# Silicon Graphics® 330 Visual Workstation User's Guide

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This device 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 device 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.

For additional Regulatory Information, refer to the label attached to the back of the system.

# **Record of Revision**

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### **About This Guide**

This guide provides information on using and administering a Silicon Graphics 330 Visual Workstation.

The following topics are covered in this manual:

- Chapter 1, "System Setup," describes how to prepare the system for installation and how to connect it to its peripheral devices.
- Chapter 2, "Installation of Customer Replaceable Components," describes how to
  install customer replaceable components. This includes the removal and
  replacement of drives, the power supply, the fans, expansion cards, the system
  board, and the I/O gasket.
- Chapter 3, "System Board," describes the system board and all its major components. It contains the system board layout, jumper settings, cache and memory configurations, and information on other internal devices.
- Chapter 4, "Setup Utility," gives information about the system BIOS and tells how to configure the system by changing the settings of the BIOS parameters.
- Chapter 5, "SCSISelect Configuration Utility," contains information about the SCSISelect Configuration Utility.
- Appendix A, "Connector Pinouts," contains port pinout information for the rear panel ports.
- Appendix B, "Physical Environment Specifications," details the physical environment specifications for the Silicon Graphics 330 Visual Workstation system.
- Appendix C, "Regulatory Information," provides regulatory information.

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# **System Setup**

This chapter details the steps required to install a Silicon Graphics 330 Visual Workstation. It describes how to prepare the system for installation and how to connect it to its peripheral devices. It also provides a general description of the external and internal structure of the Silicon Graphics 330 Visual Workstation.

#### **External Structure**

This section describes the external features of the system housing (the front bezel and the rear panel).

#### • Front Bezel

As illustrated in Figure 1-1, the floppy drive and up to three 5.25-inch devices are accessible from the front panel. The top 5.25-inch drive bay is occupied by a CD-ROM drive. The power switch, the reset button, and the floppy disk eject button are also located on the front bezel.

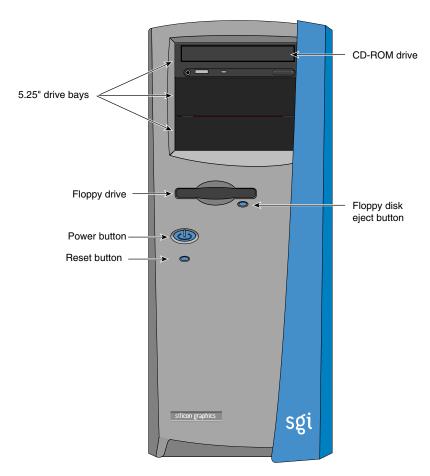


Figure 1-1 Front Bezel

#### • Rear Panel

As shown in Figure 1-2, the rear panel includes the AC power input socket, the rear system fans, six expansion slots, and the I/O panel. Figure 1-3 shows a detailed view of the I/O panel.

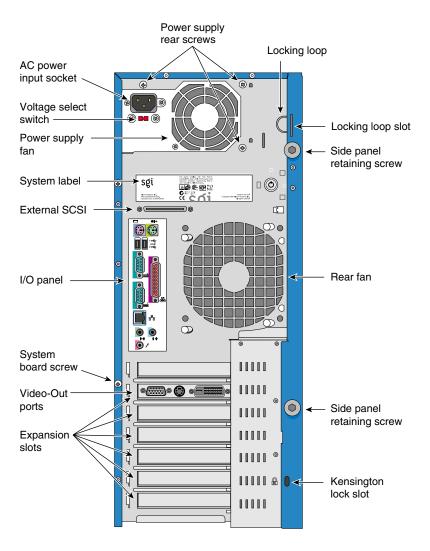


Figure 1-2 Rear Panel

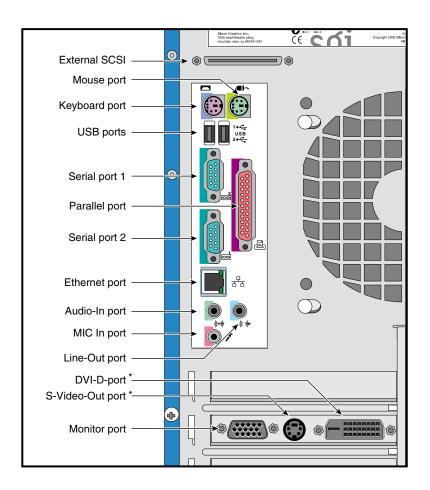


Figure 1-3 I/O Ports

**Note:** \*The DVI-D and S-Video ports may be optional on some versions of VPro Graphics.

### **Internal Structure**

This section describes the location of the main components inside the Silicon Graphics 330 Visual Workstation chassis as illustrated in Figure 1-4.

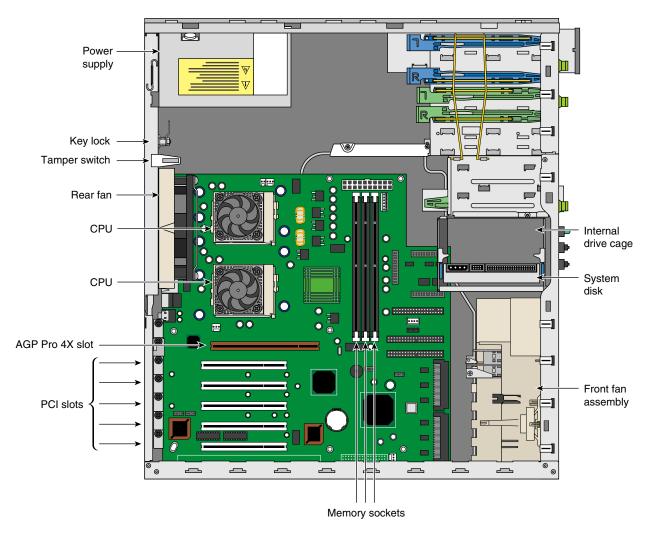


Figure 1-4 Internal Structure

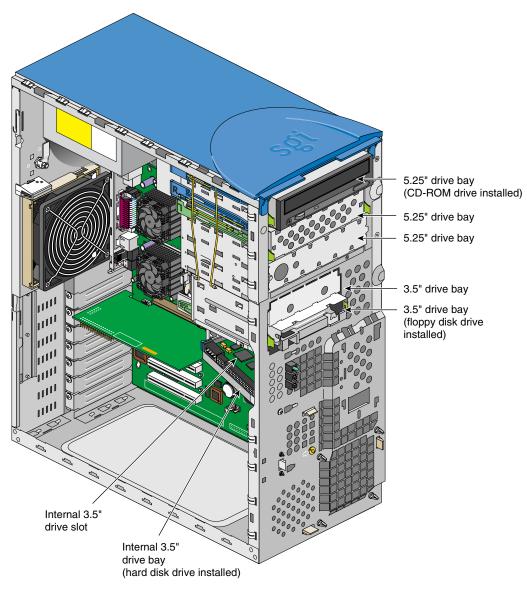
- The Silicon Graphics 330 Visual Workstation has three 5.25-inch and four 3.5-inch drive bays, as shown in Figure 1-5. All three 5.25-inch drive bays are externally accessible from the front panel. Two of the 3.25-inch drive bays are located on the front panel—the other two are housed and accessible inside the chassis.
- The Silicon Graphics 330 Visual Workstation is cooled by three fans—one front system fan and two rear system fans (see Figure 1-4). The front fan pulls the cool air into the chassis, while the two rear fans pull the warm air out of the chassis. One rear fan is located on the rear panel; the other rear fan is located in the power supply.
- The power supply is switch-selectable for 110V versus 220V AC power. The power supply converts AC power to DC voltages which are used by the system board, the fans, and the 3.5-inch and 5.25-inch drives. It is located above the system board on the rear panel.
- The system board is mounted parallel to the right side panel using a one-screw mounting system (see Figure 1-2 for the location of the system board screw). For an overview of the system board and its components, see Chapter 3.

#### **Pre-installation Instructions**

Before proceeding with the installation, select a suitable site that will allow for continued maximum performance of the unit, and for easy access to its components.

Consider the following questions before selecting a site for the system:

- Will the intended location allow for convenient access to areas of routine procedures, such as the power switch, the drive bays, and the rear panel connectors?
- Is the intended location free of dust, spills, or any other condition inappropriate for a high-performance computing system?
- Will the system be stable and free from vibration?
- Is the intended location well-ventilated and away from any source of heat? For the cooling system to perform properly, it is essential that the system be located in an area where airflow is unrestricted. See Appendix B for physical environment specifications.



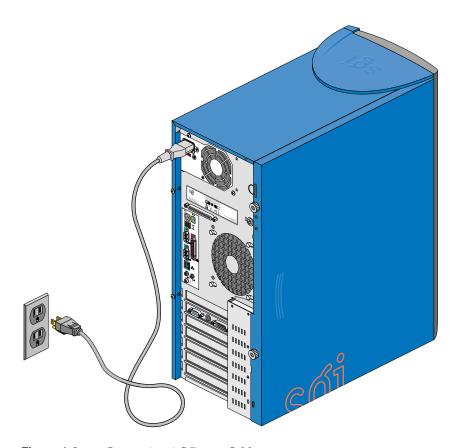
**Figure 1-5** 5.25-inch and 3.5-inch Drive Bays

## **Connecting External Devices**

Follow the instructions in this section to connect the system to the power source and to its external peripheral devices.

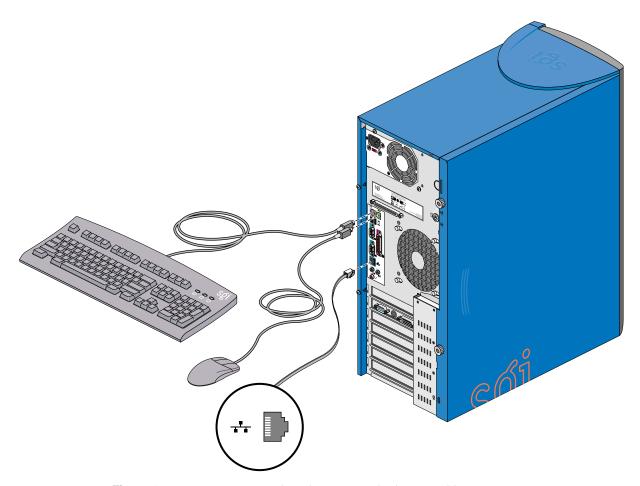
**Caution:** The power supply is switch-selectable for 110V or 220V AC power. Verify the voltage setting before plugging in the power cord.

1. Connect the AC power cable to the system as shown in Figure 1-6.



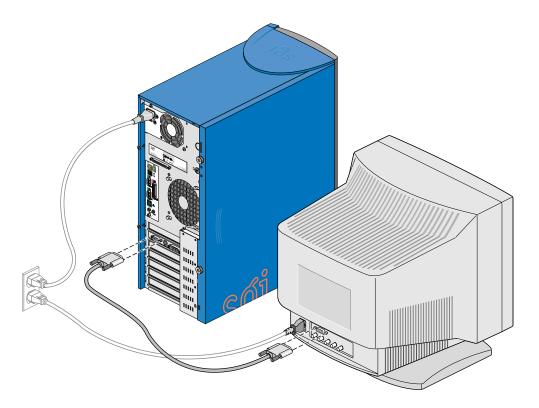
**Figure 1-6** Connecting AC Power Cable

- 2. Connect the keyboard and mouse to the system as shown in Figure 1-7.
- 3. Connect the Ethernet cable to the system as shown in Figure 1-7. The built-in Ethernet port is designed for use with 10-Base-T or 100-Base-TX Ethernet networks and will automatically switch to the proper speed.



**Figure 1-7** Connecting Keyboard, Mouse, and Ethernet Cable

- 4. Connect a DB15 HD video cable to the system as shown in Figure 1-8.
- 5. Connect the monitor to the power source as shown in Figure 1-8.



**Figure 1-8** Connecting DB15 HD Video Cable

6. Follow these directions to connect speakers to the system. Figure 1-9 illustrates the procedure:

**Note:** Speakers on your Silicon Graphics 330 Visual Workstation may be an optional feature.

- a. Read the operating precautions in the Speaker Installation Guide before connecting the speakers to the system.
- b. Connect the power cable to the right speaker (the speaker with control buttons and four ports).
- c. Connect the right speaker to the system by plugging the cable into the system line-out port and the speaker input signal port. Refer to Figure 1-10 for the location of the line-out port.
- d. Connect the right speaker to the left speaker, as shown in Figure 1-9.
- e. Plug the speaker power supply into an AC power outlet.

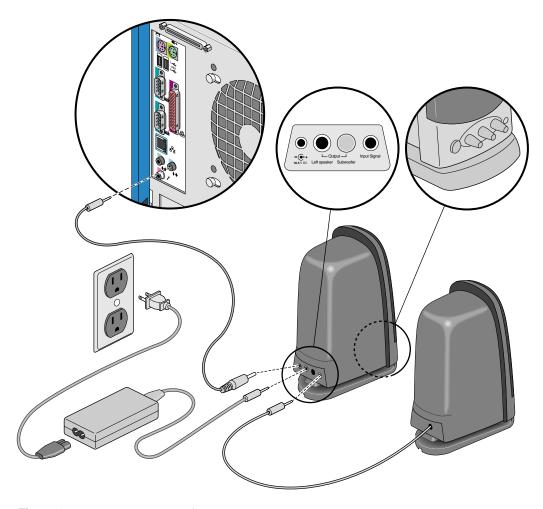


Figure 1-9 Connecting Speakers

7. Connect other external devices to their respective ports. Refer to Figure 1-10 for a detailed view of the I/O panel.

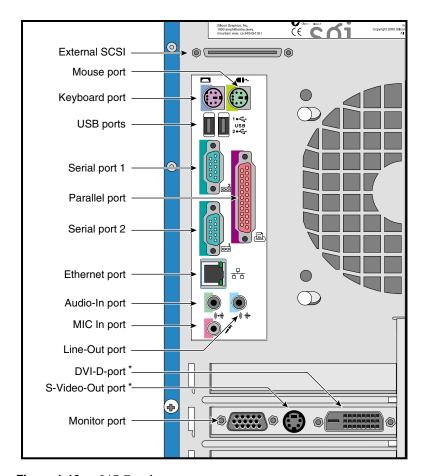


Figure 1-10 I/O Panel

**Note:** \*The DVI-D and S-Video ports may be optional on some versions of VPro Graphics.

8. To turn on the system, press the power switch on the front panel (see Figure 1-1).

## **Installation of Customer Replaceable Components**

This chapter describes how to install customer replaceable components. This includes the removal and replacement of the beam and baffle, 3.5-inch and 5.25-inch drives, the power supply, the fans, expansion cards, the system board, and the I/O gasket. A description of the steps to be taken to prepare the system for installation is provided first. The installation of memory modules and a CPU is described in Chapter 3.

### **Pre-installation Instructions**

The following steps describe how to prepare the system for the removal and installation of customer replaceable components:

- 1. Turn off the system before opening the side panel.
- 2. Unplug the AC power cable from the wall socket and from the power supply.
- 3. Follow these instructions to remove the side panel, as shown in Figure 2-1:
  - a. Unscrew the two thumbscrews on the back of the case.
  - b. Slide the panel toward the rear of the chassis.
  - c. Lift the panel up and away from the chassis.

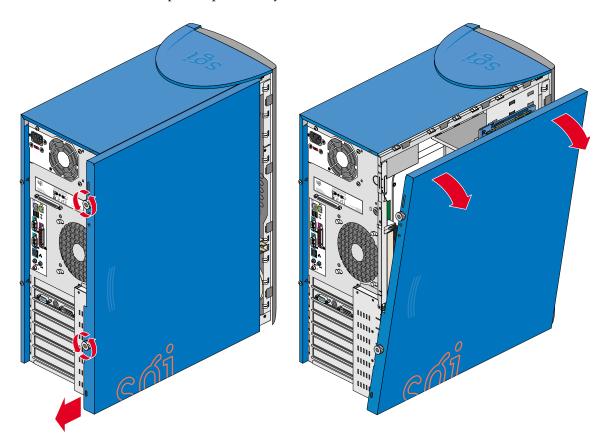


Figure 2-1 Removing Side Panel

- 4. If you will need access to the front panel drives, you will have to remove the bezel. Follow these instructions if you need to remove the bezel:
  - a. Remove the side panel as explained in Step 3.
  - b. Release the four tabs on the side of the bezel by gently lifting them out of the chassis while at the same time pulling the bezel away from the system. Figure 2-2 illustrates the procedure.
  - c. After the four tabs are released, rotate the bezel away from the chassis.

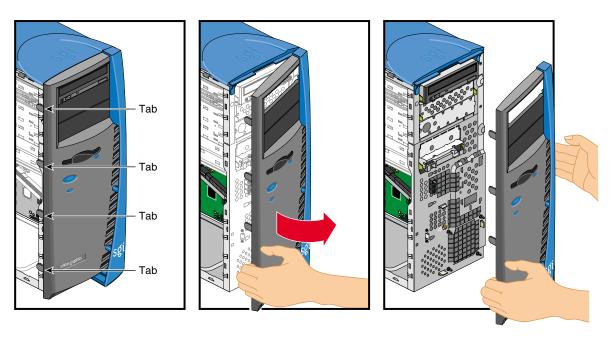


Figure 2-2 Removing Bezel

## **Removing and Installing Drives**

This section covers the removal and installation of 5.25-inch and 3.5-inch drives in the drive bays.

#### Removing and Installing a 5.25-inch Drive

The following instructions describe how to remove 5.25-inch drives:

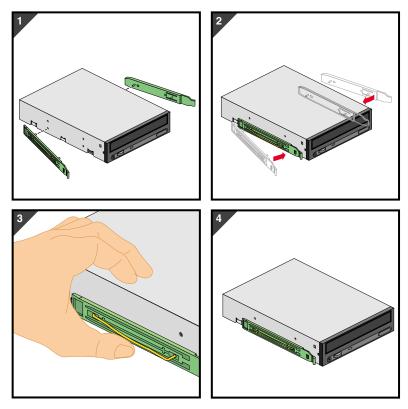
- 1. Remove the side panel and the bezel as described in "Pre-installation Instructions" on page 16.
- 2. Disconnect all cables from the rear of the drive to be removed.
- 3. To remove the drive from a drive bay, press the drive rail plastic release tabs on both sides of the drive and pull the drive out of the chassis. Figure 2-6 on page 22 illustrates the procedure (Figure 2-6 illustrates removal of a 3/5-inch drive, but the removal of 5.25-inch is similar).
- 4. To remove a drive rail from the drive, pull the rail away from the drive by lifting one end of the rail.

Any empty 5.25-inch drive bays should be covered with a drive filler plate. The following instructions describe how to remove and install 5.25-inch drive bay filler plates:

- To remove a drive filler plate, insert a finger into the hole on the filler plate and pull
  it out of the chassis.
- To install a drive filler plate in an empty drive, insert and push the filler plate into the drive bay until the drive filler plate snaps into place.

The following instructions describe how to install 5.25-inch drives:

- 1. All drives are mounted on snap-on drive rails. The Silicon Graphics 330 Visual Workstation comes with two sets of spare 5.25-inch drive rails. The spare drive rails are located inside the chassis on the side of the 5.25-inch drive bays.
- 2. The drive rails for the 5.25-inch drives are interchangeable—they do not have 'R' or 'L' markings that indicate which side they have to be mounted on. Any unmarked drive rail can be mounted on either side of the drive.
- 3. To mount a drive rail to the drive, place one end of the drive rail wire clip into its drive screw hole. Gently push on the middle of the drive rail until the other end of the wire clip snaps into its screw hole. Figure 2-3 illustrates the procedure.



**Figure 2-3** Mounting Drive Rails to 5.25-inch Drives

- 4. To mount a 5.25-inch drive in the drive cage, place the drive in the selected drive bay and slide the drive into the bay until the rails snap into place.
- 5. Connect cables to the drive.

- 6. The Silicon Graphics 330 Visual Workstation comes with two plastic blanking plates installed on the bezel. The following directions show how to remove and install the bezel blanking plates:
  - To remove a blanking plate, push on the release mechanism at one end of the blanking plate and pull the blanking plate out of the bezel. Figure 2-4 illustrates the procedure.

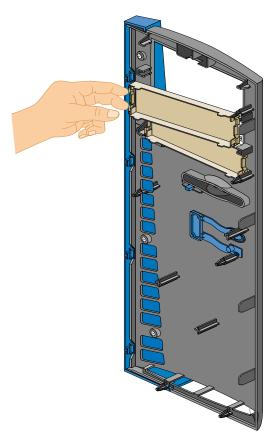
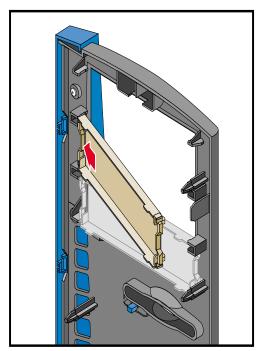


Figure 2-4 Removing Bezel Blanking Plate

• To install a blanking plate, insert one end of the blanking plate into its retaining notches, then push the other end until it snaps into place. See Figure 2-5 for an illustration of the procedure.



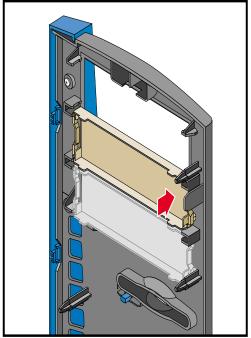


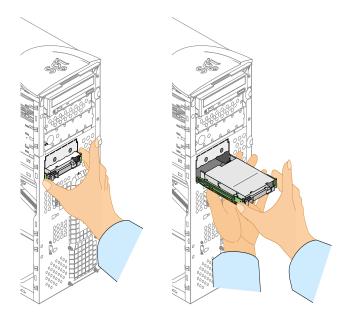
Figure 2-5 Installing Bezel Blanking Plate

7. Replace the bezel and the side panel as described in "Post-installation Instructions" on page 52.

#### Removing and Installing a 3.5-inch Drive in the Front-Access Drive Cage

The following instructions describe how to remove 3.5-inch drives from the front-access drive cage:

- 1. Remove the side panel and the bezel as described in "Pre-installation Instructions" on page 16.
- 2. Disconnect all cables from the rear of the drive to be removed.
- 3. To remove the 3.5-inch drive from a drive bay, press the drive rail plastic release tabs on both sides of the drive and pull the drive out of the chassis. Figure 2-6 illustrates the procedure.



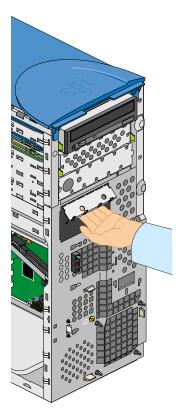
**Figure 2-6** Removing Drive from Drive Bay

4. To remove a drive rail from the drive, pull the rail away from the drive by lifting one end of the rail.

The upper 3.5-inch front access drive bay is covered with a detachable filler plate. Follow these instructions to detach the filler plate:

**Note:** Once removed, the filler plate cannot be re-installed.

- The lower 3.5-inch drive bay needs to be empty to proceed with the removal of the filler plate; refer to the previous instructions to remove the 3.5-inch drive from the front-access bay.
- Hold the filler plate by its lower side and pull it. The action of pulling the filler plate will break its connections to the chassis. See Figure 2-7 for an illustration of the procedure.

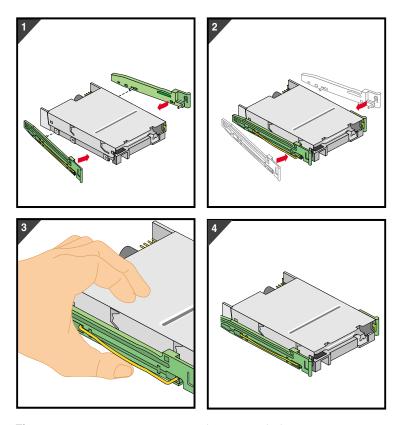


**Figure 2-7** Detaching 3.5-inch Drive Filler Plate

The following instructions describe how to install 3.5-inch drives in the front-access drive cage:

**Note:** Use of 10,000 RPM drives in the front-access drive cage is not recommended.

- 1. All drives are mounted on snap-on drive rails. The Silicon Graphics 330 Visual Workstation comes with two sets of spare 3.5-inch drive rails. One set of spare 3.5-inch drive rails is located inside the chassis on the side of the 5.25-inch drive bays. The other set is located inside a plastic bag in the outer pack box.
- 2. There are two different sets of drive rails for 3.5-inch drives. The difference between the two sets is the distance between the wire clips. To choose which drive rail fits on your drive, place the drive rail wire clips next to the drive screw holes and verify that the distance between the wire clips is the same as the distance between the two screw holes. If the distance is the same, the drive rail is the correct one.
- 3. The drive rails for the 3.5-inch drives are not interchangeable. They have 'R' or 'L' markings that indicate which side they have to be mounted on. Before mounting the rails to the drive, check to be sure the rail marked 'L' is on the left side of the drive and the rail marked 'R' is on the right side of the drive, as shown in Figure 2-8.
- 4. To mount a drive rail to the drive, place one end of the drive rail wire clip into its drive screw hole. Gently push on the middle of the drive rail until the other end of the wire clip snaps into its screw hole. Figure 2-8 illustrates the procedure.



**Figure 2-8** Mounting Drive Rails to 3.5-inch drives

5. To mount a 3.5-inch drive in the front-access drive cage, place the drive in the selected drive bay and slide the drive into the bay until the rails snap into place.

**Note:** For a drive to be correctly mounted in the front-access drive cage, it must be installed right side up.

- 6. Connect cables to the drive.
- 7. Replace the bezel and the side panel as described in "Post-installation Instructions" on page 52.

### Removing and Installing a 3.5-inch Drive in the Internal Drive Cage

The following instructions describe how to remove 3.5-inch drives from the internal drive cage:

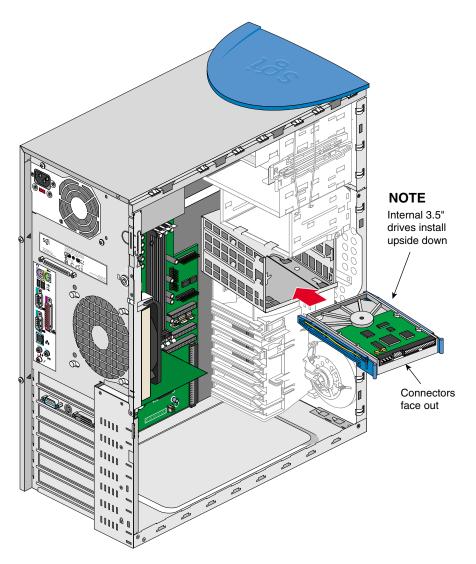
- 1. Remove the side panel as described in "Pre-installation Instructions" on page 16.
- 2. Disconnect all cables from the drive to be removed.
- 3. To remove the drive from a drive bay, press the drive rail plastic release tabs on both sides of the drive and pull the drive out of the chassis. If the drive is hard to pull out, you can facilitate the removal by gently pushing the drive from behind.
- 4. To remove a drive rail from the drive, pull the rail away from the drive by lifting one end of the rail.

The following instructions describe how to install 3.5-inch drives in the internal drive cage:

**Note:** Only low-profile (i.e., one-inch) drives can be mounted in the internal drive cage.

- 1. All drives are mounted on snap-on drive rails. The Silicon Graphics 330 Visual Workstation comes with two sets of spare 3.5-inch drive rails. One set of spare 3.5-inch drive rails is located inside the chassis on the side of the 5.25-inch drive bays. The other set is located inside a plastic bag attached to the side panel.
- 2. There are two different sets of drive rails for 3.5-inch drives. The difference between the two sets is the distance between the wire clips. To choose which drive rail fits your drive, place the drive rail wire clips next to the drive screw holes and verify that the distance between the wire clips is the same as the distance between the two screw holes. If the distance is the same, the drive rail is the correct one.
- 3. The drive rails for the 3.5-inch drives are not interchangeable. They have 'R' or 'L' markings that indicate which side they have to be mounted on. Before mounting the rails to the drive, check to be sure the rail marked 'L' is on the left side of the drive and the rail marked 'R' is on the right side of the drive, as shown in Figure 2-8.
- 4. To mount a drive rail to the drive, place one end of the drive rail wire clip into its drive screw hole. Gently push on the middle of the drive rail until the other end of the wire clip snaps into its screw hole. Make sure that the connectors face out. Figure 2-8 illustrates the procedure.
- 5. To mount a 3.5-inch drive in the internal drive cage, place the drive upside down in the selected drive bay and slide the drive into the bay until the rails snap into place. Figure 2-9 shows how to install the drive correctly.

**Caution:** For a drive to be correctly mounted in the internal drive cage, it must be installed upside down.



**Figure 2-9** Mounting Drives in the Internal Drive Cage

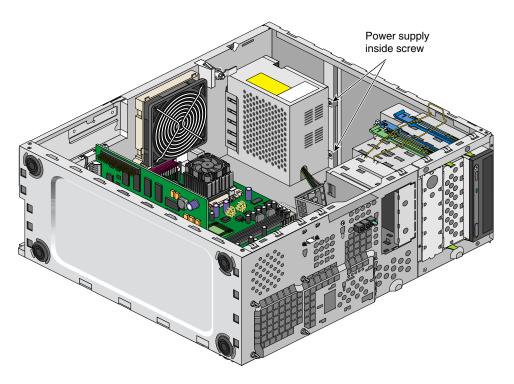
- 6. Connect cables to the drive.
- 7. Replace the side panel as described in "Post-installation Instructions" on page 52.

## **Replacing the Power Supply**

Follow the instructions in this section to remove and replace the power supply.

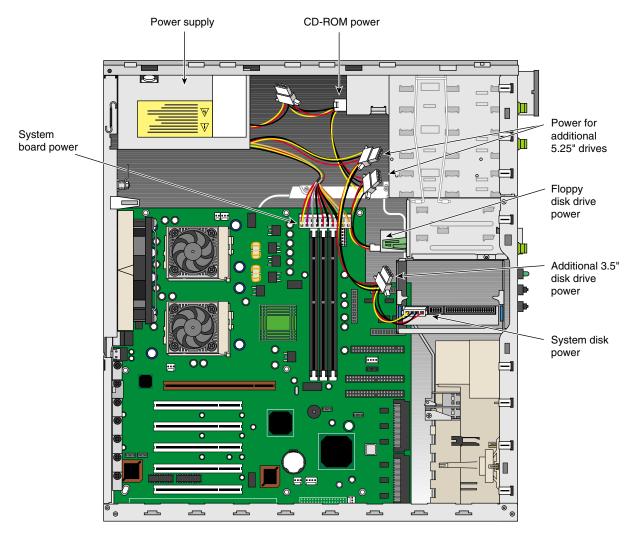
Warning: Do not open the power supply. Even when unplugged, it may contain dangerous voltages. There are no user-serviceable parts inside.

- 1. Unplug the AC power cable from the wall socket and from the power supply.
- 2. See "Pre-installation Instructions" on page 16 to remove the side panel.
- 3. Disconnect all the power supply cables from the system board, the 3.5-inch drives and the 5.25-inch drives. See Figure 2-11 on page 30 for the location of the cable connections.
- 4. Remove the three screws located on the rear panel. Figure 1-2 on page 3 shows the location of the two screws.
- 5. In order to gain easier access to the power supply, place the system on its right side on a padded surface so as not to scratch the system.
- 6. Remove the screws located on the inside of the system's upper panel. See Figure 2-10 for the location of the screws.



**Figure 2-10** Removing Power Supply Inside Screw

- 7. Pull the power supply out of the system, avoiding any physical contact between the power supply and any system component.
- $8. \quad \text{To install the power supply, keep the system resting on its right side}.$
- 9. Carefully place the power supply into its housing, and push it into place.
- 10. Replace the inside screws shown in Figure 2-10.
- 11. Replace the three rear screws shown in Figure 1-2 on page 3.
- 12. Connect the power supply cables to the system board, the hard drive(s), the CD-ROM drive, and to the floppy disk drive. Refer to Figure 2-11 for the location of the power supply cable connections.



**Figure 2-11** Connecting Power Supply Cables

13. Replace the side panel as shown in "Post-installation Instructions" on page 52.

**Caution:** The power supply is switch-selectable for 110V or 220V power. Verify the voltage setting before plugging in the power cord.

14. Reconnect the AC cable to the power supply and to the wall socket.

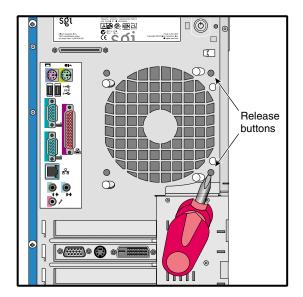
## Replacing Fans

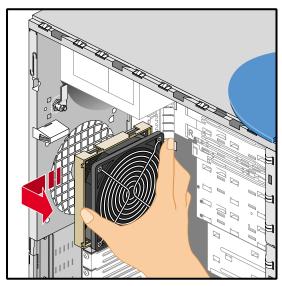
This section covers the removal and installation of the rear and front system fans.

### Replacing the Rear System Fan

Follow the instructions in this section to remove and replace the rear system fan:

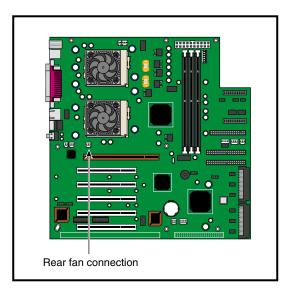
- 1. Remove the side panel as shown in "Pre-installation Instructions" on page 16.
- 2. Rest the system on its right side on a padded surface so as not to scratch the system.
- 3. Disconnect the fan cable from the system board. See Figure 2-13 on page 33 for the location of the fan cable connection.
- 4. Locate the two fan release buttons on the back side of the rear panel, as shown in Figure 2-12.
- 5. Using a pointed tool (such as a Phillips-head screwdriver), push on one of the release buttons while at the same time pulling the fan upward until the release button comes out of its notch. Keep upward pressure on the fan while pushing on the second release button until the fan is released from the chassis. Figure 2-12 illustrates the procedure.





**Figure 2-12** Disengaging Release Buttons and Removing Rear Fan

- 6. Carefully remove the fan from the system without touching any system component.
- 7. To install the rear fan, keep the system resting on its right side.
- 8. Insert the fan's four retaining pins into their respective holes. Make sure that the fan is positioned so as to have the two release buttons on the upper side of the fan.
- 9. Push the fan down until the two release buttons click into place.
- 10. Connect the fan cable. For the location of the rear fan cable connection, see Figure 2-13.



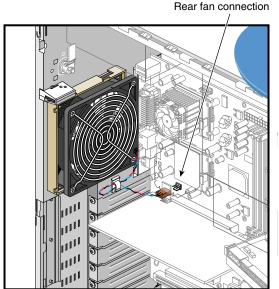
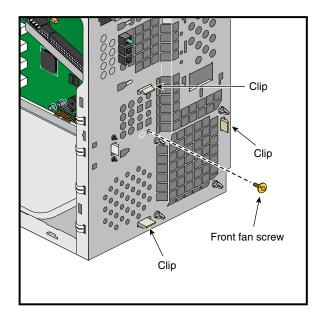


Figure 2-13 Connecting Rear Fan Cable

### **Replacing the Front System Fan**

Follow these instructions to remove the front system fan:

- 1. Remove the side panel and the bezel as shown in "Pre-installation Instructions" on page 16.
- 2. Disconnect the front fan cable from the system board.
- 3. Remove the front fan screw located on the front panel. Figure 2-14 shows the location of the screw.
- 4. Release the three retaining clips, also shown in Figure 2-14, by pushing on one clip at a time while holding the fan plastic frame inside the chassis.



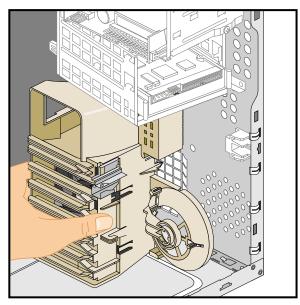
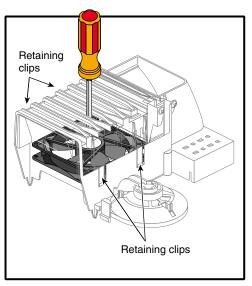
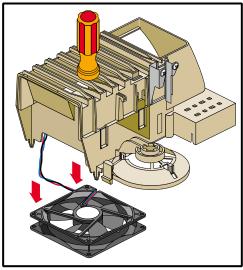


Figure 2-14 Removing Front Fan Screw and Releasing Clips

- 5. Once the three clips are released, the fan plastic frame can be removed from the system.
- 6. The fan is held in its plastic frame by four fan retaining clips. To remove the fan from its plastic frame, place the frame on a flat surface, with the frame facing down, as shown in Figure 2-15.
- 7. Using a flat screwdriver, gently push on the center of the fan. While pushing on the fan, release one fan retaining clip at a time by pulling it away from the fan. The procedure is illustrated in Figure 2-15.
- 8. Once all four clips have been released, the fan can be removed from the plastic frame.

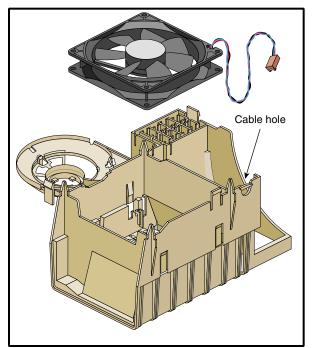




**Figure 2-15** Removing Fan from Plastic Frame

Follow these instructions to install the front system fan:

- 1. To install the front fan, place the plastic frame on a flat surface with its retaining clips facing up.
- 2. Insert the fan in its housing. Make sure that the fan cable comes out next to the slot in the plastic frame, as shown in Figure 2-16.
- 3. Insert the fan cable into the slot.
- 4. Pass the cable connector and pull the cable through the hole located next to the cable slot, as shown in Figure 2-16.



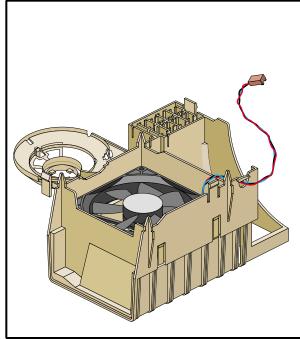


Figure 2-16 Installing Fan into Plastic Frame

- 5. Place the fan plastic frame in the chassis and insert the frame guiding pins into their corresponding holes on the front panel. Push the fan frame until its retaining clips snap into place.
- 6. Connect the front fan cable. For the location of the front fan cable connection, refer to Figure 2-17.

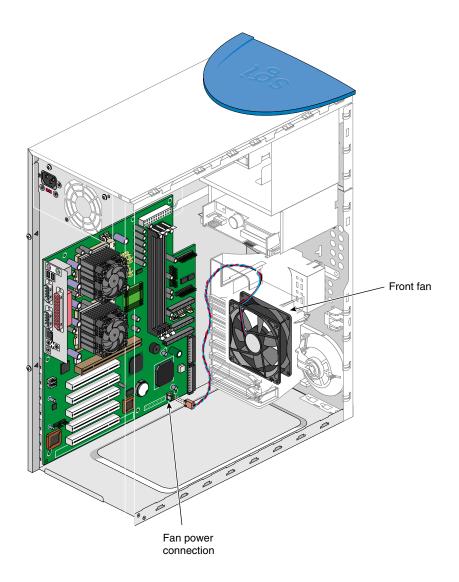


Figure 2-17 Connecting Front Fan Cable

## **Replacing Expansion Cards**

This section describes how to remove and install PCI (Peripheral Component Interconnect) and AGP (Accelerated Graphics Port) cards. See Figure 2-1 on page 16 for the location of the expansion card slots.

Follow electrostatic discharge (ESD) precautions. Electronic equipment can be irreparably damaged by ESD. Always follow these preventative measures when handling a system component:

- Remove a component from its antistatic bag only when you are ready to install it.
- If you have to handle a component before installation, do not place it on surfaces
  that produce ESD (carpeting, for example), or near devices that create static
  electricity.
- Attach a static wrist strap to a grounded connection on your system when installing or removing a component.

The following instructions describe how to remove expansion cards:

- 1. Remove the side panel as described in "Pre-installation Instructions" on page 16.
- 2. Remove the retaining screw for that expansion card, as shown in Figure 2-18.
- 3. Gently pull the card straight up out of the slot (away from the system board).

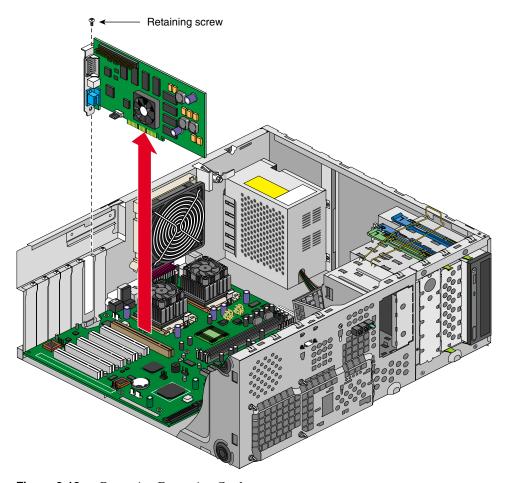


Figure 2-18 Removing Expansion Card

- 4. If no other card will be installed in the empty slot, a filler plate needs to be installed in the expansion slot opening. Follow these instructions to install a filler plate in an expansion slot opening:
  - Place the filler plate on the slot opening
  - Tighten the retaining screw shown in Figure 2-19.

The following instructions describe how to install expansion cards:

- 1. Remove the side panel as described in "Pre-installation Instructions" on page 16, if not already done.
- 2. If a filler plate covers the slot opening selected for installation, follow these instructions to remove it:
  - Remove the retaining screw shown in Figure 2-19.
  - Remove the filler plate from the chassis.

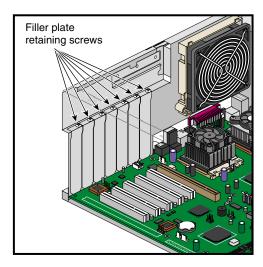


Figure 2-19 Location of the Retaining Screw for the Expansion Slot Filler Plate

- 3. Insert the expansion card into its slot by pushing the card into the connector until it is properly seated. Figure 2-20 illustrates the procedure.
- 4. Tighten the retaining screw, as shown in Figure 2-20.

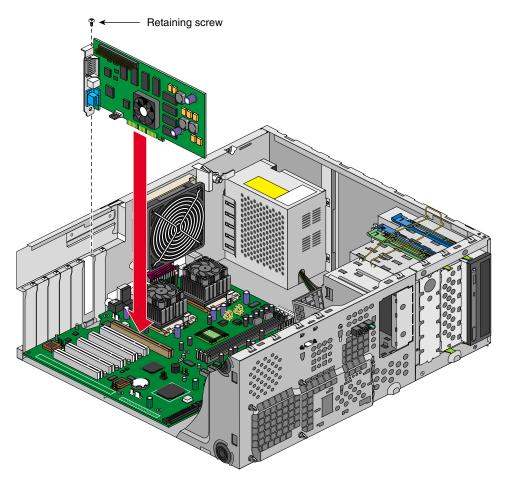


Figure 2-20 Installing Expansion Card

- $5. \quad \text{Replace the side panel as shown in "Post-installation Instructions" on page 52.}$
- 6. When the system is turned on, the BIOS automatically detects and assigns resources to the new device.

**Note:** The BIOS detects and configures only Plug and Play expansion cards.

## **Replacing the System Board**

This section describes how to remove and replace the Silicon Graphics 330 Visual Workstation system board.

Follow electrostatic discharge (ESD) precautions. Electronic equipment can be irreparably damaged by ESD. Always follow these preventative measures when handling a system component:

- Remove a component from its antistatic bag only when you are ready to install it.
- If you have to handle a component before installation, do not place it on surfaces that produce ESD (carpeting, for example), or near devices that create static electricity.
- Attach a static wrist strap to a grounded connection on your system when installing or removing a component.

The following instructions describe how to remove the Silicon Graphics 330 Visual Workstation system board:

- 1. To facilitate the removal of system components, rest the chassis on its right side on a padded surface so as not to scratch the system.
- 2. Remove the side panel as described in "Pre-installation Instructions" on page 16.
- 3. Remove the AGP video board and all expansion boards. Refer to "Replacing Expansion Cards" on page 38 for the removal of expansion boards.
- 4. Disconnect all cables from the system board.
- 5. Loosen the system board screw. Figure 2-21 shows the location of the screw.

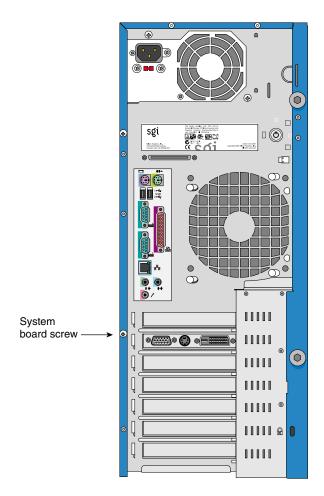
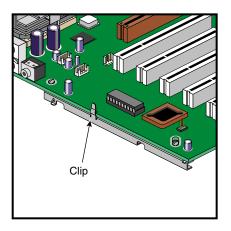


Figure 2-21 Location of System Board Screw

- 6. Pull the system board away from the I/O gasket and lift the board away from the chassis.
- 7. To detach the retaining bracket from the system board, unsnap the release clip and remove the bracket retaining hooks from the system board. Figure 2-22 shows the procedure.



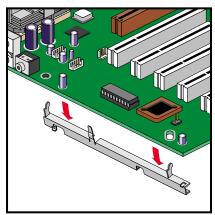
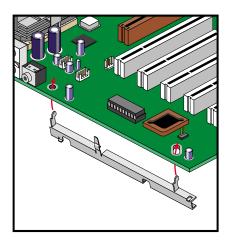


Figure 2-22 Removing Retaining Bracket from System Board

The following instructions describe how to install the Silicon Graphics 330 Visual Workstation system board:

1. To mount the retaining bracket onto the system board, place the retaining hooks into their system board holes and snap the release clip onto the board. Figure 2-23 illustrates the procedure.



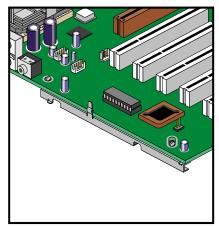


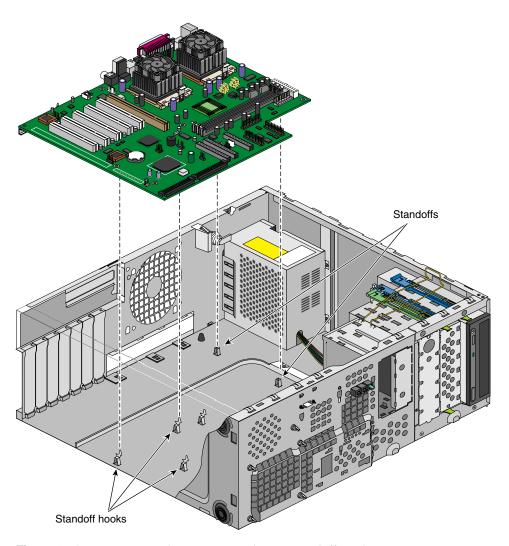
Figure 2-23 Snapping Retaining Bracket onto System Board

- 2. The system should still be resting on its right side to facilitate the installation.
- 3. Place the system board into the chassis so as to align the I/O ports with their respective holes in the I/O gasket.
- 4. Position the system board so as to have the standoff hooks inserted into their corresponding holes in the system board. See Figure 2-24 for an illustration of the procedure.
- 5. Secure the system board screw onto the retaining bracket. See Figure 2-21 on page 43 for the location of the system board screw.
- 6. Replace the side panel as shown in "Post-installation Instructions" on page 52.

## Replacing I/O Panel Gasket

The following instructions describe how to remove the I/O panel gasket. To avoid scratching and other possible cosmetic problems and to ease in disassembly, the system should still be resting on its side on a padded surface.

- 1. Remove the system board as described in "Replacing the System Board" on page 42.
- 2. Locate the three notched fingers at the bottom of the I/O panel gasket, as shown in Figure 2-25.
- 3. To remove the I/O panel gasket, lift one notched finger at a time out of its slot.
- 4. Once all three notched fingers have been lifted out of their slots, the I/O panel gasket slides out of its housing and can be removed from the chassis.



**Figure 2-24** Positioning the System Board on its Standoff Hooks

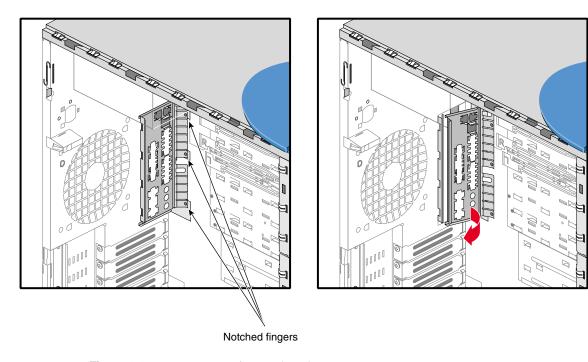
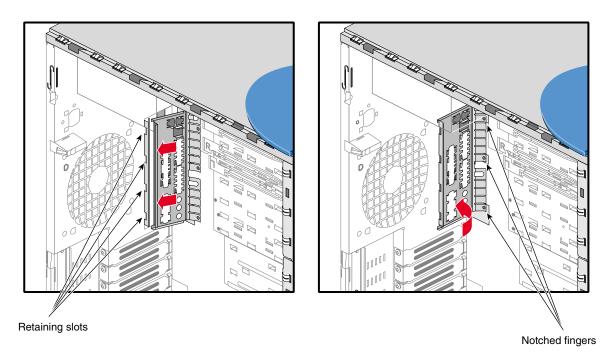


Figure 2-25 Removing I/O Panel Gasket

The following instructions describe how to install the I/O panel gasket:

- 1. Locate the four retaining slots on the system's I/O panel opening. See Figure 2-26 for the location of the retaining slots.
- 2. Insert the I/O gasket's four indentations into their corresponding retaining slots on the I/O panel opening. See Figure 2-26 for an illustration of the procedure.
- 3. In order to secure the I/O gasket on the chassis, each notched finger needs to be inserted into its slot. To do so, push on the I/O gasket where each notched finger meets with the I/O gasket until the notched finger snaps into its slot. Repeat the procedure for the remaining notched fingers.
- 4. Install the system board as described in "Replacing the System Board" on page 42.



**Figure 2-26** Installing I/O Panel Gasket

## **Securing the System**

The Silicon Graphics 330 Visual Workstation's side panel can be locked into place on the system using a locking loop and a padlock, thus preventing access to the internal components of the system. The locking loop is stored in a slot on the chassis and needs to be moved to another slot to be used. Follow these steps to install the locking loop:

- 1. Remove the side panel if not already done. For removal of the side panel, refer to "Pre-installation Instructions" on page 16.
- 2. Locate the locking loop. See Figure 2-27 for the location of the locking loop.

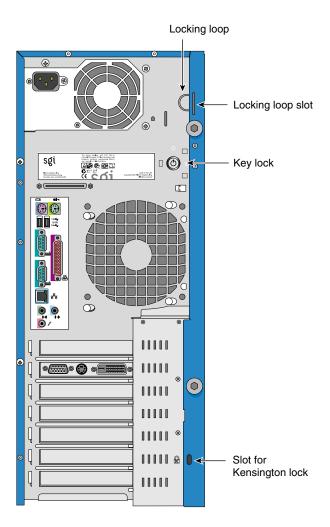
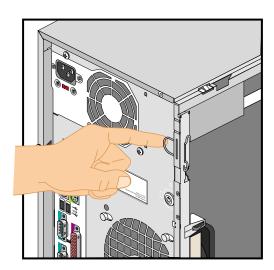


Figure 2-27 Location of Locking Loop

3. Remove the locking loop from its storage slot by pressing the two hooks towards each other and pushing the loop out of the chassis. Figure 2-28 illustrates the procedure.



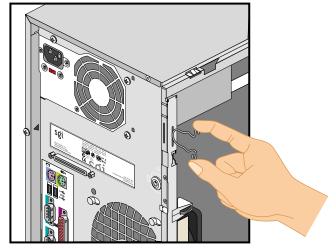
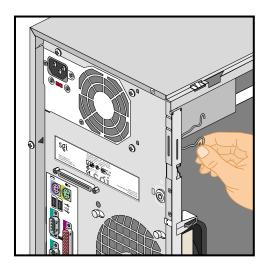


Figure 2-28 Removing Locking Hook from its Storage Slot

4. Locate the slot facing the rear of the chassis. See Figure 2-27 for the location of the slot.

5. Insert the loop part of the locking loop into the slot inside the chassis and push the locking loop until it snaps into place. Figure 2-29 illustrates the procedure.



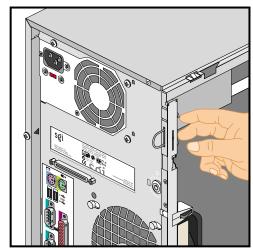


Figure 2-29 Installing Locking Loop in its Functional Slot

- 6. Replace the side panel as described in "Post-installation Instructions" on page 52.
- 7. To lock the side panel on the system (see "Post-installation Instructions" on page 52 for side panel installation), insert a padlock into the locking loop.

The system itself can be secured in a particular location by using a Kensington locking device. See Figure 1-2 on page 3 for the location of the Kensington lock slot.

**Note:** A Kensington locking device is not included with the Silicon Graphics 330 Visual Workstation.

### **Post-installation Instructions**

After completing the installation of customer replaceable components, follow these instructions to ready the system for operation:

- 1. If your installation involved the removal of the bezel, follow these steps to replace the bezel:
  - Locate the four tabs on the right side of the bezel, as shown in Figure 2-30.
  - Place the right side of the bezel on the chassis so as to insert the four tabs in their respective slots, as shown in Figure 2-30.
  - Push the left side of the bezel towards the chassis until all four tabs on the left side of the bezel are securely snapped onto the chassis.

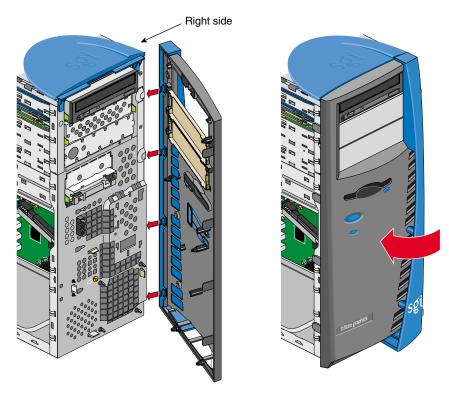


Figure 2-30 Replacing Bezel

- 2. Follow these steps to replace the side panel:
  - Locate the two tabs on the lower side of the side panel.
  - Place the two tabs onto the lower chassis rail.
  - Slide the side panel toward the rear of the system, until the rear tab hits the rear of the chassis and the side panel cannot be moved any farther. Figure 2-31 illustrates the procedure.

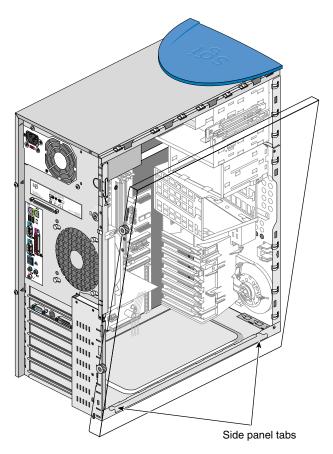


Figure 2-31 Placing Side Panel onto Lower Chassis Rail

- Push the upper side of the side panel toward the chassis.
- Gently lift the side panel and push it against the chassis.

- Slide the side panel towards the front of the chassis until it fits into place. The procedure is illustrated in Figure 2-32.
- Tighten the two thumbscrews on the back of the case.

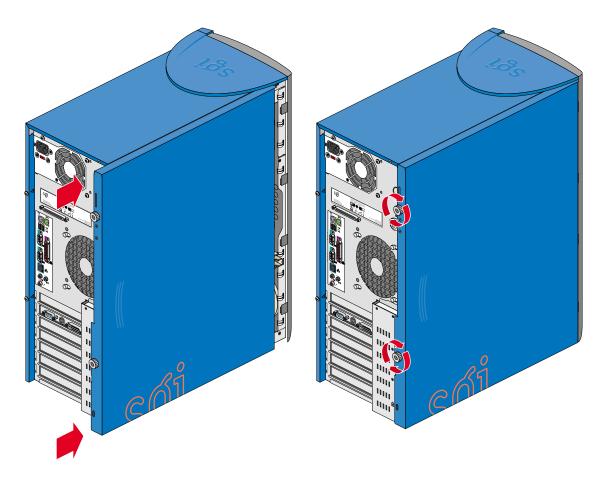


Figure 2-32 Sliding Side Panel into Place

- 3. To connect your system to external devices, refer to "Connecting External Devices" on page 8.
- 4. To turn on the system, press the power button on the front panel. See Figure 1-1 on page 2 for the location of the power button.

# **System Board**

This chapter describes the system board and all its major components. It contains the system board layout, jumper settings, cache and memory configurations, and information on other internal devices.

### Overview

The M25D system board is a PCI bus-based dual-processor system board built on an extended ATX baseboard. It comes with a dual FC-PGA (Flip-Chip Pin Grip Array) processor socket utilizing an Intel Pentium III processor integrated with the VIA Apollo Pro 133A chipset. The system board also integrates the Intel 82559 10/100 Mbps PCI Ethernet chipset that supports WOL (Wake on LAN) and provides for better remote site management.

For expandability, the system board includes one AGP (Accelerated Graphics Port) bus, five PCI bus slots, and three DIMM sockets that allow memory installation to a maximum of 1.5 GB, using three 512-MB SDRAM (synchronous DRAM) DIMMs.

For connectivity, the system board supports two USB (Universal Serial Bus) connectors, a speaker-out/line-out, audio-in, and microphone-in port, and other standard features such as two UART NS16C550 serial ports, one enhanced parallel port with Enhanced Parallel Port (EPP)/Extended Capabilities Port (ECP) support, a diskette drive interface, and two embedded hard disk interfaces.

Only Linux, Windows NT 4.0, and Windows 2000 are supported by SGI.

#### **Processor**

The Pentium III processor implements dynamic execution performance, a multi-transaction system bus, Intel MMX, and SSE instructions. Also, it offers streaming SIMD (Single Instruction Multiple Data) extensions, which are 70 new instructions

enabling advanced imaging, 3D, streaming audio and video, and speech recognition applications. The Pentium III processor delivers higher performance than the previous Pentium processor while maintaining binary compatibility with all previous Intel architecture processors.

This system board supports 133-MHz host bus frequencies for single or dual Pentium III processors running at either 733 to 800 MHz, as well as future generation Pentium processors.

### Memory

The three DIMM sockets on board allow memory upgrade to a maximum of 1.5 GB using three 512-MB SDRAM (synchronous DRAM) DIMMs. For data integrity, the default setting of the ECC (error-correction code) function of the memory system in BIOS is enabled. See "Memory/Cache Options" on page 101 for more information on this setting.

Note: The SDRAM works at 3.3 volts only; 5-volt memory devices are not supported.

The system board supports 100-MHz and 133-MHz ECC registered SDRAMs only; 66-MHz SDRAMs are not supported.

**Note:** Only SGI tested memory is supported. Please visit www.sgi.com for a list of supported memory.

### **System Chipsets**

### **VIA Apollo Pro 133A Chipset**

The VIA Apollo Pro 133A chipset was specifically designed to meet the needs of high performance systems. It consists of two components: VT82C694X (north bridge) and VT82C686A (south bridge).

• VT82C694X (north bridge) provides the host interface, memory system control interface, PCI interface, and AGP interface to boost graphics performance.

 VT82C686A (south bridge) integrates the super I/O functions of keyboard and mouse interface, floppy disk controller, advanced digital data separator, two compatible serial ports (UARTs), one parallel port, on-chip 12 mA AT bus drivers, one floppy direct drive support, and Intelligent Power Management support. It also supports the PC99 compliant PCI-to-ISA bridge, SoundBlaster/DirectSound AC97 audio, and SMbus.

#### **LAN Subsystem**

Another cost-effective feature for network solutions is the integration of Intel's 82559 10/100 Mbps Fast Ethernet controller, which supports Advanced Configuration and Power Interface (ACPI) 1.20A-based power management, wake on Magic Packet, wake on interesting packet, advanced System Management Bus (SMB)-based manageability, Wired for Management (WfM) 2.0 compliance, IP checksum assist, PCI 2.2 compliance, and PC 98, PC 99, and Server 99 compliance.

### **Expansion Slots**

#### **AGP Bus**

AGP is solely developed for the purpose of supporting 3D graphic applications. It has a 32-bit wide channel that runs at 66 MHz, which translates into a total bandwidth of 266 MBs. This is twice the bandwidth of PCI buses (133 MBs). AGP also accesses the main memory directly, allowing 3D textures to be stored in main memory as well as video memory. The Silicon Graphics 330 Visual Workstation has an AGP Pro Slot which enables users to install both AGP or AGP Pro cards in the system.

#### **PCI Bus**

The system board has five PCI buses that support 32-bit/33-MHz PCI devices. The PCI bus is the key interface that communicates between the north and the south bridge.

### **Hardware Management Support**

The system board supports a power management function that conforms to the power-saving standards of the U.S. Environmental Protection Agency (EPA) Energy Star program. It also offers plug and play, which helps prevent configuration problems and makes the system more user-friendly.

## **Major Components**

The system board has the following major components:

- FC-PGA (Flip-Chip Pin Grip Array) sockets that support a single or dual Pentium III processor running at 733 MHz or 800 MHz, as well as future generations of Pentium CPUs.
- VIA Apollo Pro 133A chipset, which includes the north and the south bridges.
- Onboard 10/100 Mb/s Intel 82559 LAN chip that supports WOL.
- Adaptec AIC-7899 Dual Channel SCSI controller chipset supports:
  - Channel A one 68-pin ULTRA160/m SCSI connector.
  - Channel B one 68-pin ULTRA160/m SCSI connector.
- Three DIMM sockets that accept 64-, 128-, 256-, and 512-MB SDRAMs with a maximum memory capacity of 1.5 GB.
- One AGP Pro bus and five 32-bit PCI bus slots.
- System clock/calendar with battery backup.
- IDE hard disk and diskette drive interfaces.
- Auxiliary power connector for 300W SPS and ATX power supply.
- Advanced Server Management (ASM) and LAN Desk Client Management (LDCM) controller chipsets (south bridge).

• External ports:

USB connector Serial port 1 and 2

PS/2-compatible keyboard port Speaker-out/Line-out port

PS/2-compatible mouse port Audio-in port

RJ-45 jack Microphone-in port

Parallel port

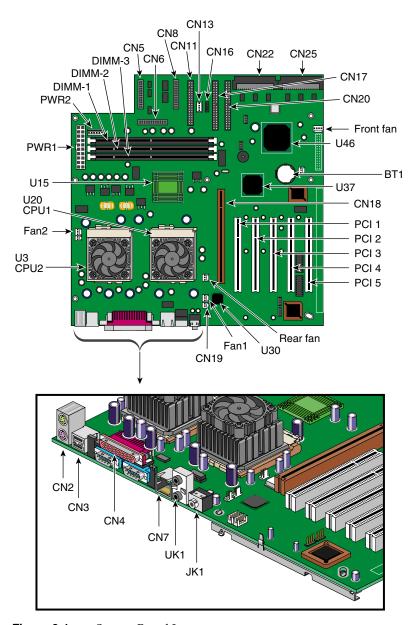


Figure 3-1 shows the layout of the system board.

Figure 3-1 System Board Layout

Table 3-1 describes the system board components in Figure 3-1.

 Table 3-1
 System Board Components

Item	Description
BU1	Internal buzzer
BT1	Battery
CN1	CPU socket 1 thermal sensor connector
CN2	Above: PS/2 mouse port Below: PS/2 keyboard port
CN3	USB ports
CN4	Above: Parallel port Left: Serial port 1 Right: Serial port 2
CN5	BMC connector
CN6	Multi connector
CN7	LAN jack (RJ-45)
CN8	BMC connector
CN9	Wake on LAN connector
CN10	Even LED connector
CN11	FDD connector
CN12	CPU socket 2 thermal sensor connector
CN13	12C connector
CN15	System fan connector
CN16	BP connector
CN17	IDE 1 connector
CN18	AGP slot
CN19	CD in connector
CN20	IDE 2 connector

Table 3-1 (	<b>continued)</b> System Board Components
Item	Description
CN21	Fax voice connector
CN22	SCSI channel B connector (68-pin) (Ultra 160/m)
CN25	SCSI channel A connector (68-pin) (Ultra 160/m)
CN26	System fan connector
CNX7	System fan connector
DIMM1-3	DIMM slots
JK1	Above: Audio-in port Below: Line-out port
JP1	CPU socket 2 fan connector
JP2	CPU socket 1 fan connector
ЈР3Х	SCSI channel A terminator 1-2 On <sup>a</sup> 2-3 Off
JP4	Onboard buzzer external speaker 1-2 <sup>a</sup> Onboard buzzer 2-3 External speaker
PCI1-5	PCI slots
PH1	Mic-in connector
PWR1	ATX power supply connector
PWR2	ATX power supply connector
U3	CPU socket 2
U15	Apollo Pro 133A chipset (north bridge)
U20	CPU socket 1
U30	Intel 82559 LAN chipset

Table 3-1	(continued)	System Board Components
Item	Description	
U37	Apollo Pro 13	33A chipset (south bridge)
U46	Adaptec AIC	-7899 chipset
WKUP1	Wake on Ring	g connector
a Default		

## **System Component Installation**

The following sections show you how to install system components like the CPU, memory modules, and expansion cards.

#### **ESD Precautions**

Always observe the following electrostatic discharge (ESD) precautions before installing or removing a system component:

- 1. Do not remove a component from its antistatic packaging until you are ready to install it.
- 2. Wear a wrist grounding strap before handling electronic components. Wrist grounding straps are available at most electronic component stores.

**Caution:** Do not attempt the procedures described in the following sections unless you are a qualified technician.

### Installing and Removing the CPU

The Pentium III comes in an FC-PGA (Flip-Chip Pin Grid Array) 370-pin package. The FC-PGA package is designed for the new breed of sleek, high performance, small form factor PCs.

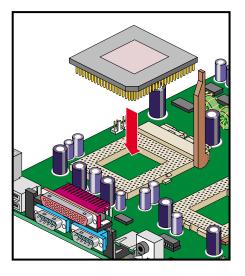
The system board supports dual Pentium III processors running at 733, 800, or 866 MHz, and future generations of Pentium CPUs on a 133-MHz system bus.

**Caution:** Always observe the ESD precautions when installing or removing a system component. Refer to the preceding section.

#### Installing a CPU

Follow these steps to install a CPU:

- 1. Remove the processor from its protective packaging.
- 2. Insert the new CPU into the CPU socket. Make sure that pin 1 (indicated by a notched corner) of the CPU connects to hole 1 of the socket.
- 3. Push down the socket lever to lock the new CPU in the socket, as shown in Figure 3-2.



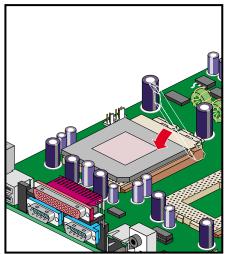
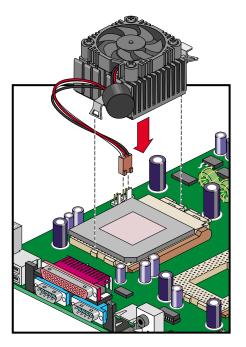


Figure 3-2 Locking New CPU in Socket

4. Attach one side of the fan/heatsink metal bracket to the CPU socket and then gently push down the other side of the metal bracket until it locks in place, as shown in Figure 3-3.



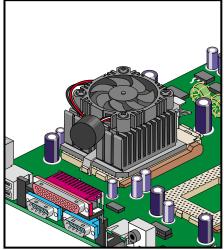


Figure 3-3 Locking Metal Bracket in Place

5. Connect the 3-pin and 2-pin fan/heatsink cables to the system board. See Figure 3-1 on page 59 for the location of the fan/heatsink connectors.

**Note:** The heatsink becomes very hot when the system is on. NEVER touch the heatsink with any metal or with your hands.

#### Removing a CPU

Follow these steps to remove a CPU:

- 1. Disconnect the 3-pin and 2-pin fan/heatsink cables from the system board.
- 2. Unhook one side of the fan/heatsink metal bracket and gently lift it before removing the other side.
- 3. Gently push the socket lever down to release the lever and then pull it up.
- 4. Remove the CPU.

### **Installing and Removing Memory Modules**

The three 168-pin sockets onboard support SDRAM-type DIMMs. You may install 64-MB, 128-MB, 256-MB, or 512-MB (single and double density) DIMMs for a maximum of 1.5 GB of system memory.

**Note:** The SDRAM works at 3.3 volts only; 5-volt memory devices are not supported.

This system board supports 100-MHz and 133-MHz SDRAM. However, they cannot be used at the same time in the system.

Warning: Do not use both 100-MHz and 133-MHz SDRAM together. This might cause your system to malfunction. For a qualified DIMM vendor list, please contact your reseller.

Each of the DIMM sockets is independent from the others. This independence allows you to install DIMMs with different capacities to form different configurations.

To install a DIMM, align it to an empty slot and press it in until the holding clips secure the DIMM in place, as show in Figure 3-4.

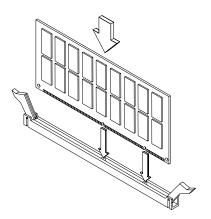


Figure 3-4 Installing a DIMM

**Note:** The DIMM socket is slotted to ensure proper installation. If you slip in a DIMM but it does not completely fit, you may have inserted it the wrong way. Reverse the orientation of the DIMM.

To remove a DIMM, press the holding clips on both sides of the socket outward to release the DIMM, as shown in Figure 3-5.

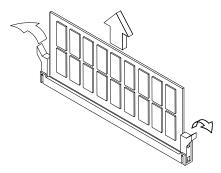


Figure 3-5 Removing a DIMM

**Note:** Place your forefingers on the top of the DIMM before you press the holding clips to gently disengage the DIMM from the socket.

#### **Reconfiguring the System**

The system automatically detects the amount of memory installed. Run Setup to view the new value for total system memory and make a note of it.

### **Installing Expansion Cards**

There are two kinds of expansion slots available in this system board: PCI (Peripheral Component Interconnect) and AGP (Accelerated Graphics Port). AGP is based on PCI, but is designed especially for the throughput demands of 3D graphics.

To install expansion cards, complete the following steps:

- 1. Locate an empty expansion slot on the system board.
- 2. Remove the metal bracket located on the opposite side of the empty expansion slot using a Phillips screwdriver.
- 3. Insert an expansion card into the slot. Make sure that the card is properly seated.
- 4. Secure the card to the housing with a screw.

When you turn on the system, BIOS automatically detects and assigns resources to the new device.

**Note:** BIOS detects and configures only PnP (plug and play) expansion cards.

## **Error Messages**

Do not continue using the computer if you receive an error message of any type. Note the message and take corrective action. This section explains the different types of error messages and corresponding corrective measures.

There are two general types of error messages:

- Software error messages
- System error messages

### **Software Error Messages**

Software error messages are returned by your operating system or application. These messages typically occur after you boot the operating system or when you run your applications. If you receive this type of message, consult your application or operating system manual for help.

### **System Error Messages**

A system error message indicates a problem with the computer itself and normally appears during the power-on self-test (POST), before the operating system prompt appears. Table 3-2 describes corrective actions for system error messages.

Table 3-2System Error Messages

•	· ·
Message	Action
CMOS battery bad	Replace the lithium battery or contact your dealer.
CMOS checksum error	Run Setup <sup>a</sup> .
CPU BIOS update code mismatch	Contact your dealer.
Diskette drive controller error or not installed floppy disk controller error	Check and connect both ends of the floppy cable.
Diskette drive error	Check the CMOS settings in Setup <sup>a</sup> and the floppy drive cable connections.
Diskette drive A type mismatch floppy drive error	Run Setup <sup>a</sup> and select the proper floppy drive type.
Diskette drive B type mismatch floppy drive B error	Run Setup <sup>a</sup> and select the proper floppy drive type.
ECC facility fail	SDRAM might be bad. Contact your dealer.
Equipment configuration error	Modify memory configuration. Contact your dealer.
Expansion ROM allocation failed	Contact your dealer.
Hard disk controller error	Run Setup <sup>a</sup> or check the hard disk cable connection.

Table 3-2 (continued)	System Error Messages
Message	Action
Hard disk 0 error IDE primary channel master drive error	Check all cable connections. Replace hard disk.
IDE primary channel slave drive error	Check all cable connections. Replace hard disk.
Hard disk 1 error IDE secondary channel master drive Error	Check all cable connections. Replace hard disk.
IDE secondary channel slave drive error	Check all cable connections. Replace hard disk.
Hard disk 0 extended type error	Run Setup <sup>a</sup> .
Hard disk 1 extended type error	Run Setup <sup>a</sup> .
IRQ setting error	Run Setup <sup>a</sup> to make sure that there are no IRQ device conflicts.
I/O parity error	Contact your dealer.
I/O resource conflict(s)	Check the serial and parallel ports to make sure that there are no IRQ and I/O address conflicts.
I <sup>2</sup> C interface or device(s) error, system halt	Shut down and disconnect the power cable or contact your dealer.
PS/2 keyboard error or no keyboard connected	Check and connect the keyboard to the system unit.
PS/2 keyboard interface error	Replace the keyboard or contact your dealer.
PS/2 pointing device error	Check and connect the pointing device connection.
PS/2 pointing device interface error	Run Setup <sup>a</sup> and check the pointing device.

Table 3-2 (continued)	System Error Messages
-----------------------	-----------------------

Message	Action
Memory Error at: MMMM:SSSS:OOO (W:XXXX, R:YYYY) where: M: MB, S: segment, O: offset, X/Y: write/read pattern	Contact your dealer.
Memory resource conflict(s)	Contact your dealer.
Memory size mismatch CPU clock mismatch	Check the memory size based on the system specifications. Run Setup <sup>a</sup> . If the message reappears, ask for technical assistance.
NVRAM checksum error	Contact your dealer.
Onboard pointing device interface error	Replace the pointing device or contact your dealer.
Real time clock error	Run Setup <sup>a</sup> and set the time and date.
RAM parity error	Contact your dealer.
64K system management memory bad	Contact your dealer.
SMRAM not exist	Contact your dealer.
Press <b>Esc</b> to turn off NMI, any key to reboot	Press <b>Esc</b> to disregard the NMI error. Press any other key to reboot the system. If this happens repeatedly, contact your dealer.

a. Press Ctrl + Alt + Esc during POST to enter the BIOS Setup screen.

As a general rule, if an error message says "Press F1 to continue" it is caused by a configuration problem, which can be easily corrected. An equipment malfunction is more likely to cause a fatal error, i.e., an error that causes complete system failure.

Following are some corrective measures for error conditions:

- 1. Run Setup. You must know the correct configuration values for your system before you enter Setup, which is why you should write them down when the system is correctly configured. An incorrect configuration is a major cause of power-on error messages, especially for a new system.
- 2. Remove the system unit cover. Check that the jumpers on the system board and any expansion boards are set correctly.
- 3. If you cannot access a new disk, it may be because your disk is not properly formatted. Format the disk first using the FDISK and FORMAT commands.
- 4. Check that all connectors and boards are securely plugged in.

If you go through these corrective steps above and still receive an error message, the cause may be an equipment malfunction. If you are sure that your configuration values are correct and your battery is in good condition, the problem may be a damaged or defective chip. In either case, contact an authorized service center for assistance. The BIOS utility allows you to view your system's configuration settings. Most systems are already configured by the manufacturer or the dealer. You do not need to run Setup when starting the computer unless you receive a Run Setup message.

The Setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

# **Setup Utility**

This chapter provides information about the system BIOS and tells how to configure the system by changing the settings of the BIOS parameters.

### Introduction

Most systems are already configured by the manufacturer or the dealer. You do not need to run Setup when starting the computer unless you receive a Run Setup message.

The Setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

**Note:** If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

Before you run Setup, make sure that you have saved all open files. The system reboots immediately after you exit Setup.

## **Enter Setup**

To enter Setup, simultaneously press Ctrl+Alt+Esc.

**Note:** You must press **Ctrl+Alt+Esc** while the system is booting. This key combination does not work during any other time.

The system supports two Setup utility levels: basic and advanced. Figure 4-1 shows the Basic Setup Utility screen and Figure 4-2 shows the Advanced Setup Utility screen.

If you are an advanced user, you may want to check the detailed configuration of your system. Detailed system configurations are contained in the advanced level. To view the advanced level, press **F8**.

The Key Help Guide (press <**Alt+H**> to activate) shows you how to move around the BIOS setup screen:

- 1. Use the Up and Down arrow keys to move around the Setup Utility screen.
- 2. Use the Left and Right arrow keys to move to the next page or to return to the previous page if the Setup screen has more than one page available.
- 3. Use the Pg Up, Pg Down, +, or key to select the options if they are available.
- 4. Press **Esc** to return to the main menu.

**Note:** A parameter with an asterisk (\*) indicates that the parameter appears only when you are in the advanced level. Also, grayed items on the screens have fixed settings and are not user-configurable.

#### Setup Utility

- System Information
- Product Information
- Disk Drives
- Onboard Peripherals
- Power Management
- Boot Options
- · Date and Time
- System Security

Load Default Settings Abort Settings Change

Figure 4-1 Basic Setup Utility screen

#### Setup Utility -

- System Information
- Product Information
- Disk Drives
- · Onboard Peripherals
- Power Management
- Boot Options
- Date and Time
- System Security
- Advanced Options

Load Default Settings Abort Settings Change

Figure 4-2 Advanced Setup Utility screen

# **System Information**

The screen in Figure 4-3 appears if you select System Information from the main menu:

SystemInformation -	
Processor ProcessorSpeed ProcessorSpeed ProcessorSpeed ProcessorSpeed ProcessorSpeed ProcessorSpeed Processor Proces	
CPU/SDRAMBUSFrequency	133/133MHz
Level1CacheSize	32KB,Enabled
Level2CacheSize	256KB,Enabled
FloppyDriveA	1.44MB 3.5-Inch
FloppyDriveB	none
IDEPrimaryChannelMaster	IDE CDRom
IDEPrimaryChannelSlave	none
IDESecondaryChannelMaster	none
IDESecondaryChannelSlave	none
TotalMemory	512MB
1stBank	Registered SDRAM,512MB
2ndBank	none
3rdBank	none
SerialPort1	3F8h,IRQ4
SerialPort2	,
ParallelPort	3F8h,IRQ7
PS/2Mouse	installed

Figure 4-3 System Information Screen

Table 4-1 describes the parameters associated with the System Information screen.

**Table 4-1** System Information Screen Parameters

Parameter	Description
Processor	Type of processor currently installed in your system.
Processor speed	Clock speed of the processor currently installed in your system.
CPU/SDRAM BUS frequency	Value of FSB/memory bus frequency
Level 1 cache	Total amount of first-level or internal fast accessed memory size (i.e., the memory integrated into the CPU.)
Level 2 cache size	Total amount of second-level cache memory size that includes the CPU; either 256 or 512 KB.

 Table 4-1 (continued)
 System Information Screen Parameters

Parameter	Description
Diskette drive A	System's current diskette drive A settings.
Diskette drive B	System's current diskette drive B settings.
IDE primary channel master	Current configuration of the IDE device connected to the master port of the primary IDE channel.
IDE primary channel slave	Current configuration of the IDE device connected to the slave port of the primary IDE channel.
IDE secondary channel master	Current configuration of the IDE device connected to the master port of the secondary IDE channel.
IDE secondary channel slave	Current configuration of the IDE device connected to the slave port of the secondary IDE channel.
Total memory	Total amount of onboard memory. The memory size is automatically detected by BIOS during the POST. If you install additional memory, the system automatically adjusts this parameter to display the new memory size.
1st/2nd/3rd bank	Type and size of DRAM installed in DIMM sockets 1, 2, and 3. The None setting indicates that there is no DRAM installed. For the location of the DIMM sockets, see Figure 3-1 on page 59.
Serial port 1	Serial port 1 address and IRQ setting.
Serial port 2	Serial port 2 address and IRQ setting.
Parallel port	Parallel port address and IRQ setting.
PS/2 mouse	Pointing device installation settings; displays None if no pointing device is installed.

### **Product Information**

Figure 4-4 shows the Product Information screen, which contains the general data about the system, such as the product name, serial number, BIOS version, and so on. This information is necessary for troubleshooting, and it may be required when you ask for technical support.

ProductName	M25D
SystemS/N	XXXXXXX
MainBoardID	M25D
MainBoardS/N	xx.xxxxxxxx
SystemBIOSVersion	
SMBIOSVersion	X.X
SystemBIOSID	xxx-xx xx xx
BIOSReleaseDate	

Figure 4-4 Product Information Screen

Table 4-2 describes the parameters of the Product Information screen.

 Table 4-2
 Product Information Screen Parameters

Parameter	Description
Product name	Official name of the system
System S/N	System's serial number
Main board ID	Mainboard's identification number
Main board S/N	Mainboard's serial number
System BIOS version	Version of the BIOS utility
SMBIOS version	Version of the DMI BIOS

### **Disk Drives**

Select Disk Drives to input configuration values for disk drives. Figure 4-5 shows the Disk Drives screen.

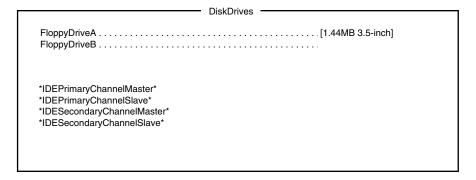


Figure 4-5 Disk Drives Screen

**Note:** A parameter with an asterisk (\*) indicates that the parameter appears only when you are in the advanced level. See "Enter Setup" on page 73.

Table 4-3 describes the parameters in this screen. The settings in **boldface** are the default and suggested parameter settings.

 Table 4-3
 Disk Drives Screen Parameters

Parameter	Description	Option
Diskette drive A and B	Selects the floppy disk drive type	1.44 MB, 3.5-in. None 360 KB, 5.25-in. 1.2 MB, 5.25-in. 720 KB, 3.5-in. 2.88 MB, 3.5-in.
IDE primary channel master and slave IDE Secondary channel master and slave	These items let you select the IDE hard disk parameters that your system supports. Auto enables BIOS to automatically detect the parameters of installed HDDs during the POST (power-on self-test). If you prefer to enter HDD parameters manually, select User. Select None if no HDD is connected to the system. The IDE CD-ROM is always automatically detected	Auto User None

## **IDE Channel Type**

The screen in Figure 4-6 appears if you select any of the IDE drive parameters.

IDE Primary/Secondary Channel Master/Slave	
Device Detection Mode Device Type	[Auto] Hard Disk
Cylinder Head	[xxxx]
Sector Size	[xxxx] [xxxx] MB
*Hard Disk LBA Mode	[Auto]
*Hard Disk Block Mode	
*Hard Disk 32 bit Access	
*Advanced PIO Mode	
*DMA Transfer Mode	[Auto]
	•

Figure 4-6 IDE Drive Screen

Table 4-4 describes the parameters of the IDE Drive screen.

 Table 4-4
 IDE Drive Screen Parameters

Parameter	Description	Option
Device detection mode	Lets you specify the type of hard disk installed in your system. If you want BIOS to automatically configure your hard disk, select Auto. If you know your hard disk type, you can enter the setting manually.	Auto User None
Device type	Indicates a hard disk type device.	
Cylinder	Specifies the number of cylinders of your hard disk, and is automatically set depending on your Type parameter setting.	User input
Head	Specifies the number of heads of your hard disk, and is automatically set depending on your Type parameter setting.	User input

 Table 4-4 (continued)
 IDE Drive Screen Parameters

Parameter	Description	Option
Sector	Specifies the number of sectors of your hard disk, and is automatically set depending on your Type parameter setting.	User input
Size	Specifies the size of your hard disk, in MB.	User input
Hard disk LBA mode	When set to Auto, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows you to use a hard disk with a capacity of more than 528 MB. This is made possible through the Logical Block Address (LBA) mode translation.  However, this enhanced IDE feature works only under DOS, Windows 3.x, Windows 98, and Windows NT 3.5 and above. Other operating systems require this parameter to be set to Disabled.	<b>Auto</b> Disabled
Hard disk block mode	Enhances disk performance depending on the hard disk in use. If you set this parameter to Auto, the BIOS utility automatically detects if the installed hard disk drive supports the block mode function. If supported, it allows data transfer in blocks (multiple sectors) at a rate of 256 bytes per cycle.	<b>Auto</b> Disabled
Hard disk 32-bit access	Improves system performance by allowing use of the 32-bit hard disk access. This enhanced IDE feature works only under DOS, Windows 3.x, Windows 98, Windows NT, and Novell NetWare. If your software or hard disk does not support this function, set this parameter to Disabled.	<b>Enabled</b> Disabled

 Table 4-4 (continued)
 IDE Drive Screen Parameters

Parameter	Description	Option
Advanced PIO mode	When set to Auto, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows for faster data recovery and read/write timing that reduces hard disk activity time. This results in better hard disk performance.	<b>Auto</b> Disabled
DMA transfer mode	The Ultra DMA and Multi-DMA modes enhance hard disk performance by increasing the transfer rate. However, besides enabling these features in the BIOS Setup, both the Ultra DMA and Multi-DMA modes require the DMA driver to be loaded. By setting this parameter to Auto, BIOS automatically sets the appropriate DMA mode for your hard disk.	<b>Auto</b> Disabled

# **Onboard Peripherals**

Figure 4-7 shows the Onboard Peripherals screen, which lets you configure the onboard communication ports and the onboard devices.

Onboard Peripherals	
Serial Port 1	3F8h]
Serial Port 2	2F8h]
Parallel Port	378h] 7] EPP]
Floppy Disk Controller	Both] Enabled] Enabled] Disabled] Enabled] Enabled]

Figure 4-7 Onboard Peripherals Screen

Table 4-5 describes the parameters in this screen. The settings in **boldface** are the default and suggested parameter settings.

**Table 4-5** Onboard Peripherals Screen Parameters

Description	Option
Enables or disables serial port 1.	Enabled
	Disabled
Sets the I/O base address of serial	3F8h
port 1.	2F8h
	3E8h
	2E8h
	Enables or disables serial port 1.  Sets the I/O base address of serial

 Table 4-5 (continued)
 Onboard Peripherals Screen Parameters

Parameter	Description	Option	
IRQ	Sets the IRQ (interrupt request) channel of serial port 1.	<b>4</b> 11	
Serial port 2	Enables or disables the serial port 2.	<b>Enabled</b> Disabled	
Base address	Sets the I/O base address of serial port 2.	3F8h <b>2F8h</b> 3E8h 2E8h	
IRQ	Sets the IRQ (interrupt request) channel of serial port 2.	3 11	
Parallel port	Enables or disables the parallel port.	<b>Enabled</b> Disabled	
Base address	Sets the I/O base address of the parallel port.	378h 278h 3BCh	
IRQ	Sets the interrupt request (IRQ) channel of the parallel port.	<b>7</b> 5	
	Note: If you install an add-on card that has a parallel port whose address conflicts with the onboard parallel port, a warning appears on the screen. Check the parallel port address of the add-on card and change the address to one that does not conflict.		

 Table 4-5 (continued)
 Onboard Peripherals Screen Parameters

Parameter Description		Option	
Operation mode	Selects the operation mode of the parallel port.	<b>Bidirectional</b> EPP	
	Standard Parallel Port (Standard) - allows normal speed one-way operation.	ECP Standard	
	Standard and Bidirectional (Bidirectional) - allows normal speed operation in a two-way mode.		
	Enhanced Parallel Port (EPP) - allows bidirectional parallel port operation at maximum speed.		
	Extended Capabilities Port (ECP) - allows parallel port to operate in bidirectional mode and at a speed higher than the maximum data transfer rate.		
ECP DMA channel	Sets the DMA channel of the parallel port when the parallel operation mode is set to ECP.	<b>1</b> 3	
Floppy disk controller	Enables or disables the onboard floppy disk drive controller.	<b>Enabled</b> Disabled	
IDE controller	Enables or disables the onboard primary, secondary or both IDE controller.	Primary Secondary <b>Both</b> , Disabled	
PS/2 mouse controller	Enables or disables the onboard PS/2 mouse controller.	<b>Enabled</b> Disabled	
USB host controller	Enables or disable the USB controller on board.	<b>Enabled</b> Disabled	
USB legacy mode	When enabled, allows you to use a USB keyboard in DOS. Set this to Disabled to deactivate the USB keyboard function in DOS.	<b>Disabled</b> Enabled	

 Table 4-5 (continued)
 Onboard Peripherals Screen Parameters

Parameter	Description	Option
Onboard audio chip	Enables or disables onboard audio feature.	<b>Enabled</b> Disabled
Onboard SCSI	Enables or disables onboard SCSI feature.	<b>Enabled</b> Disabled
Onboard Ethernet chip	Enables or disables onboard network feature.	<b>Enabled</b> Disabled

# **Power Management**

The Power Management screen allows you to configure the system power-management feature. Figure 4-8 shows the power management parameters and their default settings:

Power Management		
IDE Hard Disk Standby Timer System Sleep Timer		
Power Switch <4 sec	[Power Off]	
PCI Power Management	[Enabled] [Enabled] [Disabled]	

Figure 4-8 Power Management Screen

Table 4-6 describes the parameters in this screen. The settings in **boldface** are the default and suggested parameter settings.

 Table 4-6
 Power Management Screen Parameters

Parameter	Description	Option
Power management mode	Allows you to reduce power consumption. When this parameter is set to Enabled, you can configure the IDE hard disk and system timers. Setting it to Disabled deactivates the power management feature and its timers.	<b>Enabled</b> Disabled
IDE hard disk standby timer	Allows the hard disk to enter standby mode after inactivity of 1 to 15 minutes, depending on your setting. When you access the hard disk again, allow 3 to 5 seconds (depending on the hard disk) for the disk to return to normal speed. Set this parameter to Off if your hard disk does not support this function.	Off 1 minute 15 minutes
System sleep timer	This parameter sets the system to the lowest power-saving mode after a specified period of inactivity. Any keyboard or mouse action or any activity detected from the IRQ channels resumes system operation.	Off On
Sleep mode	Lets you specify the power-saving mode that the system will enter after a specified period of inactivity.  This parameter becomes configurable only if the System Sleep Timer is on. Any keyboard or mouse action, or any enabled monitored activities occurring through the IRQ channels resume system operation.	<b>Standby</b> Suspend

 Table 4-6 (continued)
 Power Management Screen Parameters

Parameter	Description	Option
Power switch < 4 sec.	When set to Power Off, the system automatically turns off when the power switch is pressed for less than 4 seconds. When set to Suspend, the system enters the suspend mode when pressed for less than 4 seconds.	Suspend Power off
System wake-up event	The system wake-up event allows the system to resume operation when the modem ring indicator is enabled.	
Modem ring indicator	When set to Enabled, any fax/modem activity wakes up the system from suspend mode.	<b>Enabled</b> Disabled
PCI power management	Lets the PCI power management function monitor your computer. Any detected event from the PCI bus will resume the computer to normal operation.	<b>Enabled</b> Disabled
Restart AC/power failure	Reboots the system when a power failure occurs. If disabled, the system does not automatically reboot from a power failure.	<b>Disabled</b> Enabled

## **Boot Options**

This option allows you to specify your preferred settings for bootup. The screen in Figure 4-9 appears if you select Boot Options from the main menu:

Boot Sequence

1st [Floppy Disk A:]
2nd [Hard Disk C:]
3rd [IDE CD-ROM]

Fast Boot [Fnabled]
Num Lock After Boot [Enabled]
Memory Test [Disabled]
Configuration Table [Enabled]

\*Single Processor MP Table. [Enabled]

Figure 4-9 Boot Options Screen

**Note:** A parameter with an asterisk (\*) indicates that the parameter appears only when you are in the Advanced level. See "Enter Setup" on page 73.

The following information pertains to the sub-menus below the first three options listed in Figure 4-9:

- Under "Floppy Disk A," you can choose as follows:
  - Select "Floppy Disk A" if you want the system to check the floppy drive on boot-up.
  - Select "Skip" if you want the system to bypass checking the floppy disk on boot-up.
- Under "Hard Disk C," you can choose as follows:
  - Select "E-IDE" if you want the system to boot from an IDE drive as your hard disk boot-up device.
  - Select "Other" if you want the system to boot from an IDE drive as your hard disk boot device.
  - Select "Skip" if you want the system to bypass checking the hard drive on boot-up.

- Select "Set" to save your selection (after you have selected the hard disk you want to boot from).
- Under "IDE CD ROM," you can choose as follows:
  - Select "IDE CD ROM" if you want the system to check the CD-ROM drive for a bootable CD on boot-up.
  - Select "Skip" if you want the system to bypass checking the CD-ROM on boot-up.

Table 4-7 describes the parameters in Figure 4-9. The settings in **boldface** are the default and suggested parameter settings.

 Table 4-7
 Boot Options Screen Parameters

Parameter	Description	Option
Boot sequence	Allows you to specify the boot search sequence during POST.	
	<b>1st</b> . The system checks this drive first.	
	<b>2nd</b> . The system then checks this drive if it cannot boot from the 1st specified drive.	
	<b>3rd</b> . If the 1st and 2nd searches fail then it boots from this drive.	
	BIOS will display an error message if the drive(s) specified cannot be booted.	
Fast boot	Allows the system to boot faster by skipping some POST routines.	<b>Auto</b> Disable

 Table 4-7 (continued)
 Boot Options Screen Parameters

Parameter	Description	Option
Silent boot	Enables or disables the Silent boot function. When set to Enabled, BIOS is in graphical mode and displays only an identification logo during POST and while booting. After booting, the screen displays the operating system prompt (such as DOS) or logo (such as Windows NT). If any error occurs while booting, the system automatically switches to the text mode. Even if your setting is Enabled, you may also switch to the text mode while booting by pressing the <code>Delete</code> key when you see the "Press <code>DELETE</code> key to enter setup" message on the screen.	<b>Enabled</b> Disabled
	When set to Disabled, BIOS is in the conventional text mode in which you see the system initialization details on the screen	
Num lock after boot	Activates the Num Lock function upon booting.	<b>Enabled</b> Disabled
Memory test	Lets you specify whether you want BIOS to perform or bypass the RAM test during the POST routine.	<b>Disabled</b> Enabled
Single processor MP table	If you enable this parameter, BIOS can create a multiprocessor (MP) table for multiprocessor OS (for example. Windows NT) use. In a single processor system running Windows NT, you may disable this parameter to enhance system performance. If you install another CPU for a dual system, enable this parameter and reinstall Windows NT.	<b>Enabled</b> Disabled
	In cases when this parameter is enabled before installing Windows NT in a single processor system, you may upgrade to a multiprocessor system without reinstalling Windows NT.	

## **Date and Time**

The real-time clock keeps the system date and time. After setting the date and time, you do not need to enter them every time you turn on the system. As long as the internal battery remains good (approximately seven years) and connected, the clock continues to keep the date and time accurately even when the power is off.

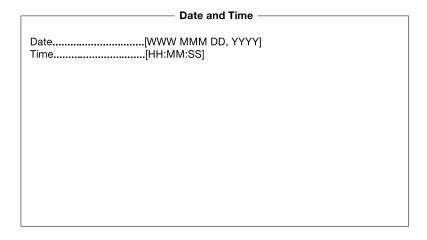


Figure 4-10 Date and Time Screen

Table 4-8 describes the parameters of the Date and Time screen.

**Table 4-8** Date and Time Screen Parameters

Parameter	Description		
Date	Set the date following the weekday-month-day-year format. Valid values for weekday, month, day, and year are:		
	Weekday: Sun, Mon, Tue, Wed, Thu, Fri, Sat		
	Month: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec		
	Day: 1 to 31		
	Year: 1980 to 2079		
Time	Set the time following the hour-minute-second format. Valid values for hour, minute, and second are:		
	Hour: 00 to 23		
	Minute: 00 to 59		
	Second: 00 to 59		

# **System Security**

The Setup program has a number of security features to prevent unauthorized access to the system and its data. The screen in Figure 4-11 appears if you select System Security from the main menu.

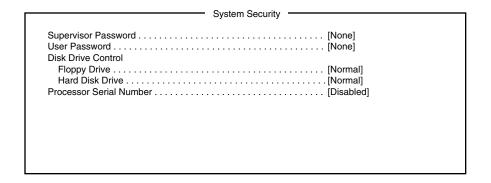


Figure 4-11 System Security Screen

## **Supervisor Password**

The Supervisor Password prevents unauthorized access to the BIOS utility.

## **Setting and Changing the Password**

To set or change a Supervisor Password, complete the following steps:

1. Enable the Supervisor Password parameter in the System Security menu by pressing the left or right arrow keys. The Supervisor Password screen appears, as shown in Figure 4-12.

Supervisor Password		
Enter your new Supervisor Password twice. Supervisor Password may be up to 7 characters long.		
Enter Password again[xxxxxxxx]  Enter Password again[xxxxxxxx]		
Set or Change Password		

Figure 4-12 Supervisor Password Screen

- 2. Type a password in the **Enter Password** field. The password may consist of up to seven characters.
- 3. Press the **Enter** key. Retype your password in the **Enter Password again** field to verify your first entry.
- 4. Highlight **Set or Change Password** and press the **Enter** key.
- 5. Press the **Esc** key to return to the System Security menu and then press the **Esc** key again to exit Setup. The Save Changes screen appears, as shown in Figure 4-13.

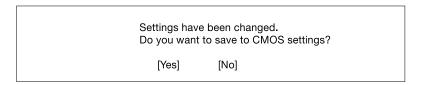


Figure 4-13 Save Changes Screen

Choose Yes to save your settings and exit Setup. Your password will be saved to CMOS.

## Removing the password

To remove your Supervisor Password, complete the following steps:

- 1. Disable the Supervisor Password parameter in the System Security menu by pressing the left or right arrow key to select **None**.
- 2. Press the **Esc** key to return to the System Security menu and then press the **Esc** key again to exit Setup. The Exit Setup screen appears.
- 3. Choose **Yes** to save your settings and exit Setup. Your previous password will be removed from CMOS.

#### **User Password**

The User Password protects the computer and prevents unauthorized access to the Setup Utility.

## **Setting and Changing the Password**

To set or change a User Password, complete the following steps:

1. Enable the User Password parameter in the System Security menu by pressing the left or right arrow key. The User Password screen appears, as shown in Figure 4-14:

User Password —		
0301 1 u33W01u		
Enter your new User Password twice. User Password may be up to 7 characters long.		
Enter Password[xxxxxxxx] Enter Password again[xxxxxxxxx]		
Set or Change Password		

Figure 4-14 User Password Screen

- 2. Type a password in the **Enter Password** field. The password may consist of up to seven characters.
- 3. Press the **Enter** key. Retype your password in the **Enter Password again** field to verify your first entry.
- 4. Highlight Set or Change Password and press the Enter key.
- 5. Press the **Esc** key to return to the System Security menu and then press the **Esc** key again to exit Setup. The Save Changes screen appears, as shown in Figure 4-15:

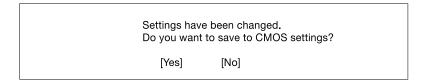


Figure 4-15 Save Changes Screen

6. Choose **Yes** to save your settings and exit Setup. Your password will be saved to CMOS.

## Removing a Password

To remove your User Password, complete the following steps:

- 1. Disable the User Password parameter in the System Security menu by pressing the left or right arrow key to select **None**.
- 2. Press the **Esc** key to return to the System Security menu and then press the **Esc** key again to exit Setup. The Exit Setup screen appears.
- 3. Choose **Yes** to save your settings and exit Setup. Your previous password will be removed from CMOS.

## **Disk Drive Control**

The disk drive control features enable or disable the read/write functions of disk drives. These features can also control the diskette drive boot function to prevent loading operating systems or other programs from a certain drive while the other drives remain operational.

The following table describes the functions of the drive control parameters:

**Table 4-9** Disk Drive Control Parameters

Parameter	Description	Option
Floppy drive	Sets the control level of the diskette drives	Normal Write protect all sectors Write protect all boot sectors Disabled
Hard disk drive	Sets the controller of the IDE drive	Normal Write protect all sectors Write protect all boot sectors Disabled

### **Processor Serial Number**

The Pentium III processor incorporates an individual serial number in each chip that can identify individual CPUs. When set to Enabled, CPUs can be identified by processor serial number. Disable this parameter to deactivate this feature.

## **Advanced Options**

The Advanced Options screen lets you configure the system memory, PCI device settings, and CPU frequency. To view the Advanced Options screen, press **F8** from the main menu and then select Advanced Options.

**Note:** To avoid damaging the system, do not change any settings in the Advanced Options screen unless you are a qualified technician.

The screen in Figure 4-16 shows the Advanced Options parameters.

## AdvancedOptions

- Memory/CacheOptions
- PnP/PCIOptions

Figure 4-16 Advanced Options Screen

## **Memory/Cache Options**

The Memory/Cache Options screen, shown in Figure 4-17, lets you configure the advanced system memory functions.

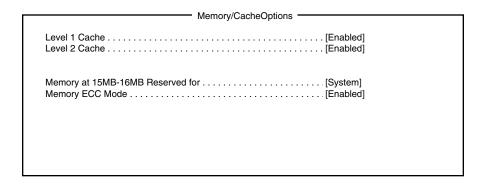


Figure 4-17 Memory/Cache Options Screen

Table 4-10 describes the parameters of the Memory/Cache Options screen.

 Table 4-10
 Memory Cache Options Screen Parameters

Parameter	Description	Option
Level 1 cache	Enables or disables the first-level or internal memory, that is, the memory integrated into the CPU.	<b>Enabled</b> Disabled
Level 2 cache	Enables or disables the second-level cache memory. The second-level cache is incorporated into the CPU module.	<b>Enabled</b> Disabled

**Table 4-10 (continued)** Memory Cache Options Screen Parameters

Parameter	Description	Option
Memory at 15MB-16MB reserved for	To prevent memory address conflicts between the system and expansion boards, reserve this memory range for the use of either the system or an expansion board.	System Expansion board
Memory ECC mode	Enables or disables the ECC (error correction code) feature. The ECC feature enables BIOS to detect and correct data errors. Disable this parameter if you want to disregard the function.	<b>Enabled</b> Disabled

## **PnP/PCI Options**

The PnP/PCI Options screen, shown in Figure 4-18, lets you specify the settings for your PCI devices.

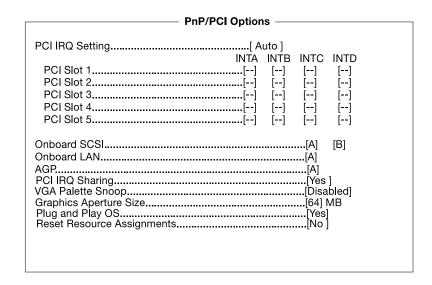


Figure 4-18 PnP/PCI Options Screen

Table 4-11 describes the parameters of the PnP/PCI Options screen.

 Table 4-11
 PnP/PCI Options Screen Parameters

Parameter	Description	Option
PCI IRQ setting	Select Auto to let BIOS automatically configure the plug and play (PnP) devices installed on your system. Otherwise, select Manual.  Note: See your manual for technical information about the PCI card.	<b>Auto</b> Manual
PCI slots 1 to 5	When you set the PCI IRQ Setting parameter to Auto, these parameters specify the auto-assigned interrupt for each of the PCI devices. If you set the PCI IRQ Setting parameter to Manual, you need to specify the interrupt that you want to assign for each PCI device installed in your system.	User input
Onboard SCSI	When you set the PCI IRQ parameter to Auto, this parameter specifies the auto assigned interrupt for the onboard SCSI. If you set the PCI IRQ setting parameter to Manual, you need to specify the interrupt that you want to assign for the onboard SCSI installed in your system.	User input
Onboard LAN	When you set the PCI IRQ parameter to Auto, this parameter specifies the auto assigned interrupt for the onboard LAN. If you set the PCI IRQ setting parameter to Manual, you need to specify the interrupt that you want to assign for the onboard LAN installed in your system.	User input
AGP	This item shows the assigned interrupt for the onboard Accelerated Graphics Port (AGP) controller.	User input

 Table 4-11 (continued)
 PnP/PCI Options Screen Parameters

Parameter	Description	Option
PCI IRQ sharing	Setting this parameter to Yes allows you to assign the same IRQ to two different devices. To disable the feature, select No.  Note: If there are no IRQs available to assign for the remaining device function, it is recommended that you enable this parameter	
VGA palette snoop	This parameter permits you to use the palette snooping feature if you installed more than one VGA card in the system.	<b>Disabled</b> Enabled
	The VGA palette snoop function allows the control palette register (CPR) to manage and update the VGA RAMDAC (Digital Analog Converter, a color data storage) of each VGA card installed in the system. The snooping process lets the CPR send a signal to all the VGA cards so that they can update their individual RAMDACs. The signal goes through the cards continuously until all RAMDAC data has been updated. This allows the display of multiple images on the screen.	
	<b>Note:</b> Some VGA cards have required settings for this feature. Check your VGA card manual before setting this parameter.	
Graphics aperture size	This parameter determines the effective size of the graphics aperture. Graphics aperture is the address range that the AGP video and the CPU use to manage graphical objects. The lowest setting is 8 MB and the highest is 256 MB.	User input

 Table 4-11 (continued)
 PnP/PCI Options Screen Parameters

Parameter	Description	Option
Plug and play OS	When this parameter is set to Yes, BIOS initializes only PnP boot devices such as SCSI cards. When set to No, BIOS initializes all PnP boot and non-boot devices such as sound cards.	Yes No
	<b>Note:</b> Set this parameter to Yes only if your operating system is Windows 98.	
Reset resource assignments	Set this parameter to Yes to avoid IRQ conflicts when installing non-PnP or PnP ISA cards. This clears all resource assignments and allows BIOS to reassign resources to all installed PnP devices the next time the system boots. After clearing the resource data, the parameter resets to No.	

# **Load Default Settings**

Use this option to load the default settings for the optimized system configuration. When you load the default settings, some of the parameters are grayed-out with their fixed settings. These grayed parameters are not user-configurable.

The screen in Figure 4-19 appears when you select Load Default Settings from the main menu.

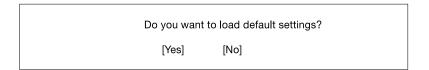


Figure 4-19 Load Default Settings Screen

Select **Yes** to load the default settings.

Select **No** to ignore the message and return to the BIOS utility.

## **Abort Settings Change**

Use this option to disregard your changes to the BIOS and reload your previous settings.

The screen in Figure 4-20 appears when you select Abort Settings Change from the main menu.

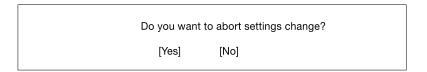


Figure 4-20 Abort Settings Change Screen

Select **Yes** to disregard your changes and reload your previous settings. After reload, the main menu appears.

Select **No** to ignore the message and return to the BIOS utility.

# **Exit Setup**

Examine the system configuration values. When you are satisfied that all the values are correct, write them down. Store the recorded values in a safe place. In the future, if the battery loses power or the CMOS chip is damaged, you will know what values to enter when you rerun Setup.

Press the **Esc** key to leave Setup. The screen in Figure 4-21 appears.

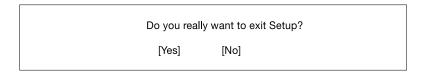


Figure 4-21 Exit Setup Screen

Use the arrow keys to select your response. Press the **Enter** key.

If you made any changes to the Setup utility, the screen in Figure 4-22 is displayed.

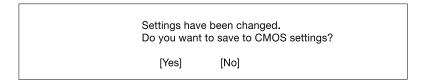


Figure 4-22 Save Changes Screen

Use the arrow keys to select your response. Select **Yes** to save the changes in CMOS. Select **No** to retain the old configuration values. Press the **Enter** key to exit.

# **SCSISelect Configuration Utility**

This document contains information about the SCSISelect Configuration Utility.

# **SCSI Configuration Utility**

### Overview

The SCSISelect configuration utility allows you to change SCSI controller settings without opening the computer or changing jumpers.

## **Default Values**

The following table lists the settings you can change with the SCSISelect utility and the default value for each setting. Some settings apply globally to the SCSI controller and all SCSI devices on the bus; other settings apply individually to each device on the bus.

**Note:** The Silicon Graphics 330 Visual Workstation is equipped with a dual SCSI channel controller that enhances your system's performance and flexibility

**Table 5-1** Default Settings for SCSI Controller and All Devices

Global Settings for SCSI Controller and All Devices	Default Value
Host Adapter SCSI ID	7
SCSI Parity Checking	Enabled
Host Adapter SCSI Termination	Automatic
Boot Channel/ Boot SCSI I/O	A/0 (zero)

Table 5-1 (continued)	Default Settings for SCSI Controller and All Devices
-----------------------	--

Default Value Enabled		
Enabled		
Boot only		
Enabled		
Default Value		
Yes		
80 MBytes/sec.		
Yes		
Yes		

## When to Use the SCSISelect Utility

Use the SCSISelect utility if you need to:

- Change any of the default values listed in the settings table
- Check and/or change SCSI device settings that may conflict with those of other devices (e.g., SCSI ID)
- Perform low-level formatting on new SCSI disk devices

## Running the SCSISelect Utility

To start SCSISelect, press **Ctrl+A** when the following is displayed during power- up or reset:

Press <Ctrl> <A> for SCSISelect? Utility!

This message appears after BIOS and POST information displays, and after the banner listing the Adaptec AHA-3950U2B version number.

# **SCSISelect Utility Options**

When the SCSISelect utility detects the AHA-3950U2B SCSI controller in your computer, it displays the Options menu shown below.

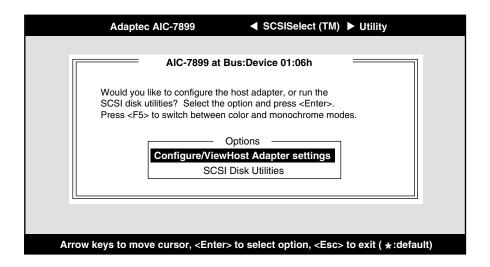


Figure 5-1 Options Menu Screen

Use the  $\uparrow$  and  $\downarrow$  keys and the **Enter** key to make selections in the SCSISelect utility. Press **Esc** at any time to return to the previous menu.

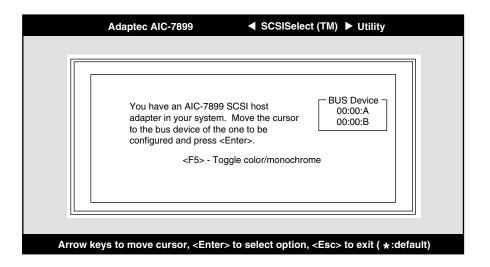
**Note:** You can press **F5** to toggle the display between color and monochrome modes. (This feature may not work on all monitors.)

## **Configure/View Host Adapter Settings Menu**

The Configure/View Host Adapter Settings menu lists three settings under SCSI Bus Interface Definitions and three additional options, as shown below:

- Host Adapter SCSI ID: changes the host controller SCSI ID from its default value of 7
- SCSI Parity Checking: enables or disables host controller SCSI parity checking
- Host Adapter SCSI Termination: configures host controller SCSI termination

Advanced users can access Boot Device Options, SCSI Device Configuration, and Advanced Configuration Options through the following menu:



**Figure 5-2** Configure/View Host Adapter Settings Screen (1 of 2)

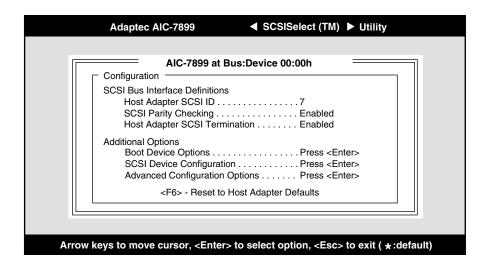


Figure 5-3 Configure/View Host Adapter Settings Screen (2 of 2)

Use the cursor ( $\uparrow\downarrow$ ) to move to your selection. Press **Enter** to display a pop-up menu of choices or to make selections. Press **Esc** at any time to return to the previous menu.

**Note:** Press **F6** to reset all settings to the SCSI controller defaults. SCSI controller default settings are marked with an asterisk (\*) throughout the selection submenus.

## **Host Adapter SCSI ID**

This option allows you to change the host controller SCSI ID. The figure below shows the available IDs for use with the AHA-3950U2B. The default setting is SCSI ID 7. (We recommend that you not change this setting.) Some operating system software will not run unless the SCSI controller ID is set at ID 7.

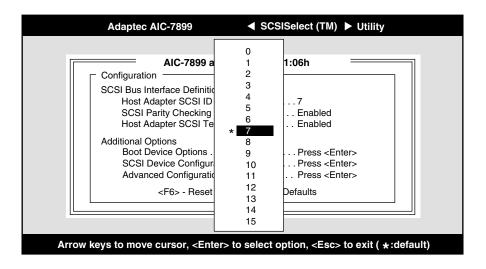


Figure 5-4 Host Adapter SCSI ID Selection Screen for AHA-3950U2B

Each SCSI device on the SCSI bus, including the SCSI controller, must be set to a unique SCSI ID. The SCSI ID serves two purposes: it uniquely identifies each SCSI device on the bus, and it determines the device's priority on the bus during the Arbitration phase. The Arbitration phase determines which device controls the bus when two or more devices request use of it.

Use the cursor ( $\uparrow \downarrow$ ) and **Enter** keys to select the SCSI ID, if you need to change it. Press **Esc** at any time to return to the previous menu.

## **SCSI Parity Checking**

Select this option to enable or disable SCSI Parity Checking on the SCSI controller. The figure below displays your choices. The default setting is **Enabled**.

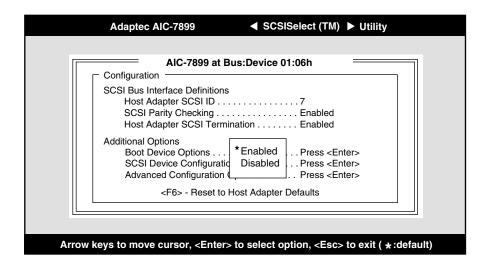


Figure 5-5 SCSI Parity Checking Selection

The SCSI controller always checks parity when reading from the SCSI bus to verify the correct transmission of data from your SCSI devices. You should disable SCSI Parity Checking if any attached SCSI devices do not support SCSI parity. (Most currently available SCSI devices do support SCSI parity.)

Use the cursor  $(\uparrow \downarrow)$  and **Enter** keys to make selections. Press **Esc** at any time to return to the previous menu.

#### **Host Adapter SCSI Termination**

This option allows you to configure host controller SCSI termination. The following figure shows the choices available if you have an AHA-3950U2B.

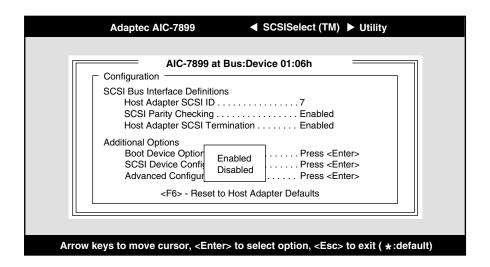


Figure 5-6 Host Adapter SCSI Termination Selection for AHA-3950U2B

Use the cursor  $(\uparrow \downarrow)$  and **Enter** keys to make your selection.

## **Boot Device Options**

This option shows the target ID of the device you are booting from. The default setting is 0 (zero). We recommend that you not change this setting. Some operating systems will not run unless the boot device is set at zero.

The figure below shows the Boot Device Options screen.

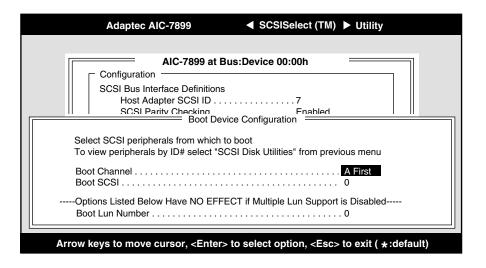


Figure 5-7 Boot Device Options Screen

#### **SCSI Device Configuration**

This option allows you to configure certain parameters of each SCSI device on the SCSI bus. A screen similar to the figure below appears. The screen shows a column of information for each SCSI ID, even if some SCSI IDs are not assigned to a device. To configure a specific SCSI device, you need to know which SCSI ID it uses. See SCSI Disk Utilities later in this section to learn how to determine which SCSI ID is used by which device.

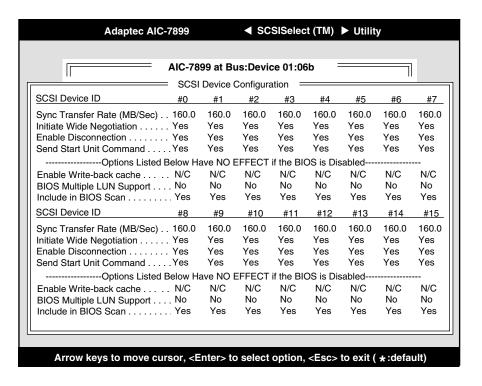


Figure 5-8 SCSI Device Configuration Screen for AHA-3950U2B

Use the cursor keys ( $\uparrow \downarrow$ ) to move between options. Press **Enter** to display a pop-up menu with a selection of values. Use the cursor keys ( $\uparrow \downarrow$ ) to select a value, and press **Enter** to make your selection.

#### **Initiate Sync Negotiation**

This option determines whether the SCSI controller initiates synchronous negotiation with the SCSI device.

When set to **yes**, the SCSI controller initiates synchronous negotiation with the SCSI device. When set to **no**, the SCSI controller does not initiate synchronous negotiation. The SCSI controller, however, always responds to synchronous negotiation if the SCSI device initiates it. The default setting is **yes**.

Data is transferred in asynchronous mode if neither the SCSI controller nor the SCSI peripheral negotiates for synchronous data transfers.

**Note:** Some older SCSI-1 devices do not support synchronous negotiation. This may cause your computer to operate erratically or hang if Initiate Sync Negotiation is enabled. Set Initiate Sync Negotiation to **no** for these devices.

#### Maximum Sync Transfer Rate

This option determines the maximum synchronous data transfer rate that the SCSI controller can support. The SCSI controller supports rates up to the maximum of 80.0 MBytes/sec. The default value is **80.0**.

In most cases, you can use the maximum value of 80.0. If the SCSI controller is set not to negotiate for synchronous data transfer (i.e., Initiate Sync Negotiation is set to **no**), then the value selected here is the maximum rate that the SCSI controller accepts from the device during negotiation. (This is standard SCSI protocol.)

**Note:** Some older SCSI-1 devices do not support Fast SCSI data transfer rates. This may cause your computer to operate erratically or hang if the transfer rate is set too high. Set Initiate Sync Negotiation to **no** for these devices.

#### **Enable Disconnection**

This option determines whether the SCSI controller allows a SCSI device to disconnect from the SCSI bus (sometimes called Disconnect/Reconnect). Disconnect/Reconnect allows the SCSI controller to perform other operations on the SCSI bus while the SCSI device is temporarily disconnected.

When set to **yes**, the SCSI device may disconnect from the SCSI bus. The SCSI device, however, may choose not to disconnect, even if permitted by the SCSI controller (this can usually be configured on the SCSI device). When set to **no**, the SCSI device is not allowed to disconnect from the SCSI bus. The default setting is **yes**.

You should leave Enable Disconnection set to **yes** if two or more SCSI devices are connected to the SCSI controller. This optimizes SCSI bus performance. If only one SCSI device is connected to the SCSI controller, set Enable Disconnection to **no** to achieve slightly better performance.

#### **Send Start Unit Command**

This option, which is supported by some SCSI devices, determines whether the Start Unit Command (SCSI command 1B) is sent to the SCSI device (most devices do not require this). Enabling this option reduces the load on your computer's power supply by allowing the SCSI controller to power-up SCSI devices one-at-a- time when you boot your computer. Otherwise, the devices all power-up at the same time. Most devices require you to set a jumper before they can respond to this command.

When set to **yes**, the Start Unit Command is sent to the SCSI device during bootup. When set to **no**, each SCSI device powers-up in its normal fashion. The default setting is **no**.

**Note:** The Send Start Unit Command setting is valid only if the host adapter BIOS is enabled.

If this option is enabled for more than one SCSI device, the Start Unit Command is sent first to the device with the lowest SCSI ID. When this device responds to the SCSI controller, the Start Unit Command is sent to the next highest SCSI ID with a setting of yes. The process continues until all supported devices respond to the SCSI controller.

**Note:** If many drives are set to **yes** for Send Start Unit Command, the boot time varies depending on how long it takes each drive to spin up.

## **Advanced Configuration Options**

When you select Advanced Configuration Options, a screen similar to the figure below appears. Do not change these options unless absolutely necessary.

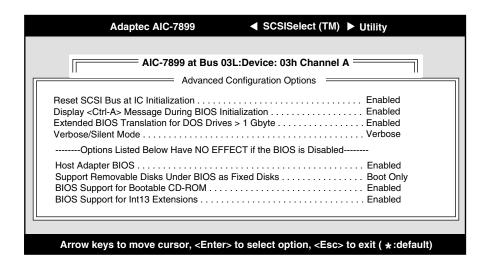


Figure 5-9 Advanced Configuration Options Screen

Use the cursor keys  $(\uparrow \downarrow)$  to move between options. Press **Enter** to display a pop-up menu with a selection of options. Use the cursor keys  $(\uparrow \downarrow)$  to select an option, and press **Enter** to make your selection.

#### **Host Adapter BIOS**

This option enables or disables the SCSI controller BIOS. Default is **Enabled**.

The SCSI controller BIOS must be enabled if you want the computer to boot from a SCSI hard disk drive connected to the SCSI controller. Several SCSISelect options cannot be used unless the SCSI controller BIOS is enabled.

#### Support Removable Disks Under BIOS as Fixed Disks

This option allows you to control which removable-media drives are supported by the SCSI controller BIOS. It is only valid if the SCSI controller BIOS is enabled. The default setting is **Boot Only**. The following choices are available:

- **Boot Only** Only the removable-media drive designated as the boot device are treated as a hard disk drive.
- All Disks All removable-media drives supported by the BIOS are treated as hard disk drives.
- Disabled No removable-media drives are treated as hard disk drives. In this
  situation, software drivers are needed because the drives are not controlled by the
  BIOS.

**Caution:** Support for removable-media drives means only that the SCSI controller BIOS allows you to use a removable-media drive as if it were a hard disk drive; it does **not** mean you can remove the disk media during operation. If a removable-media SCSI device is controlled by the SCSI controller BIOS, do not remove the media while the drive is powered-on or you may lose data! If you want to be able to remove media while the power is on, install the removable-media device driver and set this option to **Disabled**.

#### Extended BIOS Translation for DOS Drives > 1 GByte

This option allows you to enable or disable extended translation for SCSI hard disks with a capacity greater than 1 GByte. It is only valid if the SCSI controller BIOS is enabled. The default setting is **Enabled**. Do not change this setting from the default.

If this option is enabled, the following translation schemes are used:

- SCSI hard disks < 1 GByte use a translation scheme of 64 heads, 32 sectors per track</li>
- SCSI hard disks > 1 GByte use a translation scheme of 255 heads, 63 sectors per track

### Display <Ctrl-A> Message During BIOS Initialization

This option allows entering the SCSI Select utility during BIOS initialization. The default setting is **Enabled**.

### **BIOS Support for Bootable CD-ROM**

When this option is enabled, a bootable CD-ROM device may be used to directly load an operating system. The default setting is **Enabled**.

#### **BIOS Support for Int13 Extensions**

This option allows access to attached SCSI devices through BIOS Int13 functions. The default setting is **Enabled**.

#### **SCSI Disk Utilities**

When you select SCSI Disk Utilities from the Options menu the SCSISelect utility scans the SCSI bus and lists all SCSI devices installed on the SCSI bus. You will see a screen similar to the figure below. You can easily determine from this screen which SCSI ID is assigned to each device on the SCSI bus.

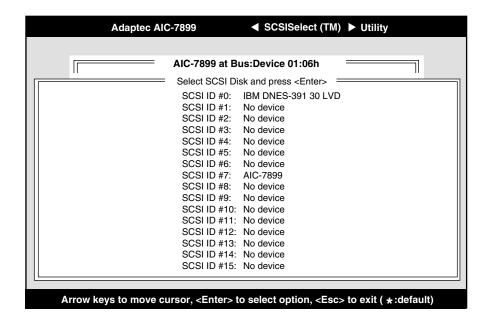


Figure 5-10 SCSI Disk Utilities Screen for AHA-3950U2B

When you highlight a disk device by moving to it with the cursor keys and press **Enter**, a small menu window appears. You then select **Format Disk** or **Verify Media** from this menu.

Use the cursor keys  $(\uparrow \downarrow)$  to move between options. Press **Enter** to display a pop- up menu with a selection of values. Use the cursor keys  $(\uparrow \downarrow)$  to select a value, and press **Enter** to make your selection.

**Note:** Use SCSI Disk Utilities to check the hard disk drive firmware version. Select **SCSI Disk Utilities** from the Configure/View Host Adapter Settings screen. Use the arrow keys to highlight a disk device, then press **Enter** to display the firmware version.

#### **Format Disk**

The **Format Disk** utility performs a low-level format on disk devices.

Most SCSI disk devices are preformatted and do not need to be formatted again. The Adaptec **Format Disk** utility is compatible with the vast majority of SCSI disk drives. Run it on hard disk drives or removable-media drives that were previously used with a non-Adaptec SCSI controller.

**Note:** A low-level format destroys all data on the drive. Be sure to back up your data before performing this operation. You **cannot** abort a low-level format once it is started.

## **Verify Disk Media**

The **Verify Disk Media** utility scans the selected device's media for defects. If the utility finds bad blocks, it prompts you to reassign them; if you select **yes**, those blocks will no longer be used.

Note: You can press Esc at any time to abort the Verify Disk Media utility.

## **Connector Pinouts**

This Appendix contains port pinout information for the following Silicon Graphics 330 Visual Workstation ports:

- Keyboard Port
- Mouse Port
- Video-Out Ports
  - DB15 HD Port
- Serial Ports
- Parallel Port
- USB Ports
- Ethernet Port
- Audio Ports
  - Mic-In Port
  - Line-In and Line-Out Ports

# **Keyboard Port**

The Silicon Graphics 330 Visual Workstation uses a standard PS/2 keyboard port, as shown in Figure A-1.

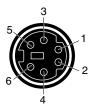


Figure A-1 Keyboard Port Pinout

Table A-1 shows the cable pinout assignments for the keyboard port.

Table A-1Keyboard Port Pinout

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

## **Mouse Port**

The Silicon Graphics 330 Visual Workstation uses a standard PS/2 mouse port, as shown in Figure A-2.

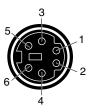


Figure A-2 Mouse Port Pinout

Table A-2 shows the cable pinout assignments for the mouse port.

Table A-2Mouse Port Pinout

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

## **Video-Out Ports**

The Silicon Graphics 330 Visual Workstation comes with an DB15 HD video port, an S-Video port and a DVI-D port.

#### **DB15 HD Port**

Figure A-3 shows the DB15 HD port.

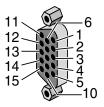


Figure A-3 DB15 HD Port Pinout

Table A-3 shows the port pinout assignments for the DB15 HD port.

Table A-3DB15 HD Port Pinout

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

## **Serial Ports**

The Silicon Graphics 330 Visual Workstation serial ports use a standard PC-compatible pinout. The serial port supports data rates from 300 bits per second (bps) to 115.2 Kbps. Figure A-4 shows the serial port.

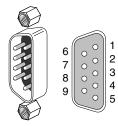


Figure A-4 Serial Port Pinout

Table A-4 shows cable pinout assignments for the serial ports.

Table A-4Serial Port Pinout

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

## **Parallel Port**

The Silicon Graphics 330 Visual Workstation uses a standard DB25 1284 EPC parallel port, as shown in Figure A-5.

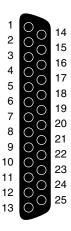


Figure A-5 Parallel Port Pinout

Table A-5 shows the cable pinout assignments for the parallel port.

Table A-5Parallel Port Pinout

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

## **USB Ports**

The Silicon Graphics 330 Visual Workstation has two 4-pin USB connectors. Figure A-6 shows a USB port.

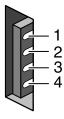


Figure A-6 USB Port Pinout

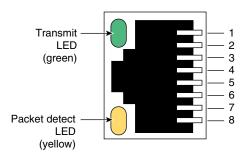
Table A-6 shows the cable pinout assignments for the USB ports.

Table A-6USB Port Pinout

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

## **Ethernet Port**

The Silicon Graphics 330 Visual Workstation has an RJ45 port for 10-Base-T or 100-Base-TX twisted-pair Ethernet. The port autoselects the speed (10 Mbps or 100 Mbps) and type (half duplex or full duplex) at bootup, based on what it is connected to. Figure A-7 shows the Ethernet port.



**Figure A-7** Ethernet Port Pinouts

Table A-7 shows the cable pinout assignments for the Ethernet port.

**Table A-7** Ethernet Port Pinout

Assignment
Transmit+
Transmit-
Receive+
(Reserved)
(Reserved)
Receive-
(Reserved)
(Reserved)

#### **Audio Ports**

The Silicon Graphics 330 Visual Workstation uses a 3.5 mm mini jack stereo microphone port, an analog line-level audio input port and an analog line-level audio output port.

Table A-8 shows the port pinout information for the mic-in, line-in, and line-Out ports.

Table A-8Mic-in, Line-in, Line-Out Port Pinouts

Connector	Tip	Ring	Sleeve
Mic-in	L	R	Ground
Line-in	L	R	Ground
Line-out	L	R	Ground

#### **Mic-In Port**

Figure A-8 shows the mic-In port.

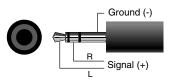


Figure A-8 Mic-In Port Pinout

#### **Line-In and Line-Out Ports**

Figure A-9 shows the line level port.

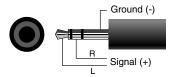


Figure A-9 Line Level Port

# **Physical Environment Specifications**

Table B-1 shows the physical environment specifications for the Silicon Graphics 330 Visual Workstation.

<b>Table B-1</b> Physical Environment Spec	cifications
--	-------------

System dimensions	48.9 cm (19.25") H x 20.95 cm (8.25") W x 44.1 cm (17.375") D-without bezel, 49.16 cm (19.375") D-with bezel
Power Requirements	The power requirements are shown on the back of the system
Ambient Temperature	+10°C (+50°F) to +35°C (+95°F) (operating) -20°C (-4°F) to +60°C (+149°F) (non-operating)
Relative Humidity	10% to 90% non-operating (no condensation)
Vibration	0.38 mm (0.015"), 5-16.2 Hz; 0.2 G, 16.2-250 Hz (operating) 0.6 G, 5-27.1 Hz; 0.4 mm (0.016"), 27.1-50 Hz; 2 G, 50-500 Hz (non-operating)
Weight	32 pounds (dual-CPU configuration)

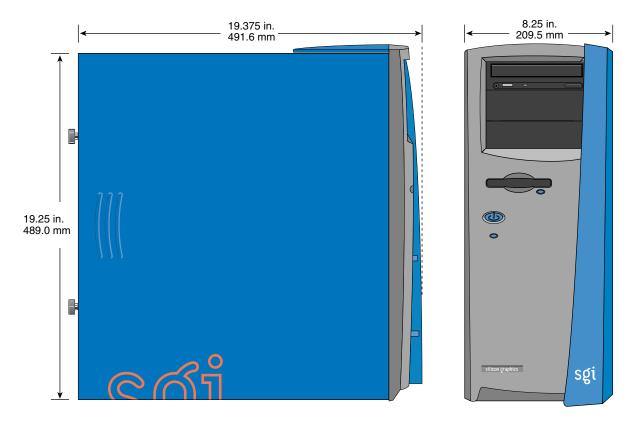


Figure B-1 shows the system dimensions with bezel.

Figure B-1 System Dimensions

## **Regulatory Information**

#### **FCC Notice**

This device 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 device 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 device does cause harmful interference to radio or television reception, which can be determined by turning the device 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 device and receiver
- Connect the device into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for help

## **Notice: Shield Cables**

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

## **Notice: Peripheral Devices**

Only peripherals (input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this equipment. Operation with non certified peripherals is likely to result in interference to radio and TV reception.

**Caution:** Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this computer.

#### **Use Conditions**

This part 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.

## **Notice: Canadian Users**

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

## Remarque à l'intention des utilisateurs canadiens

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## **Important Safety Instructions**

Read these instructions carefully. Save these instructions for future reference.

- 1. Follow all warnings and instructions marked on the product.
- 2. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 3. Do not use this product near water.
- 4. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- 5. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
- This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- 7. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
- 8. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.
- 9. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
- 10. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
- 11. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
  - a. When the power cord or plug is damaged or frayed
  - b. If liquid has been spilled into the product
  - c. If the product has been exposed to rain or water

- d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.
- e. If the product has been dropped or the cabinet has been damaged
- If the product exhibits a distinct change in performance, indicating a need for service.
- 12. Replace the battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified serviceman.
- 13. Warning! Batteries may explode if not handled properly. Do not disassemble or dispose of them in fire. Keep them away from children and dispose of used batteries promptly.
- 14. Use only the proper type of power supply cord set (provided in your accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SPT-2, rated 7A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

## **Laser Compliance Statement**

The CD-ROM drive in this computer is a laser product. The CD-ROM drive's classification label (shown below) is located on the drive.

#### **CLASS 1 LASER PRODUCT**

**CAUTION:** INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

#### APPAREIL A LASER DE CLASSE 1

**ATTENTION:** RADIATION DU FAISCEAU LASER INVISIBLE EN CAS D'OUVERTURE. EVITTER TOUTE EXPOSITION AUX RAYONS.

#### **LUOKAN 1 LASERLAITE LASER KLASSE 1**

**VORSICHT:** UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHLL AUSSETZEN

#### PRODUCTO LÁSER DE LA CLASE I

**ADVERTENCIA:** RADIACIÓN LÁSER INVISIBLE AL SER ABIERTO. EVITE EXPONERSE A LOS RAYOS.

ADVARSEL: LASERSTRÅLING VEDÅBNING SE IKKE IND I STRÅLEN

## VARO! LAVATTAESSA OLET ALTTINA LASERSÅTEILYLLE.

**VARNING:** LASERSTRÅLNING NÅR DENNA DEL ÅR ÖPPNAD ÅLÅ TUIJOTA SÅTEESEENSTIRRA EJ IN I STRÅLEN

**VARNING:** LASERSTRÅLNING NAR DENNA DEL ÅR ÖPPNADSTIRRA EJ IN I STRÅLEN

ADVARSEL: LASERSTRÅLING NAR DEKSEL ÅPNESSTIRR IKKE INN I STRÅLEN

## **Lithium Battery Statement**

**CAUTION:** Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

**ADVARSEL!:** Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Léver det brugte batteri tilbage til leverandøren.

**ADVARSEL:** Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

**VARNING:** Explosionsfara vid felaktigt batteribyte. Anvãnd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera anvãnt batteri enligt fabrikantens instruktion.

**VAROITUS:** Päristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

**VORSICHT!:** Explosionsgefahr bei unsachgemäßen Austausch der Batterie Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

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