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Sun™ Ultra™ 2 UltraSPARC™-II Module Upgrade



THE NETWORK IS THE COMPUTER™

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Part No.: 805-0936-14
October 1999, Revision A

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Electromagnetic Compatibility

FCC Class B Notice — United States

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause operation.

Note – This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

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Shielded Cables

Connections between the workstation and peripherals must be made using shielded cables in order to maintain compliance with FCC radio frequency emission limits.

Modifications

Modifications to this device that are not approved by the party responsible for compliance may void the authority granted to the user by the FCC to operate this equipment.

DOC Class B Notice — Canada

This digital apparatus does not exceed the Class B limits for radio noise emission for a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Avis concernant les systèmes appartenant à la classe B du DOC — Canada

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CHAPTER 1

UltraSPARC-II Module Upgrade

This book contains procedures for installing an UltraSPARC™-II module upgrade in a Sun™ Ultra™ 2 system. The Sun Ultra 2 system can now support a 400-Mhz CPU if the motherboard is part number 501-3132-13 or higher.

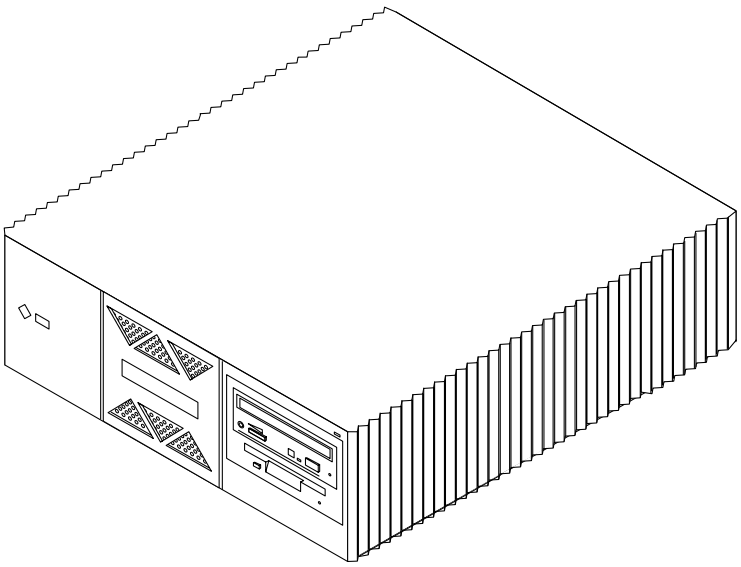


FIGURE 1-1 Ultra 2 System

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1.1 System Software Requirements

1.1.1 Minimum Solaris Operating Environment

TABLE 1-1 Minimum Solaris Operating Environment

CPU Frequency	Solaris Release
167 MHz	2.5.1
200 MHz	2.5.1 Hardware: 4/97
250 MHz	2.5.1 Hardware: 8/97
300 MHz	2.5.1 Hardware: 11/97, 2.6 Hardware: 3/98
400 MHz	2.5.1 Hardware: 11/97, 2.6 Hardware: 5/98, Solaris 7 5/99

1.1.2 OpenBoot PROM

UltraSPARC-II systems require OpenBoot PROM version 3.11.2 (or later).

1.2 System Hardware Requirements

Ultra 2 systems operated in multiprocessor mode must use processor modules of the same clock frequency.

Determine the clock frequency of the processor module(s) already installed in your system.

Query your system by typing:

```
% prtconf -vp | grep banner-name
    banner-name: 'Sun Ultra 2 UPA/SBus (2 X UltraSPARC 168Hz)'
```

The system responds with the quantity (for example, 2 x) and speed (168 MHz) of the UltraSPARC module(s) installed.

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1.3 SCD Compliance

Sun Ultra 2 systems have been independently tested and verified to comply with revision 2.1 of the SPARC Compliance Definition (SCD) developed by SPARC International, Inc. These systems are binary compatible with all other systems and software that conform to SCD version 2.1.



FIGURE 1-2 SCD Compliance

1.4 UltraSPARC-II Module Upgrade Kit

Each UltraSPARC-II module upgrade kit contains:

- This book
- UltraSPARC-II module
- UPA terminator module (for 300-MHz uniprocessor systems only)
- Antistatic wrist strap
- Flash PROM update CD-ROM and programming guide

Note – Retain the packing box and shipping material for use in returning the removed module(s).

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CHAPTER 2

Opening the System Unit

This chapter contains the following sections:

- Section 2.1, “Removing Power from the System,” on page 2-1
- Section 2.2, “Removing the System Unit Cover,” on page 2-3
- Section 2.3, “Attaching the Wrist Strap,” on page 2-5

2.1 Removing Power from the System

Before turning off system power, shut down the operating system to avoid loss of data.

1. **If your system is not a stand-alone, notify users that the system is going down.**

   Refer to the *Solaris Handbook* for the procedure.

2. **Back up the system files and data.**

   Refer to the *Solaris Handbook* for the procedure.

3. **Shut down the system.**

4. **Turn the power off to the monitor and all peripherals connected to the system.**

5. **Remove DC power from the system by pressing the Standby side of the power switch on the back panel (**FIGURE 2-1**).**

   Note – After the Standby switch is pressed, it returns to its original position.

6. **Verify that when the power is off, the LED on the middle front of the system is not lit and the fans are not running (**FIGURE 2-2**).**

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7. **Detach all cords and cables connected to the system unit except for the AC power cord.**

Note – The AC power cord provides the grounding path for safely discharging static electricity. Note where each cord and cable attaches to the system unit.



Caution – When the Power On/Standby switch is pressed and the AC power cord remains connected to a power outlet, hazardous AC voltage is still present in the power supply primary.

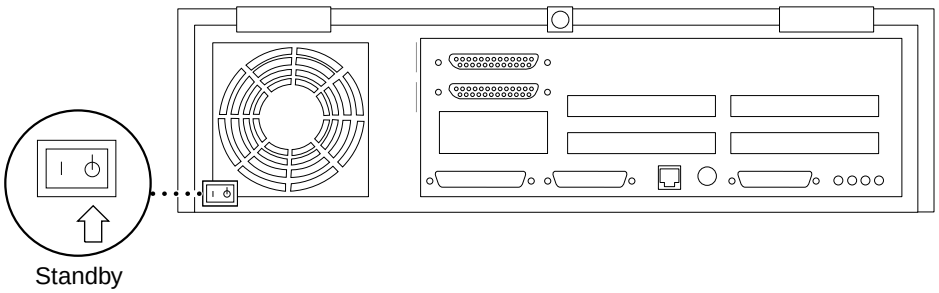


FIGURE 2-1 Standby Switch

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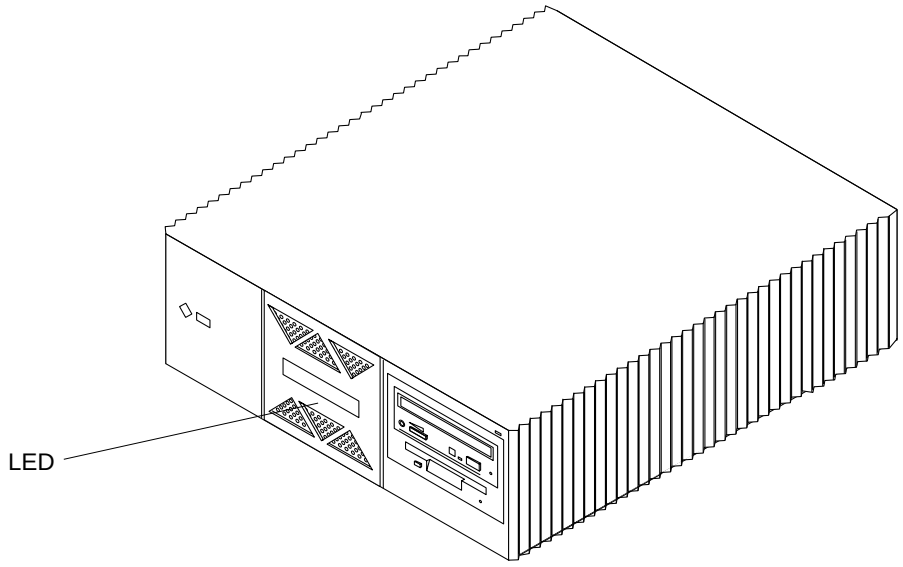


FIGURE 2-2 Front Panel LED Location

2.2 Removing the System Unit Cover

1. **Use a Phillips screwdriver to remove the lock block (if installed) on the top cover and back panel (**FIGURE 2-3**).**
2. **Pull the two top cover plastic tabs towards yourself.**
3. **Lift the top cover so that it clears the chassis, and push the cover forward so that it clears the chassis (**FIGURE 2-4**).**

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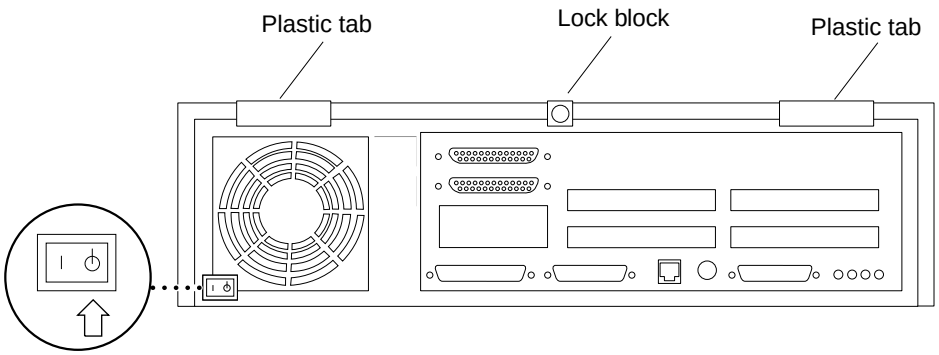


FIGURE 2-3 Opening the System Unit

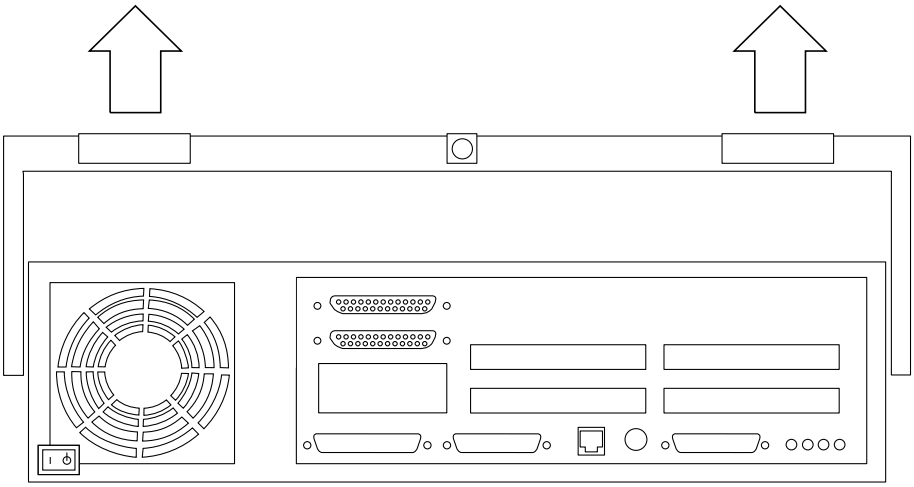


FIGURE 2-4 Lifting the Top Cover

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2.3 Attaching the Wrist Strap

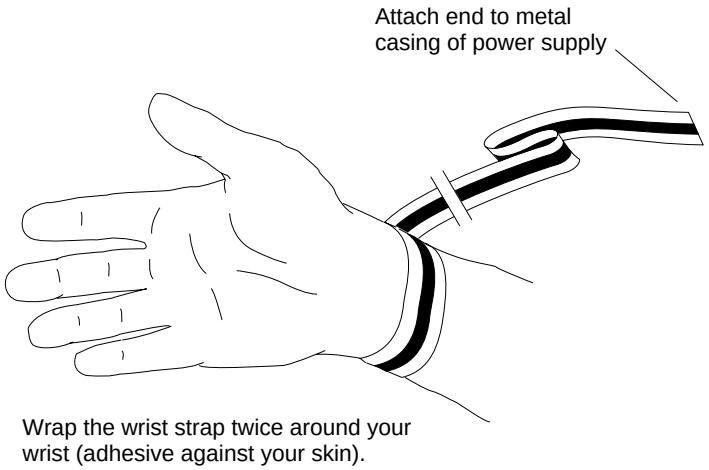


FIGURE 2-5 Attaching the Wrist Strap

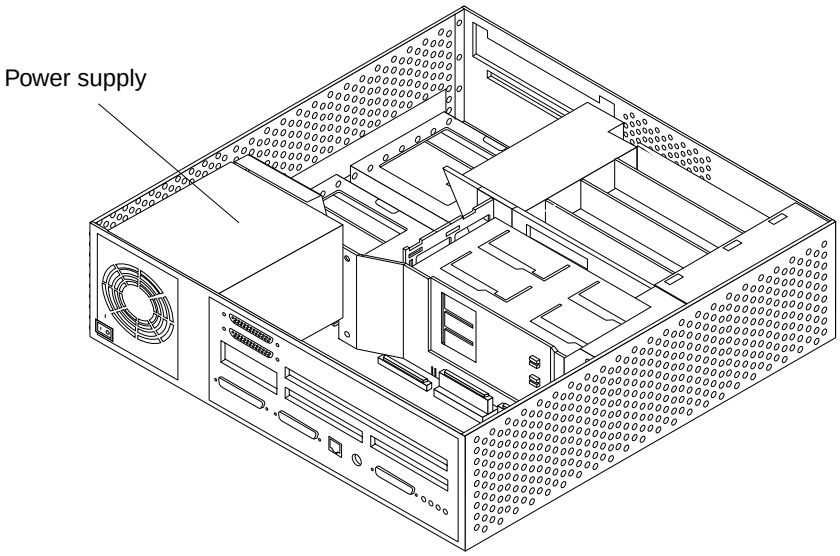


FIGURE 2-6 Power Supply Location

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CHAPTER 3

Installing the UltraSPARC-II Module

3.1 Updating the Flash PROM

Use Sun™ Flash PROM Guide for Workstations and Workgroup Servers - Standalone Version, part number 802-3233, for updating your system's flash PROM.

3.2 Removing the UltraSPARC Module

The Sun Ultra 2 system can now support a 400-Mhz CPU if the motherboard is part number 501-3132-13 or higher.

Note – The motherboard part number is located on the right front side of the motherboard. See FIGURE 3-6 on page 8 to locate the motherboard part number stamp.

Skip this section and read Section 3.3, "Installing the UltraSPARC-II Module," on page 3-3." if your system is already equipped with one UltraSPARC-II module and you are adding a second module of the same clock frequency.

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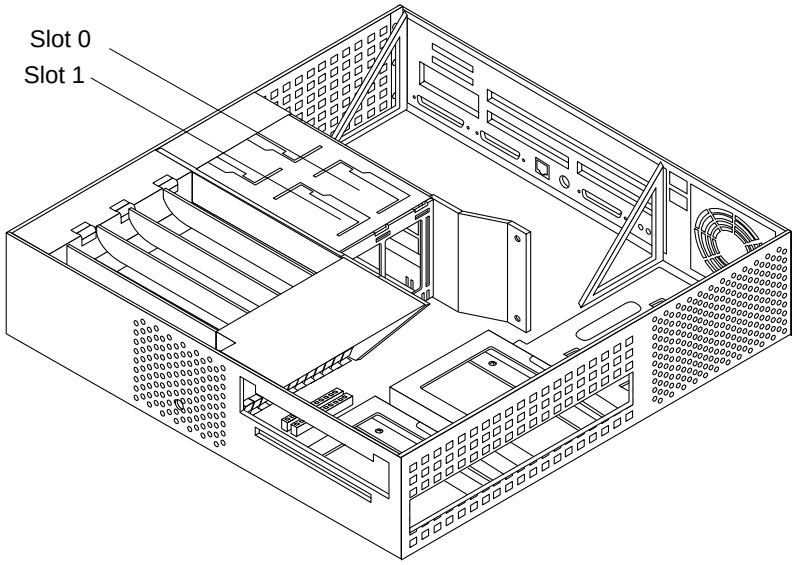


FIGURE 3-1 UltraSPARC Module Locations and Shroud Assembly Processor Area

1. **Grip the sides of the shroud-assembly processor area (see** FIGURE 3-1**).**
2. **With the thumbs of both hands, simultaneously lift the two levers on the module upwards and to the side—about 135 degrees (**FIGURE 3-2**).**
3. **Lift the module upwards until it clears the system chassis.**
4. **Place the module on an antistatic surface.**

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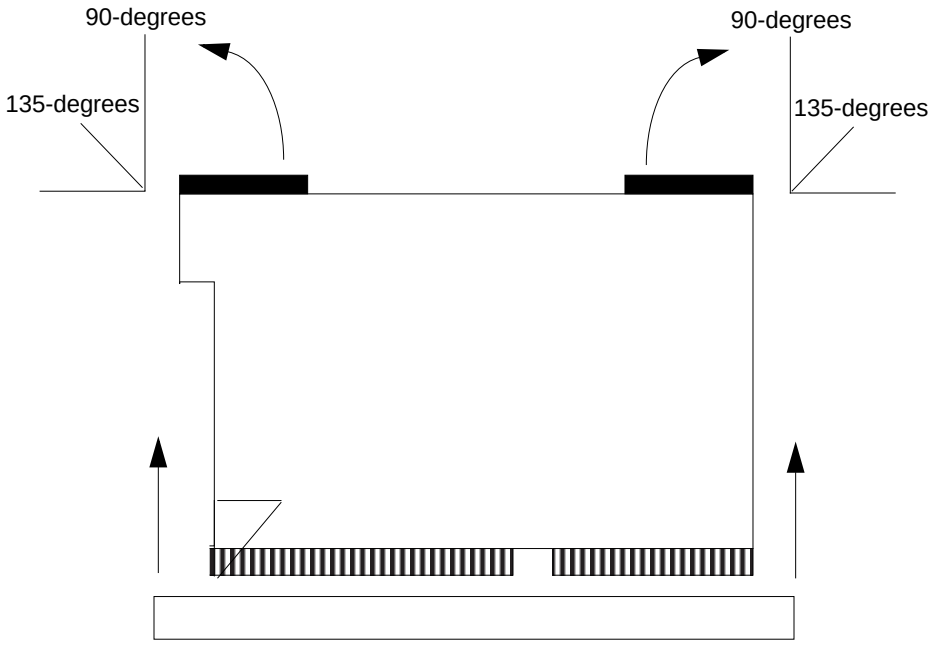


FIGURE 3-2 Removing the UltraSPARC Module

3.3 Installing the UltraSPARC-II Module

Caution – All CPUs must have the same clock speed.

1. **Unpack the UltraSPARC-II processor module.**
2. **Place the module on an antistatic surface.**
3. **Identify the appropriate or available slot (**FIGURE 3-3**).**

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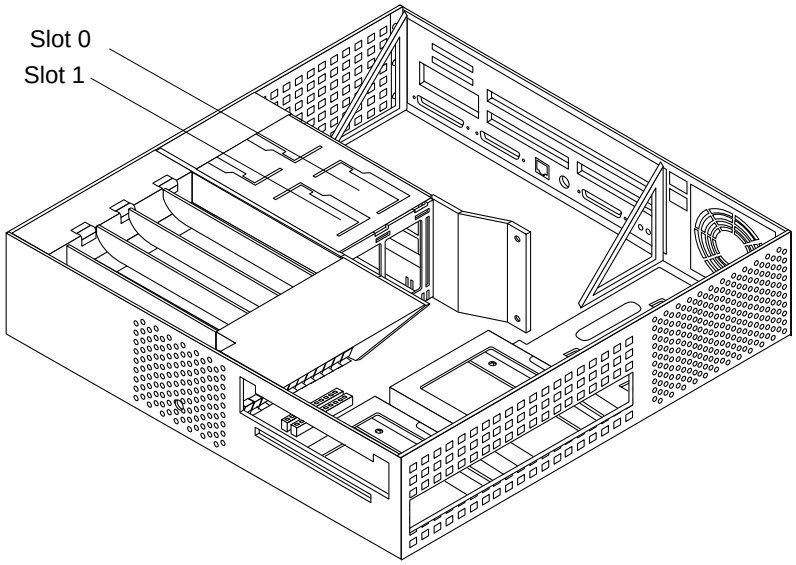


FIGURE 3-3 Ultra 2 Processor Slot Locations

- If your system is equipped with one UltraSPARC-II module, the module must be installed in slot 0 and a UPA terminator module (501-4843-01) may need to be installed in slot 1. Refer to the following table.

Note – The motherboard part number is located on the right front side of the motherboard. See FIGURE 3-6 on page 8 to locate the motherboard part number stamp.

TABLE 3-1 UPA Terminator Module Necessity

Motherboard Part Number	167-MHz CPU	200-MHz CPU	250-MHz CPU	300-MHz CPU	400-MHz CPU
501-3132-01 through -08	No	No	No	NS (Not supported)	NS
501-3132-09 through -12	No	No	No	Yes	NS
501-3132-13 or later	No	No	No	No	No

- If your system is equipped with two UltraSPARC-II modules, slot 0 and slot 1 will each have a module installed.

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4. **On the antistatic surface, hold the module in an upright position so that the plastic surface faces you (**FIGURE 3-4**).**

5. **Move the levers on the module to the 135-degree position.**

6. **Lower the module along the vertical plastic guides until the module touches the slot socket on the main logic board.**

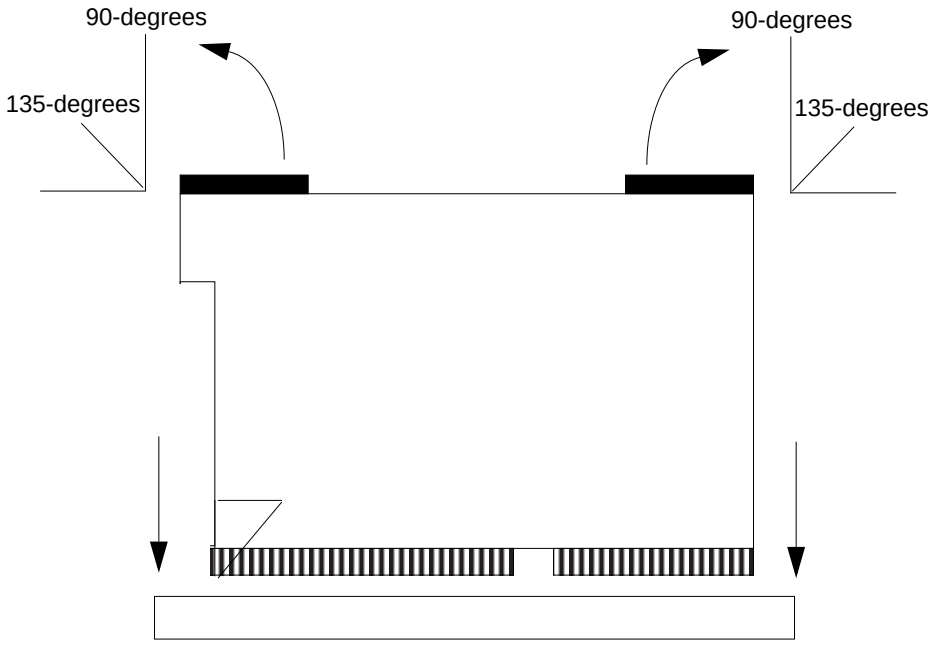


FIGURE 3-4 Lowering the Module Into the Chassis

7. **With both hands, simultaneously turn and press the levers downward to the fully horizontal position. Firmly press the module downward into the socket until it is fully seated and the levers are fully locked (**FIGURE 3-5**).**

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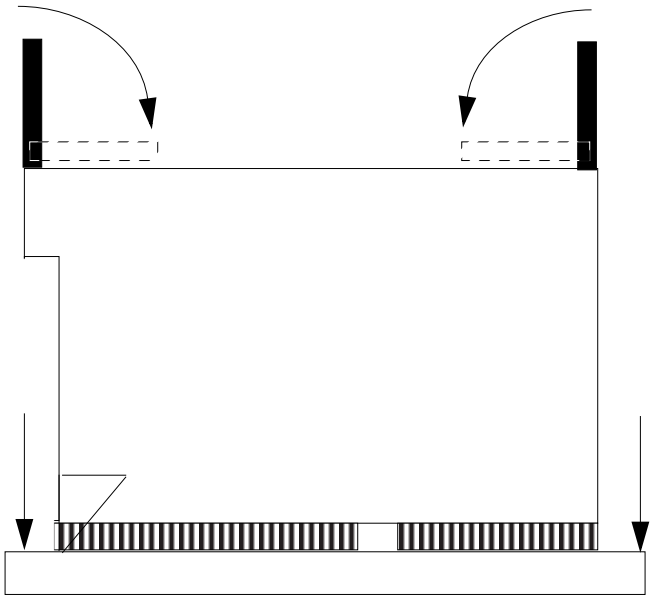


FIGURE 3-5 Locking the Module in Place

8. **If your system has only one UltraSPARC-II module installed in slot 0, follow Steps 5 through 7 of this procedure to install the UPA terminator (501-4843-01) in slot 1 if necessary. Refer to** TABLE 3-1 **on page 4.**

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3.4 Completing the Installation

3.4.1 Changing the Clocking Select Jumper

The following table gives information about the clocking select jumper functionality. The following figures show the location of the clocking select jumper on the main logic board, and the two available jumper settings, respectively.

To change the jumper; use needlenose pliers to remove the jumper from position A and to install the jumper at position B (see FIGURE 3-7).

TABLE 3-2 UltraSPARC Module Clocking Select Jumper Settings

Jumper	Pins 1 + 2 Select	Pins 2 + 3 Select
J2301	250-MHz or 300-MHz UltraSPARC-II modules.	All UltraSPARC-I 168-MHz or 200-MHz, or 400-MHz UltraSPARC-II module.

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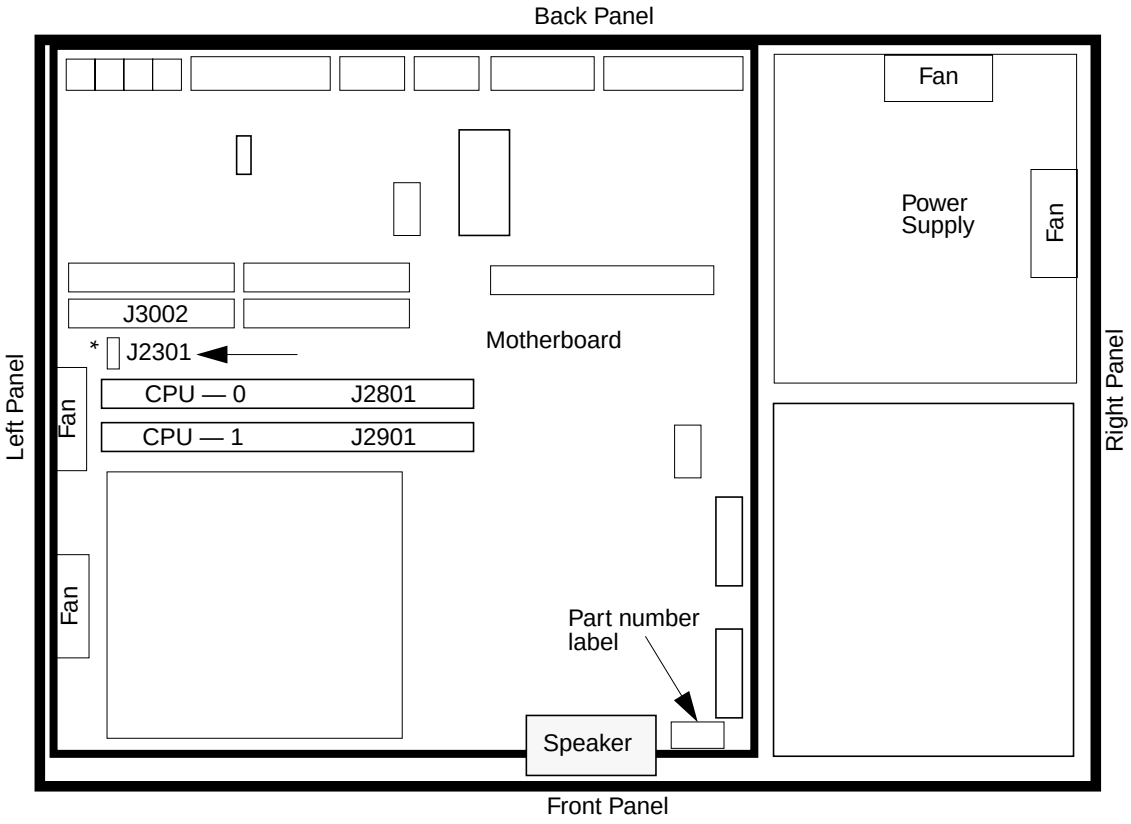


FIGURE 3-6 Clocking Select Jumper Location on Ultra 2 Motherboard

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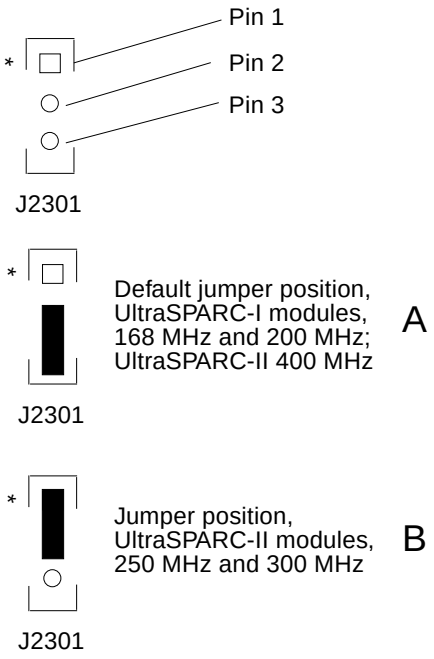


FIGURE 3-7 Clocking Select Jumper Positions

3.4.2 Closing the System Unit

1. **Remove the wrist strap from your wrist and then from the power supply.**
2. **Hold the cover at an angle to the system unit. Seat the cover lip to the chassis lip.**
3. **Slowly lower the cover onto the system unit so that the rear of the cover seats with the chassis back panel (see** FIGURE 3-8**).**

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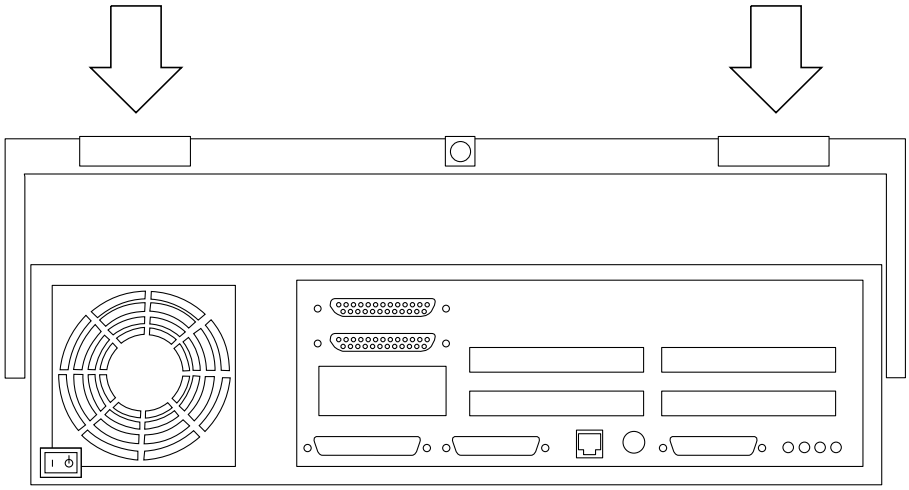


FIGURE 3-8 Lowering the Cover Onto the System Unit Back Panel

4. **Guide the two top cover plastic tabs in place onto the back panel.**
   You will hear a click as each tab seats with the back panel (see FIGURE 3-9).
5. **Use a Phillips screwdriver to reinstall the lock block to the back panel.**

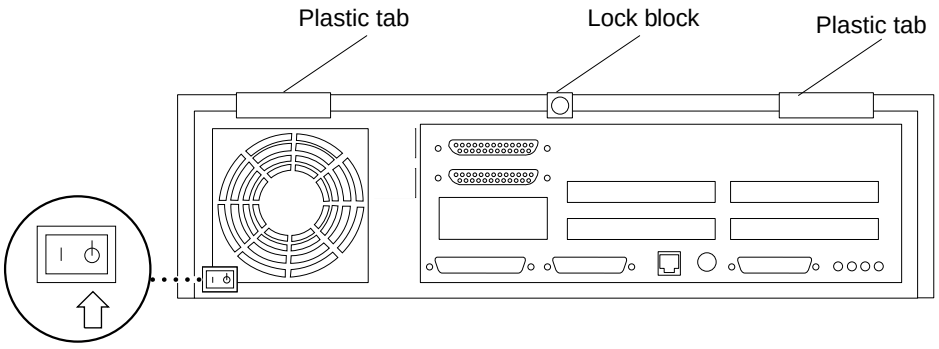


FIGURE 3-9 Cover Tabs and Lock Block

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3.4.3 Turning On the Power

1. **Reattach all cords and cables connected to the system unit.**
2. **Turn on the power in this order:**
   - External SCSI peripheral with SCSI terminator attached
   - External SCSI peripheral daisy-chained to the SCSI peripheral with the SCSI terminator attached
   - Monitor
   - Power On/Standby switch on the system unit back panel.
3. **The operating system should load or the** ok **prompt should appear on the monitor.**

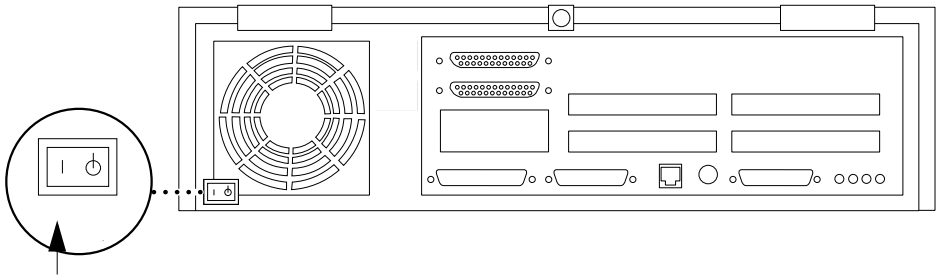


FIGURE 3-10 Power On/Standby Switch

3.4.4 Power-On Self-Test (POST)

For a full description of the Power-On Self-Test (POST), refer to the *Sun Ultra 2 Service Manual*.

3.4.5 EnergyStar

If you experience RED State Exception failures when exercising EnergyStar suspend/resume functions on Solaris 2.5.1 releases prior to Solaris 2.5.1 HW 4/97, install patch 104729-01.

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3.4.6 Returning the Removed Module(s)

To return the removed module(s) to Sun Microsystems, Inc., use the shipping box and packing materials for the UltraSPARC module(s) and:

1. **Place the removed module(s) in the antistatic bag(s).**
2. **Fold and tape the end(s) of the bag(s).**
3. **Place the bag(s) and other shipping materials in the shipping box.**
4. **Affix the RMA (Return Material Authorization) label from the upgrade kit onto the shipping carton.**
5. **Return the shipping carton to Sun Microsystems, Inc.**

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