



# UltraSPARC™ - III CPU Module Installation Guide

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- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
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# UltraSPARC-III CPU Module Installation

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This guide describes how to remove and install UltraSPARC™-III CPU module(s) in Sun Blade™ 1000 workstations or in Sun Fire™ 280R servers.

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**Note** – If you are installing an UltraSPARC-III CPU module in a Sun Fire 280R server, you do not need to read the remainder of this document. Instead, consult the documentation housed in the Sun Fire 280R chassis for instructions on how to remove or install the module. You will also find relevant information in the *Sun Fire 280R Service Manual*.

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## UltraSPARC-III Module Installation Kit

Your UltraSPARC-III module installation kit contains:

- The *Sun Blade 1000 UltraSPARC-III Module Installation Guide*
- One disposable grounding (antistatic) wrist strap
- One antistatic mat
- One UltraSPARC-III CPU module

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# System Requirements

The Sun Blade 1000 system must use the Solaris 8 10/00 or later operating environment.

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## Preparing for Installation

This section describes how to:

- Power off the system
- Remove the access panel
- Attach a disposable grounding (antistatic) wrist strap

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**Note** – If you are returning a used CPU module to Sun Microsystems, reuse the shipping box and packing materials that came with your replacement CPU module.

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## Powering Off the System



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**Caution** – Prior to turning off system power, save, back up, and close any open files. Notify any affected users that you are powering off your system.

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1. **To power off the system:**
  - a. **If the Solaris OS *is* running in a windowing environment:**
    - i. **Press and release the front panel Power switch (see FIGURE 1) to automatically shut down all programs, the operating system, and to power off the system.**
    - ii. **From the menu displayed on the system monitor, select “Shutdown”.**
  - b. **If the Solaris OS *is not* running in a windowing environment:**
    - i. **Press the front panel Power switch (see FIGURE 1) to power off the system.**

This action allows automatic shutdown of all programs, the operating system and to power off of the system.

- c. If the system is at the “ok” prompt (OpenBoot interface) press and hold the front panel Power switch for four seconds (see FIGURE 1) to power off the system.

This action forces an immediate power off of the system. Any unsaved data is lost.



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**Caution** – Pressing the Power switch does not remove all power from the system. A trickle current remains in the power supply. To remove all power from the system, disconnect the power cord.

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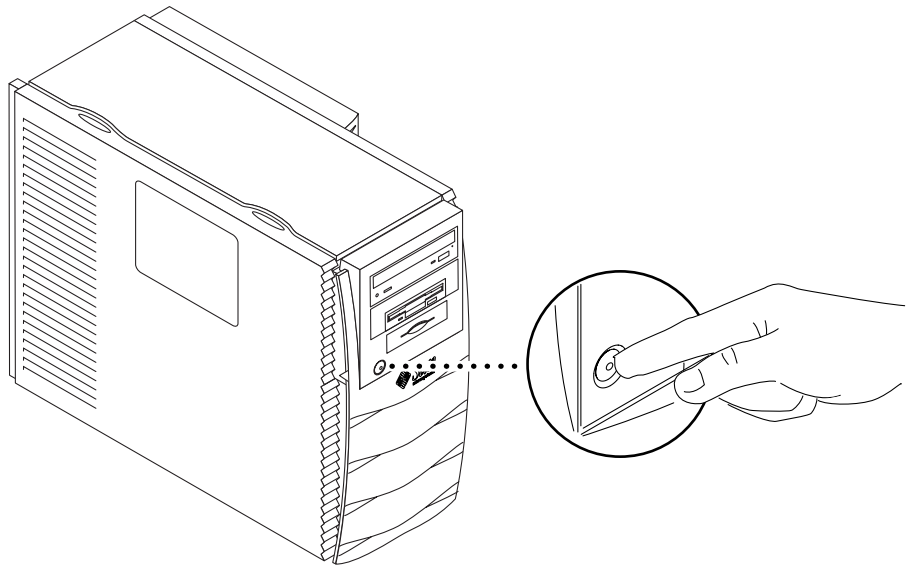


FIGURE 1 System Power Switch

2. Verify the following:
  - a. That the backlit Sun logo on the front panel is off.
  - b. That the system fans are not spinning.
3. Turn off power to the monitor and other external peripherals.
4. Disconnect the cables for any peripheral equipment.
5. Remove the lock block, if one is installed (see FIGURE 2).

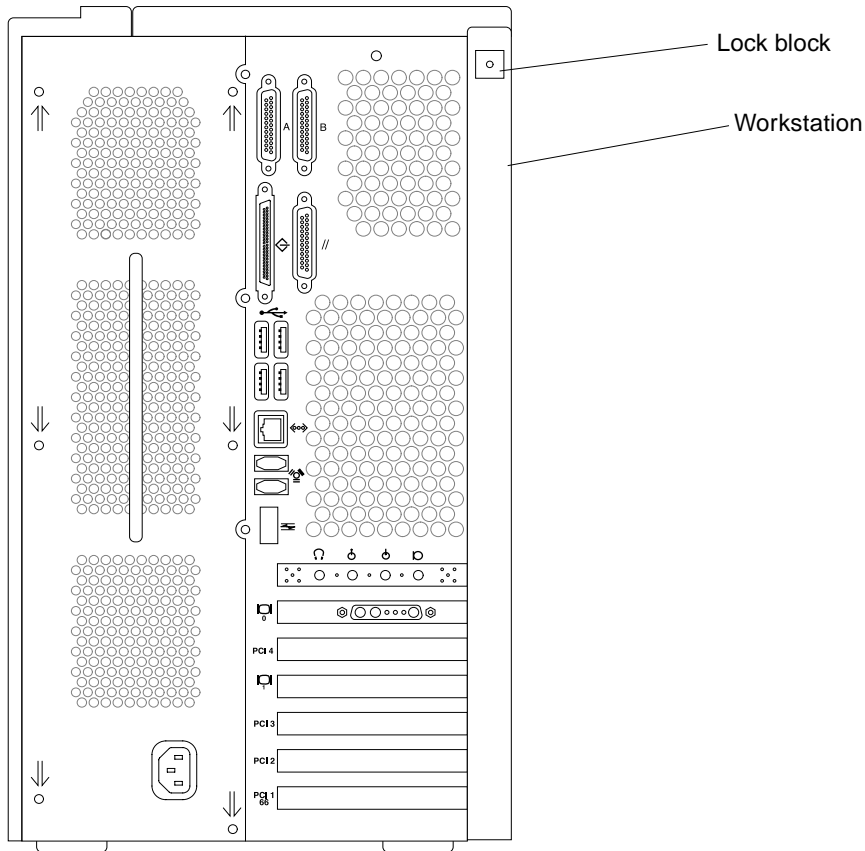


FIGURE 2 Lock Block Location

## Removing the Access Panel

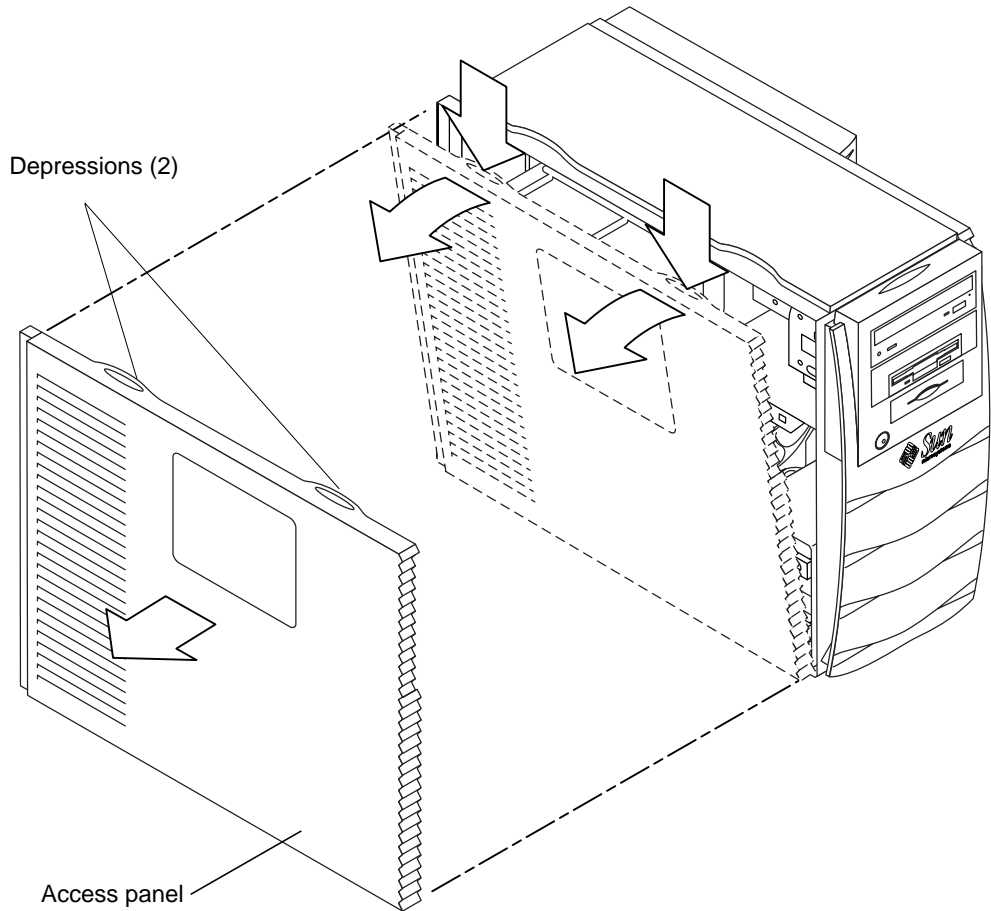
To remove the access panel (see FIGURE 3):

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**Note** – Removing the access panel activates the system power interlock circuit. If the power cord is connected, this safety mechanism prevents all DC voltages (except +5 VDC standby power) from reaching any internal components when the access panel is removed.

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1. Press down on the two depressions at the top of the access panel. Tilt the top of the access panel about an inch away from the chassis.
2. Lift the access panel up and off.



**FIGURE 3** Removing the Access Panel

## Attaching the Disposable Grounding (Antistatic) Wrist Strap

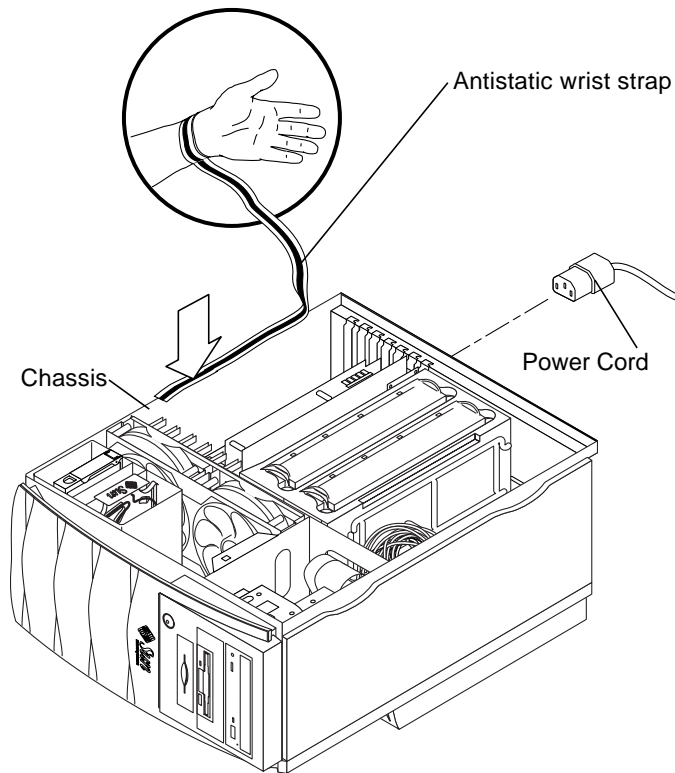


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**Caution** – Wear an antistatic wrist strap and use an antistatic mat when handling Sun Blade 1000 components. When servicing or removing system components, attach an grounding strap to your wrist and then to a metal area on the chassis. Then disconnect the power cord from the system and the wall receptacle. Following this caution equalizes all electrical potentials with the system.

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1. Place the system on its side on a work surface, open side facing up (see FIGURE 4).
2. Unwrap the first two folds of the disposable grounding (antistatic) wrist strap and wrap the adhesive side firmly against your wrist.
3. Peel the liner from the copper foil at the opposite end of the wrist strap.
4. Attach the copper end of the wrist strap to the chassis (see FIGURE 4).
5. Disconnect the power cord.



**FIGURE 4** Attaching the Antistatic Wrist Strap to the Chassis

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## Installing the UltraSPARC-III Module

This section describes how to install or how to remove and replace an UltraSPARC-III module.

# CPU Module Positions in the System

The position of the two UltraSPARC-III CPU module slots is shown in the following illustration of the system with the access panel removed (FIGURE 5). The position labelled “CPU 0” is the required position for all systems that contain only one CPU.

The modules are enclosed in a cooling shroud and secured to the shroud with captive screws that must be torqued to specific values.

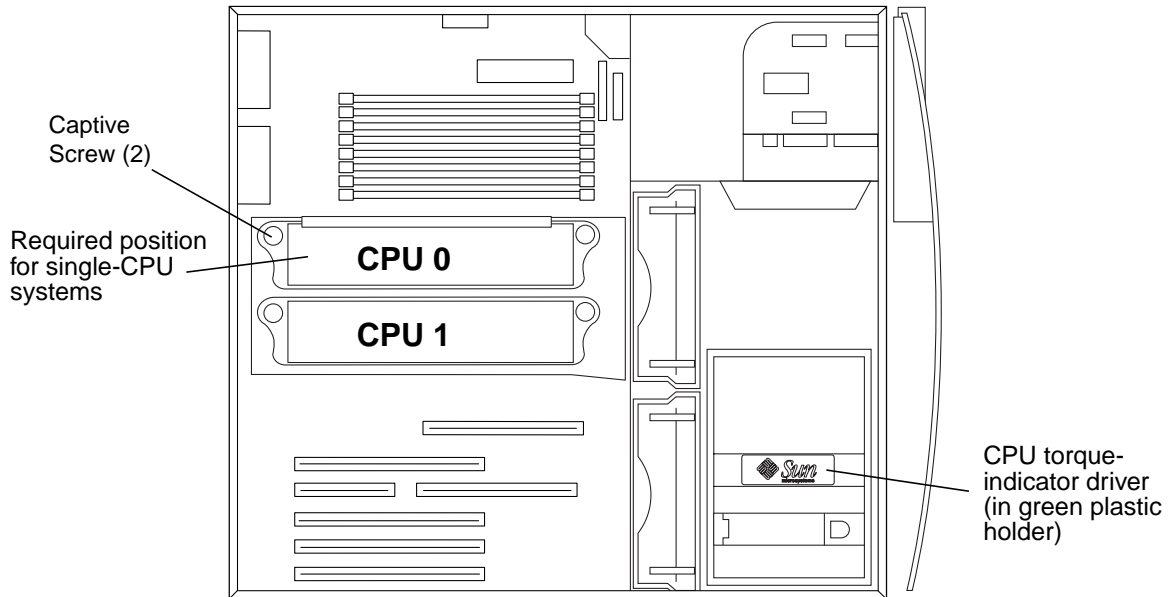


FIGURE 5 CPU Position 0 and CPU Position 1

## Removing an Existing Module or a Filler Panel for the CPU Shroud

Before you can install a new module you must first remove either a filler panel for the CPU shroud or an existing module from the CPU slots 0 or 1. You must also remove the CPU shroud cover.

1. If necessary, place the system on its side on a work surface, open side facing up (see FIGURE 6).

**2. Remove the CPU shroud cover.**

Squeeze the two tabs on the cover to release it from the CPU shroud assembly.

**3. Do one of the following, depending on whether you are replacing an existing UltraSPARC-III module or installing a new UltraSPARC-III module to an unused slot:**

- If you are replacing an existing module, perform Step 4.
- If you are installing a new module to an unused slot, perform Steps 5 and 6.

**4. To remove an existing CPU module do the following:**

**a. Remove the CPU torque tool from its green plastic holder. The torque tool is stored in the middle of the hard drive bracket (see FIGURE 5).**

**b. Use the torque tool to loosen the captive screws on the ends of each module (see FIGURE 6).**

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**Note** – Alternately turn each screw counterclockwise evenly until the screws are free of the threaded inserts.

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**Caution** – Do not touch the CPU module board or components. Touch only the captive screws and plastic top cover of the module to avoid damaging module components by electrostatic discharge.

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**c. Use both hands to lift the CPU module out of the CPU shroud.**

**d. Place the CPU module on an antistatic mat with the heat sink on the top facing up. Go to “Installing a New CPU Module”.**

**5. Remove the filler panel for the CPU shroud assembly by pressing in on the clips on each end of the filler panel and removing it from the chassis (see FIGURE 6).**

**6. Go to “Installing a New CPU Module”.**

## Installing a New CPU Module

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**Note** – The system can use either one or two CPU modules. If one module is used it must be placed in the slot closest to the top of the system (CPU Slot 0).

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**Caution** – To ensure proper system cooling, any unused CPU slot must contain a CPU shroud filler panel in place of a CPU module (see FIGURE 5).

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**Caution** – When you unpack a new CPU module from its packing carton, it is important that you observe the following handling precautions to avoid damaging the module. 1) When you lift the module from the packing carton in its antistatic bag, use both hands to support the module along its short sides. 2) As you remove the module from its antistatic bag, handle it only by its captive screws. Do not touch the connectors on the bottom edge of the module (which can be easily bent or damaged by improper handling). 3) Do not remove the plastic cover from the CPU module connectors until you are ready to install the module. 4) Do not grip the module by the heat sinks (which can shift if handled improperly). 5) Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an antistatic mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

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1. **If necessary, remove the filler panel for the CPU shroud by lifting it upward as you pinch the two clips that secure the filler panel to the CPU shroud on the motherboard.**



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**Caution** – After the protective plastic cover has been removed from the CPU module connector, do not handle or touch the connector. The pins on the connector are fragile and are easily bent or broken.

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2. **Remove the plastic cover from the CPU module connector.**
3. **If necessary, place the new CPU module with its heat-sink surface facing toward the chassis feet.**
4. **Lower the CPU module into the CPU shroud until the module's captive screws are aligned with the threaded inserts in the CPU shroud.**
5. **Tighten the captive screws.**

Use the torque tool to tighten the screws to the correct torque. The correct torque setting is indicated when the gap in the torque indicator tool is closed (see FIGURE 6).

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**Note** – Use the torque tool to alternately turn each captive screw uniformly until the screws are evenly tightened.

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**Caution** – Do not use a torque tool from another Sun product. The Sun Blade 1000 torque tool is specifically designed for this system.

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**Note** – If you are using an adjustable torque tool, tighten the CPU module captive screws to 5 inch-pounds.

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**Caution** – Under-torquing the CPU module captive screws may cause a loss of continuity and failure of the system to boot. Over-torquing the CPU module captive screws causes severe damage and system failure.

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6. **Return the torque tool to its green plastic holder, then return the holder to its storage location in the hard drive bracket.**
7. **If necessary, reinstall the filler panel for the CPU shroud.**
8. **Detach the antistatic wrist strap, replace the access panel, plug in the power cord, and power on the system.**
9. **Perform the “Finishing the Installation” procedure.**

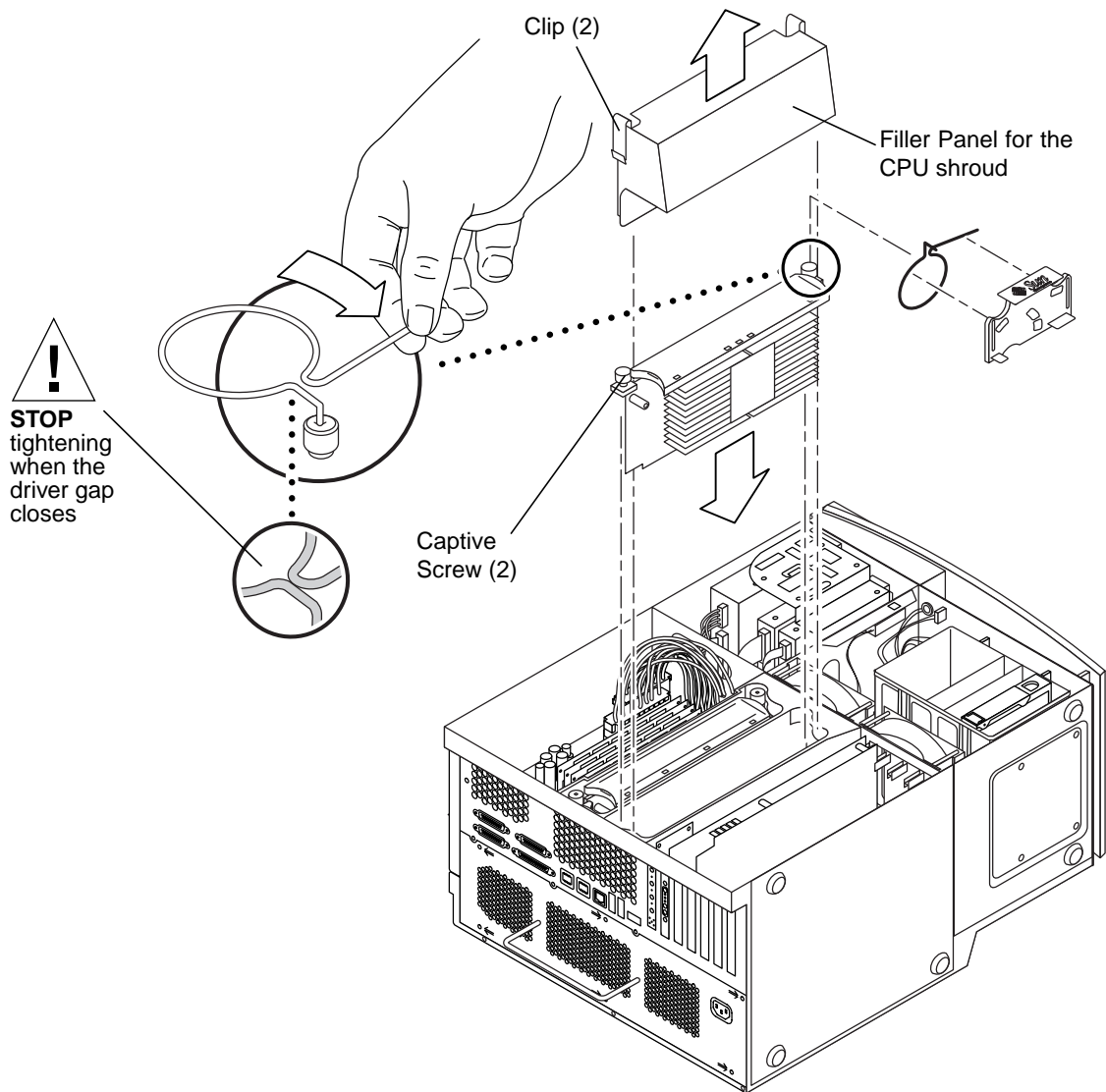


FIGURE 6 Installing the UltraSPARC-III CPU Module

## Finishing the Installation Procedure

1. **If necessary, remove the antistatic wrist strap from the chassis.**
2. **Replace the access panel.**
3. **If necessary, install a lock block on the back panel of the system.**
4. **Reconnect any cables from external devices to the system.**
5. **Reconnect the system power cord.**
6. **Power on the system:**
  - a. **Turn on power to the monitor and to all external devices.**
  - b. **Press the power switch on the front panel and release it.**
  - c. **After several seconds, verify that the power-indicator LED on the power switch is energized and listen to verify that the system fans are operating (spinning).**
7. **The system should automatically recognize installation of the new CPU module(s). If problems are encountered, verify proper POST operation, see Section 3.4 “Maximum and Minimum Levels of POST” in the *Sun Blade 1000 Service Manual*.**

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## For More Information

The *Sun Blade 1000 Service Manual* is available from these sources:

- The manual is shipped with new systems in HTML and PDF formats on the *Sun Blade 1000 Hardware Documentation CD* (804-6233-10). The HTML version of the manual on this CD also includes this CPU replacement procedure as an animated ShowMe How™ multimedia procedure.
- HTML and PDF versions of this manual are available for viewing and printing on the:  
<http://docs.sun.com> website.

