Netra™ 440 Server Upgrade Guide

Sun Microsystems, Inc.
www.sun.com

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Contents

Preface

The *Netra 440 Server Upgrade Guide* provides detailed procedures that describe upgrade the CPU modules in the Netra™ 440 server. This manual also includes information about requirements, configurations, and limitations for upgrading the server. This document is written for technicians, system administrators, and users who have advanced experience troubleshooting and replacing hardware.

Before You Read This Document

To fully use the information in this document, you must have thorough knowledge of the topics discussed in these documents:

- *Netra 440 Server Quick Start Guide*
- *Netra 440 Server Hardware Setup Guide*
- *Advanced Lights Out Manager Software User's Guide*
- *Netra 440 Server Server Safety and Compliance Manual*
- *Netra 440 Server Service Manual*

Using UNIX Commands

This document might not contain information about basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris™ Operating System documentation, which is at:

  http://docs.sun.com

Shell Prompts

Shell	Prompt
C shell	*machine-name*%
C shell superuser	*machine-name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

Typographic Conventions

Typeface*	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
`AaBbCc123`	What you type, when contrasted with on-screen computer output	`% su` `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this. To delete a file, type `rm` *filename*.

* The settings on your browser might differ from these settings.

Related Documentation

The documents listed as online are available at:

http://www.sun.com/products-n-solutions/hardware/docs/

Application	Title	Part Number	Format	Location
Installation	*Netra 440 Server Quick Start Guide*	*817-4756-xx*	Printed PDF	Shipping kit Online
Installation	*Netra 440 Hardware Setup Guide*	817-5420-*xx*	PDF HTML	Online
Safety	*Netra 440 Server Safety and Compliance Manual*	817-6225-xx	PDF HTML	Online
Software	*Advanced Lights Out Manager Software User's Guide*	817-5481-xx	PDF HTML	Online
Service	*Netra 440 Server Service Manual*	*817-3883-xx*	PDF HTML	Online

Documentation, Support, and Training

Sun Function	URL
Documentation	http://www.sun.com/documentation/
Support	http://www.sun.com/support/
Training	http://www.sun.com/training/

Third-Party Web Sites

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Netra 440 Server Upgrade Guide, part number 820-0073-10

CHAPTER 1

Upgrading CPU Modules in a Netra 440 Server

The *Netra 440 Server Upgrade Guide* provides important information, including requirements, configurations, and limitations for upgrading your Netra™ 440 server.

CPU Module Design Features and Functions

The 1.6 GHz CPU module is the next generation CPU module with a higher speed processor for use in the Netra 440. The 1.6 GHz CPU module allows for enhanced system timing while accepting the same DDR1 memory DIMMs as used on the older 1.28 GHz CPU module.

The 1.6 GHz CPU module is physically the same and is fully feature-compatible replacement for the older 1.28 GHz CPU module. A 1.6 GHz CPU module design feature is the CPU air baffle (330-3905-01) that is installed onto this CPU module over the memory DIMMs for improved cooling. This CPU air baffle must be removed in order to install memory DIMMs and then re-installed over the memory DIMMs before the CPU module is loaded into one of the four motherboard card cage CPU slots.

Note – The 1.6 GHz CPU module cannot be mixed with the older 1.28 GHz CPU within the Netra 440 system. There can be one to four CPU modules, all must be either 1.28 GHz or 1.6 GHz CPU modules.

Upgrade Sequence

Use the following sequence for upgrading your Netra systems to install one or more 1.6 GHz CPU module FRUs (501-7649-01). Procedures are provided later in this guide. The following is an overview for planning and administrative purposes.

1. **Upgrade the software and firmware first.**

   Use the following software and patches for Netra systems to support 1.6 GHz CPU modules:

   - Advanced Lights Out Management (ALOM) 1.6 software or later with thermal thresholds is required for 1.6 GHZ CPUs and support for RoHS modules.

     `http://www.sun.com/download/products.xml?id=44eb1efd`

   - Open Boot PROM (OBP) Patch ID 121685-01 to fix mix speed memory interleave factor and wrapper for ROHS 501#s.

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

   Note – Upgrade the firmware well in advance of upgrading or adding hardware. When upgrading multiple systems, first upgrade the firmware and perform testing to ensure that the firmware upgrade is successful before removing and installing hardware.

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2. **Install the hardware last.**

   The hardware changes consist of swapping out the memory DIMMs from the existing 1.28 GHz CPU modules to the new 1.6 GHz CPU module FRUs (501-7649-01).

Hardware and Software Requirements for Upgrading the CPU Modules

This section describes the minimum software, firmware, and hardware requirements necessary to install the upgrade 1.6 GHz CPU module into Netra 440 systems.

TABLE 1 Hardware and Software Requirements for Upgrading Netra 440 CPU Modules

Hardware and Software	Requirements
Hardware	1.6 GHz CPU Modules (Netra Upgrade Kit X7447A-Z))
ALOM Software	Version 1.6.*x*
OpenBoot PROM Patch	Patch ID 121685-01
Operating System	Solaris 8, 9, or 10 Operating Systems

Note – There are one to four CPU modules required per Netra 440 and the standard configurations contain either two or four CPU modules. The Netra 440 CPU upgrade kit X7447A-Z contains two 1.6 GHz CPU modules and if four 1.28 GHz CPU modules are to be replaced within one Netra 440, then two X7447A-Z CPU upgrade kits are required.

Upgrading the Software and Firmware

Before you upgrade the CPU modules, you must upgrade the ALOM software and the OBP firmware.

▼ To Download and Install ALOM 1.6

1. **Locate and download the ALOM firmware at the following web site:**

   `http://www.sun.com/download/products.xml?id=44eb1efd`

2. **Login to the system.**

   Refer to the *Netra 440 Server Installation Guide* for those instructions.

Note – Do not attempt this procedure while logged into the system through the SERIAL MGT port.

3. **Change directories to the** `/usr/platform/‘uname -i‘/lib` **directory.**
4. **If there is not a subdirectory named** `images`**, then create it:**

```
# mkdir images
```

5. **Change directories to the** `images` **directory.**
6. **Move the gzipped tar file of the ALOM firmware to the** `images` **directory.**
7. **Uncompress the gzipped tar file:**

```
# gunzip ALOM_1.6_fw.tar.gz
```

8. **Unpack the tar file:**

```
# tar xf ALOM_1.6_fw.tar
```

The following files will be created:

- README and copyright files
- `alombootfw` (boot image file)
- `alommainfw` (main image file)

9. **Load the boot image file** `alombootfw` **into the ALOM:**

```
# /usr/platform/‘uname -i‘/sbin/scadm download boot alombootfw
```

Wait one minute after the `scadm` command completes before going to the next step.

10. **Load the main image file** `alommainfw` **into the ALOM:**

```
# /usr/platform/‘uname -i‘/sbin/scadm download alommainfw
```

Approximately two minutes after the `scadm` command completes, ALOM will be available for use.

11. **Delete the tar file:**

```
# rm ALOM_1.6_fw.tar
```

▼ To Download and Install the OBP Patch

1. **Go to www.sunsolve.sun.com, accept the onscreen agreement, then locate and download the OBP Patch ID 121685-01.**
2. **Move the patch to the `/var/spool/patch` directory.**
3. **Perform an unzip on the patch you downloaded.**
4. **Review the patch README files for Special Install Instructions and follow those instructions.**
5. **To install a patch, become superuser and type the `patchadd` and the full path to the patch:**

```
# patchadd /var/spool/patch/patch-id
```

6. **Replace *patch-id* with the patch ID number of the patch you are installing, and repeat the command to install each patch.**

   Refer to the README files located in the patch directories, the Solaris documentation, and the `patchadd`(1M) man page for additional information about installing patches.

7. **Reboot the Netra 440 server.**

   Refer to the *Netra 440 Server Installation Guide* (817-3882) for those instructions.

DIMM Requirements

There are four memory DIMM slots that are partitioned into two physical or external banks on each CPU module that supports DDR1 memory.

TABLE 2 External Banks for Memory Slots

Physical/External Bank	Memory Slots
0	J0601 and J0602
1	J0701 and J0702

Note – The same DDR1 memory type DIMM (that is, size, SPD, vendor, speed, and such) must be installed in a physical/external bank to avoid potential memory compatibility issues reported by OBP.

To transfer the memory DIMMs from the existing 1.28 GHz CPU modules to the 1.6 GHz CPU modules requires moving the two DIMMs in physical/external bank 0 in the existing 1.28 GHz CPU module to physical/external bank 0 in the 1.6 GHz CPU module and moving the two DIMMs in physical/external bank 1 in the existing 1.28 GHz CPU module to the 1.6 GHz CPU module physical/external bank 1.

Caution – Before updating the hardware refer to the following documents: *Netra 440 Server Safety and Compliance Manual (*817-6225*)* for safety cautions, *Netra 440 Server Service Manual* (817-3883) for which explains in detail procedures to be taken to avoid any damages to CPU, DIMM modules or any internal electronic components caused by Electro Static Discharge (ESD).

Antistatic Precautions

To avoid damaging your equipment, take the following precautions when handling the server and its components.

- Take antistatic precautions while handling the server or any component:
  - Handle the server and components only by the nonconducting edges.
  - Do not touch the components or any metal parts.
  - Always wear a antistatic wrist strap when handling the server and be sure the wrist strap is connected to ground.

▼ To Transfer the Memory DIMMs

1. **Remove the old CPU from the motherboard.**
2. **Push down on the two plastic tabs on either side of the DIMM socket of physical/external bank 0.**
3. **Remove the two DIMMs in physical/external bank 0 in the 1.28 GHz CPU module.**
4. **Remove the air baffle from the 1.6 GHz CPU to access the DIMM slots.**

Note – The 1.28 GHz CPU modules do not have an air baffle.

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5. **Insert the two DIMMs into the DIMM socket of physical/external bank 0 in the 1.6 GHz CPU module (see** TABLE 2**).**
6. **Press down on the DIMMs to engage them in the DIMM socket.**

   The DIMMs are engaged when the two plastic tabs return to their upright position.
7. **Repeat** Step 2 **through** Step 6 **for the DIMMs in physical/external bank 1.**
8. **Replace the CPU air baffle.**
9. **Load the CPU onto the motherboard.**
10. **Repeat all of the preceding steps for each of the CPUs being upgraded.**
11. **When all the CPUs are loaded into the CPU slots, power up the system.**
12. **Perform the Power On Self-Test (POST) and SunVTS tests to ensure that the hardware upgrade was successful.**

    When the system is powered on it will automatically run POST. If the installation was successful, you will see the following message:

```
ok POST completed successfully
```

13. **Run the** `boot disk -r` **command to reconfigure the hardware.**

```
ok boot disk -r
```

▼ To Ensure Upgrade Succeeded

Use SunVTS to exercise the system and ensure that the upgrade succeed.

1. **Log in as superuser to a system with a graphics display.**

   The display system should be one with a frame buffer and monitor capable of displaying bit mapped graphics such as those produced by the SunVTS GUI. 2.

2. **Enable remote display. On the display system, type:**

   ```
   # /usr/openwin/bin/xhost + test-system
   ```

   where *test-system* is the name of the Netra 440 server being tested.

3. **Remotely log in to the server as superuser.**

   Use a command such as `rlogin` or telnet. 4. Start SunVTS software. Type:

   ```
   # /opt/SUNWvts/bin/sunvts -display display-system:0
   ```

   where *display-system* is the name of the machine through which you are remotely logged in to the Netra 440 server.

   If you have installed SunVTS software in a location other than the default `/opt` directory, alter the path in the previous command accordingly.

   The SunVTS GUI appears on the display system s screen.

4. **Expand the test lists to see the individual tests.**

5. **Select Processor(s) and Memory only.**

   Certain tests are enabled by default, and you can choose to accept these. Alternatively, you can enable and disable individual tests or blocks of tests by clicking the checkbox next to the test name or test category name. Tests are enabled when checked, and disabled when not checked.

6. **Run SunVTS for 50 passes (about an hour) to ensure that the hardware upgrade was successful.**

   Refer to the README file located in the patch directory, the Solaris documentation, and the `patchadd`(1M) man page for instructions on installing these patches.

Technical Support

If you have any technical questions or issues that are not addressed in the Netra 440 server documentation, contact your local Sun 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