

Silicon Graphics 320™ Visual Workstation

Owner's Guide

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Contributors

Written by Karin Borda
Illustrated by Kwong Liew
Production by Carlos Miqueo

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About This Guide

Welcome to your Silicon Graphics 320 visual workstation! The *Silicon Graphics 320 Visual Workstation Owner's Guide* is your complete guide to setting up, adding and replacing parts, and diagnosing and repairing your workstation. This guide tells you how to install and remove:

- Memory DIMMs
- Internal drives
- Option cards
- Peripherals
- Processors
- Power supply and fan

This guide also provides troubleshooting, regulatory, and customer support information.

Where to Find Additional Information

Your visual workstation ships with Windows NT installed. For software installation and configuration information, see the *Silicon Graphics 320 and Silicon Graphics 540 Software Installation Guide* that ships with your workstation.

For information on using Windows NT, see the Windows NT documentation that ships with your workstation.

You can access additional information about your Silicon Graphics 320 visual workstation by selecting one of the following items from the Start > Silicon Graphics menu in the Windows NT task bar:

- **Online Books** gives you access to the online books that ship with your visual workstation.
- **Hardware Overview** displays technical specifications and ergonomic and maintenance information for Silicon Graphics 320.
- **Support** displays information about how to get technical support from Silicon Graphics.
- **Visual Demos** allows you to try out third-party software from the visual workstation CD-ROMs or demonstration software installed on your system disk.
- **Release Notes** displays the release notes that apply to your visual workstation hardware or software.

Customer Support

Silicon Graphics offers a wide range of hardware and software support services. Warranty upgrades and support contract services include operating system support packages, on-site maintenance, and Supportfolio Visual Workstation, an online tool for finding answers to frequently asked questions and other technical support information. You can also enroll in education classes or purchase consulting services for more complex service needs.

A detailed description of these services is available online at:

<http://www.sgi.com/visual/support>

Supportfolio for NT, which provides technical assistance through the web, is available at:

<http://support.sgi.com/nt>

To contact Silicon Graphics customer support services in your area, use the following numbers:

Country	Phone number
Argentina	+31 3465-97201
Australia	1800-818-549
Austria	0800-201705
Belgium	02-6790052
Brazil	0008140-550-3510
Canada	800-800-4744
Chile	1230-020-2327
China	10-800-120-0117
Colombia	980-15-4537
Denmark	043-270428
Finland	0-800-1-19629
France	01-3488 8888
Germany	0130 112 550
Greece	00800-12-5137
Hong Kong	852-27843136
India	+61 (0)2 6221-6524
Indonesia	001-803-011-2502

Ireland	0870-60744744
Israel	1-800-9203088
Italy	1678-23183
Japan	0120 458 901
Korea	82-2-222-7373
Malaysia	1-800-80-3226
Mexico	52-5-267-1370
Netherlands	030-669-6700
New Zealand	0800-4744-4357
Norway	6711-4601
Peru	+31-3465-97201
Spain	900-234432
Sweden	08-4700090
Switzerland (French)	0800-804021
Switzerland (German)	0800-804022
Thailand	001-800-12-0662980
United Kingdom	0870-60744744
United States	800-800-4744
Venezuela	8001-2509

In all other countries, please contact your local Silicon Graphics representative.

Chapter 1

Getting Started

This chapter contains the following sections:

- “Checking Your Shipment” on page 2
- “Setting Up the System” on page 3
- “Opening and Closing the Sliding Front Panel” on page 9
- “Turning On the System” on page 11
- “Shutting Down the System” on page 12

Checking Your Shipment

Your Silicon Graphics 320 visual workstation shipment contains all of the items shown in Figure 1-1.

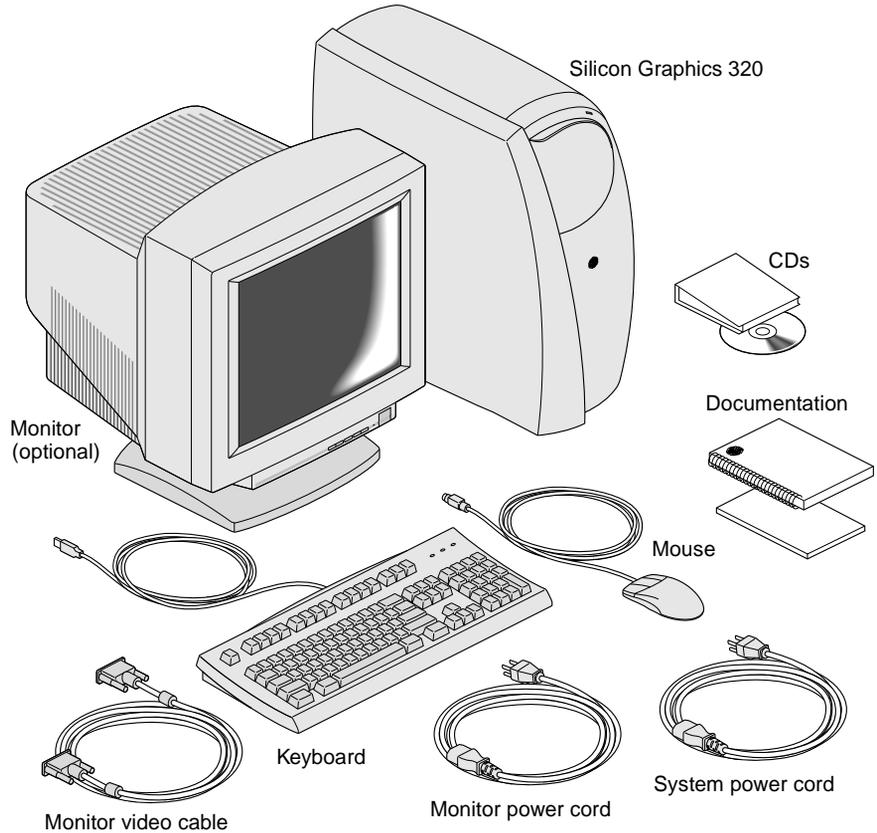


Figure 1-1 Items Included in Your Shipment

Depending on your order, you may have received a monitor or a Silicon Graphics 1600SW flat panel monitor.

Setting Up the System

After unpacking all the parts and checking your shipment, you are ready to set up the workstation. Refer to the installation poster that ships with your Silicon Graphics 320 workstation or to the instructions on the following pages. You can also use Figure 1-2 to help you identify the ports on the back of the system.

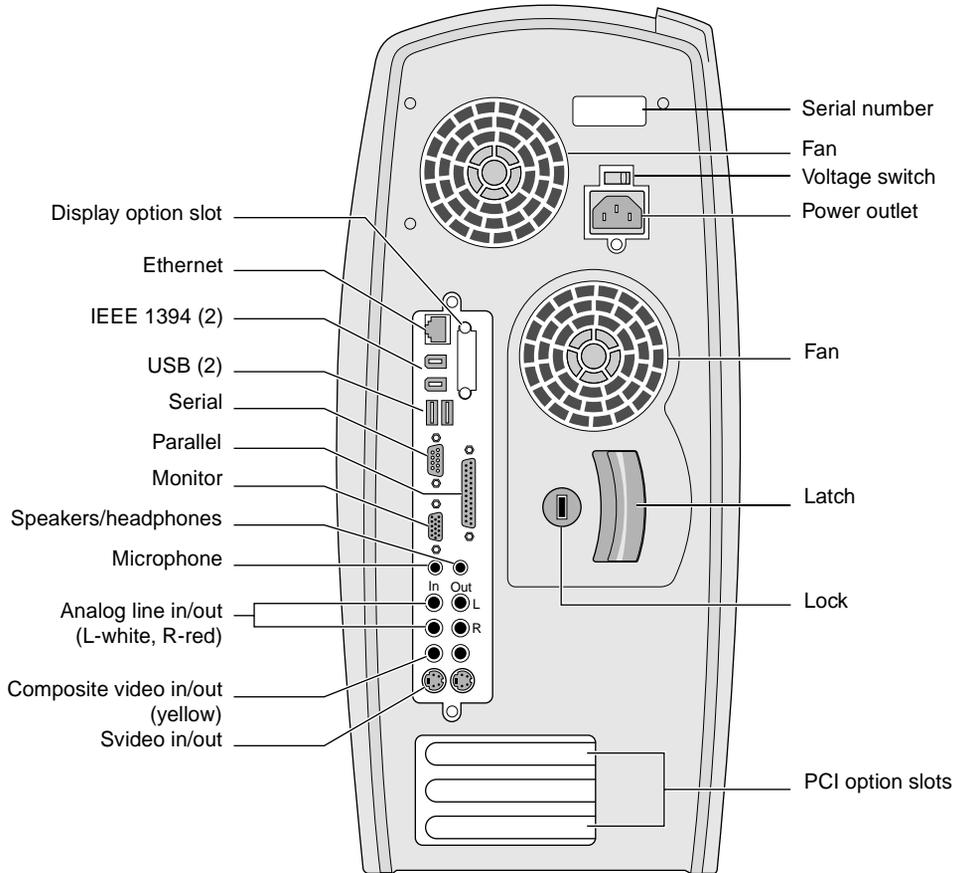


Figure 1-2 Back View of the System (Ports Labeled)

1. Decide whether you want to place the system unit on top of or beneath your desk.

Since internal fans are used to keep the system cool during operation, leave enough space around the unit to allow adequate airflow through the system.

2. Attach the PS/2 mouse to the keyboard, as shown in Figure 1-3. Then attach the keyboard to the leftmost USB connector on the system.

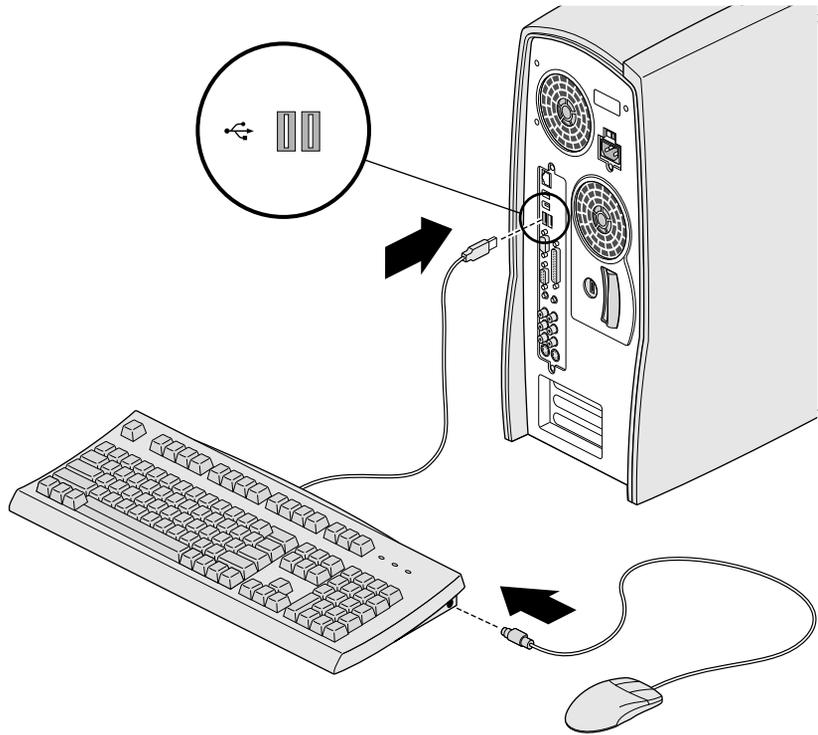


Figure 1-3 Attaching the Mouse and Keyboard

3. If you are installing your system on a network, attach the Ethernet cable from the wall jack to the RJ45 connector on the back of the system, as shown in Figure 1-4.

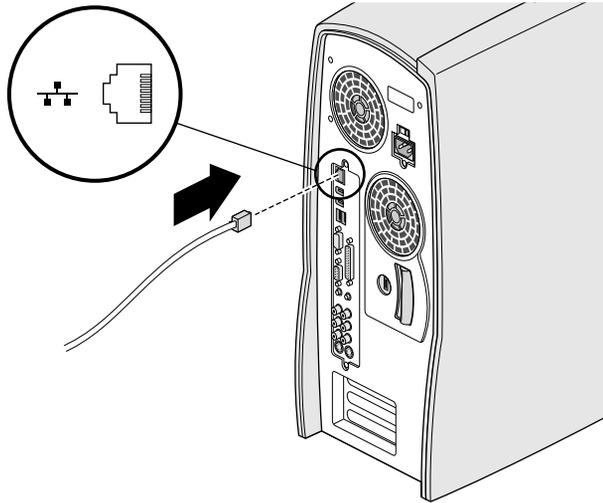


Figure 1-4 Attaching the Ethernet Cable

4. Attach the monitor.

- Attach the monitor cable to the monitor and to the system.
- Attach the monitor power cord to the monitor and to a power outlet.

Note: If you are attaching an optional flat panel monitor, attach it to the display option connector instead.

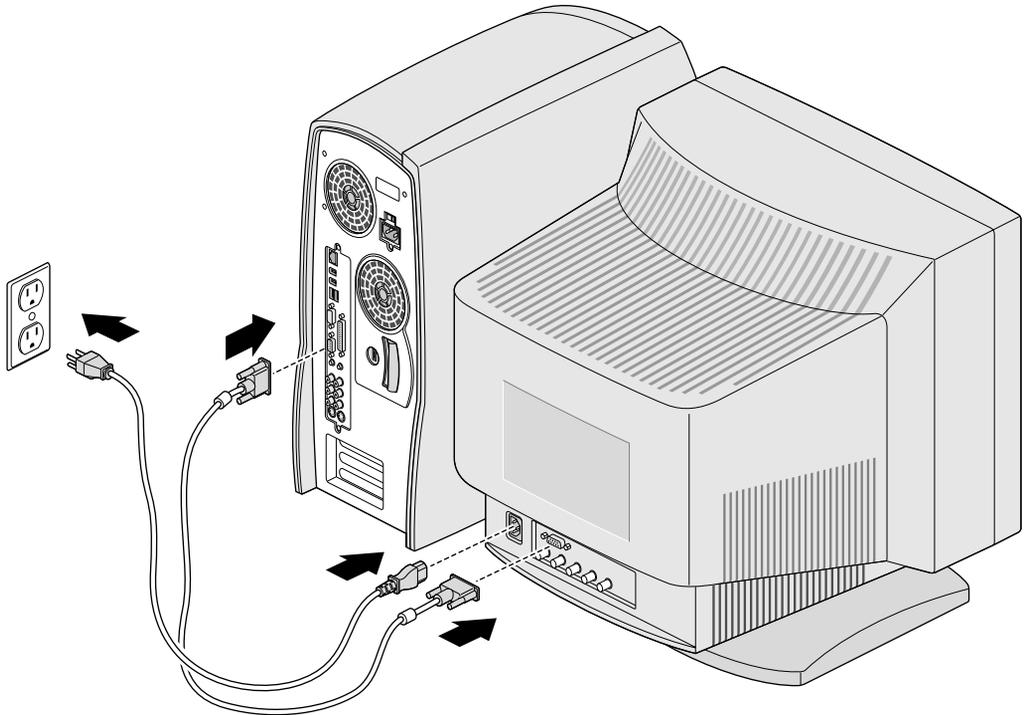


Figure 1-5 Attaching the Monitor and Power Cord

5. Check the voltage switch above the power port on the back of the system to make sure it's set to the appropriate voltage setting for your power outlet, as shown in Figure 1-6.

Caution: The voltage switch is preset at the factory for your country's voltage requirements. Verify the setting before plugging in the power cord.

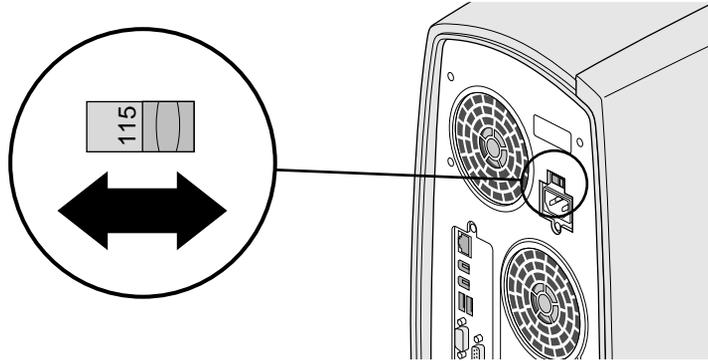


Figure 1-6 Checking the Voltage Switch Setting

6. Attach the power cord to the back of the system and to a power outlet, as shown in Figure 1-7.

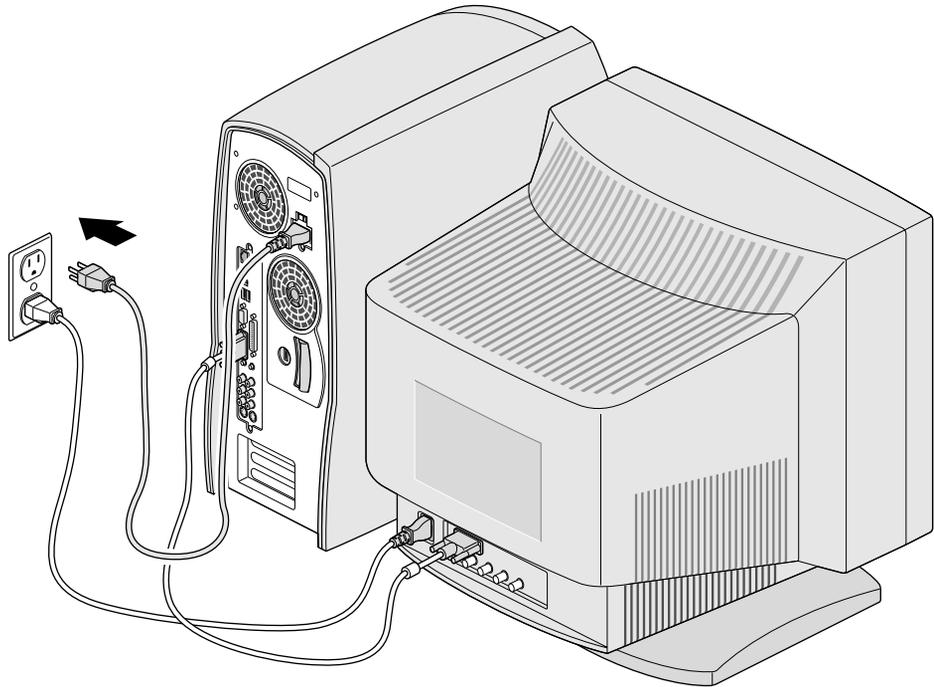


Figure 1-7 Attaching the Power Cord to the System

7. Attach any other external devices such as printers, modems, or speakers. Refer to Figure 1-2 to identify the ports.

Note: Microsoft Windows NT 4.0 does not support IEEE 1394 devices. Also, the keyboard and mouse combination is the only device supported by USB. Future releases of NT may support IEEE 1394 and additional USB devices.

You are now ready to open the sliding front panel and turn on the system.

Opening and Closing the Sliding Front Panel

Open the panel in the front of the system to access the removable media drives and the power and reset buttons.

- To open the sliding front panel, press lightly on the lower half of the panel, as shown in Figure 1-8.

The panel automatically slides down into the cover to expose the removable media drives and the power and reset buttons.

Caution: Do not force the panel down manually. It may damage the panel.

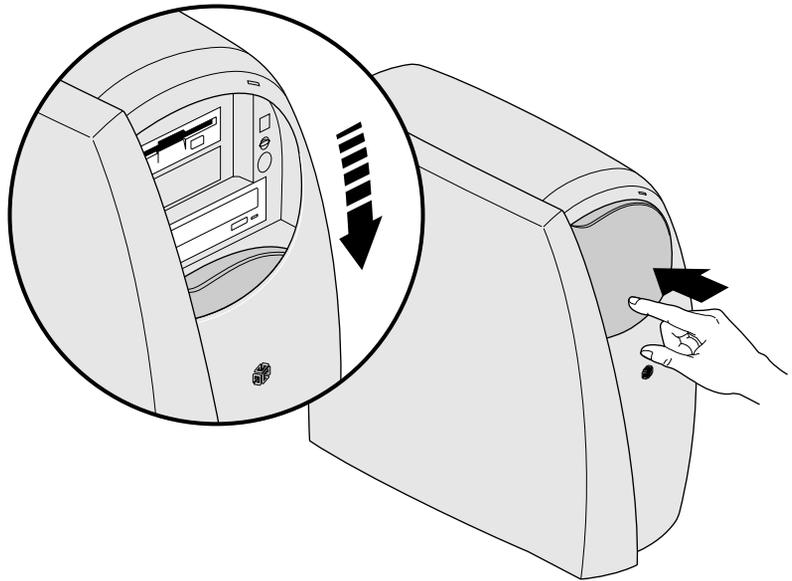


Figure 1-8 Opening the Sliding Front Panel

Figure 1-9 shows the location of the power and reset buttons.

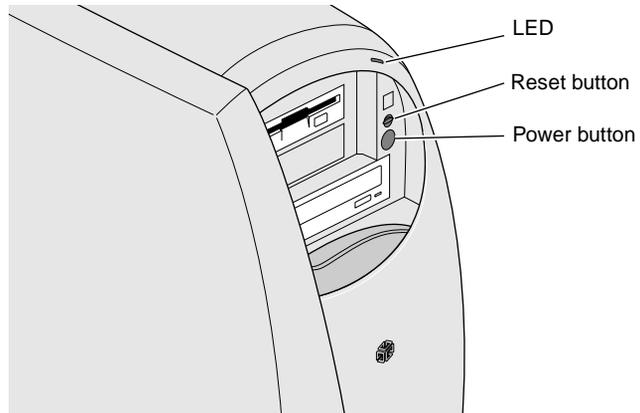


Figure 1-9 Locating the Power and Reset Buttons

- To close the panel, pull up on the tab at the top of the panel until the panel clicks into place.

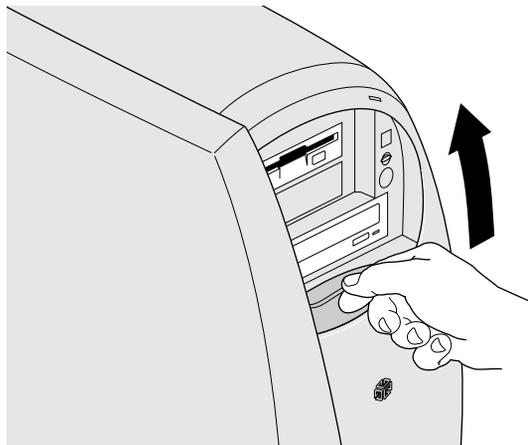


Figure 1-10 Closing the Sliding Front Panel

Turning On the System

After attaching all the cables and external devices, you are ready to turn on the system.

1. Turn on the monitor and any other external devices—such as external drives, printers, or modems—by pressing their power buttons.
2. Open the sliding front panel of the system by pressing lightly on the lower half of the panel, as shown in Figure 1-8.

The panel automatically slides down into the cover to expose the removable media drives and the power and reset buttons.

3. Press the power button, shown in Figure 1-11.

The system powers on automatically.

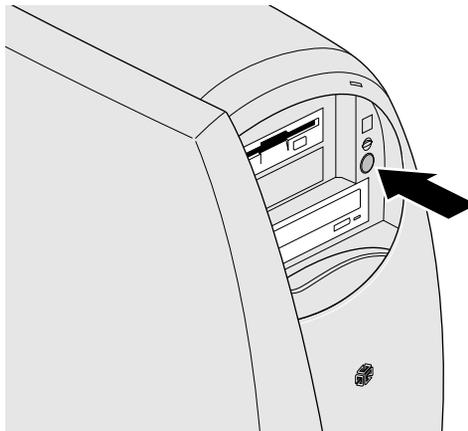


Figure 1-11 Turning on the System

For information on logging in, see your Windows NT documentation.

Shutting Down the System

To shut down the system:

1. Shut down the software by selecting System Shutdown from the Start menu in the Windows NT task bar, or if you are not logged in, by pressing Ctrl-Alt-Delete and clicking the *Shut Down...* button.

A dialog box appears.

2. Select “Shutdown the computer?” and click *Yes*.

The software automatically shuts down and a status window appears telling you it’s okay to turn off the power.

3. If it’s not already open, open the sliding front panel of the system by pressing lightly on the lower half of the panel (Figure 1-8).

The panel automatically slides down into the cover to expose the removable media drives and the power and reset buttons.

4. Press the power button (Figure 1-11). The system turns off.
5. Press the power buttons on the front of the monitor and on any external devices to turn them off.

Resetting the System

You can reset the system by pressing the reset button shown in Figure 1-12.

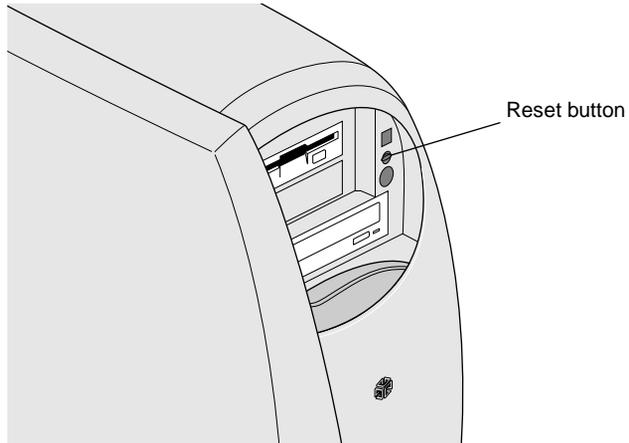


Figure 1-12 Resetting the System

Chapter 2

Opening the System

This chapter contains the following sections:

- “Removing the Covers” on page 16
- “Identifying the Internal Parts” on page 19
- “Replacing the Covers” on page 20

Removing the Covers

You need to remove the side cover when installing or replacing components in the system. You need to remove the side and front covers when installing or replacing a removable media drive.

Removing the Side Cover

To remove the side cover, shut down the system, as described in “Shutting Down the System” on page 12, and unplug the power cord. Then:

1. Push the latch on the back of the system to the left to unlock the cover, as shown in Figure 2-1.

2. Remove the cover.

- Facing the side of the system, place your right hand inside the right side of the cover and your left hand on the left edge.
- Pull the cover to the right until it slides about half an inch from the back of the system.
- Tip the cover towards you slightly and lift it off.

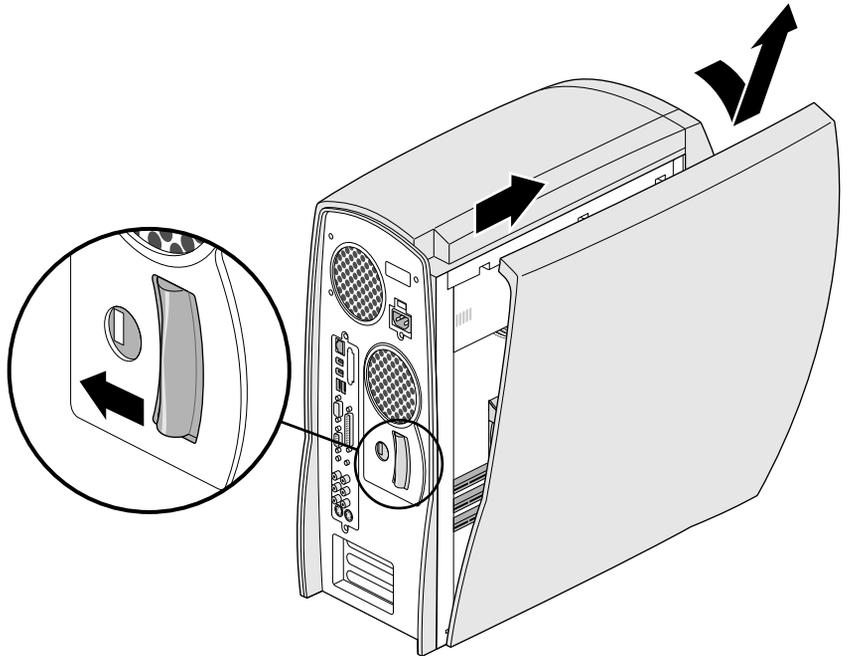


Figure 2-1 Removing the Side Cover

Removing the Front Cover

If you are installing or replacing a removable media drive, you need to remove the front cover. First remove the side cover as described in “Removing the Side Cover” on page 16 then follow these steps:

1. Press on the sliding front panel to open it. (See Figure 1-8.)
The panel automatically slides down into the cover.
2. Pull up on the latch inside the top of the cover, as shown in Figure 2-2, and pull the cover away from the system.

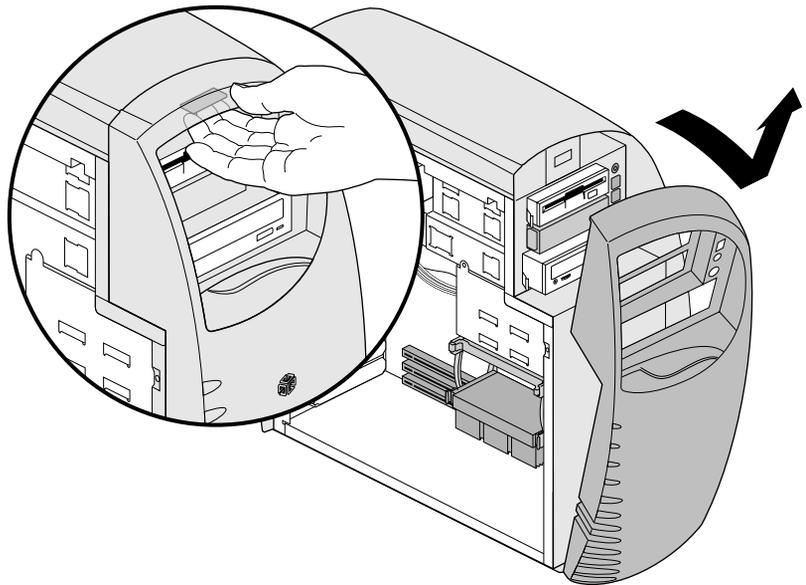


Figure 2-2 Removing the Front Cover

Identifying the Internal Parts

Figure 2-3 illustrates the interior of the system and identifies its parts.

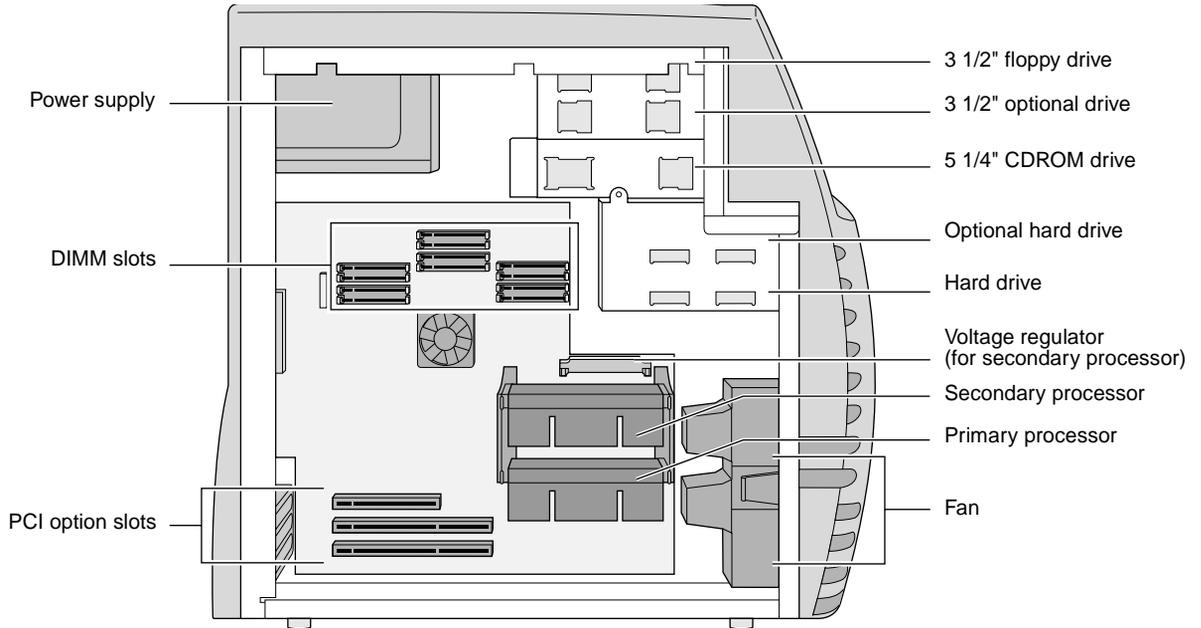


Figure 2-3 Interior View of the System

Replacing the Covers

To replace the front and side covers, see the following instructions.

Replacing the Front Cover

1. Place the tabs on the bottom of the cover into the notches on the lower edge of the chassis.
2. Tilt the cover up and press until it snaps into place.
3. Close the sliding front panel by pulling up on the tab.

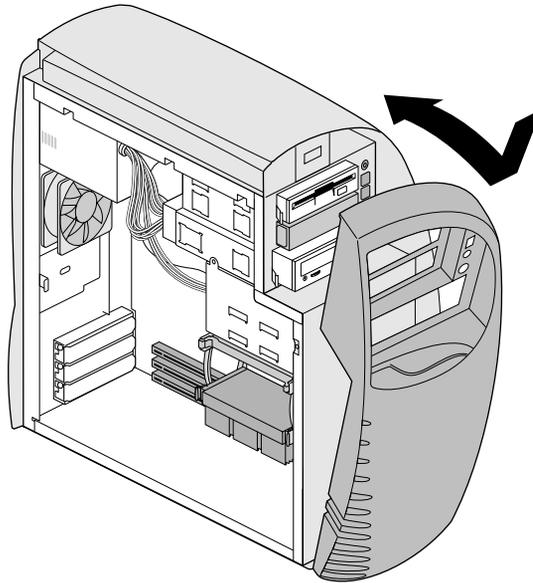


Figure 2-4 Replacing the Front Cover

Replacing the Side Cover

1. Facing the side of the system, place the tabs on the bottom of the cover into the notches in the lower edge of the chassis, as shown in Figure 2-5, then tilt the cover up and slide it towards the back of the system until it stops.
2. Pull the latch on the back of the system towards you to lock the cover in place.

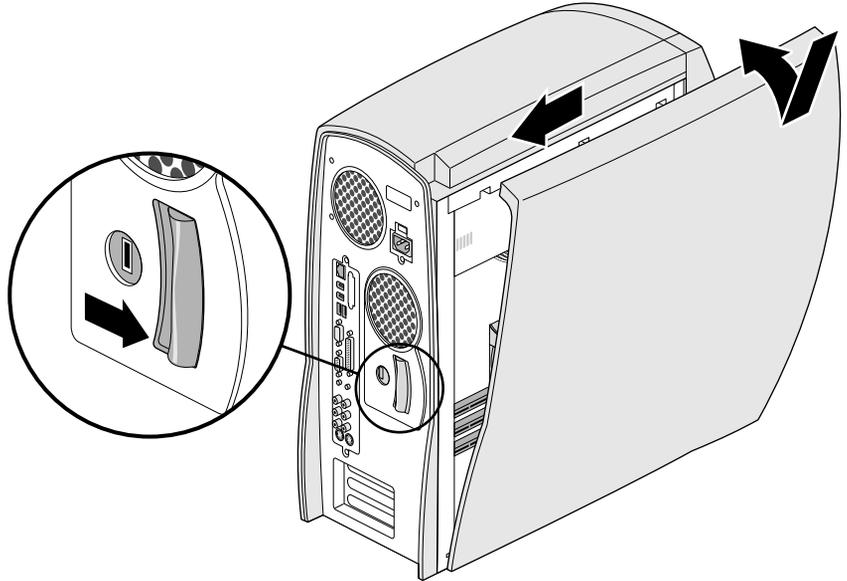


Figure 2-5 Replacing the Side Cover

Locking the System

If you want to lock your Silicon Graphics 320 visual workstation, buy a Kensington lock mechanism and insert it into the lock slot on the back of the system. The Kensington lock is not available through Silicon Graphics, but it is a commonly used lock that you can find at most computer retail stores.

Chapter 3

Memory

This chapter tells you how to install and remove DIMMs.

- “About Memory” on page 24
- “Installing DIMMs” on page 25
- “Removing DIMMs” on page 28

About Memory

The Silicon Graphics 320 visual workstation contains twelve DIMM slots split into two 6-slot groups, A and B, as shown in Figure 3-1.

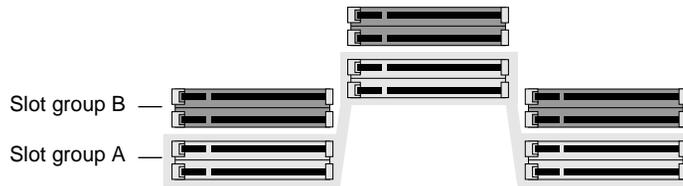


Figure 3-1 Identifying the DIMM Slot Groups

The minimum amount of memory installed is 128 MB, filling slot group A with single-sided DIMMs. As long as you install DIMMs in groups of six (filling slot group A first, then slot group B), you can upgrade by replacing the current DIMMs with a higher capacity and/or by adding DIMMs of the same or higher capacity. The maximum configuration is 1 GB of memory, filling both slot groups with 512 MB double-sided stacked DIMMs.

Table 3-1 displays the possible memory configurations. For optimal performance, if you are installing different capacity DIMMs in slot group A than in slot group B, install the higher-capacity DIMMs in slot group A. See “Installing DIMMs” for instructions on how to install DIMMs.

Caution: Only install DIMMs that are qualified for the Silicon Graphics 320 visual workstation.

Table 3-1 Possible Memory Configurations

Total Memory	Slot Group A	Slot Group B
128 MB	128 MB single-sided	Empty
256 MB	256 MB double-sided	Empty
	128 MB single-sided	128 MB single-sided
384 MB	256 MB double-sided	128 MB single-sided
512 MB	512 MB double-sided stacked	Empty
	256 MB double-sided	256 MB double-sided
640 MB	512 MB double-sided stacked	128 MB single-sided
768 MB	512 MB double-sided stacked	256 MB double-sided
1024 MB (1 GB)	512 MB double-sided stacked	512 MB double-sided stacked

Installing DIMMs

Read “About Memory” on page 24 first before installing DIMMs.

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 16.
4. Touch a metal part of the chassis with your hand to discharge any static you might be carrying.

5. Identify the DIMM slot groups, as shown in Figure 3-2. The slot groups—A and B—are split across three vertical rows, with two slots in each row.

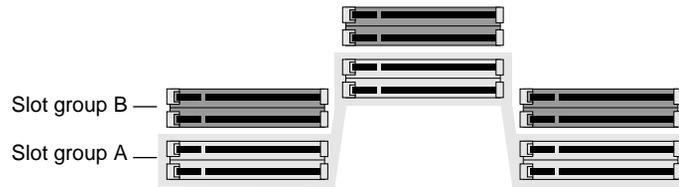


Figure 3-2 Identifying the DIMM Slot Groups

6. Place one hand on top of the workstation to stabilize it while you install the DIMMs, as shown in Figure 3-3.

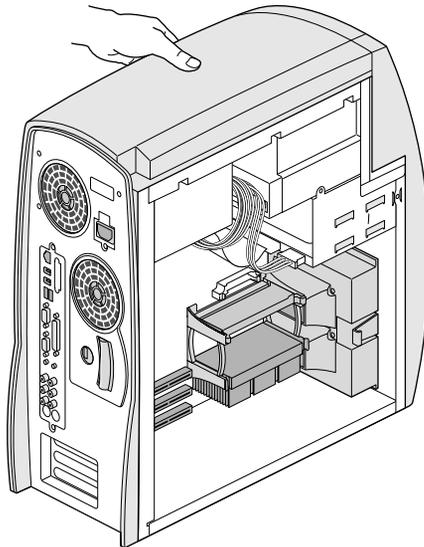


Figure 3-3 Stabilizing the System with Your Hand

7. Install DIMMs in groups of six, whether you are installing six or twelve DIMMs. Install from left to right, two DIMMs in each row, filling slot group A first, then slot group B. Do not mix different capacity DIMMs in the same slot group.

Note: For optimal performance, if you install different capacity DIMMs in slot group A and slot group B, install the higher-capacity DIMMs in slot group A.

- Position a DIMM so the notch on the longer side faces the rear of the system and the DIMM is at a 90 degree angle to the slot.

Caution: Make sure to install the DIMMs straight on. Installing them at an angle may bend the pins.

- Carefully push the DIMM into the slot until the latch snaps up into place, as shown in Figure 3-4. If the latch doesn't snap up, you can manually press the latch up to lock it and the DIMM into place.

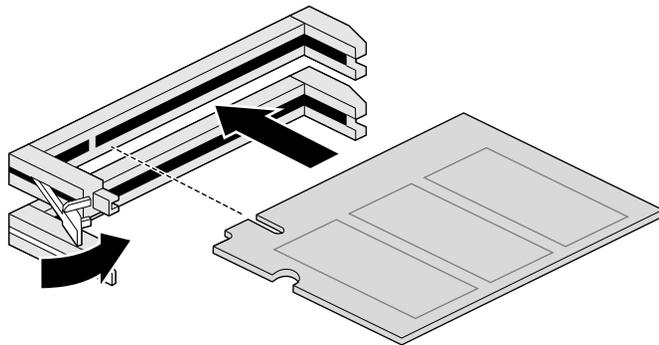


Figure 3-4 Installing a DIMM

8. Replace the side cover. For detailed instructions, see “Replacing the Side Cover” on page 21.
9. Reattach the power cord.
10. Turn on the system. For detailed instructions, see “Turning On the System” on page 11.

Verifying and Troubleshooting DIMM Installation

Use the Windows NT Diagnostics panel to verify that the system recognizes the DIMMs you installed. To open the panel, select Start > Programs > Administrative Tools > Windows NT Diagnostics. Click the Memory tab. Look at the Total field below Physical Memory to see the total amount of memory recognized by the system.

If the system does not recognize the memory, the DIMMs may be installed incorrectly. Shut down and reopen the system. Then:

- Make sure that slot groups contain six of the same capacity DIMMs and that the DIMMs are securely seated in the DIMM slots.
- If necessary, read the instructions to remove and reinstall any DIMMs.

Close and reboot the system. If the system still does not recognize the DIMMs, one or more of the DIMMs may be faulty. Contact your support representative.

Removing DIMMs

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 16.
4. Touch a metal part of the chassis with your hand to discharge any static you might be carrying.

5. Identify the DIMM slot groups, as shown in Figure 3-5. The slot groups—A and B—are split across three vertical rows, with two slots in each row.

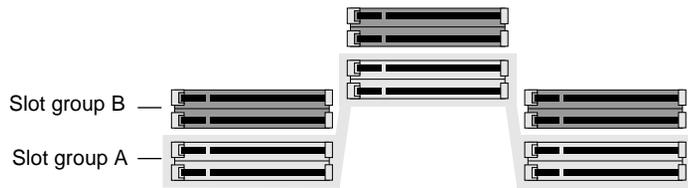


Figure 3-5 Identifying the DIMM Slot Groups

6. Determine which DIMMs to remove.
 - If you are replacing lower-capacity DIMMs with higher-capacity DIMMs, remove the lower-capacity DIMMs in groups of six, removing from slot group B first, then slot group A, depending on the number of DIMMs you want to replace.
 - If you are replacing a faulty DIMM, you need to remove only the faulty DIMM, but you must replace it with another one of equal capacity.
7. Remove a DIMM by pushing the latch to the left, as shown in Figure 3-6, then pulling the DIMM out of the slot.

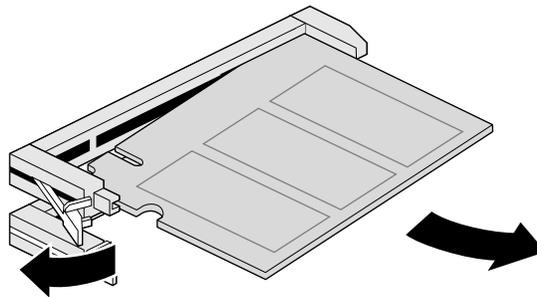


Figure 3-6 Removing a DIMM

Go to step 3 of “Installing DIMMs” on page 25 for instructions on how to install the replacement DIMMs, replace the side cover, and power on the system.

Chapter 4

Internal Drives

This chapter contains the following sections:

- “Configuration and Cabling for Internal Ultra33 EIDE Drives” on page 32
- “Installing a Removable Media Drive” on page 33
- “Removing a Removable Media Drive” on page 38
- “Installing an Internal Hard Drive” on page 40
- “Removing an Internal Hard Drive” on page 46
- “Attaching the SCSI PCI Option Card Internal Cable” on page 51
- “Disconnecting the SCSI PCI Option Card Internal Cable” on page 52

Configuration and Cabling for Internal Ultra33 EIDE Drives

The Silicon Graphics 320 visual workstation supports Ultra DMA EIDE internal drives. It has bays for three removable media drives—two 3½" drives (floppy and option drive) and one 5¼" drive (CDROM)—and two hard disk drives.

Refer to Figure 4-1 for correct cabling and configuration information for the internal EIDE drives.

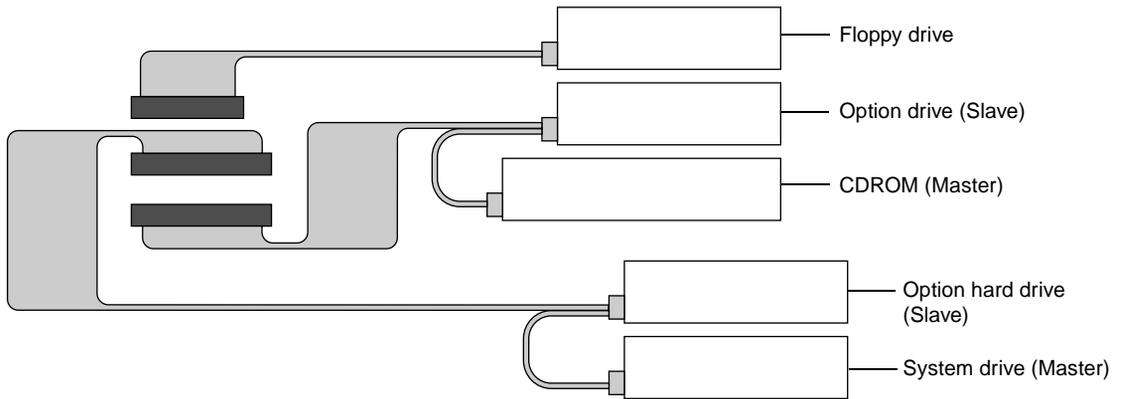


Figure 4-1 Cabling and Configuration for Internal EIDE Drives

Installing a Removable Media Drive

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side and front covers.

For detailed instructions, see “Removing the Side Cover” on page 16 and “Removing the Front Cover” on page 18.

4. If necessary, set the jumpers on the drive. To set the jumpers, refer to the labeling on the back of the drive or to the documentation that came with the drive.
 - If you are installing a floppy disk drive in the top 3 1/2” bay, you do not need to set any jumpers. Go to step 5.
 - If you are installing a drive in the bottom 3 1/2” bay, set the drive jumpers to Slave.
 - If you are installing a drive in the 5 1/4” bay, set the drive jumpers to Master.

5. Locate two drive sleds—one to attach to each side of the drive.

- If you are replacing a drive, remove the old drive, then remove the sleds from the drive.

For detailed instructions, see “Removing a Removable Media Drive” on page 38.

- If you are not replacing a drive, remove two sleds from the side panel, as shown in Figure 4-2. Also remove the spare screws from the lower right edge of the side panel.

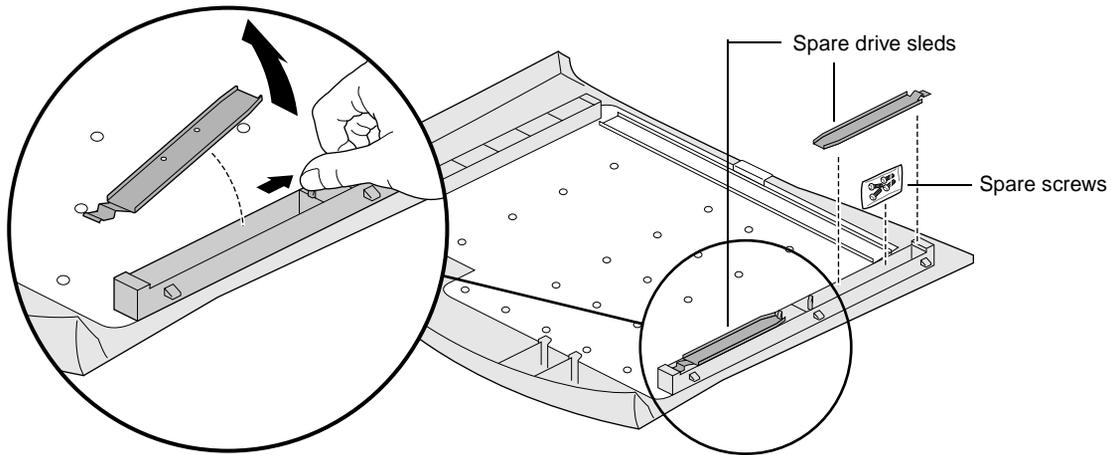


Figure 4-2 Removing the Sleds from the Side Panel

6. Attach a sled to each side of the drive, as shown in Figure 4-3.
 - Position the tabbed end of a sled towards the front of the drive, approximately half an inch from the edge.
 - Align the two screw holes in the sled with the screw holes in the drive, then insert and tighten the screws.

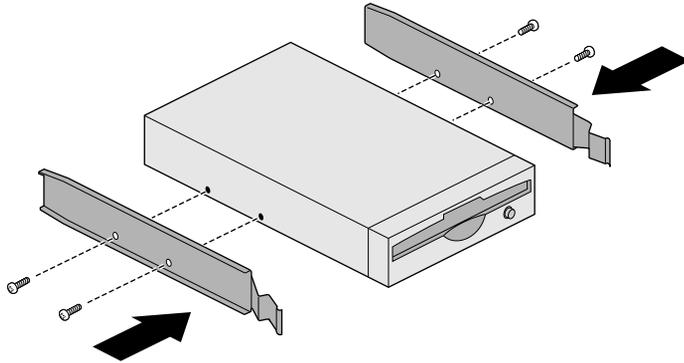


Figure 4-3 Attaching the Sleds to a Removable Media Drive

7. If there is a blank panel covering the drive opening in the system, remove it, as shown in Figure 4-4.

Save the panel. In the future, if you remove the drive and leave the bay empty, you will need to reinstall the panel.

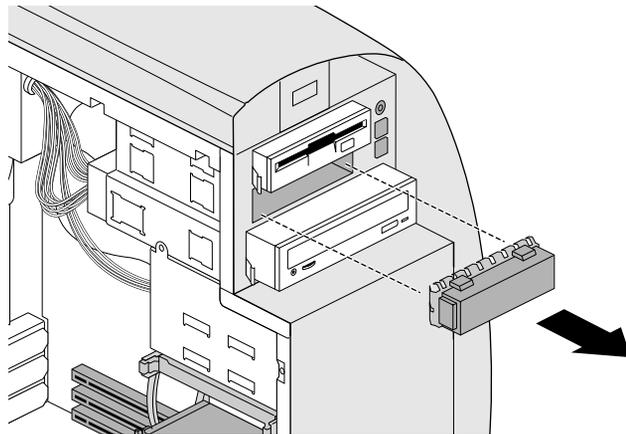


Figure 4-4 Removing a Blank Panel from a Removable Media Drive Slot

8. Slide the drive into the drive bay until it snaps into place, as shown in Figure 4-5.

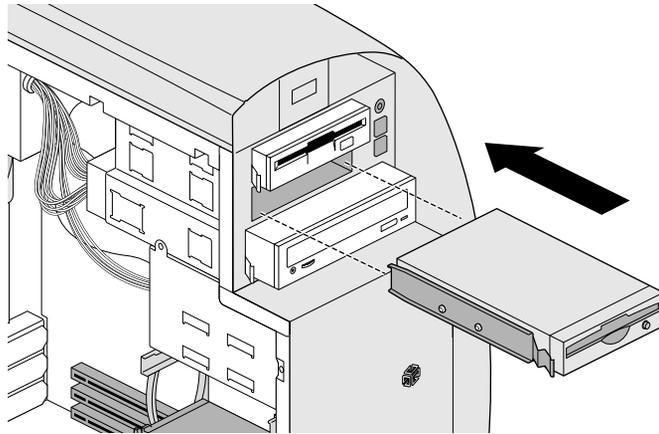


Figure 4-5 Installing a Removable Media Drive

9. Connect the power and ribbon cables, as shown in Figure 4-6. To see a more detailed diagram of the correct ribbon cabling for the drives, refer to Figure 4-1.

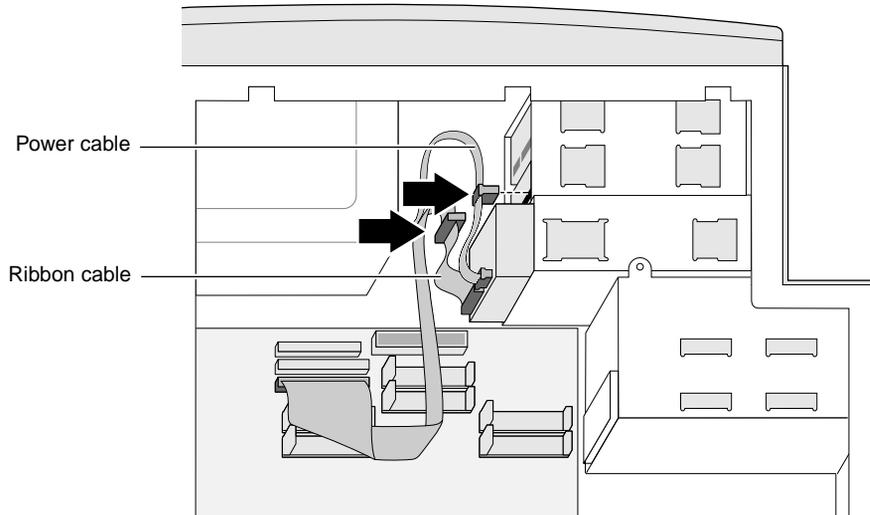


Figure 4-6 Attaching the Cables to a Removable Media Drive

10. Replace the front and side covers.

For detailed instructions, see “Replacing the Front Cover” on page 20 and “Replacing the Side Cover” on page 21.

11. Reattach the power cord.

12. Turn on the system. For detailed instructions, see “Turning On the System” on page 11.

Verifying and Troubleshooting Removable Media Drive Installation

You can check to make sure the system recognizes the drive by selecting Start > Programs > Administrative Tools > Disk Administrator from the Windows NT task bar. See the Help in the Disk Administrator for information on using it.

If the system does not recognize the drive, shut down and reopen the system. Then:

- Check to make sure the power and ribbon cables are correctly attached to the back of the drive (see Figure 4-1).
- Check the jumpers on the drives to verify they are set to Slave for a drive in the bottom 3½" bay and to Master for a drive in the 5¼" bay.

Close and reboot the system. If the system still does not recognize the drive, either the drive or a cable may be faulty. Contact your support representative.

Removing a Removable Media Drive

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side and front covers.

For detailed instructions, see “Removing the Side Cover” on page 16 and “Removing the Front Cover” on page 18.

4. Disconnect the power and ribbon cables from the back of the drive, as shown in Figure 4-7.

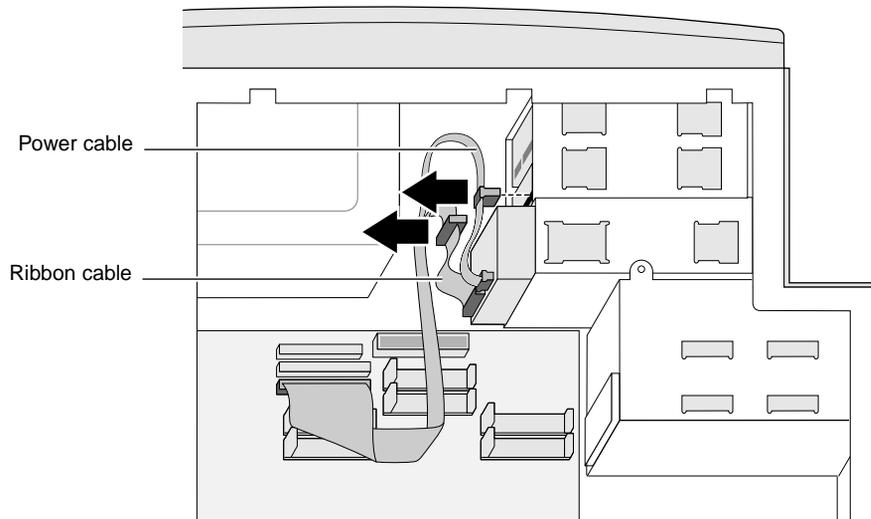


Figure 4-7 Disconnecting the Cables from a Removable Media Drive

5. From the front, pinch the drive sled tabs on the sides of the drive and pull the drive out, as shown in Figure 4-8.

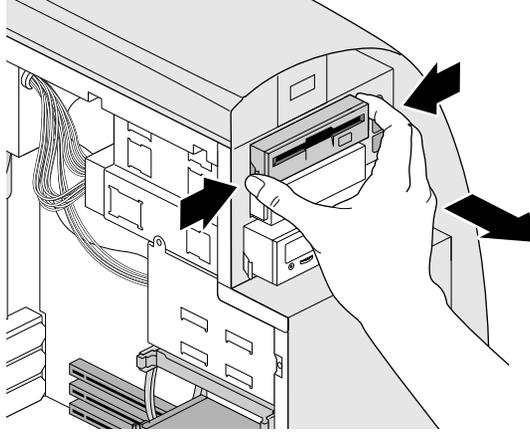


Figure 4-8 Removing a Removable Media Drive

6. If you are not reinstalling the drive, remove the sleds and store them inside the side cover of the system (see Figure 4-2) or if you are installing another drive, attach the sleds to the new drive (see “Installing a Removable Media Drive” on page 33).
7. If you are not reinstalling a drive, install the blank panel in the bay opening, as shown in Figure 4-9.

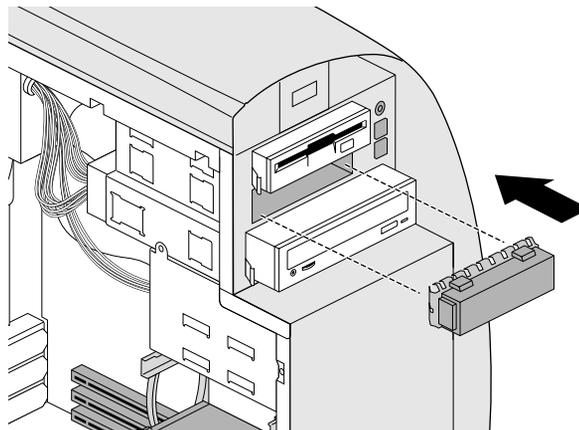


Figure 4-9 Installing the Blank Panel in a Removable Media Drive Bay

8. Replace the front and side covers.

For detailed instructions, see “Replacing the Front Cover” on page 20 and “Replacing the Side Cover” on page 21.

9. Reattach the power cord.
10. Turn on the system. For detailed instructions, see “Turning On the System” on page 11.

Installing an Internal Hard Drive

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 16.
4. If any hard drives are currently installed, disconnect the cables from the backs of the drives, as shown in Figure 4-10.

If you have internal SCSI drives installed, see “Disconnecting the SCSI PCI Option Card Internal Cable” on page 52 for information on disconnecting the SCSI cable from these drives.

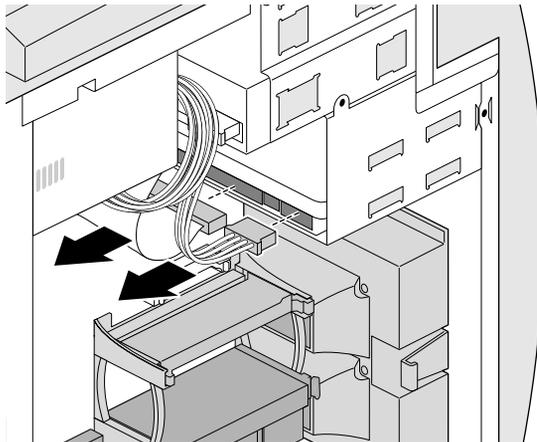


Figure 4-10 Disconnecting Cables from an Internal Hard Drive

5. Remove the drive bracket from the system, as shown in Figure 4-11.

Caution: Space is tight, so avoid contact with the DIMMs while installing the bracket.

- Remove the two screws.
- Carefully pull the bracket to the left and then out.

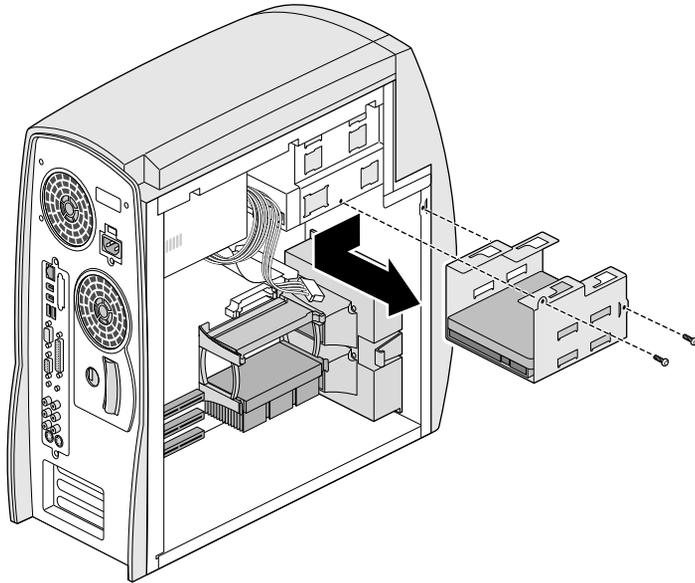


Figure 4-11 Removing the Internal Hard Drive Bracket

6. If you are replacing a drive, remove the old drive from the bracket. For detailed instructions, see “Removing an Internal Hard Drive” on page 46.

7. Set the jumpers on the drive. To set the jumpers, refer to the labeling on the back of the drive or to the documentation that came with the drive.
 - If you are installing a system drive, set the drive jumpers to Master.
 - If you are installing an option drive, set the drive jumpers to Slave.

If you are installing SCSI drives, set the system drive to SCSI ID 0 and the secondary drive to a number from 1 to 15, excluding number 7 and any numbers taken by other SCSI drives.

8. Remove four screws from the bag of screws located inside the side panel. (Refer to Figure 4-2.)
9. Insert the drive into the bracket. If you are installing a system drive, install it in the bottom slot.
10. Insert and tighten the four screws, as shown in Figure 4-12.

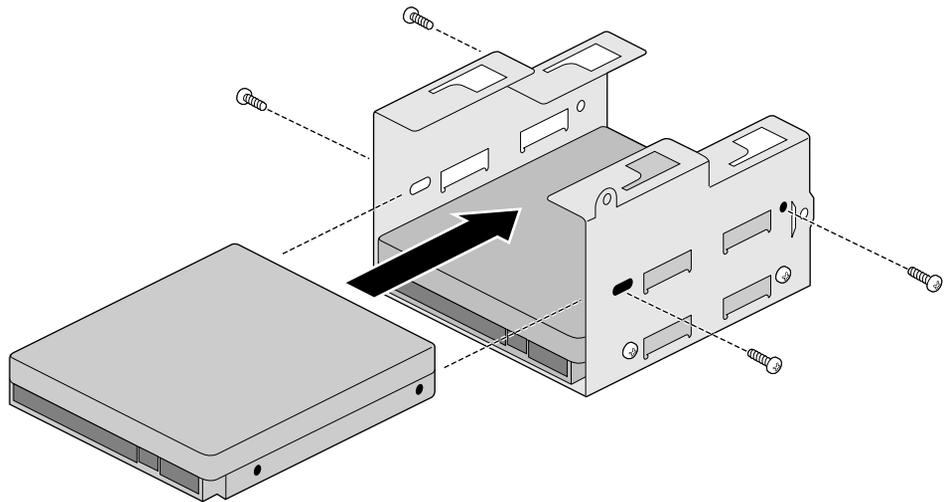


Figure 4-12 Attaching an Internal Hard Drive to the Drive Bracket

11. Install the bracket in the drive slot, as shown in Figure 4-13.

Caution: Space is tight, so avoid contact with the DIMMs while installing the bracket.

- Position the drive bracket behind the drive slot.
- Push the bracket up so the tabs on the top of the bracket align with the openings in the drive slot. Slide the bracket towards the front of the system until it stops.
- Insert and tighten the two screws.

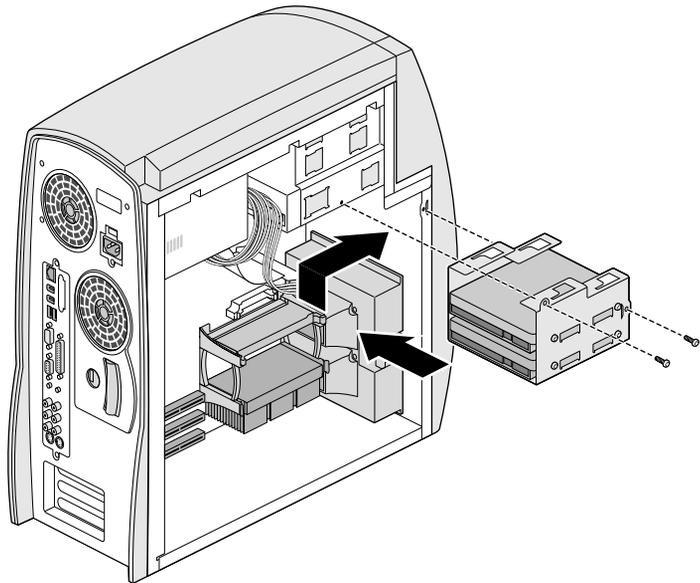


Figure 4-13 Installing the Internal Hard Drive Bracket

12. Attach the power and ribbon cables to the back of the drive (or drives, if two are installed), as shown in Figure 4-14. To see a more detailed diagram of the correct ribbon cabling for the drives, refer to Figure 4-1.

If you are installing internal SCSI drives, see “Attaching the SCSI PCI Option Card Internal Cable” on page 51 for information on attaching the SCSI cable to these drives.

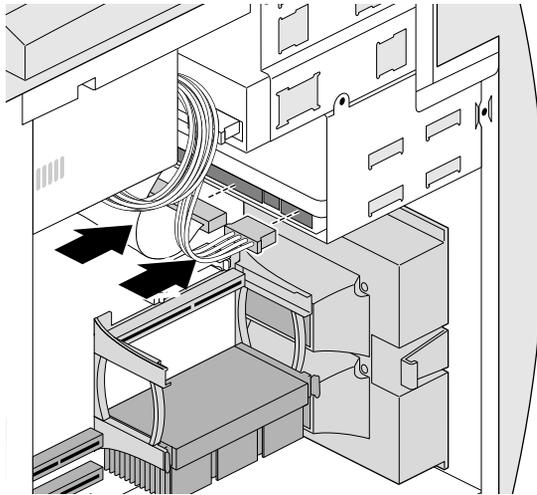


Figure 4-14 Attaching Cables to an Internal Hard Drive

13. Replace the side cover. For detailed instructions, see “Replacing the Side Cover” on page 21.
14. Reattach the power cord.
15. Turn on the system. For detailed instructions, see “Turning On the System” on page 11.

Verifying and Troubleshooting Internal Hard Drive Installation

You can check to make sure the system recognizes the drive by selecting Start > Programs > Administrative Tools > Disk Administrator from the Windows NT task bar. See the Help in the Disk Administrator for information on using it. (To see SCSI devices, select Start > Control Panel, double-click SCSI Adapters, then click the + next to PCI SCSI Card.)

If the system does not recognize the drive, shut down and reopen the system. Then:

- Make sure the power and ribbon cables are correctly attached to the back of the drive (see “Configuration and Cabling for Internal Ultra33 EIDE Drives” on page 32 for EIDE drives).
- Make sure the jumpers are correctly set.
- If you have internal SCSI drives, make sure the drives have unique ID assignments.

Close and reboot the system. If the system still does not recognize the drive, either the drive or a cable may be faulty. Contact your support representative.

Removing an Internal Hard Drive

To remove an internal hard drive:

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 16.
4. Detach the cables from the back of the drive (or both drives, if two are installed), as shown in Figure 4-15.

If you have internal SCSI drives installed, see “Disconnecting the SCSI PCI Option Card Internal Cable” on page 52 for information on disconnecting the SCSI cable from these drives.

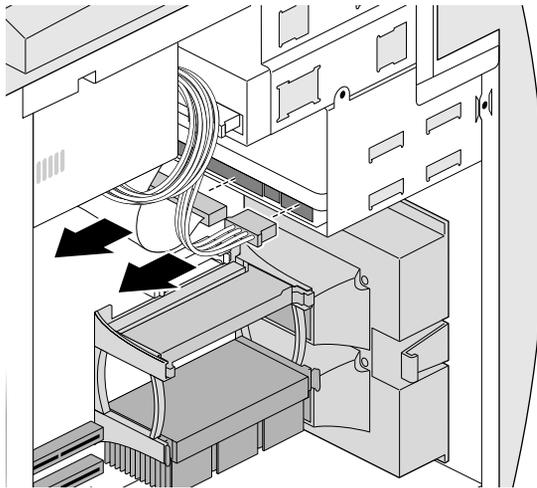


Figure 4-15 Disconnecting Cables from an Internal Hard Drive

5. Remove the drive bracket from the system, as shown in Figure 4-16.

Caution: Space is tight, so avoid contact with the DIMMs while removing the bracket.

- Remove the two screws.
- Carefully pull the bracket to the left and remove it.

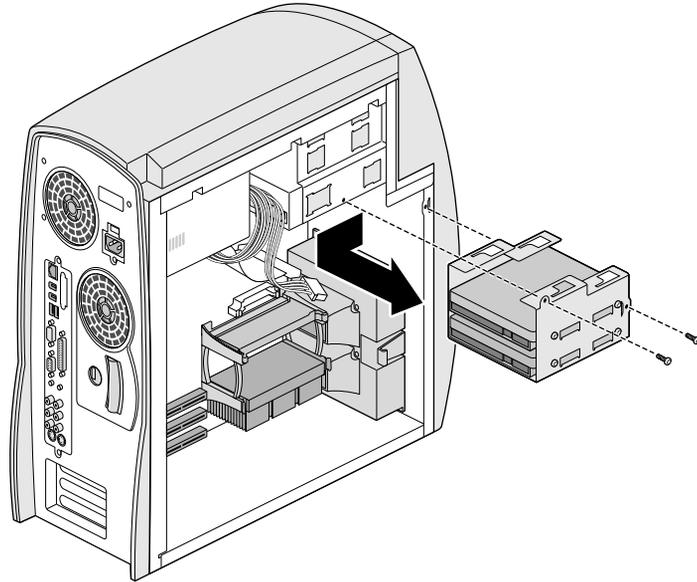


Figure 4-16 Removing the Internal Hard Drive Bracket

6. Remove the four screws holding the drive to the bracket and pull out the drive, as shown in Figure 4-17.

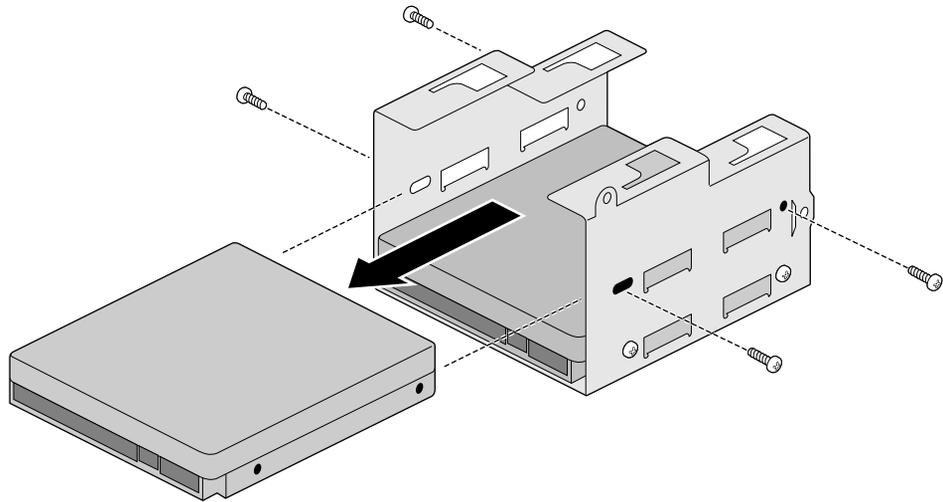


Figure 4-17 Removing a Hard Drive from the Drive Bracket

7. If you are installing another drive, see “Installing an Internal Hard Drive” on page 40.

8. Install the bracket in the drive slot, as shown in Figure 4-18.

Caution: Space is tight, so avoid contact with the DIMMs while removing the bracket.

- Position the drive bracket behind the drive slot.
- Push the bracket up so the tabs on the top of the bracket align with the openings in the drive slot. Slide the bracket towards the front of the system until it stops.
- Insert and tighten the two screws.

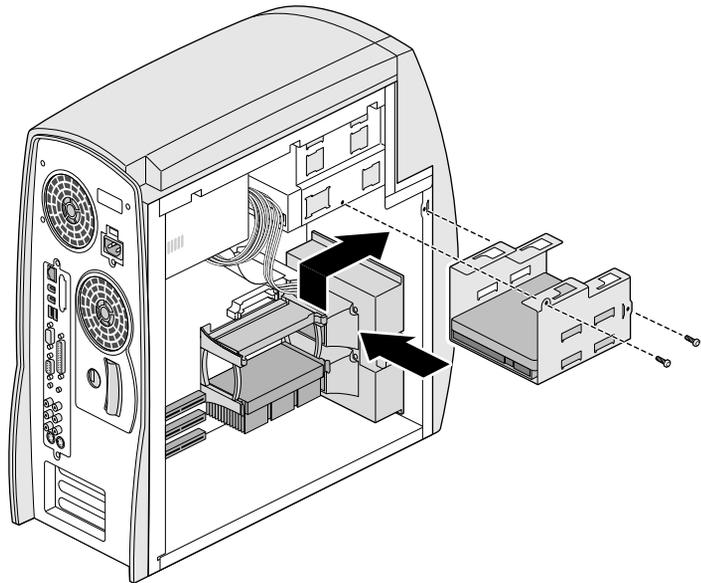


Figure 4-18 Installing the Internal Hard Drive Bracket

9. Attach the power and ribbon cables to the back of the drive if one is installed, as shown in Figure 4-19.

If you are installing internal SCSI drives, see “Attaching the SCSI PCI Option Card Internal Cable” on page 51 for information on attaching the SCSI cable to these drives.

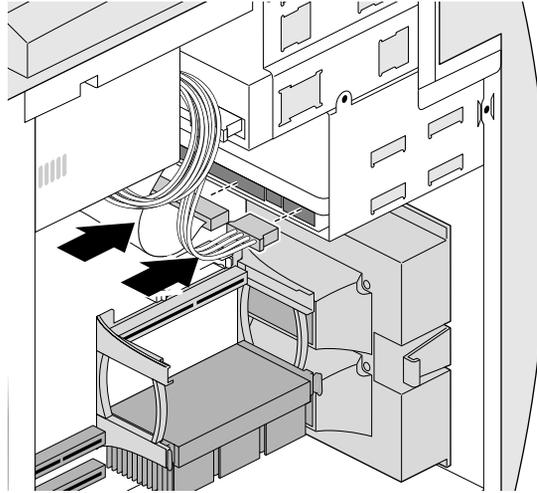


Figure 4-19 Attaching Cables to an Internal Hard Drive

10. Replace the side cover. For detailed instructions, see “Replacing the Side Cover” on page 21.
11. Reattach the power cord.
12. If you still have a system drive installed, turn on the system. For detailed instructions, see “Turning On the System” on page 11.

If the system does not recognize the drive, see “Verifying and Troubleshooting Internal Hard Drive Installation” on page 45 for troubleshooting information.

Attaching the SCSI PCI Option Card Internal Cable

If you purchased an optional SCSI PCI card and internal drives, refer to Figure 4-20 to attach the cable to the card and to the internal SCSI drives. See Chapter 5, “Option Cards,” for information on installing or removing a SCSI PCI card. For information on attaching SCSI devices and verifying and troubleshooting their installation, see Appendix C.

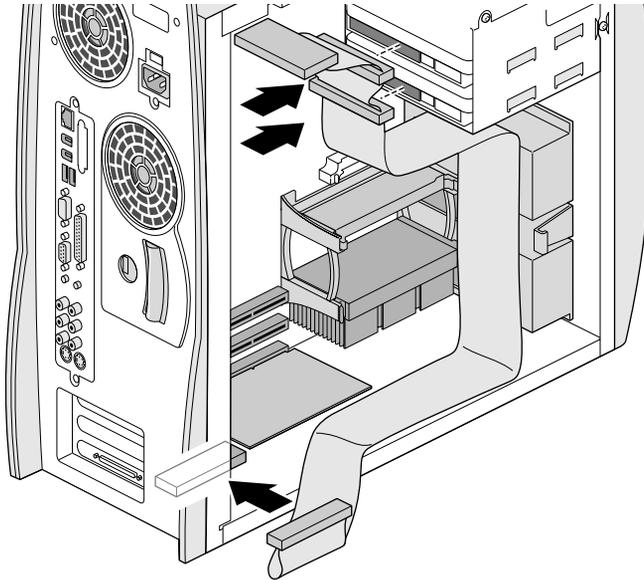


Figure 4-20 Attaching the SCSI PCI Option Card Internal Cable

Disconnecting the SCSI PCI Option Card Internal Cable

If you purchased an optional SCSI PCI card and internal drives, refer to Figure 4-21 to disconnect the cable from the card and internal SCSI drives. See Chapter 5, “Option Cards,” for information on installing or removing a SCSI PCI card.

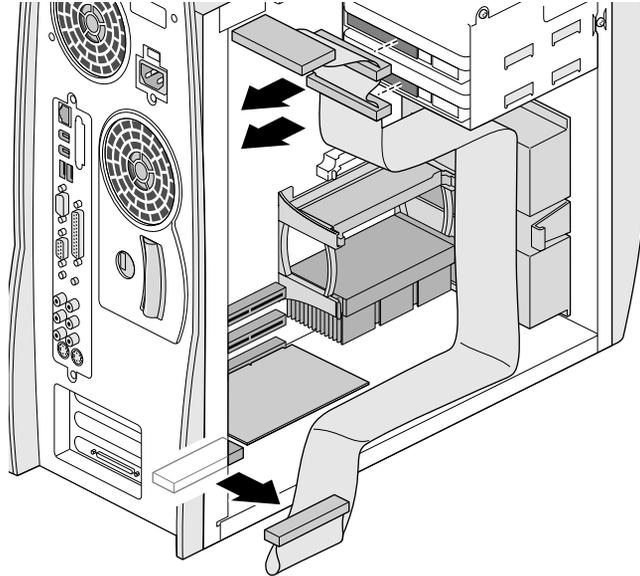


Figure 4-21 Disconnecting the SCSI PCI Option Card Internal Cable

Chapter 5

Option Cards

This chapter contains the following sections:

- “About PCI Cards” on page 54
- “Installing a PCI Card” on page 54
- “Removing a PCI Card” on page 57
- “Installing the Display Option Card” on page 60
- “Removing the Display Option Card” on page 62

About PCI Cards

The Silicon Graphics 320 visual workstation contains three PCI card option slots on two PCI buses—one half-length 32-bit-wide slot on bus:0 and two full-length 64-bit-wide slots on bus:1. This chapter tells you how to install and remove PCI option cards. For maximum performance, install cards in bus:1 slots first.

If you purchased a SCSI PCI option card and internal SCSI hard drives, see Chapter 4, “Internal Drives,” for information on installing or removing the drives and attaching or disconnecting the internal SCSI cable.

Note: The Silicon Graphics 320 visual workstation supports 3.3-volt PCI cards only. It does not support 5.0-volt PCI cards.

Also, the workstation does not support PCI graphics cards. Multi-head capabilities will be available in a future release of Windows NT.

Installing a PCI Card

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 17.
4. Touch a metal part of the chassis with your hand to discharge any static you might be carrying.

5. If there is a blank plate covering the PCI slot opening, remove it, as shown in Figure 5-1.

- Insert a Philips screwdriver into the opening opposite the screw and remove the screw.
- Pull out the plate.

Save the plate. In the future, if you remove the PCI card and leave the slot empty, you will need to reinstall the plate.

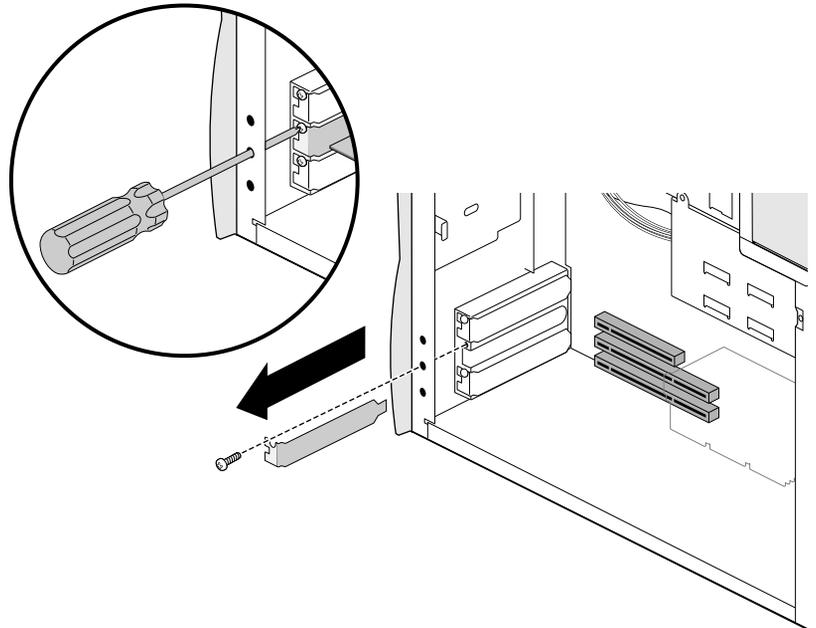


Figure 5-1 Removing the Cover Plate from a PCI Card Slot

6. Install the new card, as shown in Figure 5-2.
 - Insert the card into the slot.
 - Insert a Philips screwdriver through the opening opposite the screw hole and insert and tighten the screw.

If you are installing a SCSI PCI option card and internal drives, see Chapter 4, “Internal Drives” for information on installing the drives and attaching the internal cable.

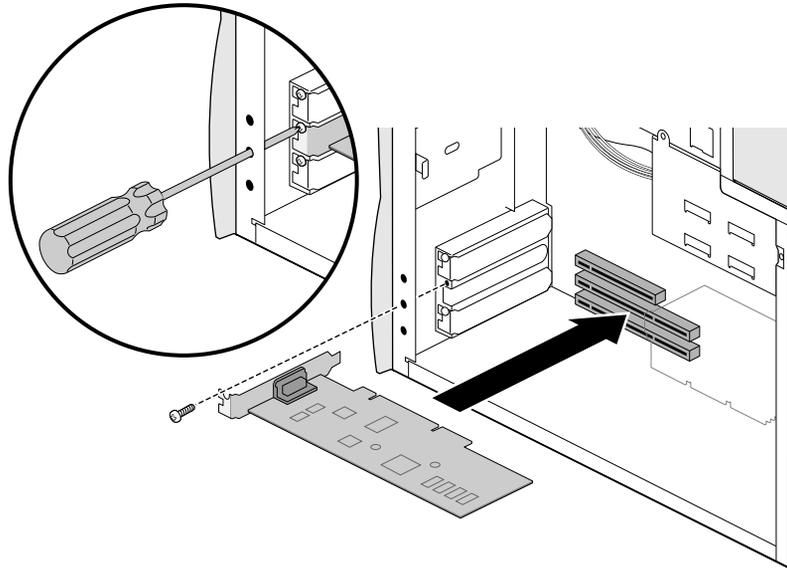


Figure 5-2 Installing a PCI Card

7. Replace the side cover. For detailed instructions, see “Replacing the Side Cover” on page 21.
8. Reattach the power cord.
9. Power on the system. For detailed instructions, see “Turning On the System” on page 11.

Verifying and Troubleshooting PCI Card Installation

Use the Windows NT Diagnostics panel to verify that the system recognizes the PCI card you installed. To open the panel, select Start > Programs > Administrative Tools > Windows NT Diagnostics. Click the Resources tab and look down the Type list to find the recognized PCI cards.

If the system does not recognize the card, shut down and reopen the system. Make sure the card is securely seated in the socket. Close and reboot the system. If the system still does not recognize the card, it may be faulty. Contact your support representative.

Removing a PCI Card

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 16.
4. Touch a metal part of the chassis with your hand to discharge any static you might be carrying.

5. Remove the card, as shown in Figure 5-3.
 - Insert a Philips screwdriver into the opening opposite the screw and remove the screw.
 - Grasp the card and gently pull it out of the slot.

If you are removing a SCSI PCI card and have external devices attached, disconnect the device cable from the external connector. If internal SCSI hard drives are attached, see “Disconnecting the SCSI PCI Option Card Internal Cable” for information on disconnecting the cable from the internal drives and card.

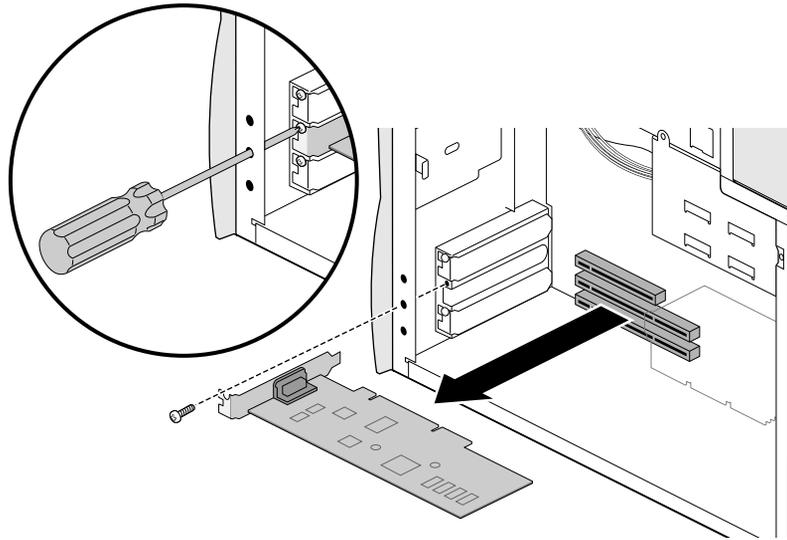


Figure 5-3 Removing a PCI Card

6. If you are not installing another card in the slot, install a blank panel, as shown in Figure 5-4.

- Position the panel over the slot.
- Insert and tighten the screw.

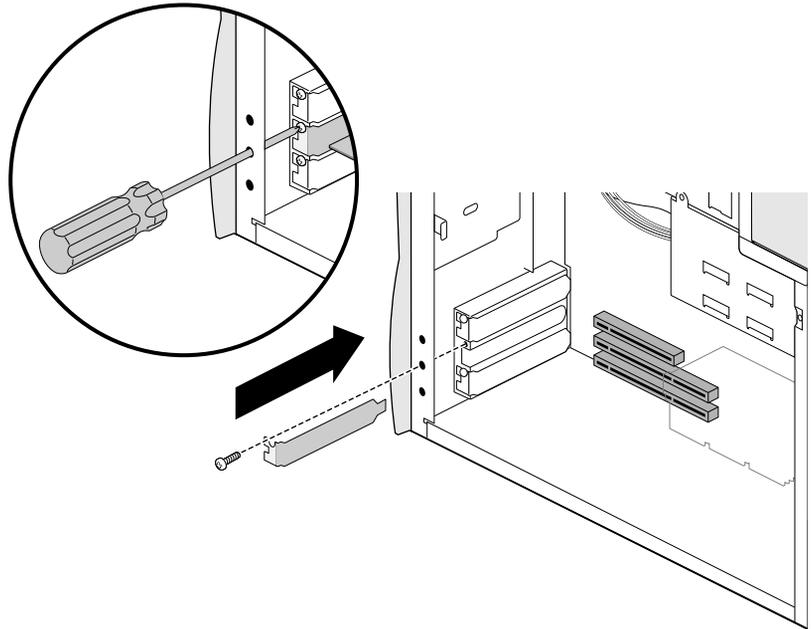


Figure 5-4 Installing a Blank Panel in a PCI Slot

7. Replace the side cover. For detailed instructions, see “Replacing the Side Cover” on page 21.
8. Reattach the power cord.
9. Power up the system. For detailed instructions, see “Turning On the System” on page 11.

Installing the Display Option Card

If you ordered a flat panel display monitor when you purchased your Silicon Graphics 320 visual workstation, the option card is preinstalled. You do not need to install it. If you ordered the Silicon Graphics 1600SW flat panel monitor separately from the workstation, you need to install the option card before attaching the monitor.

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 16.
4. Remove the cover plate from the display option slot on the back of the system, as shown in Figure 5-5.
 - Reach inside the system and hold the back of the cover plate with your hand as you remove the two screws.
 - Pull out the cover plate.

Save the cover plate. In the future, if you remove the option card and leave the slot empty, you will need to reinstall the cover plate.

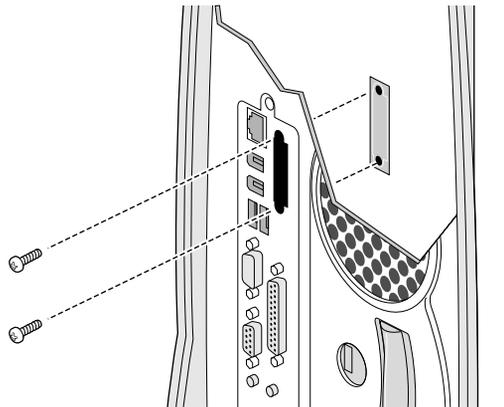


Figure 5-5 Removing the Display Option Slot Cover Plate

5. Install the option card.

Caution: Space is tight, so avoid contact with the DIMMs while installing the card.

- Position the board so the connector on the bottom faces the port on the system board and the connector on the edge faces the opening in the back panel (see Figure 5-6).
- Align the connectors and press the board into the connector until it snaps into place.

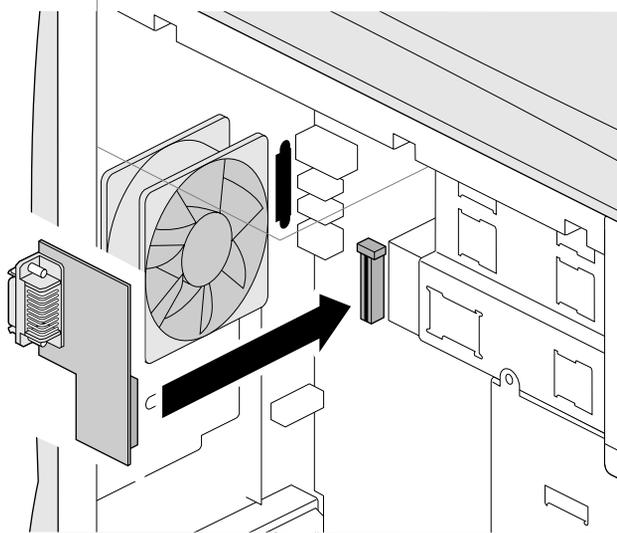


Figure 5-6 Installing the Display Option Card

6. Replace the two screws, as shown in Figure 5-7.

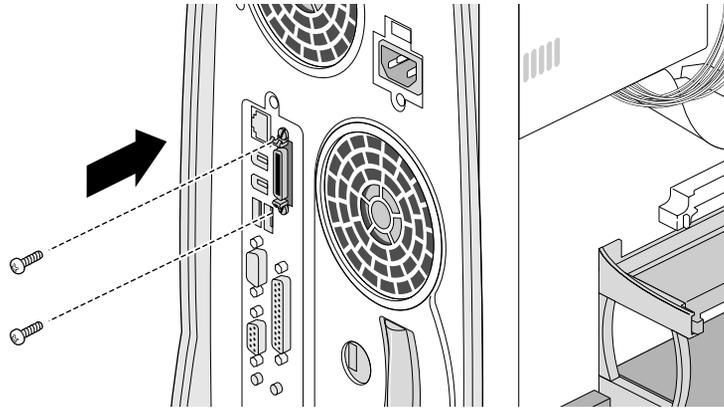


Figure 5-7 Installing the Display Option Card Screws

7. Replace the side cover. For detailed instructions, see “Replacing the Side Cover” on page 21.

Removing the Display Option Card

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord and flat panel display cable from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 16.

4. Remove the two screws attaching the card to the back panel, as shown in Figure 5-8.

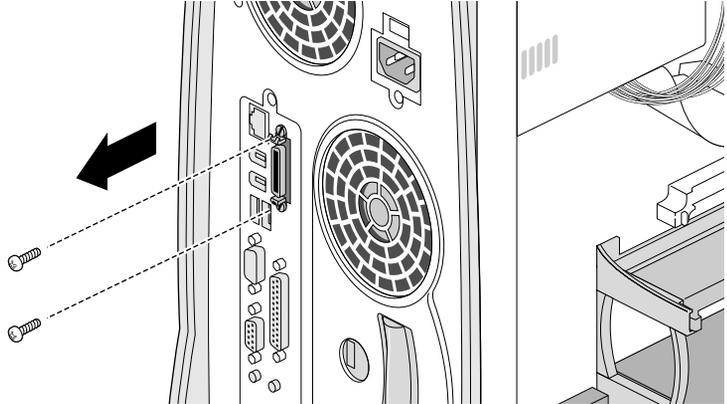


Figure 5-8 Removing the Screws from the Display Option Card

5. Remove the option card by gently pulling it out of the socket, as shown in Figure 5-9.

Caution: Space is tight, so avoid contact with the DIMMs while removing the bracket.

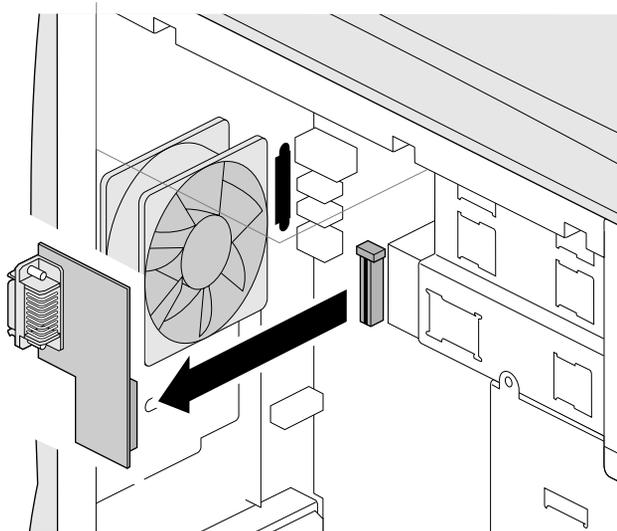


Figure 5-9 Removing the Display Option Card

6. If you are not replacing the card, reinstall the cover plate, as shown in Figure 5-10.
 - Reach inside the system and place the cover plate flat against the slot opening.
 - Insert and tighten the two screws.

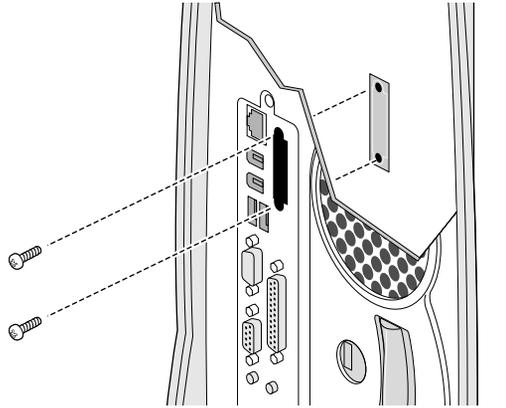


Figure 5-10 Installing the Display Option Slot Cover Plate

7. Replace the side cover. For detailed instructions, see “Replacing the Side Cover” on page 21.

Chapter 6

Processors

This chapter contains the following sections:

- “Installing a Processor” on page 66
- “Removing a Processor” on page 73
- “Finding the Stepping Value of a Processor” on page 77

Installing a Processor

The Silicon Graphics 320 visual workstation contains slots for two processors—a primary processor and an optional secondary processor. If you are installing a secondary processor, the stepping value must match that of the primary processor. See “Finding the Stepping Value of a Processor” for more information.

After installing a secondary processor, or installing an upgrade, you need to reinstall the Windows NT system software. It is a good idea to back up your files before performing this installation.

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 16.
4. Touch a metal part of the chassis with your hand to discharge any static you might be carrying.

5. If you are installing a secondary processor, remove the processor terminator card from the secondary processor slot, as shown in Figure 6-1. Push the latches on the outside edges of the terminator inward and pull the terminator out of the slot.

Save the terminator. In the future, if you remove the processor, you will need to reinstall the terminator.

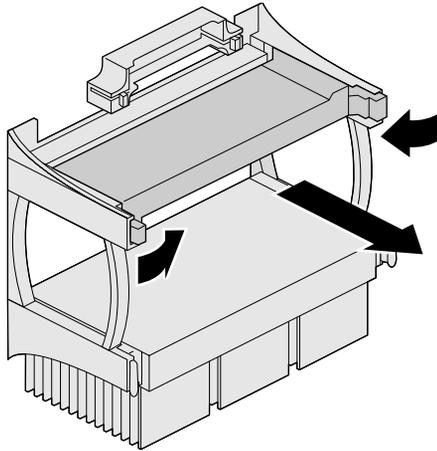


Figure 6-1 Removing the Processor Terminator Card

6. Make sure the processor count jumper is in the correct position for the number of processors in the system.
 - If you are only installing a primary processor and are leaving a processor terminator in the top slot, move the jumper to the two leftmost pins.
 - If you are installing a secondary processor, move the jumper to the two rightmost pins.

Table 6-1 shows the correct jumper position for the number of processors. Figure 6-2 shows the location of the processor count jumper in the system.

Table 6-1 Processor Count Jumper Configuration

Number of Processors	Jumper Position
1	
2	

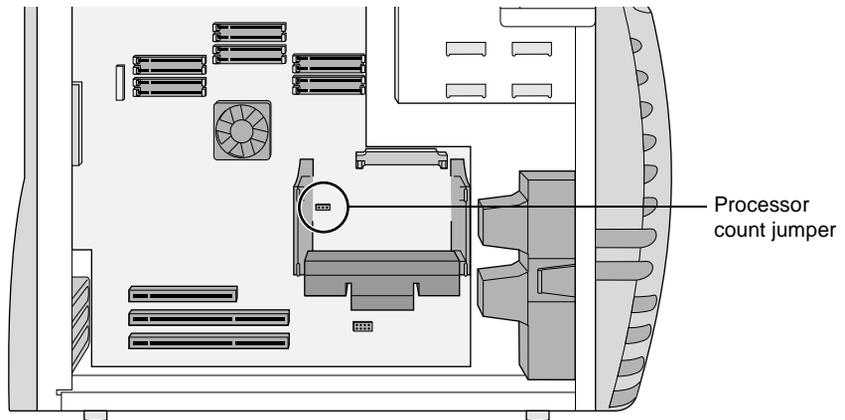


Figure 6-2 Processor Count Jumper

7. Place one hand on top of the system unit to stabilize it while you install the processor, as shown in Figure 6-3.

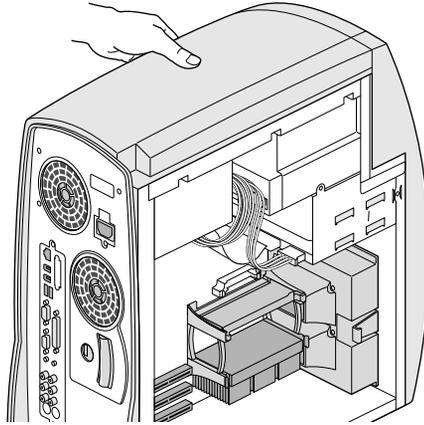


Figure 6-3 Stabilizing the System with Your Hand

8. Install the processor, as shown in Figure 6-4.
 - With the connector on the processor facing the connector on the system board, push the processor into the slot.
 - Push the latches on the sides of the processor outward until they snap into place.

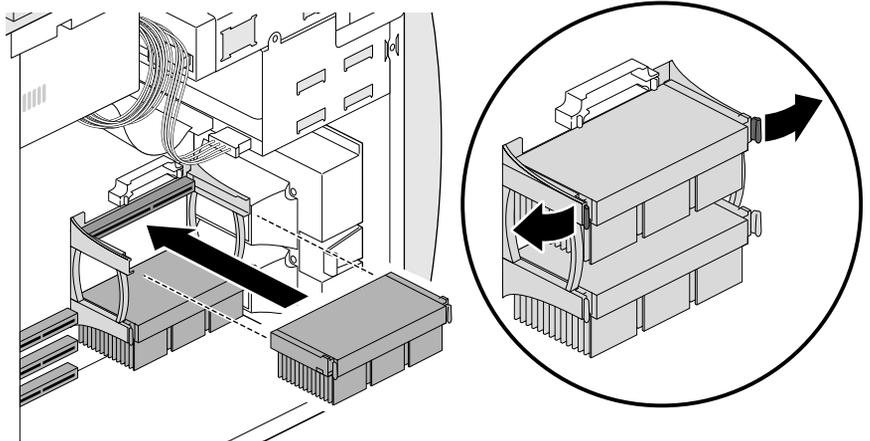


Figure 6-4 Installing a Processor

9. If the processor has a fan attached to it, attach the fan power supply cable to the appropriate connector on the board, as shown in Figure 6-5.

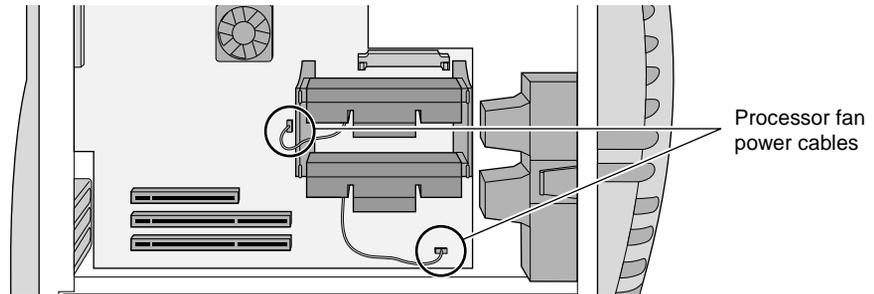


Figure 6-5 Attaching the Processor Fan Power Supply Cable to the Board

10. If you are installing a processor in the top slot, install the voltage regulator that ships with the processor, as shown in Figure 6-6. (If a voltage regulator is already installed, you do not need to remove it or reinstall it.)
 - Position the voltage regulator so the connector faces the port above the processor and the flat side faces down.
 - Push the voltage regulator connector into the port until it snaps into place.

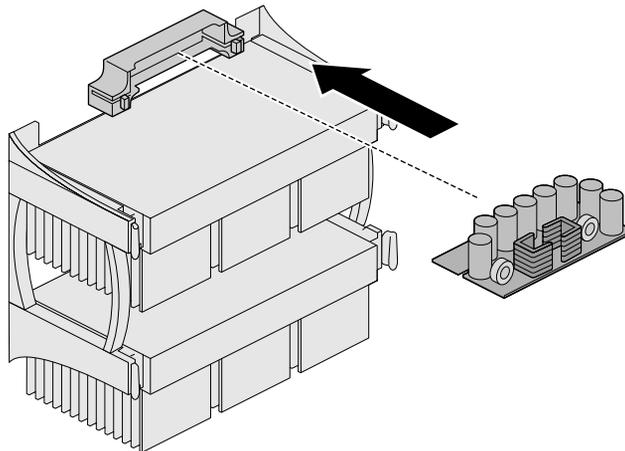
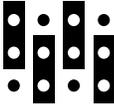
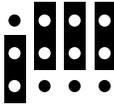
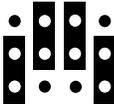


Figure 6-6 Installing a Processor Voltage Regulator

11. Move the processor speed jumpers to the appropriate positions for the processor or processors you are installing. Table 6-2 shows the processor speed jumper positions. Figure 6-7 shows the location of the processor speed jumpers on the system board.

Table 6-2 Processor Speed Jumper Positions

Processor Speed	Jumper Configuration
350 MHz	
400 MHz	
450 MHz	

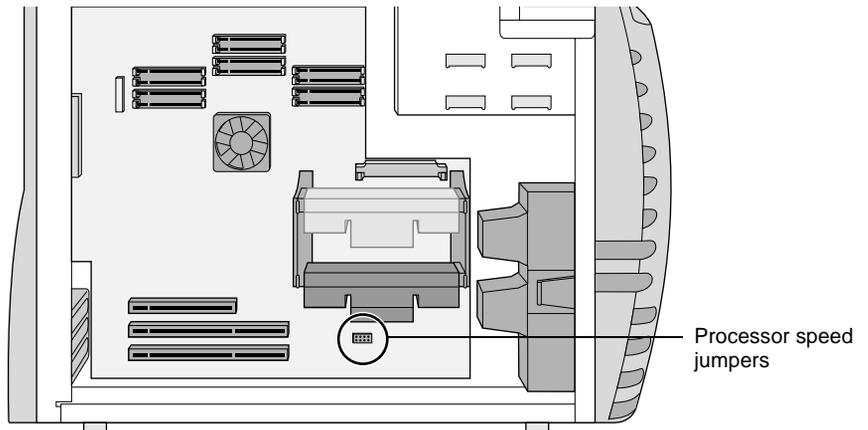


Figure 6-7 Processor Speed Jumpers

12. Replace the side cover. For detailed instructions, see “Replacing the Side Cover” on page 21.
13. Reattach the power cord.
14. If you installed a processor upgrade, you need to reinstall the system software. To do this, see the *Silicon Graphics 320 and Silicon Graphics 540 Software Installation Guide* found in the CD packet that shipped with your system.
15. If you did not install an upgrade, turn on the system. For detailed instructions, see “Turning On the System” on page 11.

Verifying and Troubleshooting Processor Installation

If the system does not boot, the primary processor may be installed incorrectly. Shut down and reopen the system. Then:

- Make sure the primary processor is securely seated in the bottom slot.
- Make sure the processor speed jumpers are set correctly (see Figure 6-7).
- If you installed a processor upgrade, make sure you reinstalled the system software. (See the *Silicon Graphics 320 and Silicon Graphics 540 Software Installation Guide* for instructions.)

Close and reboot the system. If it still does not boot, the processor may be faulty. Contact your support representative.

Use the Windows NT Diagnostics panel to verify that the system recognizes the processor. To open the panel, select Start > Programs > Administrative Tools > Windows NT Diagnostics. Click the System tab and look under the Processors list to find the processor or processors you installed.

If the system does not recognize the secondary processor, the processor may be installed incorrectly. Shut down and reopen the system. Then:

- Make sure the processor is securely seated in the slot.
- Make sure the processor count jumper is installed on the two rightmost pins (Figure 6-2).

Close and reboot the system. If the system still does not recognize the processor, it may be faulty. Contact your support representative.

Removing a Processor

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 16.
4. Touch a metal part of the chassis with your hand to discharge any static you might be carrying.

5. If the processor has a fan attached to it, disconnect the fan power supply cable from the associated connector on the system board, as shown in Figure 6-8.

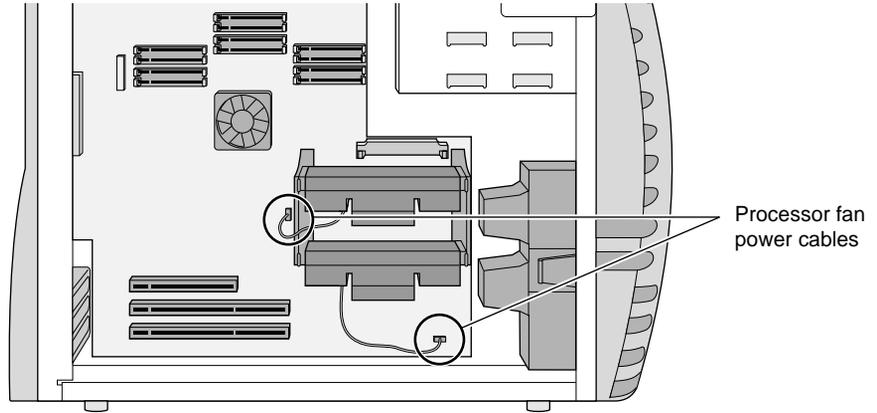


Figure 6-8 Detaching the Processor Fan Power Supply Cable from the Board

6. Push the latches on the sides of the processor inward and pull the processor out of the system, as shown in Figure 6-9.

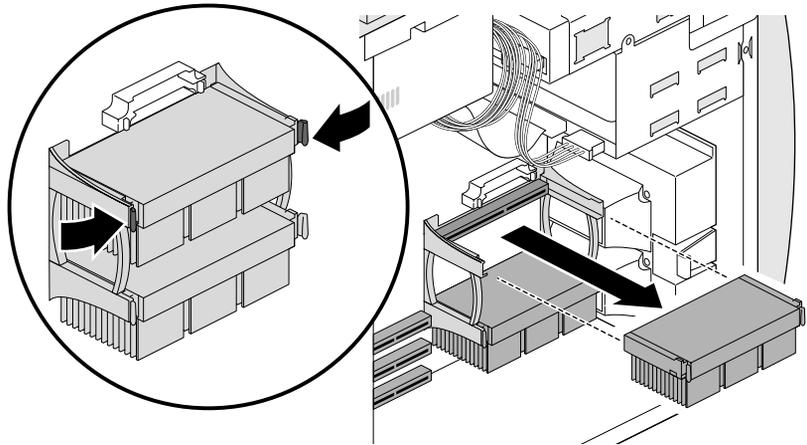


Figure 6-9 Removing a Processor

7. If you are installing a replacement processor or upgrade, see “Installing a Processor” on page 66.
8. If you removed the secondary processor and installed a processor terminator card, also remove the voltage regulator, as shown in Figure 6-10.

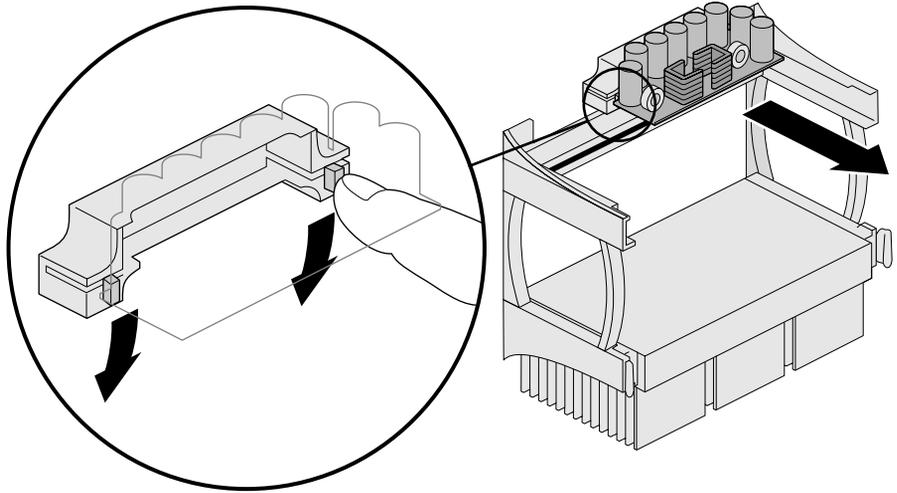


Figure 6-10 Removing the Processor Voltage Regulator

9. If you removed a processor from the top slot and are not replacing it, install the processor terminator card, as shown in Figure 6-11.
 - Push the terminator into the slot.
 - Push the latches on the sides of the terminator outward until they snap into place.

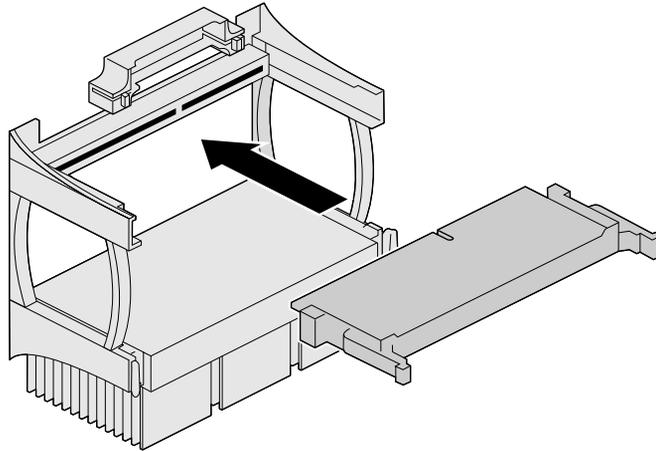


Figure 6-11 Installing a Processor Terminator

10. If you installed a processor terminator in the top slot, make sure the processor count jumper is on the two leftmost pins. (See Table 6-1 for the correct jumper position and Figure 6-2 to see the location of the jumper on the system board.)
11. Replace the side cover. For detailed instructions, see “Replacing the Side Cover” on page 21.
12. Reattach the power cord.
13. Turn on the system. For detailed instructions, see “Turning On the System” on page 11.

Finding the Stepping Value of a Processor

The Silicon Graphics 320 visual workstation contains slots for two processors—a primary processor and an optional secondary processor. The chip revision—called stepping value—of the secondary processor must match that of the primary processor. When ordering a secondary processor, you will need to give the stepping value of the primary processor. To find the stepping value:

1. Select Start > Settings > Control Panels from the Windows NT task bar. Then double-click the System icon to open the System panel.
2. Click the General tab and look below the Computer label for the line that includes the stepping value. It should look similar to the following:

```
x86 Family 6 Model 3 Stepping 4
```

In this example, the stepping value for the processor is 4.

Chapter 7

Power Supply and Fan

This chapter contains the following sections:

- “Removing the Power Supply” on page 80
- “Installing the Power Supply” on page 83
- “Removing the Fan” on page 86
- “Installing the Fan” on page 88

Removing the Power Supply

You may need to replace the power supply if it fails.

1. If the power is on, shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. See “Removing the Side Cover” on page 16 for instructions.
4. Look below the power supply and locate the two power supply cables attached to the system board. Disconnect them.
 - To disconnect the cable on the left, press down on the tab on top of the cable connector and pull the connector out, as shown in Figure 7-1.
 - To disconnect the smaller cable on the right, press up on the tab on the bottom of the cable connector and pull the connector out.

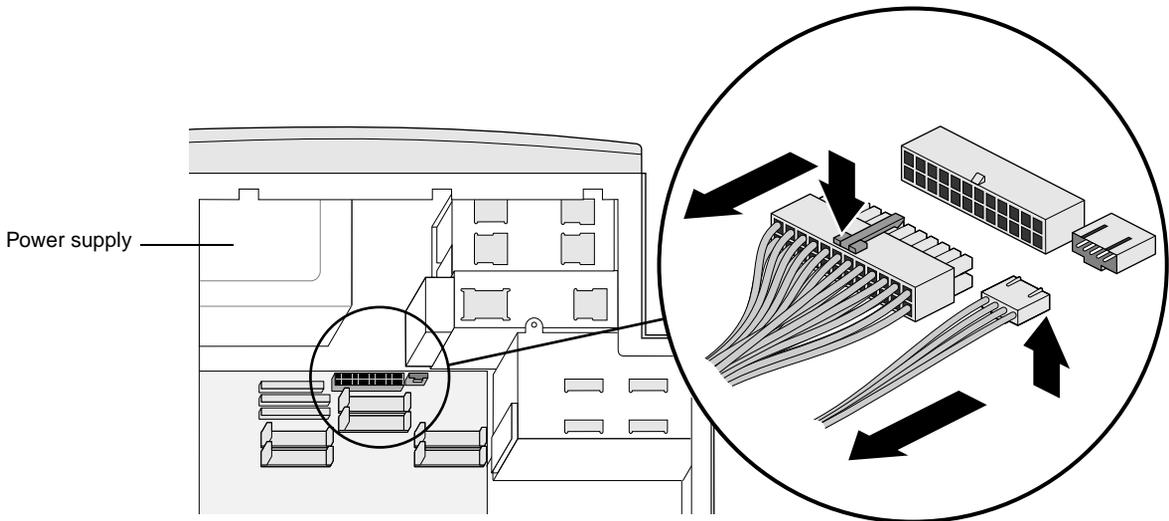


Figure 7-1 Disconnecting the Power Supply Cables from the System Module

5. Disconnect the rest of the cables and remove the power supply, as shown in Figure 7-2
 - Disconnect the power cables from the backs of the internal drives.
 - Place your hand underneath the power supply to support it, then remove the four screws from the back of the system.

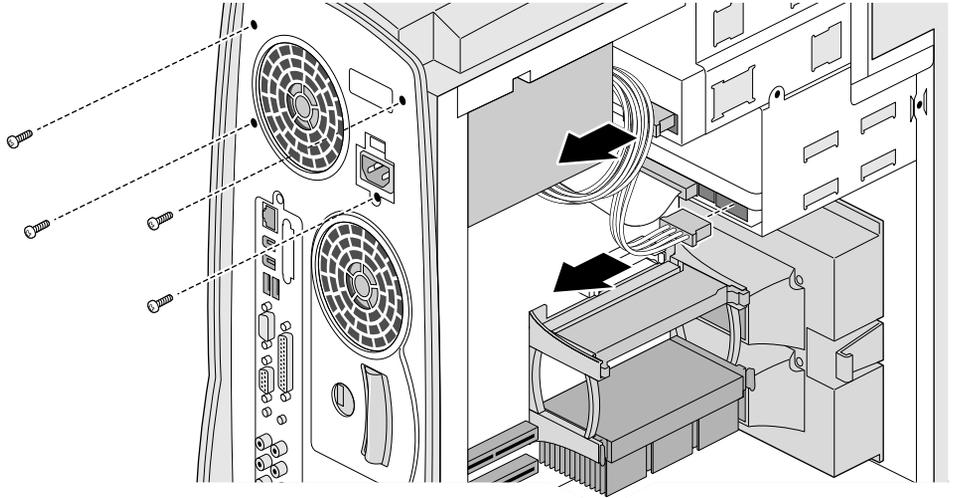


Figure 7-2 Removing the Power Supply Screws and Cables

6. Carefully remove the power supply, as shown in Figure 7-3.

Caution: Since the power supply sits close to the DIMMs, carefully avoid contact with the DIMMs while removing the power supply.

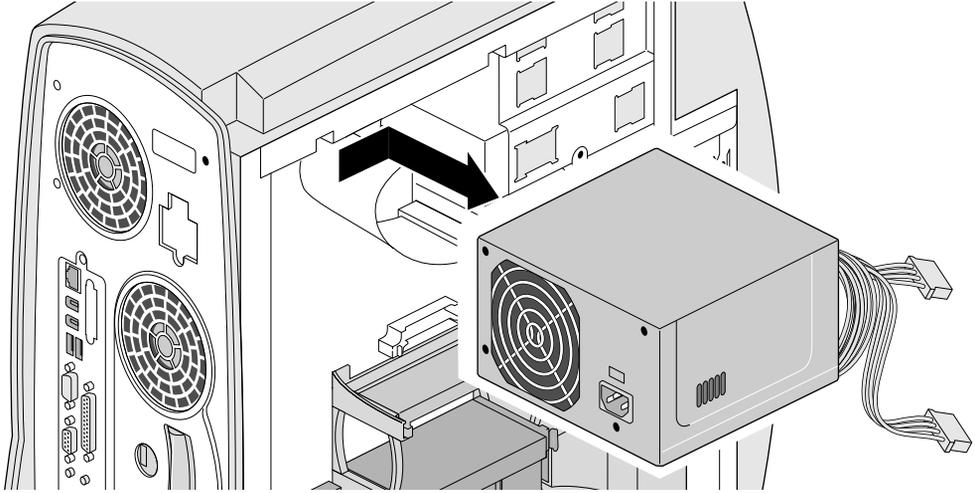


Figure 7-3 Removing the Power Supply from the System

7. If you aren't replacing the power supply immediately, replace the side cover. For detailed instructions, see "Replacing the Side Cover" on page 21.

Installing the Power Supply

1. If you haven't already done so, remove the side cover. See "Removing the Side Cover" on page 16 for instructions.
2. Check the voltage switch on the power supply to make sure it's set to the appropriate voltage setting for your power outlet.

Caution: The voltage switch is preset at the factory for your country's voltage requirements. Verify the setting before installing the power supply.

3. Slide the power supply into the top left corner of the system, as shown in Figure 7-4.

Caution: Since the power supply sits close to the DIMMs, avoid contact with the DIMMs while installing the power supply.

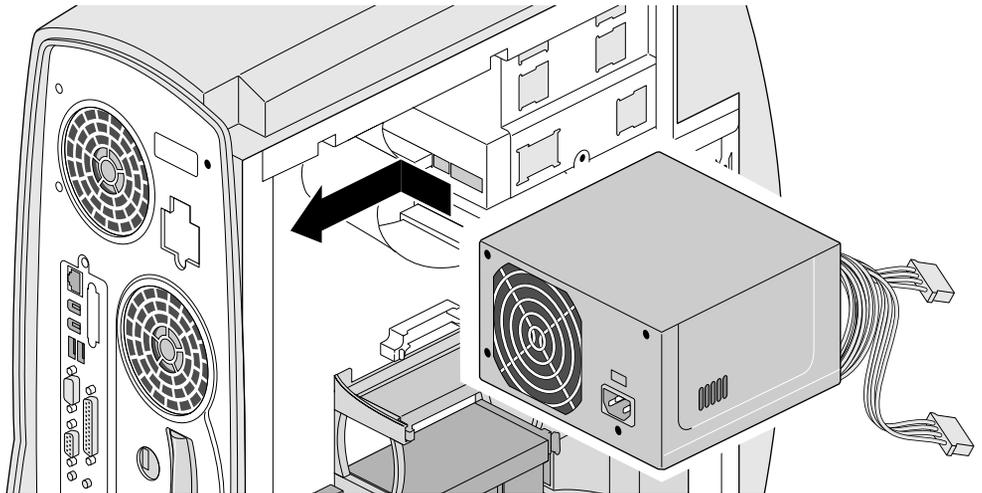


Figure 7-4 Installing the Power Supply

4. Rest it on the tab, as shown in Figure 7-5.

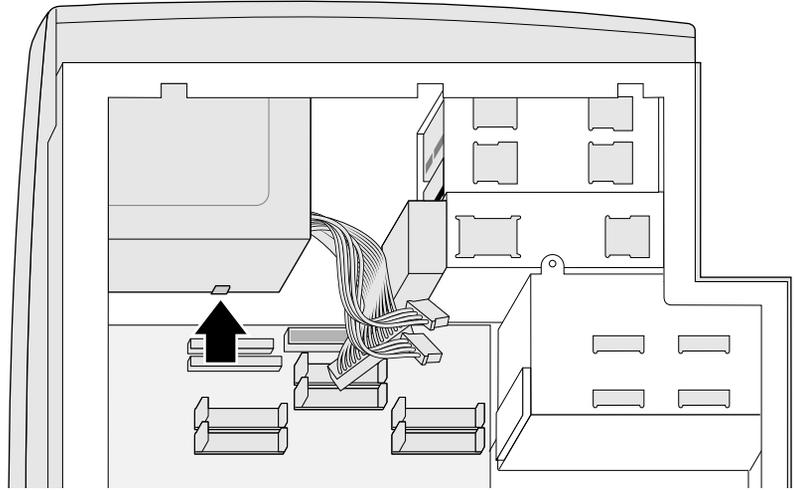


Figure 7-5 Power Supply Tab

5. While supporting the power supply with your hand, replace the four screws, as shown in Figure 7-6. Then reattach the power cables to the backs of the internal drives.

Note: Since the space between the power supply and back of the floppy drive is tight, you may want to attach the floppy power supply cable to the back of the floppy drive first before you install the screws.

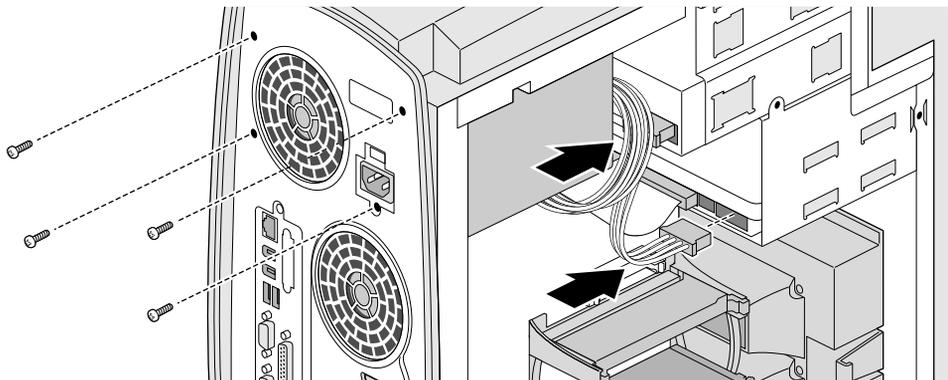


Figure 7-6 Installing the Power Supply Screws and Cables

6. Reattach the two cables to the system board, as shown in Figure 7-7. The connectors for these cables are located below the power supply and above the center set of DIMMs.
 - Insert the larger cable, tabbed side up, into its connector on the system board.
 - Insert the smaller cable, tabbed side down, into its connector on the system board.

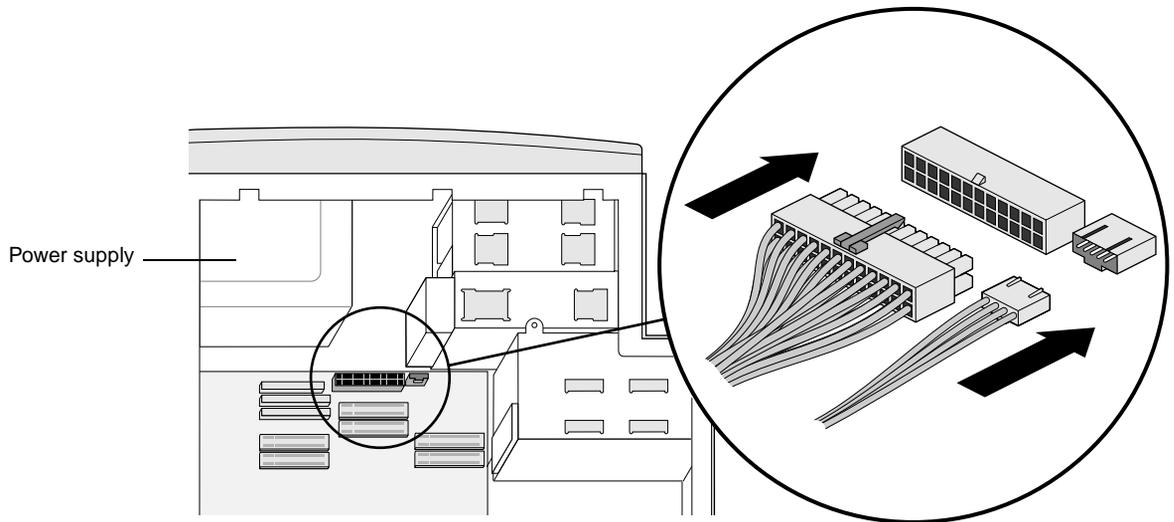


Figure 7-7 Attaching the Power Supply Cables to the System Board

7. Reattach the side cover. For detailed instructions, see “Replacing the Side Cover” on page 21.
8. Reattach the power cord.
9. Turn on the system. For detailed instructions, see “Turning On the System” on page 11.

Verifying and Troubleshooting Power Supply Installation

If the system does not power on, the power supply may be installed incorrectly. If the system powers on but the software does not boot, the power cable may not be properly attached to the system drive. If one or more of the internal drives is not recognized by the system, the power cables may not be properly attached to the drives.

Shut down and reopen the system. Verify that all the cables are attached correctly to the drives and that the power cord is attached to a power outlet. Close and reboot the system.

If it still does not turn on, the power supply may be defective. Contact your support representative.

Removing the Fan

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. See “Removing the Side Cover” on page 16 for instructions.

4. Remove the fan, as shown in Figure 7-8.
 - Disconnect the fan power cable from the system board.
 - Push the tab on the edge of the fan inward and pull the fan out of the system.

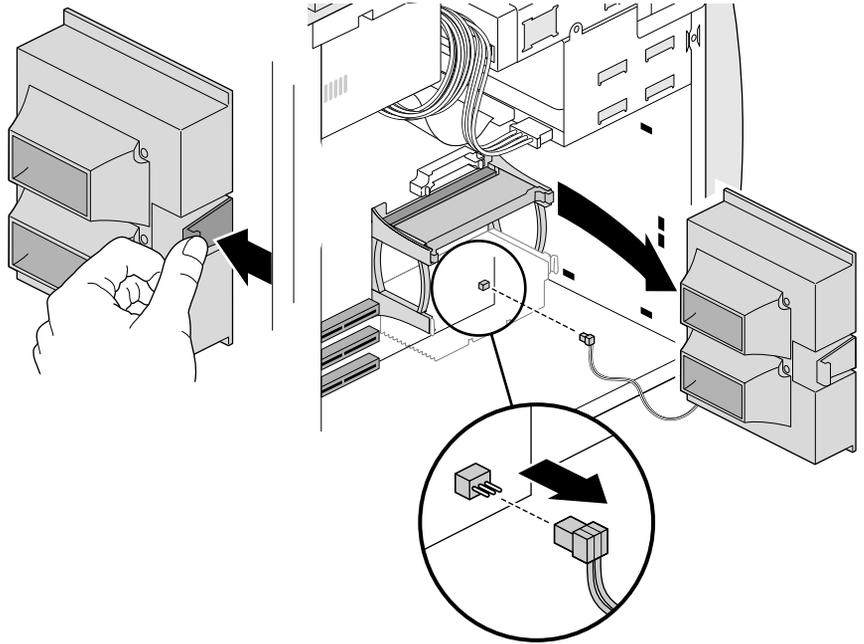


Figure 7-8 Removing the Fan

5. If you're not replacing the fan right away, replace the side cover. For detailed instructions, see "Replacing the Side Cover" on page 21.

Caution: Do not run the system without a working fan installed. The system may overheat and damage the system board or other internal parts.

Installing the Fan

1. If you haven't already done so, remove the side cover. See "Removing the Side Cover" on page 16 for instructions.
2. Install the new fan, as shown in Figure 7-9.
 - Position the fan so the tab is facing towards you and the power cable extends from the bottom of the fan.
 - Align the tabs on the fan with the holes in the chassis. Slide the fan into the space to the right of the processors until it snaps into place.
 - Insert the power cable into the plug below the processors on the system board.

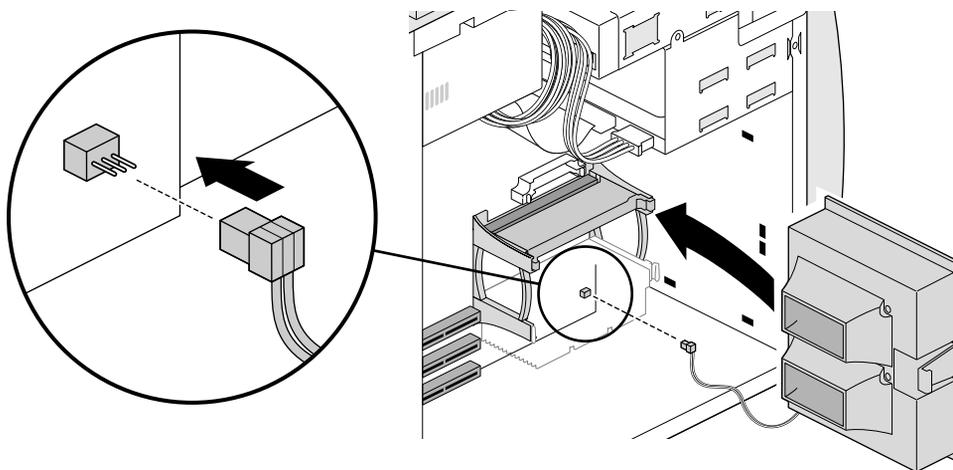


Figure 7-9 Installing the Fan

3. Replace the side cover. For detailed instructions, see "Replacing the Side Cover" on page 21.
4. Reattach the power cord.
5. Turn on the system. For detailed instructions, see "Turning On the System" on page 11.

Chapter 8

Maintenance and Troubleshooting

This chapter contains the following sections:

- “Troubleshooting” on page 90
- “Interpreting LED Blink Codes” on page 94
- “Disabling and Enabling the Password” on page 95

Troubleshooting

Table 8-1 lists system problems, possible causes, and recommended solutions.

Table 8-1 Troubleshooting

Symptom	Possible Cause	Solution
System does not power on, no LED, no fans.	AC power cable disconnected.	Check power connection from power source to workstation.
	Power supply cable not attached to system board.	Make sure power supply cables are attached to system board. Check to see if internal fans are working and if LED in upper right corner of system board is lit. If fans are working and LED is lit, system board is receiving power.
	Primary processor not recognized.	Reinstall primary processor and if a secondary processor isn't installed, make sure a terminator card is installed in the top slot.
	Power button and LED cables not attached to system board.	Make sure internal power button and LED cables are plugged into system board (see diagram inside the side panel to locate the power button and LED cable connectors).
	Primary processor failure.	Replace the processor.
	Power supply failure.	Replace the power supply.
	System board failure.	Replace the system board.

Table 8-1 Troubleshooting (continued)

Symptom	Possible Cause	Solution
System powers on, green LED blinks continuously, nothing appears on monitor.	Memory error.	Make sure all DIMMs installed in slot group A are the same capacity. Make sure DIMMs are securely seated in DIMM slots.
	Voltage regulator installed with terminator in secondary processor slot.	If you have a terminator in the secondary processor slot, make sure the voltage regulator is removed.
	Memory failure.	Replace DIMMs.
	System board failure.	Replace system board.
System powers on, green LED blinks a repeating pattern, nothing appears on monitor.	Memory failure.	Locate and replace the faulty DIMM by interpreting the LED blink code. For information, see “Interpreting LED Blink Codes” on page 94.
System boots to PROM level, doesn’t boot Windows NT.	Memory error or failure.	Make sure all DIMMs installed in slot group A are the same capacity. Make sure DIMMs are securely seated in the slots.
		Set Power On Diagnostics to Extensive Mode and reboot system. (See the <i>Silicon Graphics 320 and Silicon Graphics 540 Software Installation Guide</i> for instructions.) Check for memory error in diagnostics display to identify faulty DIMMs.

Table 8-1 Troubleshooting (continued)

Symptom	Possible Cause	Solution
	System drive not recognized.	Make sure drive is set to Master, installed in the bottom slot, and IDE cable and power cables are attached correctly. If SCSI drive, make sure ID is set to 0, SCSI card is securely seated in PCI slot, internal SCSI cable is securely attached to the SCSI card and to the drive, and power cable is securely attached to the drive.
	Software does not recognize new processor.	Reinstall Windows NT. See the <i>Silicon Graphics 320 and Silicon Graphics 540 Software Installation Guide</i> for instructions.
Mouse doesn't work.	Mouse or keyboard unplugged.	Plug mouse into keyboard; plug keyboard into leftmost USB connector.
	Mouse not recognized.	Press Reset button to reboot the system.
	Faulty or incompatible keyboard or mouse.	Replace keyboard or mouse.
Keyboard doesn't work.	Keyboard not plugged in or not recognized.	Plug keyboard into leftmost USB port. Reboot the system.
	Faulty or incompatible keyboard.	Replace keyboard.
No power to monitor.	Power cable unattached or monitor not turned on.	Attach the power cable. Press the power button on front of the monitor.

Table 8-1 Troubleshooting (continued)

Symptom	Possible Cause	Solution
Monitor powers on, no display, system LED on but does not blink continuously.	Monitor dead.	Replace the monitor.
	Monitor brightness controls too dark.	Increase brightness.
	Monitor cable unattached.	Check monitor cable connection to system and monitor.
Internal drive not recognized.	Cables connected incorrectly or disconnected.	Verify correct IDE or SCSI cabling. Connect any disconnected IDE, SCSI, or power cables.
	IDs set incorrectly.	Verify Master and Slave settings for IDE drives. If SCSI, verify drive IDs are not duplicated and system drive is set to ID 0.
	PCI card not recognized.	Card not correctly installed in slot. Card not supported.
Secondary processor not recognized.	Processor not correctly installed in slot.	Reinstall the card. Remove the card.
	Jumper not installed correctly.	Reinstall the processor. Make sure the jumper beneath the secondary processor sits on the two rightmost pins.
	Voltage regulator not installed or bad.	Install or replace the voltage regulator.

Interpreting LED Blink Codes

The LED on the front of the system blinks randomly while the system powers up and runs power on diagnostics. If the system boot is successful, the NT login screen appears on your monitor. If the boot is unsuccessful, the LED blink codes may help you determine the error.

- The LED blinks continuously if a fatal system board error occurs.
- The LED blinks, then pauses, then blinks again if a memory error occurs in slot group A. The blink code communicates the number of the DIMM that failed (DIMMs in slot group A are numbered A1 through A6).

For example, if the LED blinks once, then pauses, then blinks again, the DIMM in slot A1 failed. If the LED blinks five times, then pauses, then blinks five times again, the DIMM in slot A5 failed.

- The LED blinks seven or eight times, then pauses, then blinks seven or eight times again if a memory error occurs that diagnostics cannot isolate to a particular DIMM.

Maintenance Tips

- Shut down, power off, and unplug the workstation from an electrical outlet before performing any hardware task.
- Do not block the vents by placing objects around the workstation.
- Always discharge any static electricity by touching the metal chassis before beginning work on the DIMMs, processors, PCI cards, and system board. Wear a wrist strap attached to the chassis if you have one.
- Do not plug in any cables to the workstation while the workstation is running except audio, IEEE 1394, and USB cables.
- Keep liquids away from the keyboard and workstation.
- Periodically vacuum dust from the vents to maintain optimal air flow through the system.

Disabling and Enabling the Password

If you do not know your password, you can disable it by moving a jumper on the system board.

1. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
2. Unplug the power cord from the back of the system.
3. Remove the side cover. For detailed instructions, see “Removing the Side Cover” on page 16.
4. Locate the password jumper just above the PCI card slots on the system board, as shown in Figure 8-1.

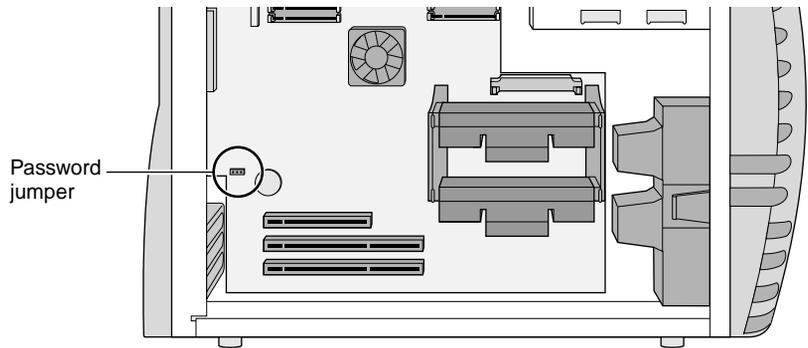


Figure 8-1 Password Jumper

5. To disable the password, move the jumper to the two rightmost pins, as shown in Figure 8-2.



Figure 8-2 Password Jumper in Disabled Position

6. Reattach the power cord.
7. Turn on the system. For detailed instructions, see “Turning On the System” on page 11.
8. Enter a new password when prompted to do so.
9. Shut down the system and remove the power cord from the back of the system.
10. Move the jumper to the two leftmost pins, as shown in Figure 8-3. Then reattach the power cord, replace the side cover, and power up the system.

Your new password is now enabled.



Figure 8-3 Password Jumper in Enabled Position

Appendix A

Technical Specifications

This appendix contains the following sections:

- “Physical Specifications” on page 98
- “System Board Specifications” on page 100

Physical Specifications

The Silicon Graphics 320 visual workstation measures approximately 9" wide by 17" high by 17" deep. Removable media drives are at the front top of the enclosure for easy access in desktop or deskside arrangements. Slots for PCI options, disk drives, memory modules, and processor modules are accessible by removing the side cover. Cooling is achieved by two internal fans plus a fan in the power supply.

Environmental Range Specifications

Table A-1 Environmental Range Specifications

Condition	Range
Operating Temperature	10° C to 35° C
Operating Relative Humidity	10% to 85%
Operating Altitude	Sea-level to 10,000 feet
Operating 3-Axis SineVibration	0.02 inches displacement, 5 to 19 Hz 0.2 G, 20 to 200 Hz
Operating Half Sine Shock	5 G, 15 mS Horizontal Plane 7.5 G, 10 mS Vertical Plan
Operating Random Vibration	10 to 200 Hz, 0.0005 G(Square)/Hz 3 to 10 Hz, 5 dB/Octave 200 to 500 Hz, -5 dB/Octave 0.41 G (RMS) Overall
Non-Operating Temperature	-40°C to 85°C
Non-Operating Relative Humidity	5% to 95%
Non-Operating Altitude	Sea level to 40,000 feet
Non-Operating 3-Axis Sine	0.1 inches displacement, 5 to 19 Hz

Table A-1 Environmental Range Specifications (continued)

Condition	Range
Vibration	0.5 G, 20 to 200 Hz
Non-Operating Half Sine Shock	20 G, 10 mS 3 Axis
Non-Operating Random Vibration	10 to 200 Hz, 0.00365 G(Square)/Hz 3 to 10 Hz, 5 dB/Octave 200 to 500 Hz, -5 dB/Octave 1.1 G(RMS) Overall

AC Power

The Silicon Graphics 320 visual workstation power supply is switch-selectable for 110 V versus 220 V AC power. The supported AC range for each switch setting is:

Table A-2 AC Power

Switch Setting	Voltage Minimum	Voltage Maximum	Frequency	Current Maximum
110	100 V	120 V	50/60 Hz	4.7 A
220	200 V	240 V	50/60 Hz	2.5 A

Acoustic Noise

The Silicon Graphics 320 visual workstation generates a maximum range of 36 dB(A) acoustic noise when configured with Silicon Graphics processor and storage components.

System Board Specifications

The following table contains information about the Silicon Graphics 320 visual workstation system board ports and buses.

Table A-3 System Board Specifications

Port or Bus	Description
Processor bus	One or two Intel Pentium II Slot 1 processors with 100 MHz Front Side Bus (FSB). Dual processor systems must have both processors at the same frequency. Uniprocessor systems must have a terminator module in the second processor slot.
Memory configuration	The minimum memory configuration is 128 MB using six 4 M x 48 DIMM modules. The maximum memory configuration is 1GB using 12 16 M x 48 DIMM modules. DIMMs must be added in groups of six.
Ultra DMA IDE	One UltraDMA/33 IDE channel for one internal 3.5" x 1" system drive and one internal option 3.5" x 1" disk drive.
Ultra DMA IDE	One UltraDMA/33 IDE channel for 5.25" x 1.6" CD or DVD drive and one optional 3.5" x 1" removable media drive.
FDI	One Floppy Drive Interface for a 3.5" x 1" floppy drive.
USB	Two Universal Serial Bus (USB) ports.
Monitor port	VGA connector to CRT or analog-interface flat panel monitor. Supports monitor ID and control via DDC2B interface.
Display option	One optional digital interface connector flat panel monitor port supporting the Silicon Graphics 1600SW flat panel monitor.
IEEE 1394 port	Two IEEE 1394 connectors at 400 Mbps.
Serial port	One RS-232 serial port with separate DMA channels for input and output. Each channel is capable of up to 115 Kbaud and is full duplex.

Table A-3 System Board Specifications (continued)

Port or Bus	Description
Parallel port	One IEEE 1284-compliant parallel port.
Ethernet port	One 10/100 Mb auto-sensing Ethernet interface.
Analog audio ports	The audio subsystem has two input channels that can be sourced from the microphone input; the stereo line-level inputs, or the internal CDROM drive analog audio outputs. The audio subsystem has two output channels that drive the stereo line-level outputs, and the stereo variable-level headphone/speaker output.
Analog video ports	The video subsystem has two channels and two signal formats. The input channel can take data from a composite input or an Y/C (S-Video) input, and the output channel can send data to a composite output and a Y/C (S-Video) output simultaneously.
PCI Bus	There is one PCI 64-bit 33MHz PCI bus in the system that supports the PIIX4 IDE interface and the three PCI slots. The bus has a peak bandwidth of 266 Mbps in 64-bit mode, or 133 Mbps in 32-bit mode. There are read-ahead and write-behind buffers that help reduce PCI latency to memory.

Appendix B

Port Information

This appendix contains a description of the ports on the back of the Silicon Graphics 320 visual workstation and detailed pinout information for each port.

Table B-1 Port and Connector Type

Port	Connector Type
Ethernet	RJ45 10/100 Base TXt
IEEE 1394	Dual IEEE 1394 400 Mbps
USB	4-pin dual USB connectors
Serial	DB9 (male) RS-232 115 Kbaud
Parallel	DB25 (female) 1284 EPC
Monitor	Mini DB15 VGA with DDC2B control
Microphone	3.5mm mini jack (female) mono microphone-level input
Speaker/Headphone	3.5mm mini jack (female) stereo variable-level output
Analog Line In/Out	2 X RCA (female) stereo line-level audio input/output
Composite Video	RCA (female) NTSC/PAL composite video input
S-Video In/Out	MDIN4 NTSC/PAL Y/C video input/output

Table B-1 Port and Connector Type (continued)

Port	Connector Type
Display option	Digital interface to flat panel monitor with DDC2B control
Mouse port on keyboard	6-pin Mini-DIN (female) connector

Ethernet RJ45 Port Pinouts

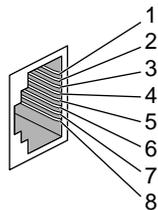


Figure B-1 Ethernet Port Pinouts

Table B-2 Ethernet RJ45 Port Pinouts

Pin	Assignment
1	Transmit+
2	Transmit-
3	Receive+
4	(Reserved)
5	(Reserved)
6	Receive-
7	(Reserved)
8	(Reserved)

IEEE 1394 Port Pinouts

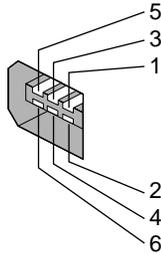


Figure B-2 IEEE 1394 Port Pinouts

Table B-3 IEEE 1394 Port Pinouts

Pin	Assignment	Comment
1	VP	Cable power
2	VG	Cable ground
3	TPB	Strobe receive, data on transmit
4	TPB	(differential pair)
5	TPA	Data receive, data on transmit
6	TPA	(differential pair)

USB Port Pinouts

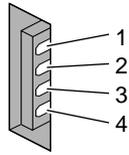


Figure B-3 USB Port Pinouts

Table B-4 USB Port Pinouts

Pin	Assignment	Color	Comment
1	VCC	Red	Cable power
2	-Data	White	
3	+Data	Green	
4	Ground	Black	Cable ground

Parallel Port Pinouts

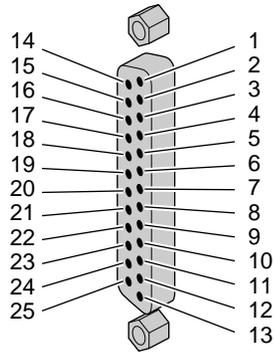


Figure B-4 Parallel Port Pinouts

Table B-5 Parallel Port Pinouts

Pin	Assignment	Pin	Assignment
1	Strobe	14	AutoFd
2	Data 0	15	Fault
3	Data 1	16	Init
4	Data 2	17	SelectIn
5	Data 3	18	Ground
6	Data 4	19	Ground
7	Data 5	20	Ground
8	Data 6	21	Ground
9	Data 7	22	Ground
10	Ack	23	Ground
11	Busy	24	Ground
12	Error	25	Ground
13	Select		

Serial Port Pinouts

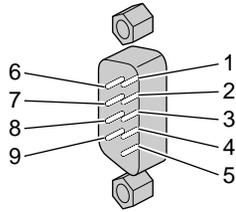


Figure B-5 Serial Port Pinouts

Table B-6 Serial Port Pinouts

Pin	Assignment	Description
1	DCD	Data Carrier Detect
2	RD	Receive Data
3	TD	Transmit Data
4	DTR	Data Terminal Ready
5	SG	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	RI	Ring Indicator

Monitor Port Pinouts

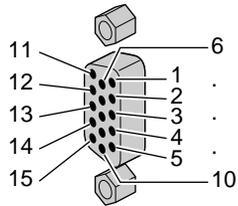


Figure B-6 Monitor Port Pinouts

Table B-7 Monitor Port Pinouts

Pin	Assignment
1	Red
2	Green
3	Blue
4	Ground
5	Ground
6	Red Return
7	Green Return
8	Blue Return
9	No Connect
10	Ground
11	Ground
12	IIC Data
13	Horizontal Sync
14	Vertical Sync
15	IIC Clock

Microphone and Headphone/Speaker Port Pinouts

Table B-8 Microphone Pinouts

Microphone	Tip	Ring Sleeve
Line level mono microphone	Signal (+)	Open Ground (-)

Table B-9 Microphone Port Pinouts

Microphone Jack	
Connector	3.5 mm stereo mini (mono signal on tip and ring)
Power	+5 phantom power on tip
Type	Unidirectional electret condenser

Table B-10 Headphone Pinouts

Tip	Ring	Sleeve
Left	Right	Ground

Table B-11 Headphone Specifications

Headphone	
Recommended impedance	35 ohms
Connectors	3.5 mm stereo

Analog Line Level Audio Port Pinouts

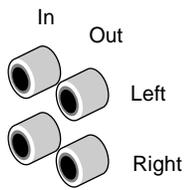


Figure B-7 Analog Line Level Audio Port Pinouts

Table B-12 Analog Line Level Audio Specifications

Specifications	Line In	Line Out
Line level	-10 dBV	-10 dBV
OdBFS Maximum	+10 dBV to -22 dBV	6.5 dBV 0.5 dBV

Composite Video Port Pinouts

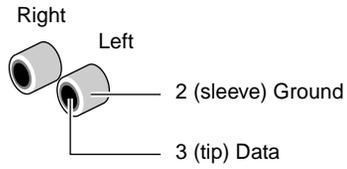


Figure B-8 Composite Video Port Pinouts

Svideo Port Pinouts

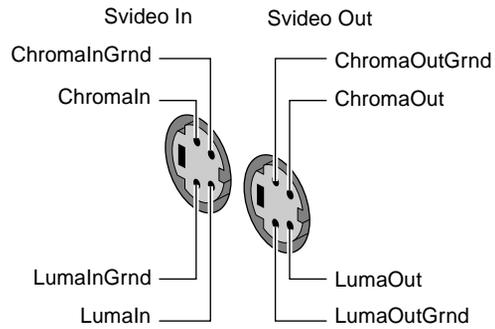


Figure B-9 Svideo Port Pinouts

PS/2 Mouse Port Pinouts on Keyboard

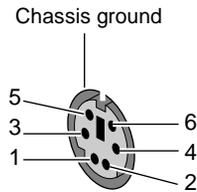


Figure B-10 PS/2 Mouse Port Pinouts on Keyboard

Table B-13 PS/2 Mouse Port Pinouts on Keyboard

Pin	Assignment
1	Data
2	(Reserved)
3	Signal ground
4	Power (+5 V)
5	Clock
6	(Reserved)

Display Option Card Port Pinouts

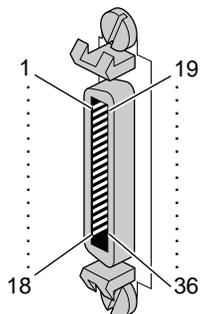


Figure B-11 Display Option Card Port Pinouts

Table B-14 Display Option Card Port Pinouts

Pin	Assignment	Pin	Assignment
1	ODDCH0_N	19	ODDCH3_N
2	ODDCH0_P	20	ODDCH3_P
3	ODDCH1_N	21	ODDCLK_N
4	ODDCH1_P	22	ODDCLK_P
5	ODDCH2_N	23	12C_SCL
6	ODDCH2_P	24	12C_VCC
7	(Reserved)	25	12C_SDA
8	(Reserved)	26	12C_DGND
9	LVDSGND	27	(Reserved)
10	LVDSGND	28	(Reserved)
11	(Reserved)	29	(Reserved)
12	(Reserved)	30	(Reserved)
13	EVNCH0_N	31	TXR_ENABLE_NOT

Table B-14 Display Option Card Port Pinouts (continued)

Pin	Assignment	Pin	Assignment
14	EVNCH0_P	32	DGND
15	EVNCH1_N	33	EVNCLK_N
16	EVNCH1_P	34	EVNCLK_P
17	EVNCH2_N	35	EVNCH3_N
18	EVNCH2_P	36	EVNCH3_P

Appendix C

SCSI Devices

This appendix contains the following sections:

- “Attaching External SCSI Devices” on page 118
- “Verifying and Troubleshooting SCSI Device Installation” on page 120

Attaching External SCSI Devices

If your Silicon Graphics 320 visual workstation has a SCSI PCI option card installed, you can attach external SCSI devices to the system. Here are some tips to keep in mind when attaching SCSI devices:

- You can mix Ultra and Fast devices on the same bus. You can also mix 16-bit and 8-bit devices on the same bus. The overall performance of a mixed bus can vary widely.
- To daisy-chain a mix of wide and narrow devices, place the wide devices (as a group) closest to the Silicon Graphics 320 workstation where the bus is wide, and place the narrow devices (as a group) at the end of the chain.

Note: Be sure to use an adapter or other special cable that terminates the upper half of the SCSI bus when converting from the final wide device to the first narrow device. Silicon Graphics supplied cables have this integrated into the cable, but not all third-party cables have the terminator integrated into the cable.

- Unsupported devices may not work with the Silicon Graphics 320 workstation and may cause problems with supported devices.

To attach SCSI devices:

1. Assign a unique SCSI ID number to each device. Set an ID by moving the jumpers, switch, or dial on the device to the assigned number. You can assign any numbers from 0 to 15, excluding number 7, which is reserved for the SCSI PCI option card.

If you have internal SCSI hard drives installed, the system drive must be set to SCSI ID 0.

If you already have external devices attached and want to add a device, you can check the SCSI ID numbers of the current devices by doing the following:

- Select Start > Control Panels from the Windows NT task bar.
 - Double-click the SCSI Adapters icon to open the SCSI Adapters panel.
 - Click the + next to PCI SCSI Card to see a list of the devices.
 - Click a device name, then click the Properties button to open the device Properties panel.
 - Click the Settings tab. The assigned SCSI ID number for the device appears next to the Target ID label.
2. Shut down the system and turn off the power. For detailed instructions, see “Shutting Down the System” on page 12.
 3. Attach the device to the SCSI connector on the back of the system.
 4. If you are attaching multiple devices, chain them together using the cables that shipped with the devices, making sure not to exceed the maximum cable length of 3 meters. If all devices are Ultra2 SCSI, the maximum cable length is 12 meters.

Caution: Using a cable without controlled impedance may cause your device to not function. For any external device, it is extremely important that you use a cable of controlled impedance which meets Ultra SCSI cable specifications. Not all cables with the correct connector work. This is particularly important if you have more than one external device.

5. Terminate the last device in the chain with an LVD/SE terminator.
6. Power on the system. For detailed instructions, see “Turning On the System” on page 11.

Verifying and Troubleshooting SCSI Device Installation

Use the SCSI Adapters panel to verify that the system recognizes the devices you installed.

1. Select Start > Control Panels.
2. Double-click the SCSI Adapters icon.
3. Click the + next to PCI SCSI Card to see a list of installed SCSI devices.

If the system does not recognize one or more of the devices:

- Make sure each device is set to a unique SCSI ID number.
- Check all the cable connections and verify the last device is terminated. Shut down and reboot the system.
- If the system still does not recognize a device, shut down and open up the system. Check to make sure the SCSI PCI card is installed correctly (see “Installing a PCI Card” on page 54). If you have internal SCSI hard drives installed, make sure the internal SCSI cable is securely attached to the drives and to the card (see “Attaching the SCSI PCI Option Card Internal Cable” on page 51).

Close and reboot the system. If the system still does not recognize the device, there may be a problem with one of the devices, one of the cables, the terminator, or the PCI card. Contact your support representative.

Regulatory Information

Manufacturer's Regulatory Declarations

The Silicon Graphics 320 visual workstation conforms to several national and international specifications and European Directives listed on the "Manufacturer's Declaration of Conformity." The CE insignia displayed on each device is an indication of conformity to the European requirements.

Caution: Your Silicon Graphics 320 visual workstation has several governmental and third-party approvals, licenses, permits. Do not modify this product in any way that is not expressly approved by Silicon Graphics. If you do, you may lose these approvals and your governmental agency authority to operate this device.

CMN and Series Numbers

The model number, or CMN number, for the Silicon Graphics 320 visual workstation is CMNB021. It's located on the system label above the power connector and voltage switch on the back of the workstation.

The series number denotes the speed of the processor. The number begins with BH and is followed by the processor speed. For example, the series number for a 400 MHz processor is BH400. The series number is located on the barcode label on the back of the workstation.

You need to know the CMN and series numbers for downloading the Manufacturer's Declaration of Conformity from the World Wide Web. You also need to know the CMN number to determine the class of your Silicon Graphics 320 workstation.

Manufacturer's Declaration of Conformity

A "Manufacturer's Declaration of Conformity" is available on the World Wide Web. Look on your system (regulatory) label on the rear of your workstation to determine your CMN (model) number, which you need to identify your Declaration of Conformity, and to find the Series Number of your processor.

To locate the information on the World Wide Web, enter the following in your Web browser location window:

<http://www.sgi.com/compliance/index.html>

FCC Class B Conformance

The following information is provided about the device covered in this manual in compliance with FCC regulations.

Trade Name	Silicon Graphics, Inc.
Product	Windows NT workstation
Model Number	CMNB021
Date of Conformance	January 1999
Responsible Party	Silicon Graphics, Inc.
Address	2011 N. Shoreline Blvd. Mountain View CA 94039
Telephone	(650)960-1980

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause

harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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/TV technician for help.

Electromagnetic Emissions

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

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

Also, this device complies with Class B electromagnetic emissions limits of C.I.S.P.R. Publication 22, Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment.

Shielded Cables

The Silicon Graphics 320 visual workstation is FCC-compliant under test conditions that include the use of shielded cables between the workstation and its peripherals. Silicon Graphics 320 and any peripherals you purchase from Silicon Graphics have shielded cables. Shielded cables reduce the possibility of interference with radio, television, and other devices. If you use any cables that are not from Silicon Graphics, make sure they are shielded. Telephone cables do not need to be shielded.

The monitor cable supplied with your system uses additional filtering molded into the cable jacket to reduce radio frequency interference. Always use the cable supplied with your system. If your monitor cable becomes damaged, a replacement cable should be obtained from Silicon Graphics.

Electrostatic Discharge

Silicon Graphics designs and tests its products to be immune to the effects of electrostatic discharge (ESD). ESD is a source of electromagnetic interference and can cause problems ranging from data errors and lockups to permanent component damage.

While operating your Silicon Graphics 320, it is important that you keep all the covers and doors, including the plastics, in place. The shielded cables that came with the Silicon Graphics 320 and its peripherals should be installed correctly, with all thumbscrews fastened securely.

Industry Canada Notice (Canada Only)

Cet appareil numérique n'émet pas de perturbations radioélectriques dépassant les normes applicables aux appareils numériques de Classe B prescrites dans le Règlement sur les interférences radioélectriques établi par le Ministère des Communications du Canada.

CE Notice



Marking by the “CE” symbol indicates compliance of the device to directives of the European Community. A “Declaration of Conformity” in accordance with the above standards has been made and is available from Silicon Graphics upon request.

VCCI Notice (Japan Only)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取扱いをして下さい。

Korean Regulatory Notice

이 기기는 가정용으로 전자파적합등록을 한 기기로서 주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

NOM 024 Information (Mexico Only)

La información siguiente se proporciona en el dispositivo o en dispositivos descritos en este documento, en cumplimiento con los requisitos de la Norma Oficial Mexicana (NOM 024):

Exportador:	Silicon Graphics, Inc.
Importador:	Silicon Graphics, Inc.
Embarcar a:	Av. Vasco de Quiroga No. 3000 Col. Santa Fe C.P. 01210 México, D.F. México
Tensión alimentación:	100-120/200-240 V~
Frecuencia:	50/60 Hz
Consumo de corriente:	6.5/3.5 A

EN 55022 Compliance (Czech Republic)

Pokud není na typovém štítku počítače uvedeno, že spadá do třídy A podle EN 55022, spadá automaticky do třídy B podle EN 55022. Pro zařízení zařazená do třídy A (ochranné pásmo 30m) podle EN 55022 platí následující. Dojde-li rušení telekomunikačních nebo jiných zařízení, je uživatel povinen provést taková opatření, aby rušení odstranil.

Polish Notice (Poland Only)

Współpracujące ze sobą urządzenia (komputer, monitor, drukarka) powinny być zasilane z tego samego źródła.

Instalacja elektryczna pomieszczenia powinna zawierać w przewodzie fazowym rezerwową ochronę przed zwarciami, w postaci bezpiecznika o wartości znamionowej nie większej niż 10A (amperów).

W celu całkowitego wyłączenia urządzenia z sieci zasilania, należy wyjąć wtyczkę kabla zasilającego z gniazdka, które powinno znajdować się w pobliżu urządzenia i być łatwo dostępne.

Pozostałe Instrukcje Bezpieczeństwa

- Nie należy używać wtyczek adapterowych lub usuwać kołka obwodu ochronnego z wtyczki. Jeżeli konieczne jest użycie przedłużacza to należy użyć przedłużacza 3-żyłowego z prawidłowo połączonym przewodem ochronnym.
- System komputerowy należy zabezpieczyć przed nagłymi, chwilowymi wzrostami lub spadkami napięcia, używając eliminatora przepięć, urządzenia dopasowującego lub bezzakłócenowego źródła zasilania.
- Należy upewnić się, aby nic nie leżało na kablach systemu komputerowego, oraz aby kable nie były umieszczone w miejscu, gdzie można byłoby na nie nadeptywać lub potykać się o nie.
- Nie należy rozlewać napojów ani innych płynów na system komputerowy.
- Nie należy wpychać żadnych przedmiotów do otworów systemu komputerowego, gdyż może to spowodować pożar lub porażenie prądem, poprzez zwarcie elementów wewnętrznych.
- System Komputerowy powinien znajdować się z dala od grzejników i źródeł ciepła. Ponadto, nie należy blokować otworów wentylacyjnych. Należy unikać kładzenia luźnych papierów pod komputer oraz umieszczania komputera w ciasnym miejscu bez możliwości cyrkulacji powietrza wokół niego.

LIMITED PRODUCT WARRANTY

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If you discover a defect in any Product during the Warranty Period, SG will repair, or at SG’s option replace, such Product at no charge to you, provided that you (i) promptly provide notice of the defect to an SG service center or authorized SG service provider in the country where you purchased the Product, (ii) include with such notice a copy of your bill of sale or packing list for the Product, bearing the applicable SG serial number as proof of the original date and location of your purchase, and (iii) return such defective Product freight pre-paid to SG or an authorized SG service provider, as applicable. Product or components thereof replaced by SG will become the property of SG.

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