIe I/O cards**				
	Incorrect Value (AC Input)	Correct Value (AC Input)	Incorrect Value (DC Input)	Correct Value (DC Input)
Idle input power	194.0W	186.0W	181.2W	173.7W

Table 8: Sun SPARC Enterprise T5220 Server (16-Disk Capable) Power Specifications

Minimum Server Configuration Specifications **4 core, 1.2 GHz processor, with four 1 GB FBDIMMs, no HDDs, no PCIe I/O cards**				
	Incorrect Value (AC Input)	Correct Value (AC Input)	Incorrect Value (DC Input)	Correct Value (DC Input)
Idle input power	194.0W	186.0W	181.2W	173.7W