

# Sun™ Ultra™ 1 Series to Sun™ Ultra™ 60 System Upgrade Guide

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THE NETWORK IS THE COMPUTER™

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Your Sun product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) — USA
- Department of Communications (DOC) — Canada
- Voluntary Control Council for Interference (VCCI) — Japan

Please read the appropriate section that corresponds to the marking on your Sun product before attempting to install the product.

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

**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**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. Networking connections can be made using unshielded twisted-pair (UTP) cables.

**Modifications:** Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

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

**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. Networking connections can be made using unshielded twisted pair (UTP) cables.

**Modifications:** Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

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This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.  
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# Preface

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This document describes how to upgrade a Sun™ Ultra™ 1 or Ultra 1 Creator Series system to a Sun™ Ultra 60 system.

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## Who Should Use This Book

You should read this book if you want to upgrade a Ultra 1 Series system to a Ultra 60 system.

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## How This Book Is Organized

**Chapter 1 “Tools and Safety,”** outlines the process to be followed in upgrading a Sun Ultra 1 or Ultra 1 Creator Series system to a Sun Ultra 60 System.

**Chapter 2 “Performing the Upgrade,”** describes how to remove components from an Ultra 1 Series system to be transferred to an Ultra 60 System.

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## Related Books

The following documents contain topics that relate to the information in *Sun Ultra 1 Series to Sun Ultra 60 System Upgrade Guide*.

- *Sun Ultra 60 Hardware Setup Instructions, 805-1705*
- *Sun Ultra 60 Installation Guide, 805-1706, 805-1707, 805-1708*

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# What Typographic Changes Mean

The following table describes the typographic changes used in this book.

TABLE P-1 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name% You have mail.</code>
AaBbCc123	What you type, contrasted with on-screen computer output	<code>machine_name% su</code> <code>Password:</code>
AaBbCc123	Command-line placeholder: replace with a real name or value	To delete a file, type <code>rm filename</code> .
AaBbCc123	Book titles, new words or terms, or words to be emphasized	Read Chapter 6 in <i>User's Guide</i> . These are called <i>class</i> options. <i>You must</i> be root to do this.

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# Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P-2 Shell Prompts

Shell	Prompt
C shell prompt	<code>machine_name%</code>
C shell superuser prompt	<code>machine_name#</code>
Bourne shell and Korn shell prompt	<code>\$</code>
Bourne shell and Korn shell superuser prompt	<code>#</code>



# Tools and Safety

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## Tools Required

You will need the following tools and equipment:

- Antistatic mat (included in upgrade kit)
- Wrist strap (included in upgrade kit)
- Phillips screwdriver
- Container for screws

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## Upgrade Kit

The upgrade kit contains hardware parts and instructions needed to complete the upgrade process.

- Electrostatic discharge kit, part number 560-1302, so you can safely handle parts that are sensitive to static discharge damage.
- *Sun Ultra 1 Series to Sun Ultra 60 System Upgrade Guide*, (part number 805-1766).

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# Safety Requirements

For your protection, observe the following safety requirements:

- Follow all cautions and instructions marked on the equipment.
- Ensure that the voltage and frequency rating of the power outlet to be used matches the electrical rating labels on the system.
- Use properly grounded power outlets.

To protect both yourself and the equipment, observe the safety precautions listed in TABLE 1-1.

**TABLE 1-1** Safety Precautions

Item	Problem	Precaution
AC power cord	Electrical shock	Disconnect the AC cord from the AC wall socket before working on the power supply.
	Grounding	Leave the AC power cord plugged into the AC wall outlet when replacing drives, DIMMs, chips, or the system board. Leave the AC power cord plugged into the wall outlet to provide a grounding path for the antistatic wrist strap, which you must wear while servicing the system.
Power On/Standby switch	Electric shock	Remove the DC power from the system by disconnecting the AC power cord from the system <i>before</i> disconnecting a working unit or connecting a replacement unit.  Note: The power supply "remembers" the state it was in when power was interrupted. If it is not set to Standby before being disconnected, the power supply will turn on automatically when it is connected again. This occurs even if the Power On/Standby switch or keyboard power key is not pressed.
Antistatic wrist strap	Electrostatic Discharge (ESD)	Wear a grounded antistatic wrist strap when handling printed circuit boards, drives, or other components such as DIMMs.
ESD mat	ESD	An approved antistatic mat, when used with an antistatic wrist strap, provides protection from static damage and cushions and protects small parts that are attached to printed circuit boards.  Place all components removed from the system onto the ESD mat.
Printed circuit board	ESD	Handle a printed circuit board by the edges only. Store printed-circuit boards in antistatic bags.

TABLE 1-1 Safety Precautions (Continued)

Item	Problem	Precaution
Cover	System damage and overheating	Replace the cover after servicing the system.
SBus slot filler panels	System damage and overheating	Install filler panels in all unused SBus slots. Openings on the back panel reduce the cooling capability of the system and allow EMI emissions that exceed FCC compliance limits.
Heat sinks on processor modules and system boards	Heat, burns	Do not touch the metal heat sinks on processor modules or the system board. The heat sinks can be hot enough to cause injury.

## Symbols

The following symbols mean:



**Caution** – This equipment contains lethal voltages. Accidental contact can result in serious injury or death.



**Caution** – Physical danger due to a non-electrical hazard or danger of irreversible damage to data or to the operating system.



**Caution** – Improper handling by unqualified personnel can cause serious damage to this equipment. Unqualified personnel who tamper with this equipment may be held liable for any resulting damage to the equipment.



**Caution** – Hot surface. Avoid contact. Surfaces are hot and may cause injury if touched.

# System Precautions

Observe all safety precautions and ensure compliance with skill level requirements, certification, and all applicable local and national laws.



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**Caution** – Before you begin, carefully read each of the procedures in this manual. If you have not performed similar operations on comparable equipment, *do not* attempt to perform these procedures.

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## Lithium Battery



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**Caution** – On Ultra 1 Series system boards, a lithium battery is molded into the real-time clock, SGS No. MK48T18, MK48T08x-xxx, MT48TxxB-xxx, or MK48T18-xxxPCZ. Batteries are not customer replaceable parts. They may explode if mistreated. Do not dispose of the battery in fire. Do not disassemble it or attempt to recharge it.

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# Performing the Upgrade

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## Overview

1. Read the documentation in the RMA (Return Material Authorization) information package provided with the upgrade.
2. Follow the procedures described in this chapter:
  - a. Power off the system and all attached peripheral devices.
  - b. Disconnect all devices attached to the Ultra 1 Series system, including monitor, keyboard, mouse, and associated cables.
  - c. Remove all DIMMs (memory modules) and any CD-ROM drive installed in the Ultra 1 Series system, and install them in the Ultra 60 system.

For information about installing components into a Ultra 60 workstation, refer to the *Ultra 60 Installation Guide*.

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**Note** – SBus cards are not supported by the Ultra 60 system.

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- d. Connect the monitor, keyboard, and mouse to the Ultra 60 system as shown in the *Ultra 60 Installation Guide*.
3. Follow the instructions in the RMA information package about packing and returning the SPARCstation 20 enclosure and those components not moved to the Ultra 60.

If you have any additional questions, contact your Sun sales representative.

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# Powering Off the System



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**Caution** – When the Power switch is set to standby and the AC power cord remains connected to a power outlet, hazardous AC voltage is still present in the power supply primary.

The power supply ‘remembers’ the state it was in when power was interrupted. Press the Power switch to Standby before you disconnect a working unit or connect a replacement unit. If the power supply is not placed in standby *before* it is disconnected, it turns on automatically when it is connected again, even if you do not touch the system power switch or keyboard buttons.

---

1. **If the Ultra 1 Series system that you are upgrading is being used as a server, notify users that the system is going down.**
2. **Back up system files and data.**
3. **If the system that you are upgrading is being used as a server, shutdown the operating system by becoming superuser and issuing the shutdown command.**

```
kiwi% su
Password:
# shutdown -gl -y
```



---

**Caution** – Failure to shut down the operating system can result in loss of data.

---

4. **Turn off the power to the monitor.**
5. **Turn off all attached external devices.**



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# Removing the Ultra 1 Series Cover

1. Use a Phillips screwdriver to remove the lock block (if installed) on the cover (FIGURE 2-2).

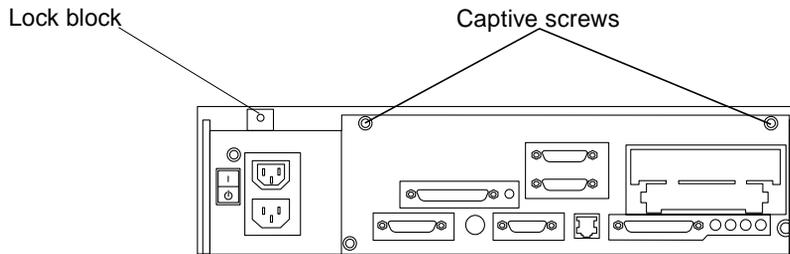


FIGURE 2-2 Location of Lock Block

2. Use a Phillips screwdriver to loosen the captive screws securing the cover with a Phillips screwdriver. (FIGURE 2-2).
3. Grasp the sides of the cover and lift up the back of the cover (FIGURE 2-3). After the cover clears the back panel, push the cover away from the front panel.

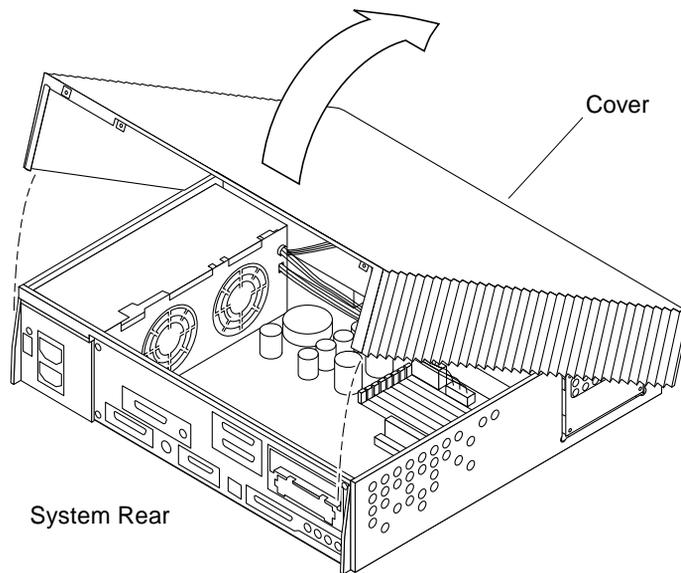
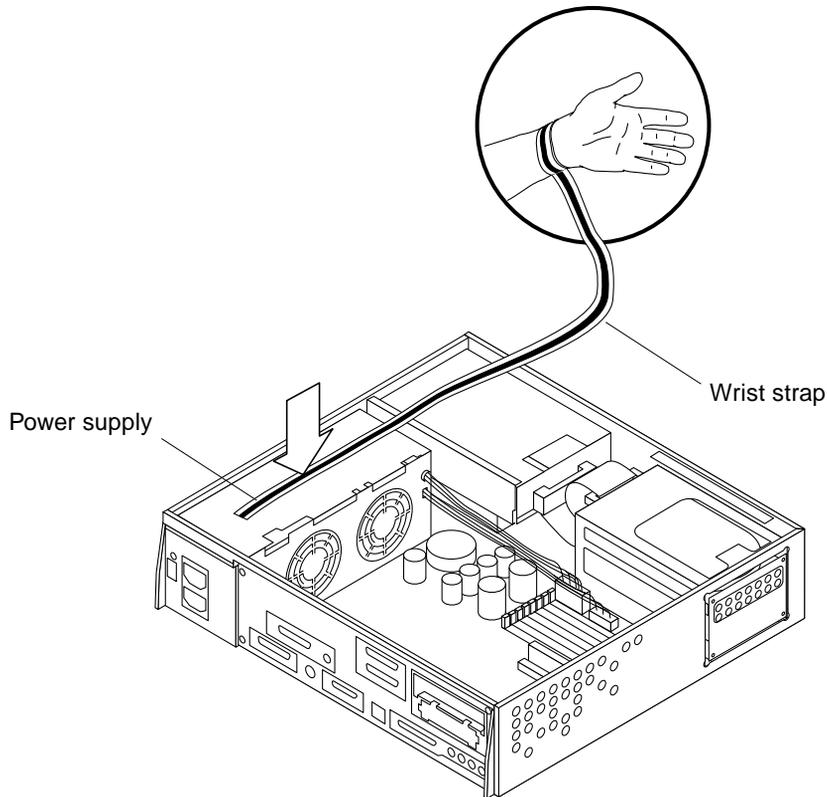


FIGURE 2-3 Removing the Cover

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# Attaching the Antistatic Wrist Strap

1. Locate the antistatic wrist strap and attach its adhesive copper strip to the metal casing of the power supply. Wrap the other end twice around your wrist, with the sticky side against your skin (FIGURE 2-4).



**FIGURE 2-4** Attaching the Antistatic Wrist Strap

When used properly, a wrist strap keeps static electricity from building up on your hands.

---

# Removing DIMMs



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**Caution** – A DIMM is made of delicate electronic components that are extremely sensitive to static electricity. Handle a DIMM only by the edges. Do not touch the components on the DIMM or any metal parts. Wear an antistatic wrist strap before unpacking and while handling a DIMM. Ordinary amounts of static from your clothes or work environment can damage a DIMM.

**Do not disconnect the power cord from the system unit back panel. The power cord should also be connected to a grounded power outlet.** This connection provides the necessary ground path to safely remove and install DIMMs and other components.

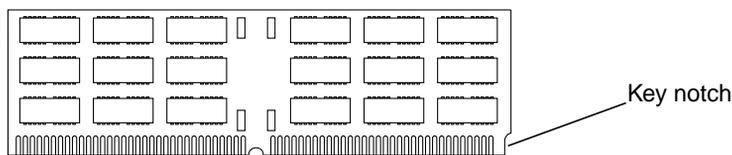
Be sure that the system unit power switch is set to Standby. Check the green light at the front of the chassis to be sure it is off.

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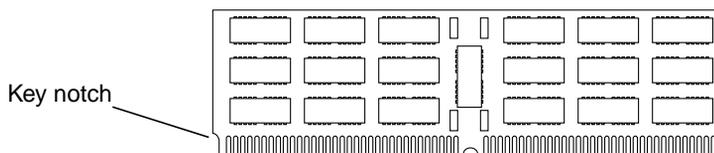
All Ultra 1 Series systems have at least two identical DIMMs, each pair having the same speed and capacity, installed in paired sockets of any DIMM bank.

Each DIMM has chips mounted on both sides. The part of the DIMM that connects in the memory slot has gold “fingers,” a scalloped edge with a conductive surface.

FIGURE 2-5 and FIGURE 2-6 show front and back views of a DIMM. When installed, the key notch should be near the DIMM ejector levers.



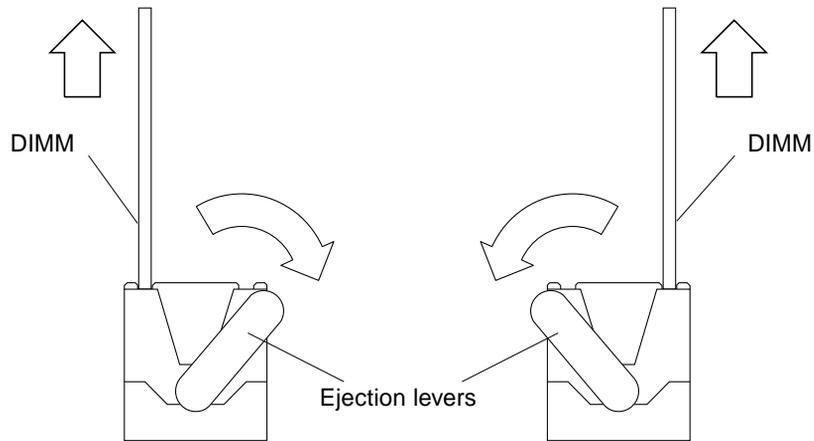
**FIGURE 2-5** DIMM—Front View



**FIGURE 2-6** DIMM—Back View

1. Place the antistatic mat next to the system.
2. Locate the DIMM to be removed (FIGURE 2-8).
3. Use your fingers or the eraser end of a pencil to move the ejection lever away from the DIMM that you want to remove.

Ejection levers are greatly enlarged to show detail in FIGURE 2-7.



**FIGURE 2-7** DIMM Ejection Levers

4. Grasp the upper corners of the DIMM and lift to remove it from the slot.

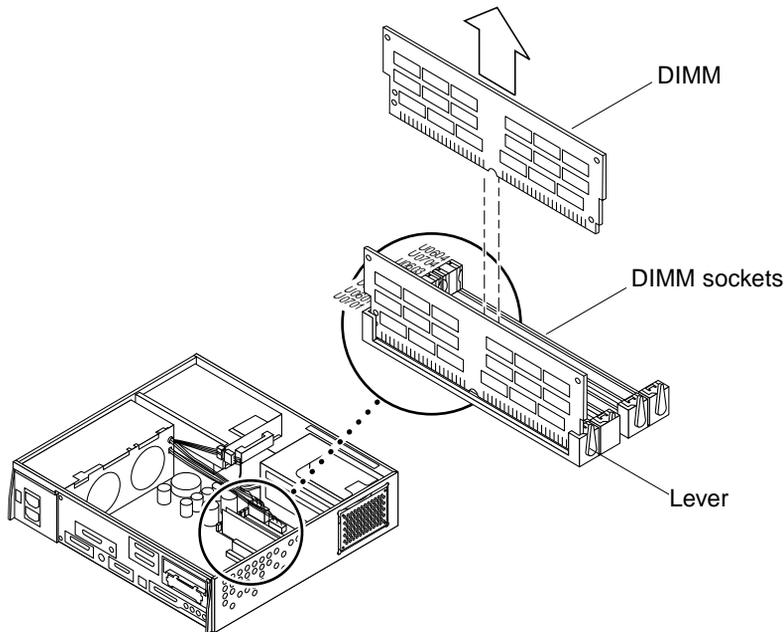


FIGURE 2-8 Removing a DIMM

5. Set the DIMM aside on the antistatic mat.

6. Install the DIMM into the Ultra 60.

See the *Sun Ultra 60 Installation Guide* for instructions.

---

**Note** – DIMMs in a Ultra 60 must be installed in groups of four. Each pair of DIMMs installed in a given bank of four must be of the same speed and capacity.

If the Ultra 1 Series system has only one pair of DIMMs of a given speed and capacity, you must obtain additional DIMMs of the same speed and capacity to the Ultra 60 to fill the memory bank.

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# Removing a CD-ROM Drive

## Removing the Bracket From the Chassis

1. Remove the two screws from the chassis that secure the drive bracket (FIGURE 2-9).
2. Remove the DC harness from the clip located on the drive bracket (FIGURE 2-9).
3. Disconnect the DC harness from the peripheral power cable at P1.
4. Push the drive bracket toward the disk drive bay and gently flip it over. Place the drive bracket on top of the disk drive bay (FIGURE 2-10).
5. Place the bracket on the antistatic mat.

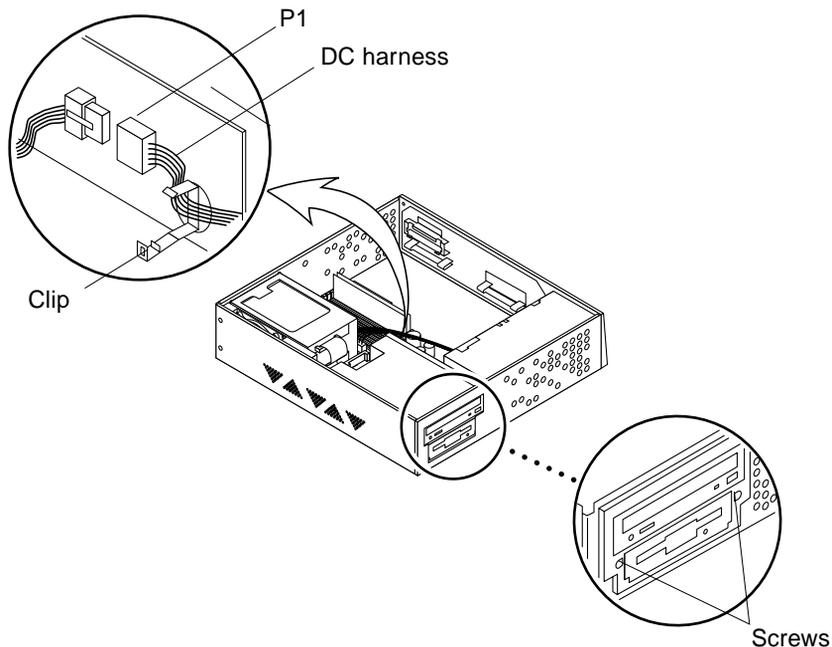
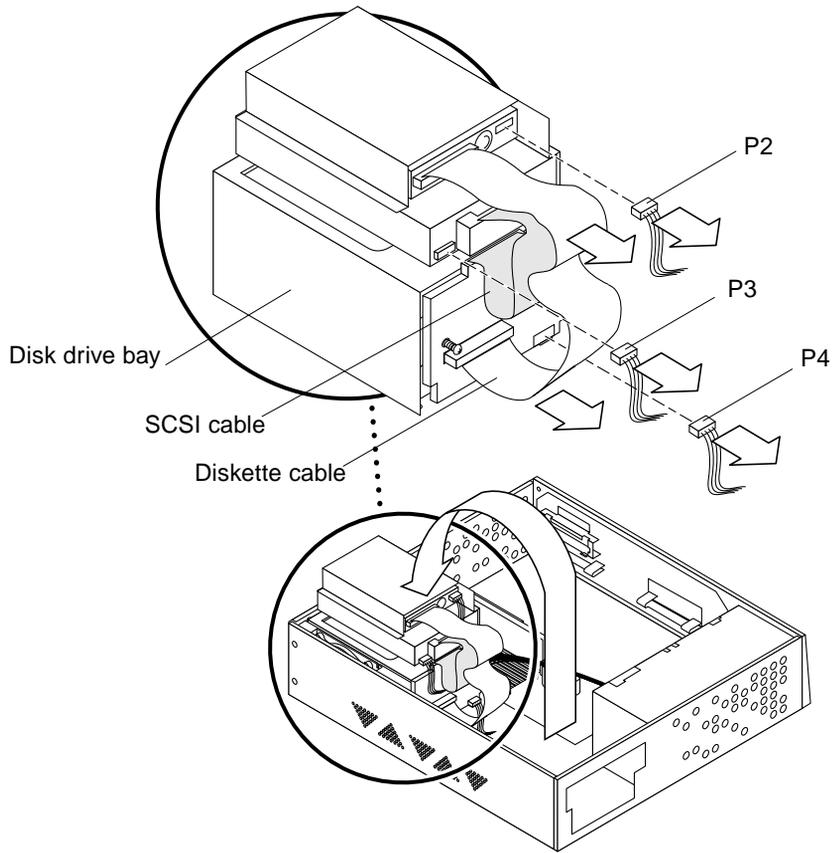


FIGURE 2-9 Drive Bracket

6. Disconnect the SCSI cable from the CD-ROM drive (FIGURE 2-10).



**FIGURE 2-10** Placing the Drive Bracket on Top of the Disk Drive

- 7. Disconnect the peripheral power cable from the CD-ROM drive (P3), and from the diskette drive (P2).**
- 8. If present, disconnect the diskette cable from the diskette drive.**

# Removing the CD-ROM Drive From the Bracket

1. **Position the bracket on top of a flat surface, so that the CD-ROM drive is flat** (FIGURE 2-11).
2. **Use a Phillips screwdriver to remove the four screws securing the CD-ROM drive to the drive bracket** (FIGURE 2-11).

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**Note** – Save the four screws that you just removed. You will need them to install the drive in the Ultra 60 system.

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3. **Remove the CD-ROM drive, and place it aside on an antistatic surface.**

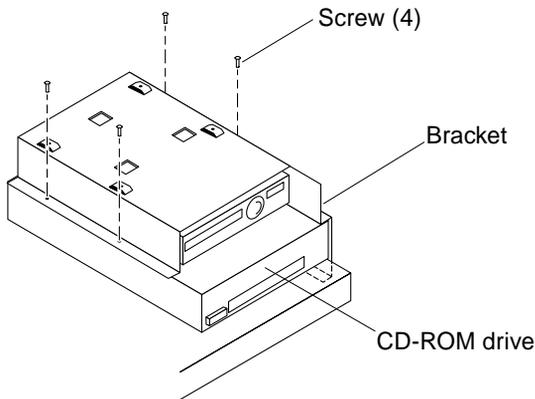


FIGURE 2-11 Positioning the CD-ROM Drive

4. **Install the CD-ROM drive in the Ultra 60 system.**  
Refer to the *Ultra 60 Installation Guide* for installation instructions.

# Replacing the Bracket Into the Chassis

1. **Place the drive bracket on top of the disk drive bay (FIGURE 2-12).**

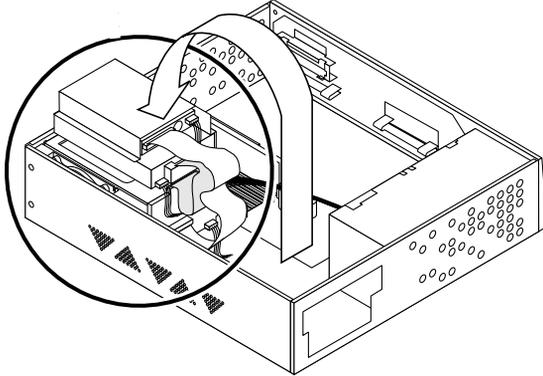


FIGURE 2-12 Replacing the Drive Bracket in the Disk Drive Bay

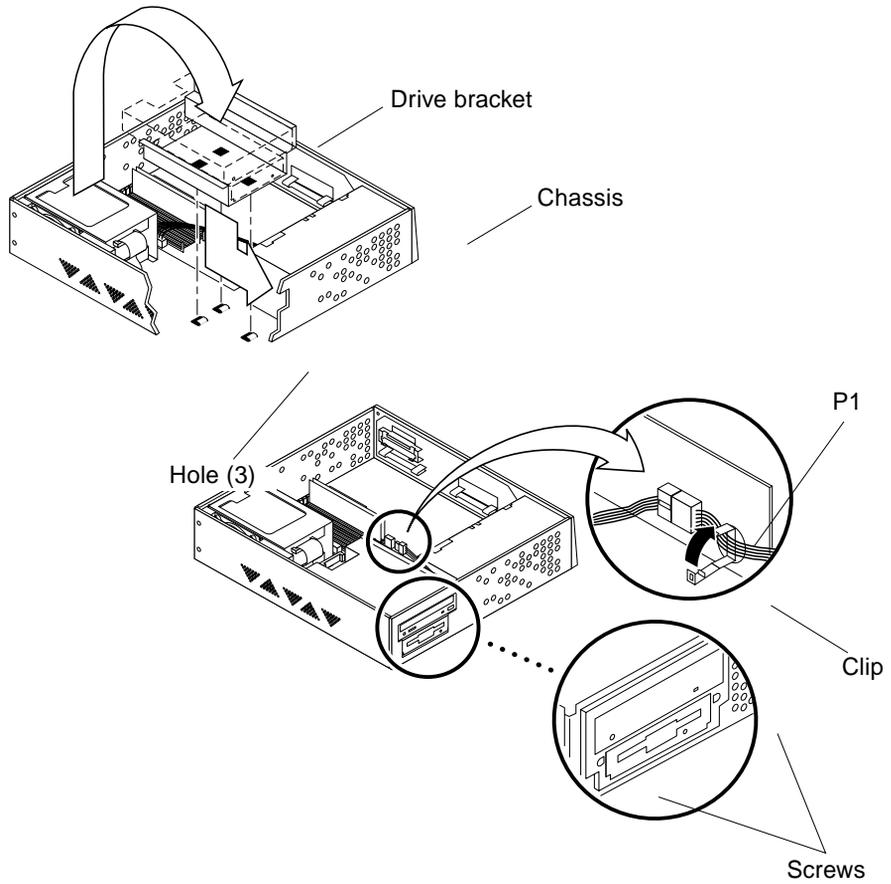
2. **Position the bracket in the chassis.**
3. **Slide the bracket toward the opening in the side of the chassis (FIGURE 2-13).**

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**Note** – Hooks at the chassis base must lock into the bottom holes of the drive bracket.

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4. **Replace the two screws securing the drive bracket to the chassis.**



**FIGURE 2-13** Positioning the Drive Bracket in the Chassis

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## Replacing the Cover

1. Remove the antistatic wrist strap from your wrist and from the power supply.
2. Position the cover on the system chassis as shown (FIGURE 2-14).
3. Lower the back side of the cover until the channels on each side of the cover align with the two flanges at the rear of the system. Press down on both sides of the cover until it is firmly seated (FIGURE 2-14).
4. Tighten the captive screws on the back panel with a Phillips screwdriver.
5. Replace the lock block with a Phillips screwdriver (FIGURE 2-2).

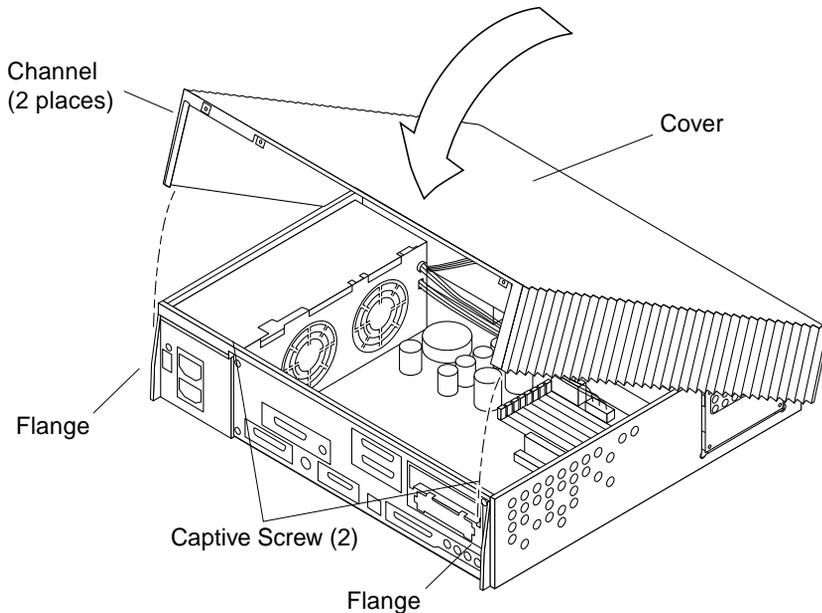


FIGURE 2-14 Replacing the Cover

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## Returning the Old System

Follow the instructions in the RMA documentation to repackage and return the Ultra 1 Series system to Sun.