# Sun Netra T5220 Server

## Product Notes

Part No. 820-3014-16
April 2010, Revision A

Please Recycle

Adobe PostScript

# Contents

# Important Information About the Sun Netra T5220 Server

This document contains important and late-breaking information about the Sun Netra T5220 server from Oracle.

Topics include:



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**Note –** Review these product notes and the SunSolve Web pages for the most recent system firmware release. The system firmware postings contain a README file detailing the fixes and new features.

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# Updating System Firmware

The System Firmware includes several software components, such as the Integrated Lights Out Manager (ILOM) software and OpenBoot™ (host) firmware. When you update the System Firmware, each of the components (such as the ILOM software and OpenBoot firmware) are updated.

The method you use to update the System Firmware depends on how you configured your service processor (SP) as follows:

- The SP is accessible through the SP network management port (NET MGT), and you have a local TFTP server on the network. Use the ILOM `load source` command to update the SP firmware from your TFTP server. Refer to the *Sun Netra T5220 Servers Installation Guide* for instructions.
- The SP is not connected to a network through the network management port (NET MGT), or you do not have an TFTP server. The firmware must first be placed on the host so that the firmware can be downloaded to the SP from the host and installed. See "To Update the System Firmware Directly From the Host Server" on page 3.

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**Note –** In order to perform the procedure documented in this section you must first upgrade to Sun System Firmware 7.2.0 or later.

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## ▼ To Display the System Firmware Version

1. **Log in to the ILOM CLI.**
2. **Type:**

```
-> show /HOST Targets:

 /HOST
 bootmode
diag
domain

Properties:
autorestart = reset
autorunonerror = false
bootfailrecovery = poweroff
bootrestart = none
boottimeout = 0
```

```
hypervisor_version = Hypervisor 0.1 2008/11/30 02:28
macaddress = 00:14:4f:6f:67:be
maxbootfail = 3
obp_version = OBP 4.30.1 2008/11/30 00:07
post_version = POST 4.30.1 2008/11/30 00:29
send_break_action = (none)
status = Powered on
sysfw_version = Sun System Firmware 7.2.0.x

Commands:
cd
set
show
```

## ▼ To Update the System Firmware Directly From the Host Server

If you do not have access to a local TFTP server to upload firmware directly to the SP, use the `sysfwdownload` utility as described in this procedure.

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**Note –** The following procedure requires that you are logged into an account with root privileges.

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1. **Download the latest System Firmware for your server from SunSolve (`http://www.sunsolve.sun.com`) to the host.**

   Firmware updates are provided as patch release zip files.

2. **On the server for which the firmware will be installed, gain access to the SP though the serial port.**

   The examples in this procedure use the ILOM CLI. As an alternative, you can use the ALOM CMT compatibility CLI, which requires the creation of the `admin` user account. For further information about using the ALOM CMT compatibility CLI with the `sysfwdownload` utility, see the `sysfwdownload` README file (included in the System Firmware update package).

   Refer to the Sun Integrated Lights Out Manager (ILOM) 3.0 Supplement for *Sun Netra T5220 Server* for more information about using the ILOM and ALOM CMT compatibility CLIs.

3. **Access the host console.**

   Access to the console requires that you log in to an account with an `admin` role on the SP.

   Example:

```
-> start /SP/console
#
```

4. **Transfer the System Firmware patch release (a zip file) to the host for which the firmware will be installed.**

   Example:

```
# cp path_to_downloaded_zip_file /var/tmp
```

5. **Unzip the zip file.**

   Example:

```
# unzip /var/tmp/firmware_patch_number.zip
```

6. **Change directories to the directory created by the previous step.**

   Example:

```
# cd /var/tmp/firmware_patch_number
```

7. **Transfer the System Firmware package to the SP with the `sysfwdownload` command.**

   Example:

```
# /var/tmp/firmware_patch_number/sysfwdownload -u
Sun_System_Firmware-7_2-Sparc_Enterprise_T5120+5220.pkg
```

   The `sysfwdownload` command might take 5 minutes to complete. The command might take 30 minutes if performed within an LDoms environment. When the `sysfwdownload` command is done, the following steps have been completed:

   - The system firmware package has been transferred to the SP.
   - The host has been powered off.
   - The system firmware has been installed.
   - The SP has been reset.
   - The host has been powered on.

# Required Patch Information

Patches are available at (http://www.sun.com/sunsolve). The following table lists the preinstalled patches required for your server.

**TABLE 1-1** Mandatory Patches

| Patch ID | Description |
|---|---|
| 136934-02 | Sun System Firmware 7.1.3<br>• ILOM 2.0.4.23 May 23 15:24:40 2008<br>• VBSC 1.6.4 May 23 2008 15:11:35<br>• Hypervisor 1.6.4 2008/05/23 15:08<br>• OpenBoot PROM 4.28.6 2008/05/23 12:07<br>• POST 4.28.6 2008/05/23 12:37 |
| 127749-03 | Sun Netra T5220 server features |
| 127111-05 | Fixes CR 6612154 PCI slot NAC names corrected in `fmtopo -V` output |
| 125476-02 | Prerequisite for 127111-05 |
| 125369-13 | Prerequisite for 127111-05 |
| 123398-02 | Fixes CR 6468068 Boot failed with `panic - boot: boot: scratch` memory overflow error |

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**Note –** Before contacting support, ensure that all mandatory patches are installed on your server. Check the SunSolve web site on a regular basis for the availability of new patches.

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To determine if a patch is present, see "To Download Patches" on page 5.

## ▼ To Download Patches

1. **Determine whether the patches have been installed on your system.**

   For example, using the `showrev` command, type the following for each patch number:

```
# showrev -p | grep "Patch: 119578"
```

- If you see patch information listed for the queried patch, and the dash extension (the last two digits) matches or exceeds the required version, your system has the proper patches already installed and no further action is required.

  For example, if Patch 119578-16 or later is installed, your system has the required version of this patch.

- If you do not see patch information listed for the queried patch, or if the dash extension precedes the required version, go to Step 2.

  For example, if no version of the 119578 patch, or a version with an extension of
  -15 or earlier is installed, you must download and install the new patch.

2. **Go to** `http://www.sun.com/sunsolve` **to download the patches.**

   Using the SunSolve PatchFinder tool, specify the base Patch ID number (the first six digits) to access the current release of a patch.

3. **Follow the installation instructions provided in a specific patch's** `README` **file.**

## 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.

# Technical Support and Documentation

This section includes where to obtain technical support, software, and documentation.

## Technical Support

If you have any technical questions or issues that are not addressed in the Sun Netra T5220 server documentation, contact your local support services representative. For customers in the U.S. or Canada, call 1-800-USA-4SUN (1-800-872-4786). For customers in the rest of the world, find the World Wide Solution Center nearest you by visiting the web site:

http://www.sun.com/service/contacting/solution.html

# Cryptographic Support

The UltraSPARC® T2 multicore processor provides hardware-assisted acceleration of symmetric (AES, 3DES, and RC4), asymmetric (RSA, DSA, Diffie Hellman, and Elliptic Curve), hashing (SHA1, SHA256, and MD5), and random number generation cryptographic operations. The Solaris™ 10 8/07 OS or later provides the multithreaded device drivers that support the hardware-assisted cryptography.

# Downloading Documentation

Instructions for installing, administering, and using your servers are provided in the Sun Netra T5220 server documentation set. The entire documentation set is available for download from the following web site:

http://docs.sun.com

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**Note –** Information in these product notes supersedes the information in the Sun Netra T5220 documentation set.

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# Impact of ILOM 3.0 Upgrade on Platform Documentation

The information in the following ILOM 3.0 base documentation supersedes the information in the ILOM 2.0 base documentation:

- *Sun Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide* (820-6410)
- *Sun Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide* (820-6411)
- *Sun Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide* (820-6412)
- *Sun Integrated Lights Out Manager (ILOM) 3.0 SNMP and IPMI Procedures Guide* (820-6413)
- *Sun Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide* (820-5523)

ILOM 2.0 documentation remains correct for platforms that have not upgraded to ILOM 3.0. Once upgraded, platforms using ILOM 3.0 require the instructions and explanations in the ILOM 3.0 base documentation and the *Sun Integrated Lights Out Manager (ILOM) 3.0 Supplement for the Sun Netra T5220 Server*.

ILOM procedures in current editions of documents such as the *Sun Netra T5220 Server Installation Guide*, *Sun Netra T5220 Server Administration Guide*, and *Sun Netra T5220 Servers Service Manual* should be understood as ILOM 2.0 procedures, not ILOM 3.0 procedures.

## Additional Documentation

The SPARC® Enterprise T5120 and T5220 servers and the Sun Netra T5220 server share certain characteristics. You can consult the *Sun SPARC Enterprise T5120 and T5220 Servers Product Notes* (820-2176-10) for additional documentation coverage.

# Enabling IPsec Cryptographic Hardware Acceleration

To enable IPsec crypto operations to use the cryptographic hardware on the UltraSPARC T2 processor, you must download and install the activation package from the Sun Download Center at:

(http://www.sun.com/download/)

The filename of the package is `sol-10-u4-ga-sparc-cryptoactivation.pkg`

To find the activation package, search with the following single line description:

```
UltraSPARC T2 Processor-Cryptographic Activation File 1.0
```

Use the `pkgadd` command to install the activation package:

```
% pkgadd sol-10-u4-ga-sparc-cryptoactivation.pkg
```

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**Note –** You must reboot the system after installing the activation package to complete the activation.

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Installing this package enables IPsec to use the UltraSPARC T2 crypto hardware. Once the activation package is installed, IPsec usage of the cryptographic hardware is transparent. Administer IPsec as documented in the *IPsec and IKE Administration Guide* at: `http://docs.sun.com`.

# Supported Versions of Solaris and Sun Java Enterprise System Software and System Firmware

The following are the minimum supported versions of firmware and software for this release of the Sun Netra T5220 server:

- Solaris 10 8/07 Operating System (OS)
- Sun Java™ Enterprise System 5 software (Sun Java ES 5)
- System firmware 7.0.9a (which includes ILOM 2.0 software, OpenBoot 4.27.0 firmware, and Hypervisor software)

# Preinstalled and Preloaded Software

This section describes the preinstalled and preloaded software on your server. The preinstalled software is ready to use. The preloaded software must first be installed from the preloaded location.

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**Note –** The 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 allows upgrading the OS or performing system maintenance tasks without reducing performance. Just the core OS is installed for an ABE in Slice 3.

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The following table lists the software preinstalled on your server.

**TABLE 1-2** Preinstalled Software

| Software | Location | Function |
|---|---|---|
| Solaris 10 8/07 | Root disk Slice 0 (and just the core OS on Slice 3 for an ABE) | Operating system |
| Solaris Live Upgrade | Root disk Slice 3 | Allows Solaris OS upgrades without reducing performance |
| Cool Tools GCC | `/opt/gcc and /opt/SUNW0scgfss` | GCC compiler for SPARC systems |
| CMT Tools | `/opt/SUNWspro/extra/bin` | Sun Studio Developer Tools |

**TABLE 1-2** Preinstalled Software *(Continued) (Continued)*

| Software | Location | Function |
|---|---|---|
| Sun Studio | `/opt/SUNWspro` | C, C++, and Fortran compiler |
| LDoms Manager | `/opt/LDoms_Manager-1_0_1-RR/Product and /opt/SUNWldm/` | Manages Logical Domains |
| Sun Update Connection | `/usr/platform/sun4v/sbin/sysfwdownload` | Downloads system firmware from Solaris OS host |
| SunVTS™ 6.4 Patch Set (PS) 2 | `/opt/SUNWvts/bin/sunvts` | Diagnostic tool with a comprehensive set of tests |

The following table lists the software preloaded on your server. To use this software you must first install it from the preloaded location.

**TABLE 1-3** Preloaded Software

| Software | Location | Function |
|---|---|---|
| Sun Java Enterprise Server | `/var/spool/stage/JES5/Solaris_sparc` | Optimizes software investment |

# Cool Tools for Sun Servers With CoolThreads Technology

Cool Tools provide a collection of freely available tools designed to enable fast and efficient development and deployment of optimally configured software solutions on CoolThreads™ servers.

These tools significantly improve performance and time-to-market for applications running on UltraSPARC processor-based servers.

An overview of the Cool Tools and full documentation is available at the following URL:

(http://www.sun.com/servers/coolthreads/overview/cooltools.jsp)

Not all of the Cool Tools listed on the Cool Tools web page are available on your server. The following are not included:

- Consolidation Tool
- Cooltst
- Sun Application Porting Assistant

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**Note –** The Cool Tools GCC compiler and Corestat tools are preinstalled. The CoolTuner and Cool Stack software is preloaded and must be installed from the preloaded location before using. See TABLE 1-2 and TABLE 1-3.

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## Logical Domains

Using Logical Domains (LDoms) increases your server usage, efficiency, and return on investment, and also reduces your server footprint. The LDoms Manager software creates and manages logical domains, and maps logical domains to physical resources.

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**Note –** The LDoms MIB must be configured before it is ready to use. A README file with configuration instructions is located in the LDoms MIB installation directory, `/opt/ldoms_mib`.

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For more information on LDoms, go to:

(http://www.sun.com/servers/coolthreads/ldoms/)

## Sun Java Enterprise Server and Solaris OS

The Sun Java Enterprise Server is a comprehensive set of software and lifecycle services that make the most of your software investment.

For an overview and documentation, go to:

(http://www.sun.com/service/javaes/index.xml)

The Solaris OS and Sun Java Enterprise Server software are preinstalled.

If it becomes necessary to reload the software, go to the following web site for download and installation instructions:

(http://www.sun.com/software/preinstall)

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**Note –** If you download a fresh copy of software, that software might not include patches that are mandatory for your server. After installing the software, see "Required Patch Information" on page 5 for a procedure to check for the presence of patches on the system.

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# Solaris Live Upgrade

Solaris Live Upgrade technology significantly reduces service outage during an OS upgrade. This technology enables the Solaris OS to run normally during an upgrade or normal maintenance on an inactive boot environment.

Your server is configured with a `liveupgrade` partition on slice 3 that contains an exact duplicate of the Solaris OS that is preinstalled in the `root` partition. This `liveupgrade` partition is an Alternate Boot Environment (ABE).

For more information about Solaris Live Upgrade, go to:

(http://www.sun.com/software/solaris/liveupgrade/)

Solaris Live Upgrade software is preinstalled on your server. You might need to install a different version of Solaris Live Upgrade depending on which Solaris OS version you are installing or upgrading. For more information on installing the correct versions of Solaris Live Upgrade, go to:

(http://www.sun.com/software/preinstall)

# Sun Studio - C, C++ & Fortran Compilers and Tools

Sun Studio delivers high performance by optimizing C, C++, and Fortran compilers for the Solaris OS on multi-core systems.

For an overview and documentation, go to:

(http://developers.sun.com/sunstudio/index.jsp)

# Sun Update Connection (FW)

Sun Update Connection updates the system firmware with the `sysfwdownload -g` command. The software downloads the firmware image from the Solaris OS host to the service processor. Sun Update Connection can also retrieve the firmware from the service processor and display it on the Solaris host.

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**Note –** The `-g` option is required when using the `sysfwdownload` command on Sun Netra T5220 servers.

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For more information, refer to the Sun Update Connection README file.

# Processor Identification

## Processor IDs Might Not Start at 0, and Might Not Be Contiguous

Different platforms and platforms of the same model might have different processor IDs for identical configurations. For example, on UltraSPARC T1 CPU based platforms, the processor IDs start with processor ID 0 but other platforms, including those based on the UltraSPARC T2 CPU, might not have a processor ID 0. The Solaris `psrinfo` command might display output similar to the following for platforms based on the UltraSPARC T2 processor:

```
8 on-line since 09/18/2007 21:26:25
9 on-line since 09/18/2007 21:26:30
16 on-line since 09/18/2007 21:26:30
17 on-line since 09/18/2007 21:26:30
```

The processor IDs exported to a guest domain on a platform running multiple guest domains with a virtual machine manager might represent a virtual abstraction. Within each guest domain, each processor ID visible to the software will be a unique integer value.

Software running in different guest domains on the same physical machine might see the same or different sets of virtual processor IDs.

Software should not make any assumptions about the processor IDs other than that they are unique integer values in the domain where the software is running and the integer value will fit in the type `processorid_t`. Also refer to the `p_online`(2) man page.

# Hardware Issues

This section describes known hardware issues at this release of the Sun Netra T5220 server.

# Incorrect FB-DIMM Layout Note (CH1/D[0]) on Service Label

The FB-DIMM Layout section of the service label on the Sun Netra T5220 server incorrectly states the following note:

```
Note: On each Branch install DIMMs starting with CH0/D0.
Populate CH1/D1 second. Refer to service manual for more
information.
```

"Populate CH1/D1 second" is incorrect. The note should read as follows:

```
Note: On each Branch install DIMMs starting with CH0/D0.
Populate CH1/D0 second. Refer to service manual for more
information.
```

Workaround: Populate CH0/D0 first. Populate CH1/D0 second.

# Sun XVR-2500 Graphics Accelerator Support

Due to a conflicting screw location on the card panel, only the left (from rear) video output connector (Port 2) on the Sun XVR-2500 graphics accelerator card is supported at this time.

When installing this card, the rightmost jackscrew on Port 1 does not fit correctly within the server chassis.

# Installing the Server With the 370-6110-03 Shipping Kit

When using the shipping kit with part number 370-6110-03 to install the Sun Netra T5220 server, use the screw kit with part number 452747400032 to avoid interference with power supplies and drives. The bag for this screw kit is labeled as follows:

```
[bar code]
452747400032
Netra T2000
Netra X4200
```

# General Software Issues

This section describes firmware and software issues known to exist at this release of the Sun Netra T5220 server.

## Supported Sun Explorer Utility Version

The Sun Netra T5220 server is supported by the Sun Explorer 5.10 (or later) data collection utility, but is not supported by earlier releases of the utility. Installing Sun Cluster or Sun Net Connect software from the preinstalled Java ES package could automatically install an earlier version of the utility on your system. After installing any of the Java ES software, determine whether an earlier version of the Sun Explorer product has been installed on your system by typing the following:

```
# pkginfo -l SUNWexplo
```

If an earlier version exists, uninstall it and install version 5.10, or later. To download version 5.10, go to:

`http://www.sun.com/sunsolve`

## DS SNMP Data out of Sequence With Request (CR 6612689)

The following `snmp WARNING` message is displayed on the console after Sun Management Center is installed on the server.

```
ds_snmp: WARNING: Received DS snmp data out of sequence with
request
```

There is no workaround. Sun Management Center is not currently supported. If and when Sun Management Center is supported, check for the availability of a patch for this defect.

## prtdiag Command Reports all HDDx PRSNT Status as fail (CR 6643381)

The HDD presence sensor (HDDx PRSNT) status shows up as failed in the prtdiag -v command output. It is noticed that the HDD status reported by this command is inverted. That is, if a HDD is removed, its corresponding PRSNT sensor value is reported as ok.

Workaround: Obtain the correct disk presence status from the service processor showenvironment command. Do not use the HDDx PRSNT status information from the prtdiag -v command.

# ILOM 2.0 Issues

This section describes ILOM issues known to exist at the 2.0 release.

## XAUI0 Component Missing in showcomponent Command Output (CR 6643212)

The following component representing a XAUI card in slot 0 is missing from the ALOM CMT compatibility CLI showcomponent command output.

```
/SYS/MB/RISER0/XAUI0
```

Workaround: There is no workaround. Check for the availability of a patch for this defect.

## showcomponent Not Showing All of the PCI Slots (CR 6615336)

The component for the PCIE5 slot may not show up in the showcomponent output.

The following may be missing in the showcomponent command output.

```
/SYS/MB/PCI_MEZZ/PCIE5
```

Check for the availability of a patch for this defect.

## Power Supply Fault Reporting (CR 6611115)

ILOM continues to report a fault on a PSU that has recovered from a fault.

Workaround: Hot-swapping the PSU clears the fault.

### ▼ To Hot-Swap the PSU

1. **Remove input power to the PSU.**
2. **Pull the PSU out.**
3. **Reinsert the PSU.**
4. **Connect input power to the PSU.**

## USB0 and USB1 Error Reporting Are Switched (CR 6636683)

In the event of a fault on USB0, the error message refers to a fault on USB1 and vice versa.

Workaround: If an error message reports a fault on USB0, check the port labeled USB1 on the rear panel. Similarly, if an error message reports a fault on USB1, check the port labeled USB0 on the rear panel.

## Intermittent POST Failures Might Display for the MB/CMP0/NIU1 XAUI/NIU Card (CR 6626445)

On occasion, a XAUI/NIU card might fail POST even though the card is not faulty. Error messages similar to the following might be seen:

```
2007-11-06 14:42:26.505 0:0:0>ERROR: TEST = NIU fault check
2007-11-06 14:42:26.510 0:0:0>H/W under test = MB/CMP0/NIU1
2007-11-06 14:42:26.517 0:0:0>Repair Instructions: Replace items
in order listed by 'H/W under test' above.
2007-11-06 14:42:26.527 0:0:0>MSG = ERROR:      NC Fault Check 1.
2007-11-06 14:42:26.533 0:0:0>END_ERROR

2007-11-06 14:42:26.542 0:0:0>
2007-11-06 14:42:26.545 0:0:0>ERROR: TEST = NIU fault check
2007-11-06 14:42:26.552 0:0:0>H/W under test = MB/CMP0/NIU1
```

```
2007-11-06 14:42:26.562 0:0:0>Repair Instructions: Replace items
in order listed by 'H/W under test' above.
2007-11-06 14:42:26.570 0:0:0>MSG =     NC Error - NC - FZC - XMAC
XPCS Status1 Reg,
address  00000081.02188008
        observed 00000000.00000080
2007-11-06 14:42:26.581 0:0:0>END_ERROR

2007-11-06 14:42:26.589 0:0:0>
2007-11-06 14:42:26.593 0:0:0>ERROR: TEST = NIU fault check
2007-11-06 14:42:26.599 0:0:0>H/W under test = MB/CMP0/NIU1
2007-11-06 14:42:26.607 0:0:0>Repair Instructions: Replace items
in order listed by 'H/W under test' above.
2007-11-06 14:42:26.616 0:0:0>MSG = ERROR:      NC Fault Check 1.
2007-11-06 14:42:26.621 0:0:0>END_ERROR

2007-11-06 14:42:26.628 0:0:0>
2007-11-06 14:42:26.631 0:0:0>ERROR: TEST = NIU fault check
2007-11-06 14:42:26.642 0:0:0>H/W under test = MB/CMP0/NIU1
2007-11-06 14:42:26.646 0:0:0>Repair Instructions: Replace items
in order listed by 'H/W under test' above.
2007-11-06 14:42:26.655 0:0:0>MSG =     NC Error - NC - FZC - XMAC
XPCS Status2 Reg,
        address  00000081.02188030
        observed 00000000.00000c02
2007-11-06 14:42:26.666 0:0:0>END_ERROR
...
ERROR: The following devices are disabled:
    MB/CMP0/NIU1
```

Workaround: Power cycle the system with the following commands:

```
sc> poweroff -fy
sc> clearasrdb
sc> poweron -c
```

If the errors persist, the card is faulty.

If you want to power on the server without running POST, enter the following commands:

```
sc> poweroff -fy
sc> clearasrdb
sc> setsc diag_mode off
sc> poweron -c
```

## Certain Keys and Key Combinations Are Unsupported on International Keyboards (CR 6547563)

When accessing the ILOM Remote Console application (Java Remote Console) using an international keyboard (non-English), certain international keyboard keys and key combinations do not not operate correctly. In addition, this issue applies to some international keys that represent more than one character (for example, Shift and AltGraph). This issue pertains to the following locales and international keyboards:

- German
  - Locale: de_DE
  - Keyboard: de
- French
  - Locale: fr_FR
  - Keyboard: fr
- Spanish
  - Locale: es_ES
  - Keyboard: es
- Portuguese
  - Locale: pt_PT
  - Keyboard: pt
- Italian
  - Locale: it_IT
  - Keyboard: it
- Turkey
  - Locale: tr_TR
  - Keyboard: tr
- Estonian
  - Locale: et_EE
  - Keyboard: ee

Workaround: There is currently no ideal workaround as this issue is a language-dependent problem that results from a deficit in the Java software used by JavaRemoteConsole. Monitor CR 6253172 for information that relates to workarounds for specific locales and international keyboards.