Sun Enterprise™ xx00 Systems CPU Module Installation Guide for 464-MHz 8-Mbyte CPU Module

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Sun Enterprise™ *xx*00 Systems CPU Module Installation Guide for 464-MHz 8-Mbyte CPU Module

This document contains the following sections:

Requirements

- Different speed modules *must not* be mixed in a system.
- For all 464-MHz modules, you *must* first upgrade the system flash PROM to version 3.2.29, or compatible versions.
- The clockboard upgrade package (part number UG-5/1-CLOCKBOARD) is required if this is the first 8-Mbyte ecache module installed, and a clockboard is not already in place.
- If your system is running the Solaris 2.5.1 operating environment, you must install software patches #103640 and #104595 or compatible versions.
- If your system is running the Solaris 2.6 operating environment, you must install software patch #105181 or compatible versions.
- If your system is running the Solaris 7 operating environment, you must install software patch #106541.
- If your system is running the Solaris 8 operating environment, you must install software patch #108528.

Note – When installing 464-MHz 8-Mbyte modules in a Sun Enterprise 4500 system, EMI spring gaskets (X990G) must be installed on the media tray of the 4500 system if gasketing around the media tray is not already in place.

Note – When installing 464-Mhz 8-Mbyte CPU modules in a Sun Enterprise 6500, or a Sun Enterprise 5500 with one or more Sun Enterprise 4500s in the cabinet, a gasketed EMI door (X9633A) must be installed. For previously installed non-gasketed EMI doors (X9623A), EMI foam gaskets (X991G) must be installed on the inside edges.

Note – Sun StorEdge™ T3 systems are not supported in Sun Enterprise 6500 and Sun Enterprise 5500 cabinets with an EMI door.

Note – Two or more Sun Enterprise 4500-Rs in the Sun StorEdge Expansion cabinet require a standard EMI door. There is no Sun StorEdge T3 system restriction in the Sun StorEdge Expansion cabinet.

Note – The 464-MHz 8-Mbyte CPU modules in Sun Enterprise 6500/5500 and rackmounted Sun Enterprise 4500 systems should not exceed temperatures of 35°C between 0–6,000 foot altitude or exceed 32°C between 6,000–10,000 foot altitude. Standalone Sun Enterprise 4500 and 3500 systems cannot exceed 40°C between 0–6,000 feet or exceed 37°C between 6,000–10,000 feet.

CPU Module Software Installation

When installing 464-MHz 8-Mbyte CPU modules the following software upgrade procedures must be performed and followed *before* installing the modules.

There are two procedures for installing 464-MHz 8-Mbyte CPU modules, depending upon the relevant scenario:

- Installing 464-MHz 8-Mbyte CPU modules in existing systems.
- Installing Solaris 2.5.1 or 2.6 on a new system with 464-MHz 8-Mbyte CPU modules.

Installing the 464-MHz 8-Mbyte Module on Existing Systems

Flash PROM Update

The Sun Enterprise 6500, 5500, 4500, and 3500 system boards (including the CPU/memory board and various types of I/O board) have individual flash PROMs.

Caution – Do not combine old and new CPU PROM versions.

TABLE 1 Flash PROM Program Versions

Board	PROM Version	Notes
CPU/Memory	OBP 3.2.*x*	
I/O Type 1	FCODE 1.8.*x*	Type 1 is an SBus board with 3 SBus slots and 25Mbyte/sec Fibre Channel sockets.
I/O Type 2	FCODE 1.8.*x*	Type 2 is a Graphics board with 2 SBus slots, 25Mbyte/sec Fibre Channel sockets, and 1 graphics adapter (UPA) slot.
I/O Type 3	FCODE 1.8.*x*	Type 3 is a PCI board with 2 PCI slots.
I/O Type 4	FCODE 1.8.*x*	Type 4 is an SBus+ board with 3 SBus slots and 100 Mbyte/second GBIC interfaces
I/O Type 5	FCODE 1.8.*x*	Type 5 is a Graphics+ board with 2 SBus slots and 1 graphics adapter (UPA) slot and 100 Mbyte/second GBIC interfaces.

Note – The 464-MHz 8-Mbyte CPU modules require that the system flash PROM be updated to 3.2.29 or compatible versions *before* installing the modules. Any necessary operating system patches should be applied before the module installation.

Procedure

1. **Type** `/usr/sbin/prtconf -V` **at the UNIX prompt to check the system flash PROM version. Upgrade to flash PROM version 3.2.29 or compatible versions if the PROM version displayed indicates an earlier version (procedure is in step 5).**

2. **Through your browser, go to** `http://sunsolve.sun.com`

   If you do not have internet access, contact your Sun service representative for instructions.

3. **Select these links from the web page in the following order:**

   a. **Patches**

   b. **Recommended and Security Patches**

      If you agree with the license agreement, select "Agree" at the bottom of the Software License Agreement.

4. **Select the required Solaris operating environment patches as follows:**

   a. **Select your version of the Solaris operating environment from the web page table titled, “Recommended and Security Patches for Solaris”.**

   b. **See the README file for each patch for further instructions**

   c. **Select the required patch for your version of the Solaris operating environment using the following table:**

TABLE 2 Patches Specific to Solaris Operating Environment Versions

Solaris Operating Environment Version	Choose this Patch or Compatible Versions
Solaris 2.5.1	#103640
Solaris 2.6	#105181
Solaris 7	#106541
Solaris 8	#108528

Note – For Solaris 2.5.1, patch #104595 or compatible versions, which is not specific to the CPU module, is required in order to run `/usr/platform/sun4u/sbin/prtdiag`

5. **For flash PROM updates**:

   Scroll to “Recommended and Security Patches for Unbundled Products” and select the “Hardware” category from the web page, then select patch #103346-xx (system flash PROM version 3.2.29 or compatible versions).

6. **Halt the operating system, and then turn off the system power.**

7. **Remove and replace the CPU modules. In addition, if you have a Sun Enterprise 6500 system or if this is the first CPU module installed, remove and replace the clockboard.**

   Refer to the *Sun Enterprise xx00 Systems Clockboard Upgrade Guide*.

Installing Solaris 2.5.1 or 2.6 on a New System With 464-MHz 8-Mbyte CPU Modules

When installing Solaris™ 2.5.1 or 2.6 on a new system configured with 464-MHz 8-Mbyte modules, modifications are required to the installation procedure in order for the system to run properly. This procedure is not required for the Solaris 7 or Solaris 8 operating environments.

Note – This procedure *must* be performed in the order specified.

Flash PROM Update

The Sun Enterprise 6500, 5500, 4500, and 3500 system boards (including the CPU/memory board and various types of I/O board) have individual flash PROM.

Caution – Do not combine old and new CPU PROM versions.

TABLE 3 Flash PROM Program Versions

Board	PROM Version	Notes
CPU/Memory	OBP 3.2.*x*	
I/O Type 1	FCODE 1.8.*x*	Type 1 is an SBus board with 3 SBus slots and 25Mbyte/sec Fibre Channel sockets.
I/O Type 2	FCODE 1.8.*x*	Type 2 is a Graphics board with 2 SBus slots, 25 Mbyte/sec Fibre Channel sockets, and 1 graphics adapter (UPA) slot.
I/O Type 3	FCODE 1.8.*x*	Type 3 is a PCI board with 2 PCI slots.
I/O Type 4	FCODE 1.8.*x*	Type 4 is an SBus+ board with 3 SBus slots and 100 Mbyte/second GBIC interfaces
I/O Type 5	FCODE 1.8.*x*	Type 5 is a Graphics+ board with 2 SBus slots and 1 graphics adapter (UPA) slot and 100 Mbyte/second GBIC interfaces.

Note – These modules require that the system flash PROM be updated to 3.2.29 or compatible versions *before* installing the modules. Any necessary operating system patches should be applied before the module installation.

Operating Environment Installation

To install the Solaris 2.5.1 or 2.6 operating environments, use the ”Operating Environment Installation CD (part number 704-7076) that comes with your system. Following the operating environment installation, return to the following hardware installation procedure.

Note – For Solaris 2.5.1, patch #104595 or compatible versions, which is not specific to the CPU module, is required in order to run `/usr/platform/sun4u/sbin/prtdiag`

When installing Solaris 2.5 or Solaris 2.6 on a system with 464-MHz 8-Mbyte CPU modules, you may experience issues with auto-negotiation on ethernet interfaces, such as with boot net operations. To address these issues, use the following workaround for each ethernet interface, depending on whether your ethernet interface operates at 10 or 100 Mbit/sec:

at the OBP prompt, enter:

```
ok apply transfer-speed=10 <path-for-hme>
```

or

```
ok apply transfer-speed=100 <path-for-hme>
```

Removing a CPU/Memory Board

Preparation

You need the following tools:

- No. 1 Phillips screwdriver
- Hand Torque screwdriver (3/32 x 2" hex bit)
- Grounding wrist strap and padded ESD mat

Precautions

- Use a grounding wrist strap for these procedures.
- Hold boards or modules by the edges: Do not touch the connector pins.
- Place the CPU/Memory board on a padded ESD mat.

Hot-Plug

Caution – If the message: `NOTICE: Hot-Plug not supported in this system` is displayed during boot, do NOT attempt to remove or install a board while the system is powered on.

If you install a hot-pluggable board in a running system, you must power-on reset or use Dynamic Reconfiguration to add the board to the system configuration. For more information on hot-plug, refer to your system reference manual.

Caution – Use a grounding wrist strap to prevent static damage.

Caution – The heatsinks on the board can be damaged by improper handling. Do not touch the heatsinks. If a heatsink is loose or broken, obtain a replacement board.

Procedure

1. **If your system supports Hot-Plug, ensure the board is in low-power mode. A board is in low-power mode and ready for removal if:**
   - All three board status LEDs are off *or*
   - If only the Service ( ) LED is lit, and the other two LEDs are off.

Note – Power-on reset will be required to add the board to the system configuration.

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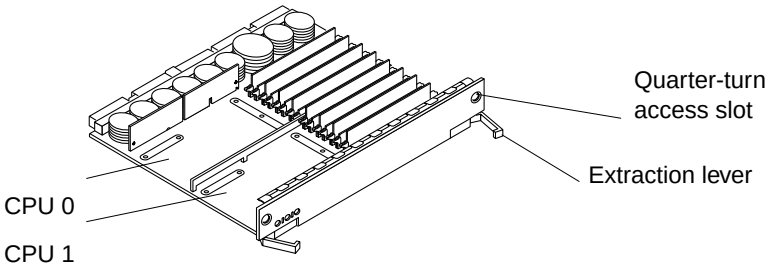
2. **With the No. 1 Phillips screwdriver, turn the two quarter-turn access slots on the board to the unlocked position ( ).**



3. **Pull both extraction levers outward simultaneously, then pull the board out of the card cage and place it component-side up on the padded ESD mat.**

CPU Module Hardware Installation

Install each CPU module through to the final torque requirement before moving on to the next CPU module installation.

- Read the requirements on the front of this guide before proceeding.
- If applicable, remove the blue plastic tape from the white thermal pad and discard.

Caution – Use a grounding wrist strap to prevent static damage.

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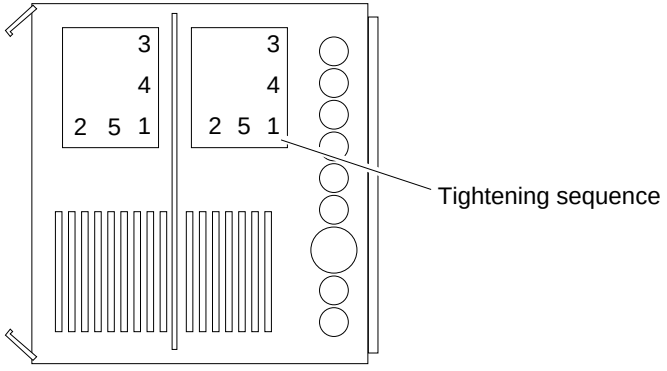
4. **Inspect the connectors on the board and the module for dust.**

   If necessary, clean the connectors with compressed air or the brush provided.

5. **Holding the module by the edges, align the module over the connectors on the board.**
6. **Press the module straight down firmly, until the standoff post snaps into place and the connectors are fully seated.**
7. **Tighten the screws in three steps:**
   a. **Tighten each screw in the sequence shown below until it reaches the metal plate.**
   b. **Tighten each screw an additional 1/2 turn in the sequence shown.**
   c. **Tighten the five screws to 6-inch pounds in the same sequence.**

Caution – Do not over torque or under torque the screws.



Installing the CPU / Memory Board

Refer to your system reference manual for rules for selecting a board slot for maximum performance.

1. **Orient the board, as follows:**
   - Card cage with horizontal slots, rear slot: component side up
   - Card cage with horizontal slots, front slot: component side down
   - Card cage with vertical slots: component side to the right

2. **Push the board into the card cage with the extraction levers open, then simultaneously press both extraction levers to seat the board.**

Caution – When inserting a board into slot 4 or slot 10 of a 16-slot card cage, lift the board slightly to avoid damage to the centerplane connectors.

3. **With the No. 1 Phillips screwdriver, turn the two quarter-turn access slots to the locked position ( ).**

4. **If the system is running, look for a system message similar to the following example for a CPU/Memory board in slot 5:**

```
NOTICE: CPU Board Hotplugged into Slot 5
NOTICE: Board 5 is ready to remove
```

Subsequent `prtdiag(1M)` output will include information for board slot 5. The system will not use the board until the system is Power-cycled.

5. **Power-on reset the system or schedule a later time to Power-on reset when system disruption will be minimized.**

The system does not recognize the new board until the system is Power-cycled.