Netra SPARC T3-1B Server Module

Product Notes

Part No.: Part No.: E21654-04
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Contents

CHAPTER 1

General Information

These product notes provide important late-breaking information about Oracle's Netra SPARC T3-1B server module.

This document is for system administrators, technicians, service providers, and users who have experience administering computer systems.

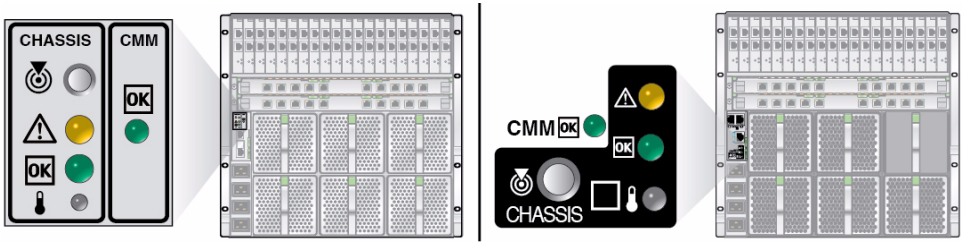
This chapter provides the following information:

Identifying the Netra Chassis Models

This section replaces similar information in the service manual. There are four Netra 6000 chassis models. Two models are AC and two are DC. Some server modules and some components will only work together in a certain chassis, and that information is also provided in these product notes.

Netra 6000 Modular System Chassis Marketing Number	CMM ILOM Firmware	T3-1B Server Module Support
N6000-AC 594-6438	3.X	Not supported
N6000-DC 594-6726	3.X	Not supported
N6000-AC 7100418 594-6893	4.X	Yes
N6000-DC 7100417 594-6892	4.X	Yes

The most visible difference between the two chassis models is the CMM on the rear of the chassis.



- **Left:** CMM (501-7379) on the N6000-AC 594-6438 chassis, and the N6000-DC 594-6726 chassis.
- **Right:** CMM (511-1531) on the N6000 DC 7100417 chassis and the N6000 AC 7100418 chassis.
- **Right:** CMM Product Part Number 7019286 or higher on the 7100417 chassis and the 7100418 chassis. (This CMM is required to support the Sun Blade 6000 Virtualized 40GbE Network Express Module)

Supported Modular Components

The following table lists the modular components that are supported with the Sun Netra SPARC T3-1B server module.

Note – For the latest information on hardware component requirements, refer to the product notes for your component.

Product Model Number and Name	Notes
NEMs	
NEM 2073A – Sun Blade 6000 Ethernet Switched Network Express Module 24p 10GbE NEM	Requires: • For 10GbE network connectivity – FEM 4871A-Z, or FEM 4871A-Z-N. Refer to the NEM documentation at: http://www.oracle.com/pls/topic/lookup?ctx=E19285-01
NEM 4250A – Sun Blade 6000 Network Express Module 10-port 1 GbE Pass-Through NEM	Provides GbE connectivity – no FEM required.
RAID Express Modules (REMs)	
SG-SAS6-REM-Z Sun Blade 6000 RAID 0/1 SAS2 HBA REM	For internal storage connectivity.
Fabric Expansion Modules (FEMs)	
X5735A 10GbE XAUI Pass-Through FEM	For 10GbE network connectivity. Must be installed in the FEM X and FEM 0 motherboard connectors.
X4871A-Z Dual 10GbE PCIe 2.0 FEM (Intel)	For 10GbE network connectivity. Must be installed in the FEM 0 motherboard connector.
7100283 (ATO) / 7100633 (PTO) PCI-E Pass-Through FEM	Must be installed in the FEM 0 and FEM 1 motherboard connectors.
PCIe Expansion Modules (PCIe EMs)	
7100486, 7100487, Quad Gigabit Ethernet Express Module MMF PCI EM, (Fiber)	
7100483, **7100484**, Quad Gigabit Ethernet UTEP Express Module (copper)	Requires shielded twisted pair ethernet cable to meet NEBS Level 3 ESD requirements.
SGX-SAS6-EM-Z SAS2 Dual Port Express Module	

Product Model Number and Name	Notes
SG-XPCIEFCGBE-Q8-Z 2x8Gb FC and 2xGbE Combo Express Module	Must have part number 375-4522-02 or a higher dash level.
SG-XPCIEFCGBE-E8-Z-N 2x8Gb FC and 2x GbE Combo Express Module	
X7284A-Z-N 1GbE Quad Port ExpressModule, Copper	
X1110A-Z 10GbE Dual Port SFP+ Express Module	

Supported Versions of Oracle Solaris OS, Firmware, and Software

The OS and firmware are preinstalled at the factory. The following table lists the supported versions of Oracle Solaris OS, firmware, and software.

Software	Supported Versions
Oracle Solaris OS on the server module host	• 10 9/10 • (Minimum) 10 10/09 OS with Oracle Solaris 10 9/10 Patch Bundle
Electronic prognostics on the server module host	• 1.1.1 **Note -** This software provides early warning of the potential for specific FRU faults.
System firmware on server module (patch ID that provides this version)	Minimum version: 8.0.5.a (includes Oracle ILOM 3.0) (patch ID 145670-02 or later)
Oracle VM Server for SPARC (LDoms)	2.0
Chassis management module (CMM) Software	4.0.1 or later

Patch Information

Any patches that were known to be needed at the time your server module was prepared for shipment were installed at the factory. However, if you reinstall the OS, see the following lists to understand which patches you must install.

Required patches for Oracle Solaris 10 9/10 OS:

- 143647-08 or later
- 144488-03 or later
- 144567-01 or later
- 145868-01 or later
- 145961-01 or later

Required patches for Oracle Solaris 10 10/09 OS:

- Oracle Solaris 10 9/10 Patch Bundle
- All required patches for Oracle Solaris 10 9/10 OS

▼ Access OS, Patch, and Firmware Updates

1. **Access the latest OS, patches, and firmware information from the system administration portal.**

   Go to:

   http://www.oracle.com/technetwork/systems/software-stacks/stacks/index.html

2. **Under the Netra Carrier-Grade Systems heading, select the Netra SPARC T3-1B Server Module link.**

Power Calculator

The Sun Netra 6000 Modular System power calculator is available at:

http://www.oracle.com/us/products/servers-storage/sun-power-calculators/calc/netra-6000-power-calculator-519736.html

Oracle Solaris OS Has Changed How It Specifies Logical Device Names

The Oracle Solaris OS now uses world wide ID (WWID) in place of the `t`*n* (target ID) field in logical device names for all SAS 2.0 storage controllers including the Sun Blade 6000 RAID 0/1 SAS2 HBA REM (SG-SAS6-REM-Z) when installed in this server module.

This change affects how you identify the target disk when downloading the OS over a network. The following points are key to understanding the impact of this change:

- When downloading the OS over a network, specify the disk in HDD slot 0 as the download destination. OBP uses this disk as the default boot device.
- Before the change to using WWIDs, this disk was known to the OS by the logical name `c0t0d0`.

  With the change, the device identifier for the default boot device is now referred to as `c0t`*WWID*`d0`, where *WWID* is a hexadecimal value. This WWID value does not map in a predictable way to the physical ID of the disk in HDD slot 0.

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

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

- `SASDeviceName` – The WWID that the Oracle Solaris OS recognizes.
- `SASAddress` – The WWID that the OpenBoot PROM references.
- `PhyNum` – The physical HDD slot that the disk occupies. This number is also expressed as a hexadecimal value.

Your server module has one on-board SAS controller, which controls all four connected drives. This example shows `probe-scsi-all` output for a Netra SPARC T3-1B server module with two drives.

Note – In the example, the disk installed in HDD slot 0 has a `PhyNum` value of `0`, the `SASDeviceName` is `5000c500231694cf`, and the `Target` number is `9`.

```
{0} ok probe-scsi-all
/pci@400/pci@1/pci@0/pci@7/pci@0/usb@0,2/hub@5/storage@3
  Unit 0   Removable Disk     smiUnigen  PSA4000         1100

/pci@400/pci@1/pci@0/pci@7/pci@0/usb@0,2/hub@3/storage@2
  Unit 0   Removable Read Only device    AMI     Virtual CDROM   1.00
```

```
/pci@400/pci@1/pci@0/pci@2/LSI,sas@0     <===== SAS Controller

MPT Version 2.00, Firmware Version 4.05.52.00

Target 9
  Unit 0   Disk     SEAGATE ST930003SSUN300G0868    585937500 Blocks, 300 GB
  SASDeviceName 5000c500231694cf  SASAddress 5000c500231694cd  PhyNum 0
Target a
  Unit 0   Disk     SEAGATE ST973402SSUN72G 0603    143374738 Blocks, 73 GB
  SASDeviceName 5000c50003d37fcb  SASAddress 5000c50003d37fc9  PhyNum 1
```

Oracle Solaris Jumpstart Example

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

Note – The Oracle Solaris syntax rules require all alpha characters to be capitalized.

```
#
install_type flash_install
boot_device c0t5000C500231694CFd0 preserve

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

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

Interactive Installation Example

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

These WWID values are illustrated in the following interactive example,. The drive selected as the install target is located in HDD slot 0, the default OBP location.

Note – If you prefer other disk, you can specify it instead of the disk in HDD slot 0.

```
_ Select Disks_____________________________________________________________________

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

Disk Device ----------------------- Available Space
================================================================================
[ ] c0t5000C50003D37FCBd0-----------286090 MB
[X] c0t5000C500231694CFd0-----------286090 MB (F4 to edit)

Total Selected: 286090 MB
Suggested Minimum: 5032 MB


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

CHAPTER 2

Late-Breaking Information

This chapter provides the following late-breaking information for the Netra SPARC T3-1B server module:

Hardware Issues

Time Changes After System Reset (CR7127740)

After a cold reset, the server might add one day to the Oracle Solaris OS date and time. This date change will only occur on the first cold reset after January 1, 2012.

Workaround: Obtain firmware version 8.1.4.e or newer.

Server Module Might Panic During Hot-Plugging of the 10GbE Dual Port SFP+ ExpressModule (CR 6974235)

Initiating hot-plug removal of a 10GbE Dual Port SFP+ ExpressModule connected to the server module by using the ExpressModule ATTN button might cause the Oracle Solaris OS that is running on the server module to panic.

You can safely use the ATTN button to hot-plug insert the same Express Module into a slot that connects to the server module.

Workaround: Do not use the PCIe EM ATTN button for hot plug removal. Instead, use the Oracle Solaris `cfgadm(1M)command` to hot-plug remove a 10GbE Dual Port SFP+ Express Module connected to the server module.

For example, to hot-plug remove an express module in slot PCI-EM1 using `cfgadm`, perform the following commands in the Oracle Solaris instance connected to the ExpressModule:

```
# cfgadm -c unconfigure PCI-EM1
# cfgadm -c disconnect  PCI-EM1
```

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

This issue is fixed in the Oracle Solaris 10 8/11 OS.

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

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

Workaround: Replace faulty DIMMs as soon as possible.

`Not Oracle Certified` DIMM Warning Message (CR 7034912)

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

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

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

System Firmware Issues

`Link Width x8 Link Speed GEN1` Warning Displayed During Power Up (CR 6958263)

This is fixed in SysFW 8.0.4.c and higher.

On rare occasions while powering up the server module, the following error message might be displayed just before the system reaches the OBP prompt:

```
WARNING: ios0, peu<n> Link Width x8 Link Speed GEN1.
```

Workaround: Reset the system at the OBP prompt.

```
ok reset-all
```

Oracle ILOM Issues

picld Messages Logged (CR 6992903)

Occasionally, these warning messages might be logged in the /var/adm/messages file:

```
picld[177]: [ID 629468 daemon.warning] PICL snmpplugin: cannot get
entPhysicalName (row=xxx)
```

Workaround: These messages are harmless, and you can safely ignore them.

Oracle Solaris Issues

prtdiag Labels the Server Module Serial Number as the Chassis Serial Number (CR 6669159)

The last few lines of the prtdiag -v output display the server module serial number as the Chassis Serial Number. This label is misleading because it might be interpreted as the modular system chassis serial number.

Workaround: Be aware that the prtdiag Chassis Serial Number is the server module serial number.

Oracle VTS disktest Might Fail on USB Devices (CR 6873719)

Note – Oracle VTS was formally known as SunVTS.

USB drives connected to the front dongle cable or the internal USB port might fail after running the Oracle VTS `disktest` for over 5 hours.

Note – USB ports are only supported for troubleshooting purposes. The ports are not supported for general operation.

Workaround: Stop any application that is using the USB port. Then reset the USB port with the `cfgadm -x usb_reset [...]` command.

False `nxge` Warning Messages (CR 6938085)

This issue is fixed in the Oracle Solaris 10 8/11 OS.

During the normal operation of your server, you might see the following warning messages in the system console or in the Oracle Solaris `/var/adm/messages` file:

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

Workaround: These messages are harmless, and you can ignore them.

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

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

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

Recovery: Power cycle the server module.

Degraded Network Performance When Using Sun Dual 10GbE PCIe EMs (CR 6943558)

Excessive packet loss can occur when two or more ports are used across multiple Sun Dual 10GbE PCIe 2.0 PCIe EMs. As a result, transmit and receive performance is significantly degraded.

Workaround: Enable flow control in the `ixgbe` driver by performing the following procedure. This action greatly reduces packet loss and improves performance.

As superuser, add the following line in the `/kernel/drv/ixgbe.conf` file:

```
flow_control = 3;
```

Then reboot the server module.

`unsupported port mode` Messages Logged (CR 6962912)

When a 10GbE XAUI Pass-Through FEM is used with an incompatible NEM (such as a NEM and FEM combination not listed in "'Supported Modular Components" on page 3), the following messages might be logged in the `/var/adm/messages` file:

```
nxge: [ID 752849 kern.warning] WARNING: nxge1 :
nxge_n2_kt_serdes_init:port<0> - unsupported port mode 8
nxge: [ID 752849 kern.warning] WARNING: nxge1 :
nxge_n2_kt_serdes_init:port<1> - unsupported port mode 8
nxge: [ID 752849 kern.warning] WARNING: nxge1 :
nxge_n2_serdes_init: Failed to initialize N2 serdes for port<0>
nxge: [ID 752849 kern.warning] WARNING: nxge1 :
nxge_n2_serdes_init: Failed to initialize N2 serdes for port<1>
```

Workaround: Ensure that your server module is configured with the correct NEM and FEM combination. These messages are not an indication of malfunctioning hardware or software. You can ignore the messages.

Spurious Interrupt Message in System Console (CR 6963563)

During normal operation and when running the Oracle VTS system exerciser, you might see the following message in the system console or in the `/var/adm/messages` file:

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

Workaround: You can safely ignore these messages.

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

This issue only occurs when you are performing an installation using a keyboard, mouse, and monitor.

The miniroot is a bootable root file system that includes the minimum Oracle Solaris OS software required to boot the server module and configure the OS. The miniroot runs only during the installation process. When the server module boots the miniroot for the initial configuration, you might see the following messages in the system console:

```
Fatal server error:
InitOutput: Error loading module for /dev/fb
giving up.
/usr/openwin/bin/xinit: Network is unreachable (errno 128):
unable to connect to X server
/usr/openwin/bin/xinit: No such process (errno 3): Server error.
```

The messages indicate that the Xsun server in the Oracle Solaris OS miniroot cannot find a supported driver for the AST graphics device in the service processor.

These messages are expected because the miniroot contains only the Xsun environment, and the AST frame buffer (`astfb`) is supported only in the Xorg environment. The Xorg environment is included in the installed OS. Therefore, you can use the graphics device when running the installed OS.

Workaround: You can safely ignore these messages.

Hot-Plug Removal of PCIe EMs Might Generate `devfsadmd` Errors (CR 6973637)

For PCIe EMs connected to this server module, using the ATTN button to prepare a PCIe EM for hot-plug removal might generate the following error:

```
devfsadmd[202]: failed to lookup dev name for
/pci@400/pci@2/pci@0/pci@1/.....
```

Workaround: You can safely ignore these errors.

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

This issue is fixed in the Oracle Solaris 10 8/11 OS.

The following incorrect event error report (`ereport`) is generated if the service processor is operating in a degraded state:

```
ereport.fm.fmd.module
```

However, a degraded service processor should generate the following `ereport`:

```
ereport.chassis.sp.unavailable
```

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

Workaround: Clear all service processor faults to ensure that the service processor operates in a normal state.

False Error Report Events (`ereport`) Generated When System Is Booted With a Degraded Service Processor (CR 6981297)

This issue is fixed in the Oracle Solaris 10 8/11 OS.

If the system boots with a degraded service processor, the system generates an error report event (`ereport`) that does not accurately state the problem. The `ereport` should state that it cannot make a connection to the service processor instead of the following false `ereport`:

```
msg = error: bad conn open during ver negot: errno 5
```

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

Workaround: Clear all service processor faults to ensure that the service processor operates in a normal state.

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

This issue is fixed in the Oracle Solaris 10 8/11 OS.

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

Workaround: Reboot the system. If the problem repeats, contact your authorized service provider.

`nxge` Driver Not Loaded (CR 6995458)

If Oracle Solaris 10 10/09 is installed on the server module along with Oracle Solaris 10 9/10 Patch Bundle, the SPARC T3 NIU ports might be unusable on Oracle Solaris.

Workaround: Add this entry to the `/etc/driver_aliases` file and then reboot Oracle Solaris:

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

Related Documentation

Documentation	Link
Netra SPARC T3-1B Server Module	http://www.oracle.com/pls/topic/lookup?ctx=Netra_SPARCT3-1B
Netra 6000 Modular System	http://www.oracle.com/pls/topic/lookup?ctx=Netra6000
FEMs	http://www.oracle.com/technetwork/documentation/oracle-net-sec-hw-190016.html
REMs	http://www.oracle.com/technetwork/documentation/oracle-storage-networking-190061.html
NEMs	http://www.oracle.com/technetwork/documentation/oracle-blade-sys-190001.html
Oracle Integrated Lights Out Manager (Oracle ILOM) 3.0	http://www.oracle.com/technetwork/documentation/sys-mgmt-networking-190072.html
Oracle Solaris OS and other system software	http://www.oracle.com/technetwork/indexes/documentation/#sys_sw
Oracle VTS software	http://www.oracle.com/pls/topic/lookup?ctx=OracleVTS7.0
All Oracle products	http://www.oracle.com/documentation