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NEC

PowerMate MT V/P Series

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First Printing — April 1997

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Using This Guide

The *PowerMate P ETC Series User's Guide* provides a quick reference to information about your computer.

The guide contains the following information:

- Chapter 1, *Introducing Your Computer*, provides a look at system components. See this chapter to familiarize yourself with your system.
- Chapter 2, *Getting Started*, gives you information about using a mouse, using online documentation, and what you should do after your system is up and running.

The chapter includes a quick-reference chart for finding information about a variety of topics.

- Chapter 3, *Installing Options*, provides installation procedures for internal and external options.
- Chapter 4, *Setting System Parameters*, describes the Setup utility and explains how to use it to configure your system.
- Chapter 5, *Setting System Board Jumpers*, provides information on changing jumper settings when reconfiguring your system.
- Chapter 6, *Using Voyetra Sound Software*, explains how to use Voyetra[®]'s Multimedia Sound Software to play music CDs, record, play and edit .WAV files, and play MIDI files.
- Chapter 7, *If You Have a Problem*, contains troubleshooting tips for solving simple problems and provides information on where you can find help when you cannot solve a problem yourself.

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- Appendix A, Setting Up a Healthy Work Environment, contains guidelines to help you use your computer productively and safely. This appendix also instructs you on how to set up and use your computer to reduce your risk of developing nerve, muscle, or tendon disorders.
 - Appendix B, Reviewing System Interrupts, provides a list of interrupt settings.
 - Appendix C, Limited Warranty, includes warranty information about your PowerMate® P ETC Series Desktop Computer.

 **WARNING**

Prolonged or improper use of a computer workstation may pose a risk of serious injury. To reduce your risk of injury, set up and use your computer in the manner described in Appendix A, Setting Up a Healthy Work Environment.

TEXT CONVENTIONS

This guide uses the following text conventions.

- Warnings, cautions, and notes have the following meanings:

 **WARNING**

Warnings alert you to situations that could result in serious personal injury or loss of life.



CAUTION

Cautions indicate situations that can damage the hardware or software.



Notes give important information about the material being described.

- Names of keyboard keys are printed as they appear on the keyboard, for example, **Ctrl**, **Alt**, or **Enter**.
- Text or keystrokes that you enter appear in boldface type. For example, type **return** and press **Enter**.
- File names are printed in uppercase letters.

RELATED DOCUMENTS

In addition to this guide, the following printed documentation ships with your PowerMate P ETC Series system.

- *NEC PowerMate P ETC Series Quick Setup/Quick-Reference Roadmap*
Quick Setup contains information for quickly getting your system up and running. Read this information to set up the system for the first time.

The Quick-Reference Roadmap gives you a look at the documentation, NEC tools, software applications, and services available to you.

-
- *How Does Your Workplace Measure Up?*
This brochure provides information for setting up and using your computer productively and safely. Information includes guidelines to reduce the risk of injury associated with using a computer.
 - *Windows 95 User's Guide*
This guide is a quick reference to information about using Windows[®] 95.

Your system comes with the following online documentation on the hard disk:

- *PowerMate P ETC Series System Documentation*
This online documentation is your comprehensive source of information about your system. It contains a System Tour, User's Guide, Product Information Center, Option Installation Center, and Support Center.
- *Healthy Environment*
This is an online help file that complements the "How Does Your Workplace Measure Up?" brochure.
- *Using Windows 95*
Comes with Windows 95 systems. Contains information for using Windows 95.

Most of your application programs provide extensive online help. Some programs provide separate online user's guides for specific applications.

Windows 95 provides extensive online help and "wizards" to guide you through procedures.

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1 Introducing Your Computer

 **WARNING**

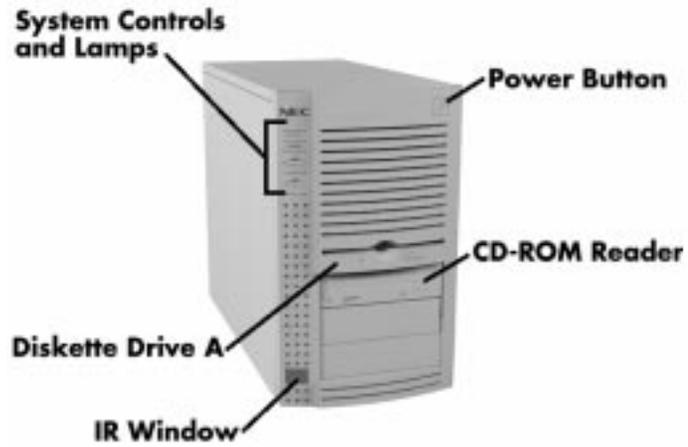
Prolonged or improper use of a computer workstation may pose a risk of serious injury. To reduce your risk of injury, set up and use your computer in the manner described in Appendix A, Setting Up a Healthy Work Environment.

Once you set up your PowerMate[®] P ETC series system, the next thing is to become familiar with the system. The following information provides a brief overview of the front and back features of your system.

For a comprehensive source of information about your computer, see the online *NEC PowerMate P ETC Series System Documentation*. The online documentation can be accessed through NEC's PowerMate Online Documents group on the Windows 95 desktop.

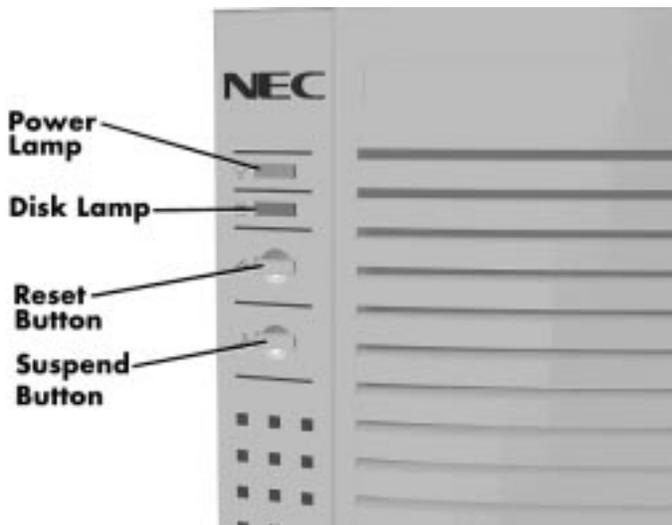
FRONT FEATURES

The following figures show the features on the front of the system. A brief description follows the figures.



Front features

The following figure shows in detail the system controls and lamps called out in the previous figure.



System controls and lamps

System Controls and Lamps

System controls let you select specific system operations. Lamps let you know the status of system operation. Your computer has the following controls and lamps:

- **Power button**
Press this button to turn on system power. Press it again to turn off the power.
- **Suspend button**
Lets you initiate a power-saving mode of operating your computer. Press this button to suspend system operation when you plan to be away from your computer for a short time. Press any key or move your mouse to resume system operation to where you stopped it.

A blinking system unit power lamp lets you know that the system is in a power-saving mode.

If you have a DDC-2 compliant monitor, your monitor also will go into power-saving mode.

- **Reset button**

The reset button lets you manually restart your system when it does not respond to keyboard commands.



CAUTION

Resetting your system can result in the loss of data. Press the reset button only when all other methods of restarting your computer fails.

- **Power lamp**

The power lamp indicates whether system power is on or off. It also lets you know if the system is operating in a power-saving mode.

A steady green lamp indicates that the power is on to all system components. A blinking green lamp indicates that the system is in Suspend mode with full power reduction.

- **Disk lamp**

Indicates whether or not your hard disk is active. A green lamp tells you that the hard disk is reading or writing data.



CAUTION

Do not turn off the system, unless absolutely necessary, while the disk lamp is lit. To do so can damage your hard disk or data.

IR Window

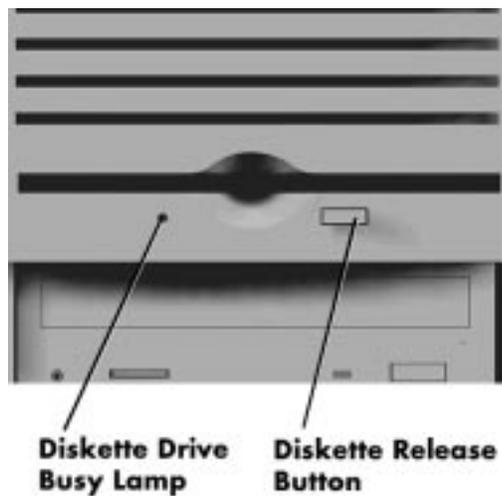
The IR (infrared) window is the system's IR port. The IR port supports two-way wireless communications. The interface uses infrared as the transmission medium instead of a traditional cable.

The IR port lets you transfer files to or from portable devices such as laptops and personal digital assistance (PDA) products using application software supporting IrDA data transfer. Your system comes with LapLink software for wireless data transfer.

With IrDA software, you can transfer data at speeds of up to 115 kilobytes per second and at distances up to 3 feet from the IR window.

Diskette Drive A

Diskette drive A loads and starts programs from a diskette. Diskette drive A is your primary "bootable" drive.



Diskette drive A features

Your diskette drive has the following features:

- Diskette drive busy lamp
Lights when your diskette drive is reading to or writing from a diskette.



CAUTION

To prevent damage to your diskette drive and data, do not turn off the system or remove a diskette while the diskette drive busy lamp is lit.

- Diskette release button
Press this button to release a diskette from the diskette drive.

CD-ROM Reader

An eight-speed CD-ROM reader is a standard feature in multimedia models. The CD-ROM reader is assigned as drive F.

Use the CD-ROM reader to load and start programs from a compact disc (CD). You can also use the CD-ROM reader to play your audio CDs.

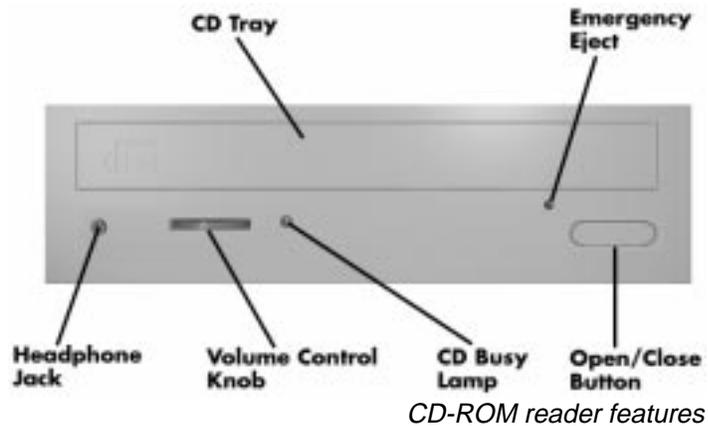


You can boot your system from the CD-ROM with a bootable CD. To enable the system to boot from the CD-ROM, see "Boot Options" in Chapter 4.

The CD-ROM reader operates at different speeds depending on whether the CD you are using contains data or music. This allows you to get your data faster and to see smoother animation and video.



The CD-ROM reader in your system might look different from the one shown here.



The CD-ROM reader has the following features:

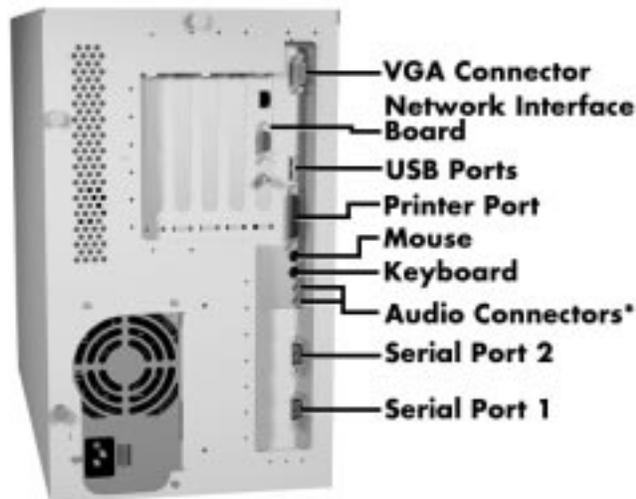
- **Headphone jack**
Allows the connection of an optional set of headphones with a stereo mini-jack plug.
- **Volume control knob**
Lets you adjust the volume of an optional set of headphones.
- **Open/close button**
Opens or closes the reader's loading tray. Press this button when the computer power is on to insert or remove a CD into or out of the reader.
- **Emergency eject hole**
Allows the manual ejection of a CD if the eject function is disabled by software or if a power failure occurs.

-
- **CD busy lamp**
Lights when the reader is retrieving data, music, or graphics/audio from a CD. Do not eject the CD or turn off the system unit when the lamp is on.
 - **CD tray**
Provides a surface for loading a CD into the reader.
Press the open/close button to open or close the CD tray.

BACK FEATURES

On the back of your computer, you'll find external connectors, power supply features, and expansion board slots.

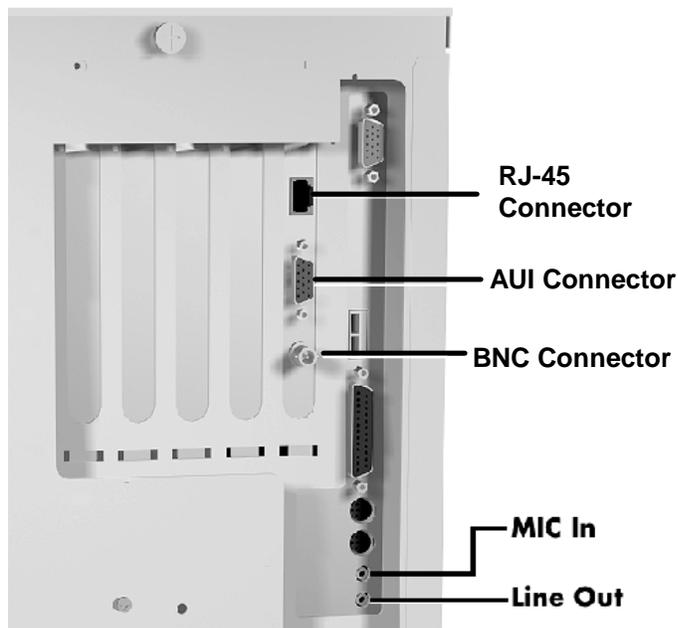
The following figure shows the connectors on the rear of the computer. (The slot location of the network interface board in your system might vary from the slot location shown on the figure.)



***Available in some configurations only**

Rear features

The following figure shows the audio connectors and network interface board connectors that were called out previously. (The slot location of the network interface board in your system might vary from the slot location shown.)



Audio and network board connectors

External Connectors

External connectors let you attach peripheral devices, such as a monitor, keyboard, mouse, and printer to your system. Your system has the following external connectors:

- **VGA monitor connector**
Attach the signal cable from your monitor to this connector. Supports an NEC MultiSync[®] monitor or other video graphics array (VGA)-compatible monitor with a 15-pin connector.

-
- **Network interface board connectors**

These connectors allow connection to an Ethernet network and communications with other computers. The board has three connectors for coaxial and twisted-pair network cabling.

 - The BNC connector supports thin coaxial cables.
 - The AUI connector supports thick coaxial cables.
 - The RJ-45 connector supports twisted-pair 10BASE-T cables.

 - **Universal Serial Ports (USB)**

Use these ports to connect up to 126 daisy-chained devices (monitors, communication devices, mass storage, and more) directly to your system.

 - **Printer Port**

Use this port to connect a parallel printer with a 25-pin connector to the system.

 - **Mouse port**

Attach the mouse that comes with your computer to this port. The mouse port supports a PS/2-compatible mouse.

 - **Keyboard port**

Attach the keyboard that comes with your computer to this connector.

The keyboard port supports a personal system (PS)/2®-compatible, 101-key or 104-key keyboard (in the U.S. and Canada) or a 102-key keyboard (in the United Kingdom and Germany) with a 6-pin mini DIN connector.

- Audio connectors

These connectors come integrated on multimedia models. The connectors include microphone in and line out jacks.

- The microphone in jack lets you connect a microphone for recording audio information in your data system files.
- The line out jack allows you to connect an *amplified* output device such as powered speakers, stereo tape recorder, or an external amplifier for audio output. Use this jack to connect the stereo speakers that come with your system.

- Serial Ports

Attach a serial device with a 9-pin connector to each serial port. Serial devices include a pointing device, serial printer, or modem.

Power Supply Features

Your system has the following power supply features:

- Power supply fan
Keep this area clear for proper ventilation. The power supply fan cools system components.
- Voltage selector switch
Sets the voltage for your system to 115 volts or 230 volts.



CAUTION

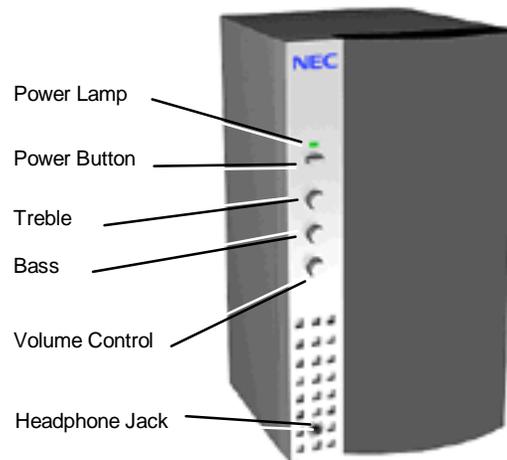
Set the switch correctly for the voltage in your area. Most wall outlets in the United States and Canada are 115 volts. Outlets in Europe, Australia, and Asia (except Taiwan) are 230 volts. Taiwan uses 115-volt outlets.

■ Power socket

Connect your power cable to this socket.

SPEAKERS

Multimedia models come with a pair of high-quality, 20-watt stereo speakers that you can arrange to suit your work environment.



Speaker

An AC adapter comes with the system. Set up the speakers with the AC adapter. The speakers connect to the line out jack on the back of the system unit.

The 20-watt speaker set features a power button, power lamp, volume, treble and bass control knobs, and headphone jack.

Adjust the speaker volume by using the volume control on the front of the right speaker or by using the preinstalled sound system software. Use the sound software to balance the speakers.

The sound software is Voyetra Multimedia Sound Software. See Chapter 6 for information on using the Voyetra sound software.

MICROPHONE

The microphone allows you to record voice and sound into your computer data files. See Chapter 6 for information on recording sound using the Voyetra sound software.



Microphone

2 Getting Started

This chapter provides the information you need to start using your system. Information includes:

- **Using a Mouse**
If you are already familiar with using a mouse, skip this section.
- **Using Online Documentation**
Read this section to use the comprehensive online system documentation about your system.
- **Where to Go from Here**
Look at this section for a quick reference to what you can do and where you can go for information.

USING A MOUSE

Use the mouse to quickly move around on the screen, to select menu items, and to choose functions specific to your software.

Here are the basic ways to use the mouse:

- **Click**
Clicking selects an object on your screen. To “click,” point to the object and press and release the left mouse button.

Clicking the right mouse button on the Windows 95 desktop provides shortcuts to such features as the Properties menu. See *Using Windows 95* online guide for more information on the uses for the right mouse button.

- **Double click**

Some actions require a double click to execute them. To “double click” an object, point to the object and press and release the left mouse button twice.

- **Press**

Pressing the mouse button holds an action until you release the mouse button.

- **Drag**

Dragging your mouse attaches your pointer to an object on the screen and allows you to highlight text or move an object. To drag an object, point to the object, press the left mouse button, and move the mouse to the new location.

Typical screen objects that you click or double click are icons, buttons, and menu options.



If your mouse pointer disappears, move your mouse in wide circles to bring it back into the screen.

For more information about your mouse, see your online User’s Guide and your application documentation. Also included in the online documentation is information on cleaning your mouse.

USING ONLINE DOCUMENTATION

Your system comes with documentation conveniently available at your fingertips. No more looking for printed documents. Information about your system is available right from the Windows 95 desktop.

To access the online system documentation, locate NEC's PowerMate Online Documents group on the Windows 95 desktop. Double click NEC's PowerMate Online Documents icon. A welcome screen appears with the information you need to use the online documentation.

The *NEC PowerMate Series System Documentation* is a comprehensive source of information about your system. To help you find the information you need, the documentation is organized by topic and the following modules:

- System Tour
- User's Guide
- Product Information Center
- Option Installation Center
- Support Center.



Run the online NEC PowerMate P ETC Series System Documentation at the shipping default video resolution — 800 by 600 with 256 colors with small fonts.

Other online documents include:

- *Healthy Environment*

Access the document by clicking Start on the Windows 95 desktop and pointing to Programs and NEC Information Center.

- *Using Windows 95*

Access the document by clicking Start on the Windows 95 desktop and pointing to Programs, Modern Age Books, and Windows 95.

Most of your application programs provide extensive online help at the touch of a button (usually the Help button).

Some programs provide separate online user's guides for specific applications.

Windows 95 provides extensive online help and "wizards" to guide you through procedures.

WHERE TO GO FROM HERE

Once you have your system up and running, we suggest that you do the following:

- See the online help file, "Setting Up a Healthy Work Environment."
- Take the System Tour in your online *NEC PowerMate P ETC Series System Documentation*.
- See the online User's Guide in your online *NEC PowerMate P ETC Series System Documentation*.
- Install any applications. See the documentation that comes with the application.

See the following quick reference chart to find information about some of the things you might want to do:

Quick Reference to Information About Your Computer

WHAT YOU WANT TO FIND	WHERE TO FIND IT
Basic information about my computer	Online User's Guide in the <i>NEC PowerMate P ETC Series System Documentation</i>
Ask A.N.D.I.E.™ and What On Earth	Online <i>System Tour in NEC PowerMate P ETC Series System Documentation</i> Printed <i>Ingenius Ask A.N.D.I.E. and What On Earth documentation</i>
Microsoft® Office 97 Standard Edition	Online <i>Online help for each application</i>
Setting a password	"Setting a Password" in the online User's Guide (<i>NEC PowerMate P ETC Series System Documentation</i>)
Using Windows	Online <i>Using Windows 95</i> Printed <i>Windows 95 User's Guide</i> The <i>NEC PowerMate Customers</i> catalog offers additional Windows 95 and MS-DOS 6.2 documentation.
Loading a CD	"Loading a CD" in the online User's Guide (<i>NEC PowerMate P ETC Series System Documentation</i>)
Playing a music CD	Multimedia models: AudioStation online help Chapter 6 in this guide
Using the suspend button	"Saving Power" and "Managing Power" in the online User's Guide (<i>NEC PowerMate P ETC Series System Documentation</i>)

Quick Reference to Information About Your Computer

WHAT YOU WANT TO FIND	WHERE TO FIND IT
Adding options	“Adding Internal Options” or “Adding External Options,” in the online Option Installation Center (<i>NEC PowerMate P ETC Series System Documentation</i>) Chapter 3 in this guide
Understanding power management	“Saving Power” and “Managing Power” in the online User’s Guide (<i>NEC PowerMate P ETC Series System Documentation</i>)
Access to the World Wide Web	“Microsoft Internet Explorer” in the online System Tour (<i>NEC PowerMate P ETC Series System Documentation</i>)
Transferring files from my laptop to my computer via the IR window	LapLink online help and “Using the IR Port” in the online User’s Guide (<i>NEC PowerMate P ETC Series System Documentation</i>)
Protecting my system from viruses	“Scan95” and “WebScan” in the online System Tour (<i>NEC PowerMate P ETC Series System Documentation</i>)
Changing video drivers	“Changing Video Drivers” in the online User’s Guide (<i>NEC PowerMate P ETC Series System Documentation</i>)
Using Desktop Management Interface	“Desktop Management Interface” in the online Product Information Center (<i>NEC PowerMate P ETC Series System Documentation</i>)
Using support services	“24-Hour Information Services” in the online Support Center (<i>NEC PowerMate P ETC Series System Documentation</i>) Chapter 7 in this guide
Taking care of my system	“Taking Care of Your System” in the online User’s Guide (<i>NEC PowerMate P ETC Series System Documentation</i>)
Troubleshooting tips	Chapter 7 in this guide

3 Installing Options

Your system supports a variety of industry-standard and NEC expansion options, including the following.

- monitors – your system supports the connection of a VGA-compatible monitor such as NEC MultiSync[®] XE and XP series.
- SIMM memory – your system comes with 16-MB of Extended Data Out (EDO) RAM upgradeable to 192 MB of 32- or 36-bit, 60-ns high-speed memory using SIMM sticks.
- video SGRAM – your system comes standard with 2 MB of video synchronous graphics random access memory (SGRAM) that provides resolutions of up to 1280 by 1024 with 256 colors, 1152 by 864 with 32 K colors, 1024 by 768 with 32 K colors, 800 by 600 with 16.7 million colors, or 640 by 480 with 16.7 million colors.

With an upgrade to 4 MB of video SGRAM, your system supports resolutions of up to 1600 by 1200 with 32 K colors, 1280 by 1024 with 64 K colors, 1152 by 864 with 16.7 million colors, 1024 by 768 with 16.7 million colors, 800 by 600 with 16.7 million colors, or 640 by 480 with 16.7 million colors.

- processor upgrade – a 320-pin zero insertion force (ZIF) socket on the system board supports the primary processor or an OverDrive processor for upgrades.
- drives – your system supports a total of six storage devices.

OPTION INSTALLATION PROCEDURES

This chapter provides installation instructions for the following options:

- expansion boards
- SIMM memory upgrade
- video memory upgrade
- processor upgrade
- data storage devices
- external options.

All options require that the system cover be removed. Procedures for removing the cover are included in this chapter.

General Rules

Follow these general rules when you install the system options.

- Turn off system power and unplug the power cable.
- Turn off and disconnect all peripherals.
- When handling boards or chips, touch the system frame to discharge static.
- Do not disassemble parts other than those specified in the procedure.
- All screws are Phillips-head unless otherwise specified.
- Label any removed connectors. Note where the connector goes and in what position it was installed.

Safety Precautions

Take care when working inside the system and when handling computer components. Avoid electric shock or personal injury by observing the following warning.

**WARNING**

Before removing the system unit cover, turn off the power and unplug the system power cable. Power is removed only when the power cable is unplugged.

Static electricity and improper installation procedures can damage computer components. Protect computer components by following these safety instructions.

**CAUTION**

Electrostatic discharge can damage computer components. Discharge static electricity by touching a metal object before removing the system unit cover.

- Avoid carpets in cool, dry areas. Leave an option, such as a board or chip, in its anti-static packaging until ready to install it.
- Dissipate static electricity before handling any system components (boards, chips, and so on) by touching a grounded metal object, such as the system's unpainted metal chassis.

If possible, use anti-static devices, such as wrist straps and floor mats.

-
- Always hold a chip or board by its edges. Avoid touching the components on the chip or board.
 - Take care when connecting or disconnecting cables. A damaged cable can cause a short in the electrical circuit. Misaligned connector pins can cause damage to system components at power-on.

When installing a cable, route the cable so it is not pinched by other components and is out of the path of the system unit cover. Prevent damage to the connectors by aligning connector pins before you connect the cable.

When disconnecting a cable, always pull on the cable connector or strain-relief loop, not on the cable.

Removing the System Unit Cover

The following procedure describes how to remove the system unit cover.

 **WARNING**

Before removing the system unit cover, turn off the power and unplug the system power cable. Power is removed only when the power cable is unplugged.

1. Turn off and unplug the system unit.
2. Disconnect the keyboard, mouse, monitor, and any other external options (such as a printer) from the rear of the system unit.

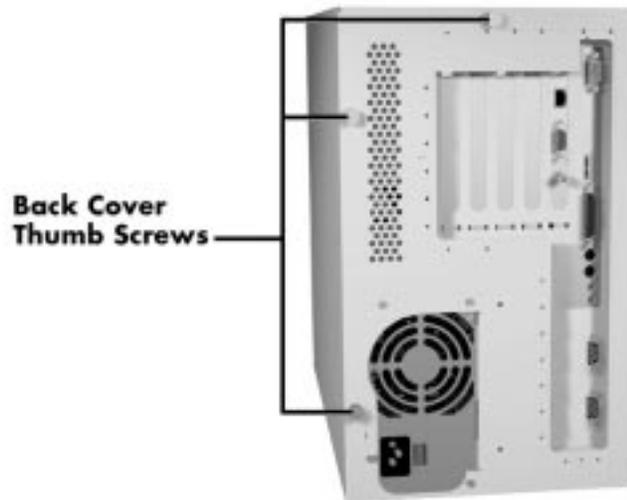
Label all cables to make reinstallation easier.



CAUTION

Electrostatic discharge can damage computer components. Discharge static electricity by touching a metal object before removing the system unit cover.

3. Loosen the three thumb screws at the rear of the system unit. If you installed a padlock on the back of the system, unlock the padlock and remove it.



Loosening the cover screws

-
4. From the rear of the system, grasp the handle and pull it back so that the cover clears the padlock slot.



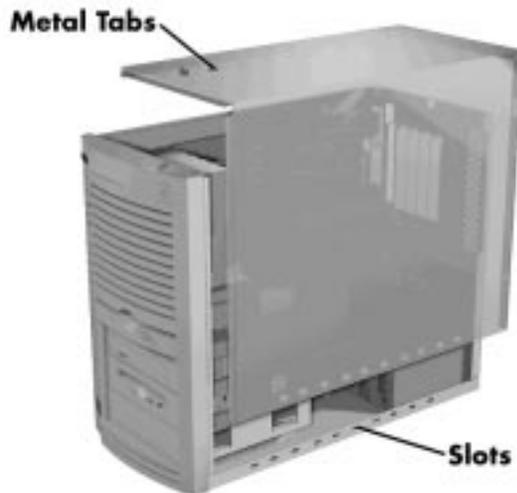
Releasing the cover

5. Lift up at the top of the cover to release the cover tabs from the chassis.
6. Pull the cover up until it comes free of the chassis.

Replacing the System Unit Cover

Replace the system unit cover as follows.

1. Insert the metal tabs on the top of the system cover into their slots on the chassis.
2. Insert the metal tabs on the bottom of the system cover into their slots on the chassis.



Replacing the cover

3. Slide the cover forward to meet the front panel.



The cover fits tightly. If the cover does not slide all the way to the front panel, place one hand on the front of the unit while you slide the cover forward from the rear.

-
4. Secure the cover with the three thumb screws.
 5. Reconnect all external peripherals.
 6. Plug in your power cables.

EXPANSION BOARDS

Your system supports industry standard 8- and 16-bit ISA Plug and Play or non-Plug and Play, and 32-bit PCI expansion boards.

With Plug and Play expansion boards, you can install a board in an expansion slot without changing the hardware settings. There are no system resource conflicts to resolve. Plug and Play automatically configures the board for the system.

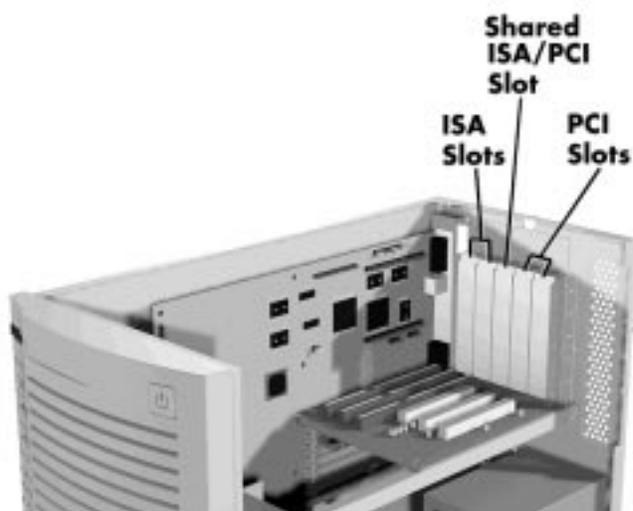
Locating Expansion Slots

The system has five expansion slots.

- two ISA slots
- two PCI slots
- one shared PCI/ISA slot

ISA expansion slots support industry-standard 8-bit or 16-bit expansion boards. The PCI/ISA slot also supports PCI expansion boards.

PCI expansion boards run at the system's processor speed. The PCI bus handles 32 bits of data at a time, being wider as well as faster than the standard ISA bus. PCI boards can send and receive data much faster which boosts system performance.



Locating expansion slots

Installing an Expansion Board

Install expansion boards in the system as follows.

1. Remove the system unit cover.
2. Follow any preinstallation instructions that come with the board (such as setting switches or jumpers).
3. Remove the screw securing an expansion slot cover and remove the cover.

Save the screw for installing the expansion board. Save the slot cover for future use.



CAUTION

A slot cover can damage the system board or any option board if it falls into the system. Take care to keep the slot cover from falling when removing the screw.

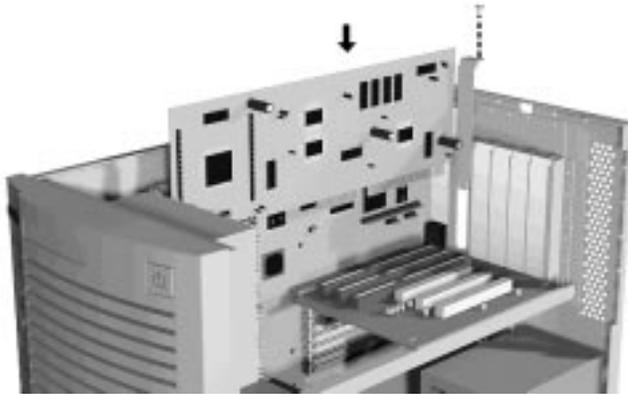


Removing a slot cover

-
4. Hold the board by its edges and insert it into the expansion slot. Align full-size expansion boards with the guide rail at the front of the system unit.

Press the board firmly into the expansion slot connector. Gently rock the board from side-to-side to seat it into the connector.

5. Insert the screw removed earlier to secure the expansion board to the support bracket.

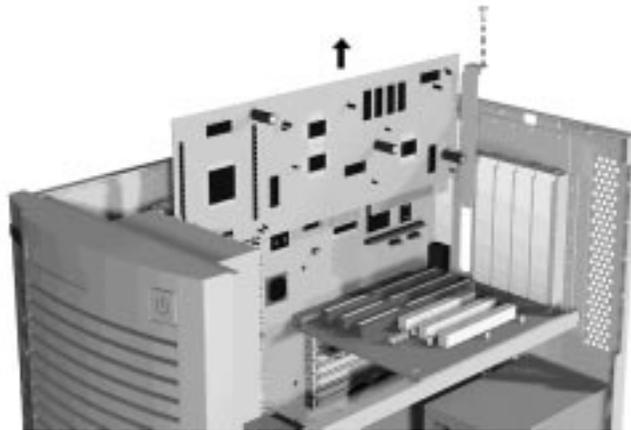


Installing an expansion board

6. Attach any signal cables required by the expansion board.
7. Replace the system unit cover.

Removing an Expansion Board

1. Remove the system unit cover as previously described.
2. Label and remove any cables connected to the board.
3. Remove the screw that secures the board to the support bracket.
4. Pull the board out of the connector. Gently rock the board from side-to-side to release it from its connector.

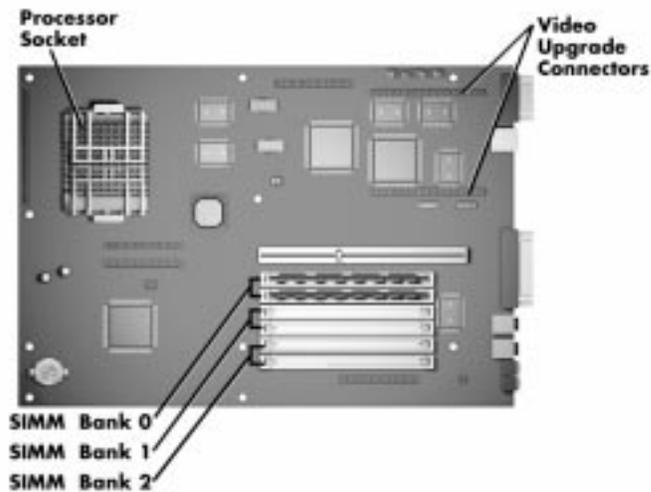


Removing the expansion board

5. Replace the slot cover removed when the expansion board was installed.
6. Replace the system unit cover.

SYSTEM BOARD OPTIONS

Some of the options require locating the connector on the system board. See the following figure for connector locations.



System board sockets and connectors

SIMM UPGRADE

Your system comes with 16 MB of main system memory. Six sockets on the system board support up to 192 MB of high-speed memory using industry-standard, tin-plated, single in-line memory modules (SIMM).



You can install 60-ns, parity or nonparity, EDO SIMMs into the SIMM sockets.

See the following list for supported SIMMs.

-
- 1-MB by 32- or 36-bit (4-MB stick)
 - 2-MB by 32- or 36-bit (8-MB stick)
 - 4-MB by 32- or 36-bit (16-MB stick)
 - 8-MB by 32- or 36-bit (32-MB stick).



CAUTION

To avoid corrosion between different metals, only use tin-plated SIMM sticks.

Checking System Memory

Use the following procedure to:

1. check the memory installed in the system
2. determine the SIMM configuration needed to increase memory



SIMM memory must be installed in pairs of the same memory type.

3. identify SIMM sockets.
 - Locate the six SIMM sockets on the system board (see “System Board Options”).

If any cables block access to the SIMM sockets, label and disconnect them. If any boards block access to the sockets, remove them.
 - Use the following table to determine the SIMM configuration needed to upgrade memory and to identify the sockets for SIMM installation.

Recommended Memory Upgrade Path

TOTAL MEMORY	BANK 0		BANK 1		BANK 2	
	SIMM 1	SIMM 2	SIMM 3	SIMM 4	SIMM 5	SIMM 6
8 MB	4 MB	4 MB	Empty	Empty	Empty	Empty
16 MB	4 MB	4 MB	4 MB	4 MB	Empty	Empty
16 MB*	8 MB	8 MB	Empty	Empty	Empty	Empty
24 MB	4 MB	4 MB	4 MB	4 MB	4 MB	4 MB
24 MB	8 MB	8 MB	4 MB	4 MB	Empty	Empty
32 MB	4 MB	4 MB	4 MB	4 MB	8 MB	8 MB
32 MB	8 MB	8 MB	8 MB	8 MB	Empty	Empty
32 MB*	16 MB	16 MB	Empty	Empty	Empty	Empty
40 MB	8 MB	8 MB	8 MB	8 MB	4 MB	4 MB
40 MB	16 MB	16 MB	4 MB	4 MB	Empty	Empty
48 MB	8 MB	8 MB	8 MB	8 MB	8 MB	8 MB
48 MB	16 MB	16 MB	4 MB	4 MB	4 MB	4 MB
48 MB	16 MB	16 MB	8 MB	8 MB	Empty	Empty
56 MB	16 MB	16 MB	8 MB	8 MB	4 MB	4 MB
64 MB	16 MB	16 MB	8 MB	8 MB	8 MB	8 MB
64 MB	16 MB	16 MB	16 MB	16 MB	Empty	Empty
64 MB	32 MB	32 MB	Empty	Empty	Empty	Empty
72 MB	32 MB	32 MB	4 MB	4 MB	Empty	Empty
72 MB	16 MB	16 MB	16 MB	16 MB	4 MB	4 MB
80 MB	32 MB	32 MB	4 MB	4 MB	4 MB	4 MB
80 MB	16 MB	16 MB	16 MB	16 MB	8 MB	8 MB
80 MB	32 MB	32 MB	8 MB	8 MB	Empty	Empty

*Standard configuration.

Recommended Memory Upgrade Path

TOTAL	BANK 0		BANK 1		BANK 2	
MEMORY	SIMM 1	SIMM 2	SIMM 3	SIMM 4	SIMM 5	SIMM 6
88 MB	32 MB	32 MB	8 MB	8 MB	4 MB	4 MB
96 MB	32 MB	32 MB	8 MB	8 MB	4 MB	4 MB
96 MB	16 MB					
96 MB	32 MB	32 MB	16 MB	16 MB	Empty	Empty
112 MB	32 MB	32 MB	16 MB	16 MB	8 MB	8 MB
128 MB	32 MB	32 MB	32 MB	32 MB	Empty	Empty
128 MB	32 MB	32 MB	16 MB	16 MB	16 MB	16 MB
136 MB	32 MB	32 MB	32 MB	32 MB	4 MB	4 MB
144 MB	32 MB	32 MB	32 MB	32 MB	8 MB	8 MB
160 MB	32 MB	32 MB	32 MB	32 MB	16 MB	16 MB
192 MB	32 MB	32 MB	32 MB	32 MB	32 MB	32 MB

Removing a SIMM

Use the following procedure to remove a SIMM.

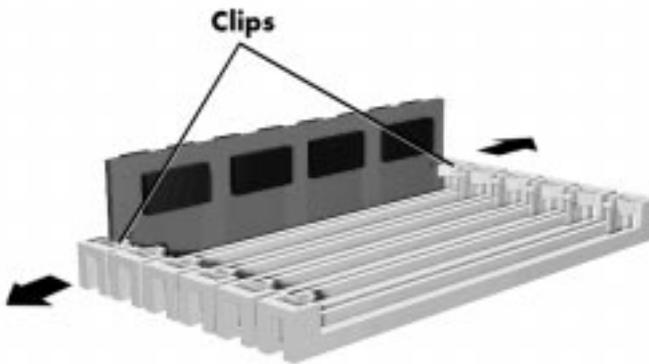


CAUTION

Reduce static discharge by touching the system's metal chassis.

1. Remove the system unit cover.
2. Locate the SIMM sockets (see “System Board Options”).
3. Press the metal clips at the outer edges of the socket away from the SIMM.

-
4. Push the SIMM away from the locking tabs and remove it from the socket.



Removing a SIMM

Use the following procedure to install a SIMM stick.

Installing a SIMM

Install a SIMM as follows.

1. Remove the system unit cover.
2. Locate the SIMM sockets (see “System Board Options”).

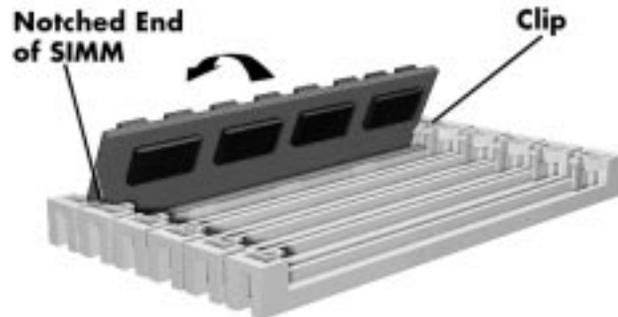
Remove any currently installed SIMMs that are not needed.



CAUTION

Before installing a SIMM, reduce static discharge by touching the system's metal chassis.

-
3. Install the SIMMs from the back to the front.
 4. Align the notched end of the SIMM with the left side of the SIMM socket as shown in the following figure.
 5. Insert the SIMM at an angle into the socket.
 6. Tilt the SIMM towards the locking tabs using equal pressure at the ends of the SIMM until it locks into the socket.



Inserting the SIMM

7. Replace any cables or boards that may have been removed.
8. Replace the system unit cover.

VIDEO UPGRADE

Upgrade the video memory by adding a 3-MB upgrade SGRAM module as follows.



Your system comes standard with 2 MB of SGRAM (includes a 1-MB module). To upgrade to 4 MB, you must replace your 1-MB module with a 3-MB upgrade module.

1. Remove the system unit cover as previously described.
2. Locate the video SGRAM sockets (see “System Board Options”).

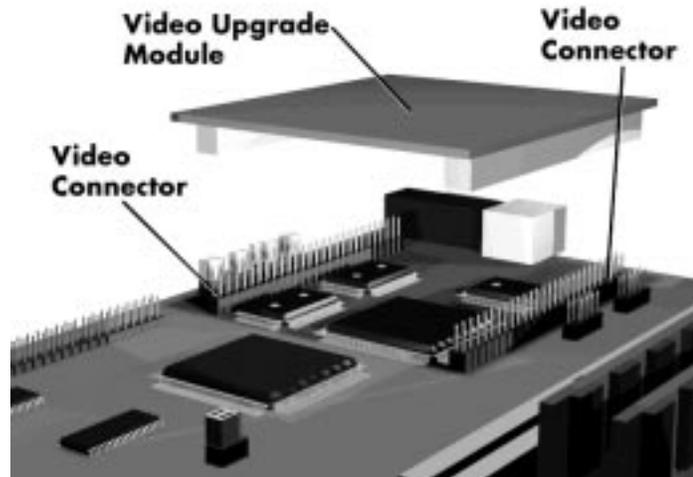
If any expansion boards are obstructing your view of the sockets, remove the boards (see “Removing an Expansion Board”).



CAUTION

Reduce static discharge by touching the system's metal chassis.

3. Align the module over the sockets on the system board. Using equal pressure, gently press the module into the sockets.



Aligning the video SGRAM module with the sockets

4. Replace any boards that were removed.
5. Replace the system unit cover.

PROCESSOR UPGRADE

The zero-insertion force (ZIF) socket accepts pin-grid-array (PGA) processors, such as the primary processor or an OverDrive™ processor.



CAUTION

Incorrect installation of the processor can damage the processor, system board, or both. Follow the installation instructions carefully.

The system requires a heatsink on the OverDrive processor. Verify that you have the correct heatsink for the processor.

When upgrading the processor, first remove the processor currently installed in the system, then install the OverDrive processor.

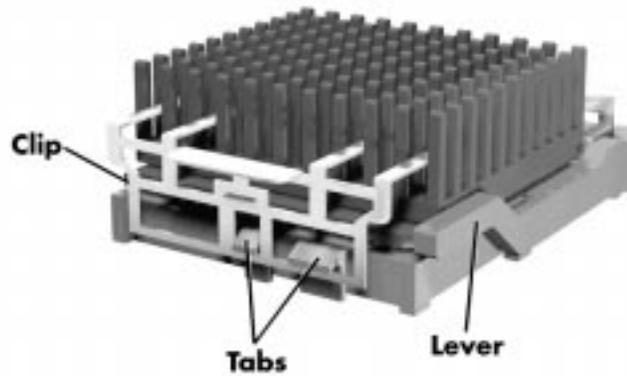
Removing the Processor

Remove the processor installed on the system board as follows.

1. Remove the system unit cover.
2. Locate the processor socket (see “System Board Options”).

If any expansion boards are obstructing the socket, remove the boards.

3. Release the heatsink clip from the tabs on the socket.
4. Release the processor by pulling the lever on the socket away from the socket and as far back as it goes without forcing.



Releasing the processor



CAUTION

Before picking up the processor, reduce static discharge by touching the metal frame of the system unit.

5. Lift the processor out of the socket.
6. Continue with the following procedure to install the new OverDrive processor.

Installing the Processor

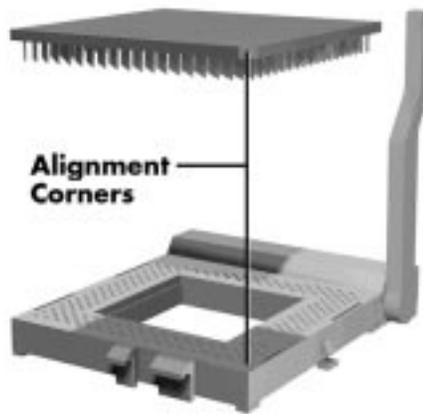
1. Remove the processor currently in the system (see previous procedure).



CAUTION

Before picking up the OverDrive processor, reduce static discharge by touching the metal frame of the system unit.

2. Align the notched corner of the OverDrive processor with the alignment corner in the socket and insert the processor.



Aligning the processor

3. Swing the lever down to lock the OverDrive processor into the socket.



CAUTION

Remember to either reattach the heatsink used with the old processor or install the new heatsink supplied with the OverDrive processor.

4. Check to see if the newly installed OverDrive processor requires a system board jumper change (see Chapter 5, “Setting System Board Jumpers”).
5. Replace any boards removed during this procedure.
6. Replace the system unit cover.

DATA STORAGE DEVICES

The system board in the computer supports the following storage devices:

- up to two diskette drives, including the standard 1.44-MB diskette drive
- up to four IDE devices such as IDE hard disks and an IDE CD-ROM reader.

Other storage devices might require the installation of a compatible controller board.

3 Installing Options



Locating Device Slots

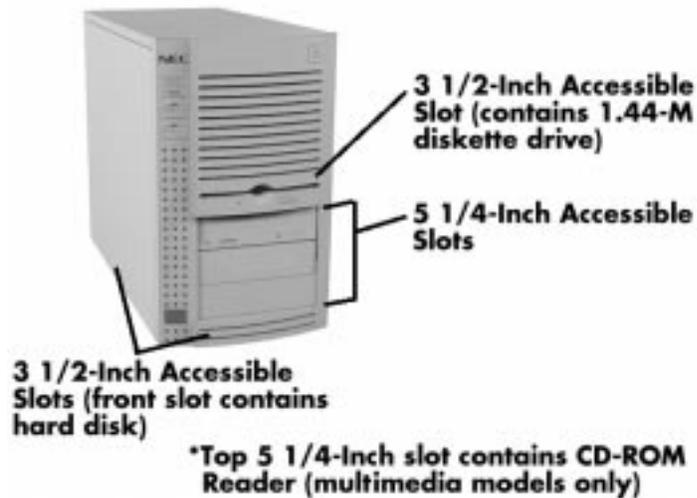
The system has six storage device slots:

- a 3 1/2-inch accessible device slot which contains the standard 1.44-MB diskette drive
- two internal 3 1/2-inch internal hard disk drive slots (1-inch high, thin-height)
- three 5 1/4-inch accessible device slots (1.6-inch high, half-height)

In multimedia models, one accessible device slot contains the standard CD-ROM reader.

Other accessible devices (diskette drive, tape drive, CD-ROM reader) can be installed in the 5 1/4-inch slots.

A hard disk with a 5 1/4-inch form factor can be installed in the 5 1/4-inch slots.



Locating device slots

Preparing the Device

Before installing a storage device in the system, follow any preinstallation instructions that come with the device. For example, check the following:

- Diskette drive — remove any termination on the optional diskette drive. See the documentation that comes with the drive.
- IDE device — check the jumper settings on the device before installing it. See the documentation that comes with the device for jumper setting information.

An IDE device, such as an IDE hard disk or IDE CD-ROM reader, must be set correctly as the first (master) or second (slave) device on the IDE channel.

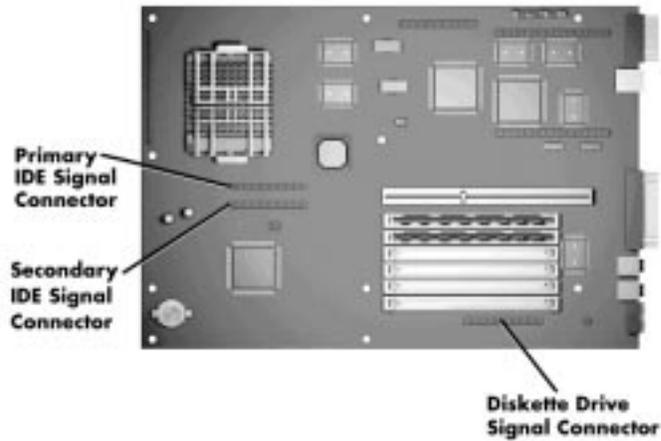
The standard IDE hard disk is set as the master device on the primary IDE connector. The CD-ROM reader in multimedia models is the master device on the secondary IDE connector.

Device Cables

The cables used for installation of optional storage devices include:

- diskette drive signal cable
- IDE signal cables
- system power cables.

The diskette drive and IDE cables shipped with the system each support two devices. Cable connector locations on the system board are shown in the following figure.



System board cable connectors

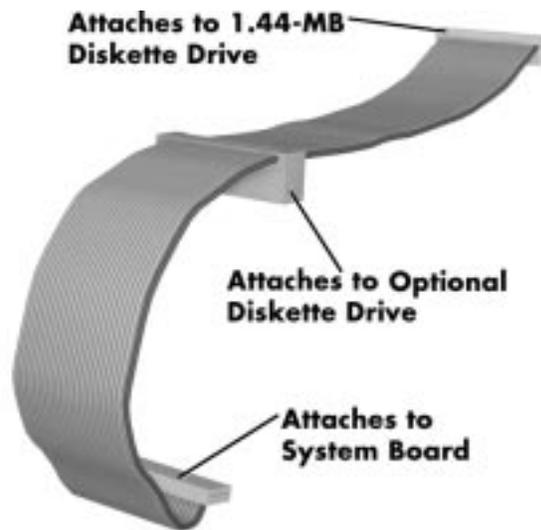
Diskette Drive Signal Cable

A three-connector diskette drive signal cable comes attached to the system board and to the standard 1.44-MB diskette drive.

The installation of a second diskette drive in your system does not require the replacement of the existing diskette drive signal cable. Connect an optional diskette drive to the middle connector on the standard diskette drive signal cable.

The colored edge of the cable goes to pin 1 on the cable connector. Align the red edge of the cable with pin 1 (the notched end) on the drive connector.

The following figure shows a three-connector diskette drive signal cable.



Diskette drive signal cable

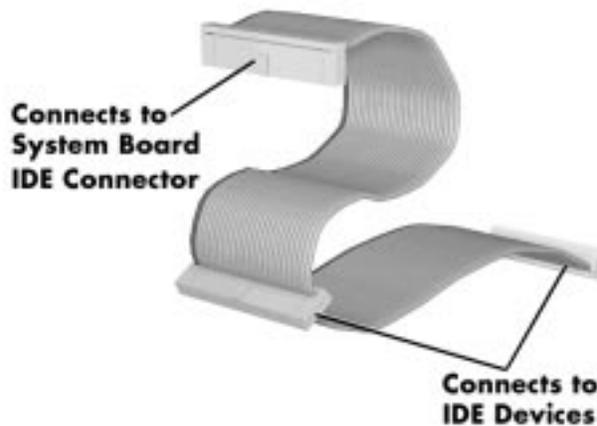
IDE Signal Cables

Hard disk systems come with a three-connector IDE interface cable attached to the primary IDE connector. Multimedia systems come with a second IDE cable connected to the CD-ROM reader and to the secondary IDE connector.

Each IDE connector on the system board supports two IDE devices. The addition of an IDE device to an IDE connector does not require the replacement of the existing IDE signal cable.

If installing an optional IDE CD-ROM reader, connect it to the secondary IDE connector. The primary IDE port should be reserved for hard disks.

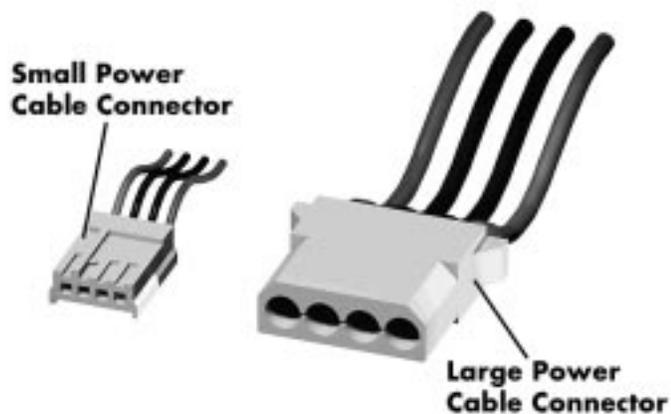
The following figure shows a typical three-connector IDE cable. If the IDE cable is not keyed with a connector tab, align the colored edge of the cable with the pin 1 side of the drive connector.



IDE cable connectors

System Power Cables

Power cables come from the power supply and are attached to the standard storage devices. System power cables vary in length and provide connector sizes to accommodate a variety of supported storage configurations. Power cable connectors are keyed to fit only in the correct position. The following figure shows the power cable connectors.



Power cable connectors

Cabling Storage Devices

All storage devices require a power and signal cable connection. Devices shipped with the system are already connected.

Procedures are provided on the following optional devices:

- IDE devices – hard disk drive or CD-ROM reader
- diskette drive – 1.2-MB drive.

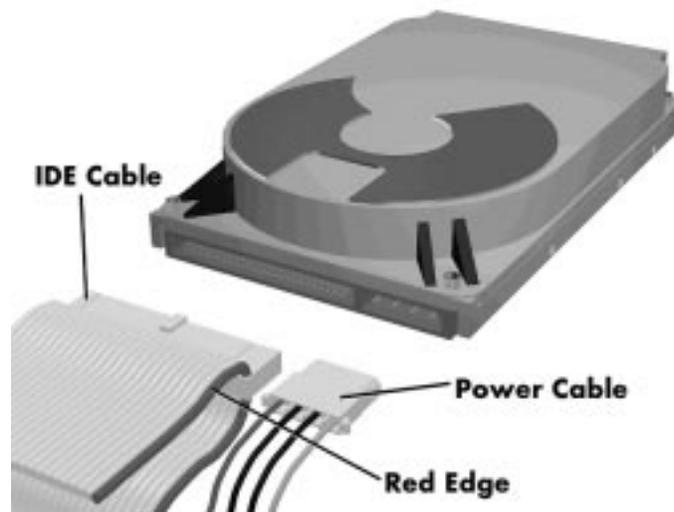
IDE Device Cabling

The following procedure explains how to cable an IDE device.

1. Connect the signal cable connector to the connector on the IDE device.

Take care to prevent bending drive connector pins. Align the cable connector as shown in the following figure.

2. Locate an available power connector coming from the power supply.
3. Connect the appropriate power cable to the power connector on the IDE device.

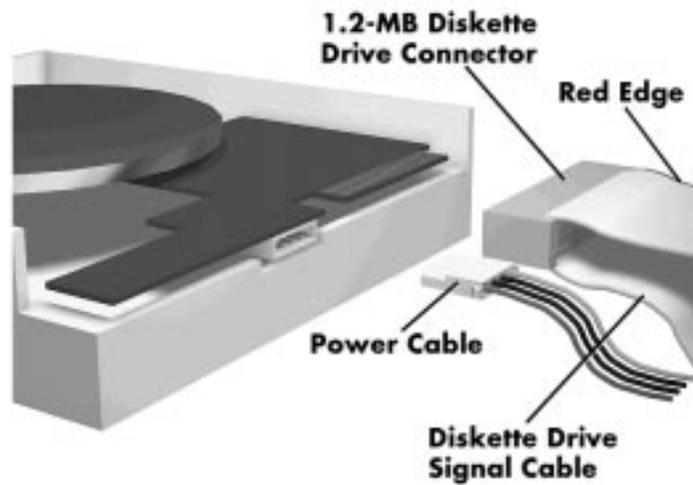


Connecting IDE device cables

4. If you are installing a CD-ROM reader, also connect the audio cable (see the instructions that come with the reader).

Diskette Drive Cabling

1. Connect the diskette drive signal cable connector to the signal connector on the diskette drive as shown in the following figure.
2. Locate an available power connector.
3. Connect the power cable to the power connector on the device.



Connecting 1.2-MB diskette drive cables

Installing Storage Devices

The following subsections describe how to install 3 1/2-inch and 5 1/4-inch drives. The installation procedures include:

- installing the 3 1/2-inch hard disk drive
- removing the side panel
- removing the front panel
- installing a 5 1/4-inch device
- replacing the front and side panels.

Installing the 3 1/2-Inch Hard Disk Drive

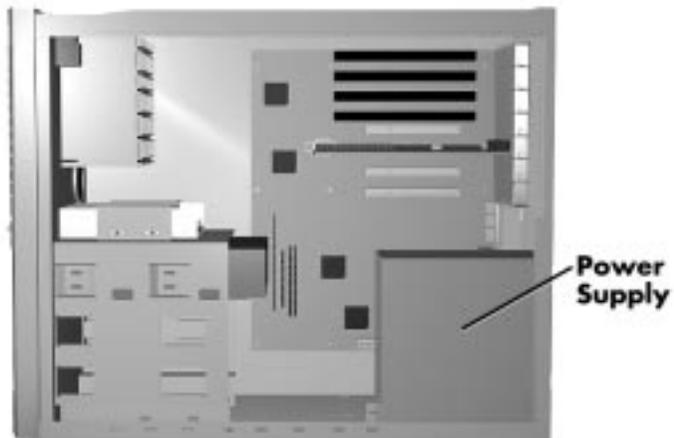
Install the hard disk drive into the rear slot as follows.

1. Remove the system unit cover.
2. Follow the preinstallation instructions that come with the device, such as setting jumpers and switches.
3. Remove and label any cables that interfere with installing the device.

-
4. To install the internal hard disk drive, you must first remove the power supply.

Remove the power supply as follows.

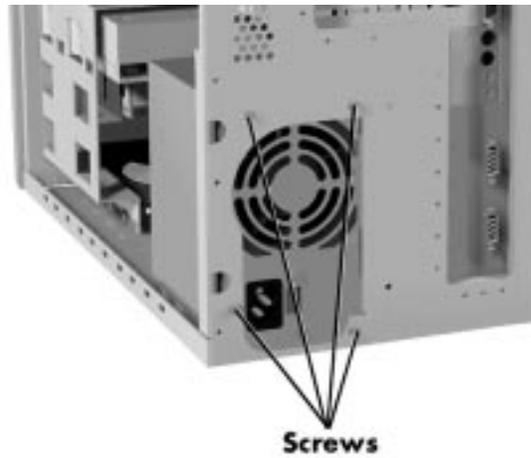
- Locate the power supply as shown.



Locating the power supply

- Disconnect the power supply cables from the system board.

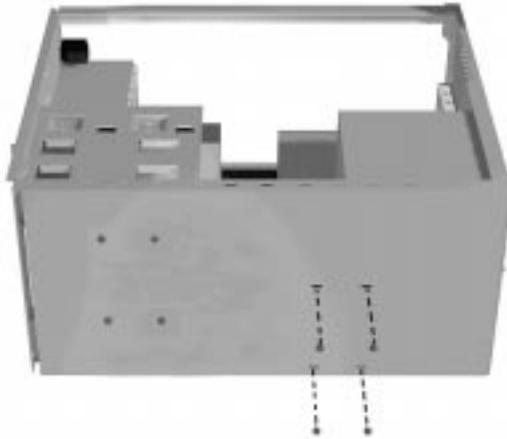
-
- Remove the power supply screws.



Removing the power supply

- Lift the power supply out of the system unit.
5. Align the holes in the hard disk drive with the holes at the bottom of the unit.

-
- Secure the device to the bottom of the system unit.



Securing the 3 1/2-inch drive

- Connect the drive cables.
- Replace the power supply and reattach the power supply cables to the system board.
- Replace the four screws.
- Replace the system unit cover. See “Replacing the System Unit Cover.”
- Run the Setup program to set the new configuration.

Removing the Side Panel

Remove the side panel only if you are installing a 5 1/4-inch device in the top slot. (The second and middle slots install using rails from the front.) The side panel does not need to be removed if you are installing a 3 1/2-inch hard disk drive.

If you are installing a 3 1/2-inch hard disk drive (see “Installing the 3 1/2-Inch Drive”).

1. Remove the system unit cover as previously described.
2. Remove the side panel by removing the two screws from the top of the panel.



Removing the side panel

Removing the Front Panel

Remove the front panel only if you are installing a 5 1/4-inch device. The front panel does not need to be removed if you are installing a 3 1/2-inch hard disk drive.

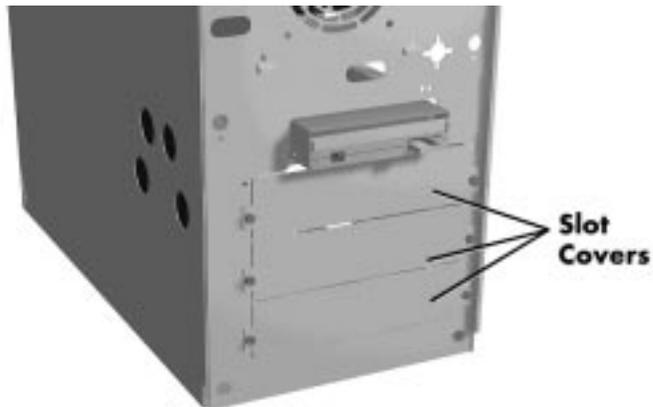
1. Remove the front panel by releasing the six tabs from the back of the front panel.



Removing the front panel

2. Identify the slot for the device being installed.
3. Remove the blank panel from the selected slot by pressing the panel tabs from inside the front panel and pushing the blank panel out.

-
4. Remove the slot cover from the selected slot on the chassis.



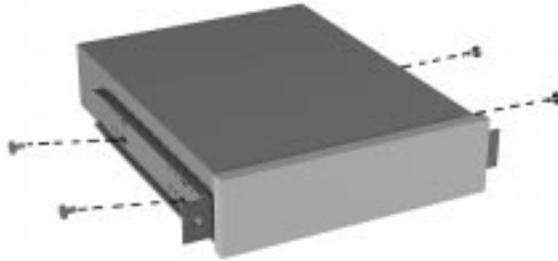
Removing the slot cover

5. Install the device (see the following section “Installing the 5 1/4-Inch Device”).

Installing the 5 1/4-Inch Device

Install an accessible device into the device cage as follows.

1. Follow the preinstallation instructions that come with the device, such as setting jumpers and switches.
2. If installing the device in the middle or top slots, go to Step 4. Otherwise, continue with Step 3.
3. Attach rails to the sides of the device.



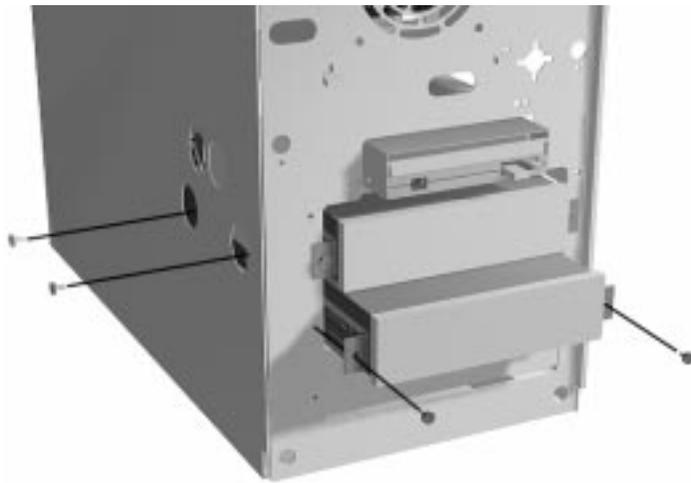
Attaching device rails

4. From the front of the system, insert the device, connector end first, into the device slot.



To easily access device connectors for cabling, do not insert a 5 1/4-inch device all the way into the slot.

5. Connect the device cables.
6. Secure the device as follows.
 - If installing in the top slot, align the holes in the device with the holes in the side of the system unit.
Secure the device to the system with the four screws, two to a side, that come with the device.
 - If installing in the middle and bottom slots, secure the device to the system from the front with the two metal slot cover screws.



Securing the device

Replacing the Side and Front Panels

To replace the front and side panels, follow this procedure.

1. Align the four front panel tabs with the holes in the front of the system unit.
2. Evenly press the front panel into position until the tabs lock the panel in place.



Aligning the front panel

- 3.** Replace the side panel, and reinsert the screws to hold the panel in place.
- 4.** Replace the cover. See “Replacing the System Unit Cover.”
- 5.** Run the Setup program to set the new configuration.

ADDING EXTERNAL OPTIONS

This subsection includes installation procedures for the following external options:

- parallel printer
- serial devices.

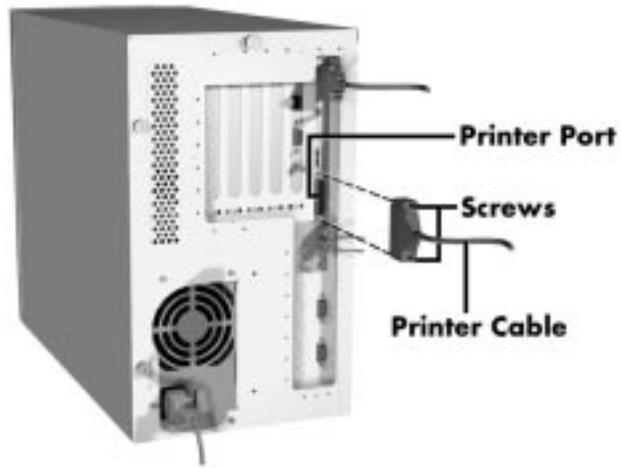
Connecting a Parallel Printer



Before connecting a printer to the system, be sure the printer is set up correctly. Follow the setup instructions that come with the printer.

Connect a parallel printer to the system as follows.

1. Turn off power to the system and printer.
2. Connect the printer cable to the printer port on the rear of the system unit.



Connecting a printer cable

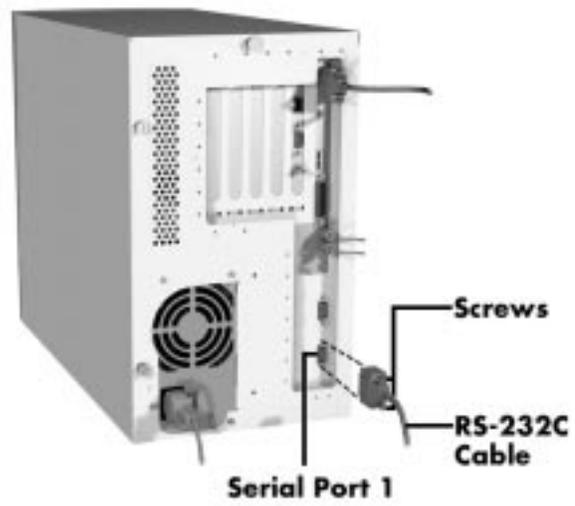
3. Secure the cable with the screws provided.
4. Connect the other end to the printer.

Connecting an RS-232C Device



Before connecting a serial device to the system, be sure the serial device is set up correctly. Follow the setup instructions that come with the option.

1. Turn off power to the system and to the serial device.
2. Connect one end of the serial cable to one of the two serial ports on the rear of the computer.



Connecting an RS-232C cable

3. Secure the cable with the screws provided.
4. Connect the other end to the serial device.

4 Setting System Parameters

This chapter provides information on the NEC utilities that ship with your system. The following topics are covered in this chapter.

- Setup utility
- Flash utility
- Product Recovery utility (multimedia systems only)

THE SETUP UTILITY

The Setup utility program allows you to enter system configuration information and control special features of the system.



Your system ships from the factory with the correct system parameters for your configuration. Unless you add optional hardware, you do not need to run Setup to operate your system. However, you might wish to run the Setup utility to set features that customize your system, such as security features.

System configuration information is stored in nonvolatile memory. A nonvolatile memory device retains its data when system power is turned off. Nonvolatile memory in your system is a complementary metal-oxide semiconductor (CMOS) chip backed up by a battery on the system board. The battery supplies continuous power to CMOS memory and maintains configuration information when system power is off (see “Replacing the CMOS Battery ” in Chapter 7).



NEC recommends that you print out or write down your current Setup parameters and store the information in a safe place. This lets you restore your system to the current parameters if you ever need to replace the battery.

When to Use Setup

The Setup utility lets you view and set system parameters. Use the Setup utility program to

- set the time and date.
- update or check system parameters when you add or remove expansion options.
- change or set power management features.
- correct a hardware discrepancy when the Power-On Self-Test (POST) displays an error message and prompts you to run Setup.
- check the installation of optional memory by comparing the amount of memory installed with the amount of memory displayed by Setup.
- change certain system operating parameters, such as boot device sequence and keyboard parameters.

-
- configure system connections for peripherals such as your diskette drive, hard disks, and devices connected to the printer port and serial ports.
 - customize your system with security features such as passwords, diskette drive restriction, virus check reminder and system backup reminder.
 - set system parameters in the event that you need to replace the complimentary metal oxide semiconductor (CMOS) battery.

How to Start Setup

To start the Setup utility, follow these steps:

1. Turn on or reboot the system.
2. Press **F1** after POST, but before the system boots up, to start the memory test.

There is about five seconds to press **F1** before the system boot continues.

3. Setup's Main Menu appears and looks similar to the following screen.

Main	Advanced	Security	Exit
System Date	03:14:1997		F1 Help
System Time	08:12:20		ESC Back
Floppy Options	Press Enter		Enter Select
Primary IDE Master	IBM-DAQA-32160		↑ Previous Item
Primary IDE Slave	Not Installed		↓ Next Item
Secondary IDE Master	Not-Installed		←→ Select Menu
Secondary IDE Slave	Not-Installed		
Language	English (US)		F5 Setup Defaults
Boot Options	Press Enter		F6 Previous Values
Video Mode	EGA/VGA		F10 Save & Exit
Mouse	Installed		
Base Memory	640		
Extended Memory	15360		
BIOS Version	XX.XX		

Main Menu

How to Use Setup

Use the keys shown on the right of the Setup menu to make your selections or exit the current menu. The following table describes the navigation keys and their alternates.

Navigation Keys

Key	Function
F1	Provides help for the parameter field being displayed.
Esc	Exits the menu.
Enter	Executes Command or Selects submenu.
↓ or ↑ arrow keys	Moves cursor up and down.

Navigation Keys

Key	Function
← or → arrow keys	Selects next menu.
F5	Loads the Default Configuration values for this menu.
F6	Selects the Previous Value for the field.
F10	Save and Exit

To display a submenu, use the arrow keys to move the cursor to the submenu you want. Then press **Enter**.

MAIN MENU

The following is a list of available options when you select the Main Menu in the legend bar. Other Main Menu options are available by selecting submenus.



See How to Start Setup for a look at a typical Main menu screen.

Use the arrow keys to select one of the following Main Menu options and press **Enter** to select a submenu. Items with grayed-out text are not available. Explanations of each menu item follow.

- System Date/Time
- Diskette Drive
- IDE Devices
- Language
- Boot Options

-
- Video Mode
 - Mouse
 - Base Memory
 - Extended Memory
 - BIOS Version

System Date/Time

Use this menu to set the current time and date. The settings remain in memory even after you turn off the system power.

To set the date, enter the current month, day, and year in mm/dd/yyyy format.

To set the time, enter the current hour, minute, and seconds in hh:mm:ss, 24-hour format. For example, type **13:30:00** for 1:30 P.M.

Diskette Drive

This menu selects the type of diskette drive in your system. Unless you are changing your hardware, you do not need to change the diskette drive (floppy) A or B settings.

If you add an optional 5 1/4-inch diskette drive to your system, select “Floppy B” and change the parameter to “1.2 MB, 5.25 inch.”

IDE Devices

The hard disk drive (drive C:) is configured as “Primary IDE Master.” This field reports the presence of an identification string supported by up to four physical IDE drives (two on each PCI/IDE connector). If the cursor is placed on one of these fields and the field is selected by pressing the **Enter** key, the IDE Device Submenu appears. This submenu lets you set the drive parameters.

Jumper settings on the IDE device must be set to the master or slave device (see the documentation that comes with the device).

IDE Device Configuration Submenu

The IDE Device Submenu lets you check or change the following hard disk drive parameters.

- IDE Device Configuration
 - Number of Cylinders
 - Number of Heads
 - Number of Sectors
 - Maximum Capacity
- IDE Translation Mode
- Multiple Sector Setting
- Fast Programmed I/O Modes

IDE Device Configuration

The system is shipped with the default as “Auto Configured” selected in this submenu. The system then automatically detects the hard disk type and sets the remaining parameters.

If your IDE hard disk does not feature auto IDE type detection or your IDE hard disk was formatted on another system with parameters different than those reported by the drive, you need to select “User Definable,” and set the “Number of Cylinders,” “Number of Heads,” “Number of Sectors,” and Maximum Capacity.”

IDE Translation Mode

The IDE Translation Mode parameter controls the way in which the BIOS interacts with the drive in terms of drive geometry. Proper choice is dependent upon the drive's size, capabilities, and the operating system (OS) used. The following choices are available.

- **Standard CHS** – is the translation mode that has been in use for years. Its use limits IDE capacity to a maximum of 528 MB regardless of the size of the drive used.
- **Logical Block** – mode overcomes the 528 MB maximum size limitations imposed by the Standard CHS mode. It should be used only when the drive supports logical block addressing (LBA), and the OS supports LBA, or uses the BIOS to access the disk.
- **Extended CHS** – mode also overcomes the 528 MB maximum size limitations imposed by the Standard CHS mode. It can be used with drives which are larger than 528 MB, but do not support the LBA mode.
- **Auto Detected (default)** – allows the BIOS to examine the drive and determine the optimal mode. The first choice is to use Logical Block mode if it is supported by the drive. The second choice is to use Extended CHS mode if the drive topology allows. If neither of the above two methods are possible, then Standard CHS mode is used.



CAUTION

When set to Auto Detected, the BIOS will detect what the drive is capable of, not the translation mechanism which was used to format the drive.

If a drive is run in a mode other than the mode in which it was partitioned and formatted, unpredictable results may occur, including data loss.

Different OS's have different abilities regarding IDE translation modes:

- UNIX – does not currently support either LBA or ECHS and must use the Standard CHS method. UNIX can support drives larger than 528 MB, but does so in a different manner.
- OS/2 2.1 and OS/2 WARP – can support LBA, ECHS, or Standard CHS methods. Note that LBA support may require a switch setting on an OS/2 drive in order to operate in the mode.
- OS/2 2.0 and Novell Netware – can support either, ECHS or Standard CHS methods, but not LBA.
- DOS and Windows – can support LBA, ECHS, or Standard CHS methods. If the “Fast 32-bit IDE” option of Windows is used, make sure to use the Standard CHS setting only, unless a version of WDCDRV.386 is being used which supports this advanced geometry.

You will get better performance not using “Fast 32-bit IDE” if using a drive which employs Mode 3 PIO on the PCI interface, unless using a version of WDCDRV.386 which supports these advanced modes.

Language

The installed language will appear in the Setup and BIOS text strings. English (US) is the default in the U. S. and Canada.

Boot Options

When the cursor is placed in the Boot Option field, you can select it by pressing **Enter**. The Boot Options Submenu appears allowing parameters which affect the boot process to be set.

Boot Options Submenu

The Boot Options Submenu lets you check or change the following bootup parameters.

- Boot Sequence
- System Cache
- Boot Speed
- Num Lock
- Setup Prompt
- Hard Disk Pre-Delay
- Typematic Rate Programming
- Scan User Flash Area
- Boot Virus Detection

Boot Sequence

The BIOS attempts to load the operating system in the sequence listed here. The defaults are as follows.

- First boot device – Floppy
- Second boot device – Hard Disk
- Third boot device – CD-ROM
- Fourth boot device – Disabled

System Cache

The default for the System Cache field is “Enabled.” This field controls both the primary and secondary caches. Setting the system cache to “Disabled” will hurt performance, but might be required when running software which uses software timing loops and needs to be slowed down to execute properly.

Boot Speed

Boot speed refers to the system CPU cycles. The default boot speed is “Turbo.” “De-turbo” mode slows the CPU by disabling the system cache and adding increased refresh cycles.



“De-turbo” does not reduce the CPU speed to 8 MHz. If “De-turbo” is selected it will automatically “Disable” the System Cache.

Num Lock

The Num Lock field controls whether the Num Lock key on the keyboard will be “On” or “Off” at bootup. The default is “On.”

Setup Prompt

The Setup Prompt field allows you to disable the “Press <F1> Key To Enter Setup” message displayed during POST. It does not control access, just the message. This field can be either “Enabled” or “Disabled.” The default is “Enabled.”

Hard Disk Pre-Delay

The Hard Disk Pre-Delay field causes the BIOS to wait a specified time before accessing the first hard disk drive. Setting a pre-delay provides the system with some time to identify any additional drives before the standard hard drive initializes. The default is “Disabled.” The delay times are as follows.

- 3 seconds
- 6 seconds
- 9 seconds
- 12 seconds
- 15 seconds
- 21 seconds
- 30 seconds
- Disabled (default)

Typematic Rate Programming

The parameter controls whether the default user configuration values are used for Typematic Rate Delay and Typematic Rate. The field is set as Default.

- Default – sets the Typematic Delay to 250 msec and Typematic Rate to 15.
- Override – provides the following two options. These options allow you to customize the values.

Typematic Rate Delay

The Typematic Rate Delay field controls how long it takes for the keyboard auto-repeat function to start when a keyboard key is held down. The delay times are as follows.

- 250 msec (default)
- 500 msec

-
- 750 msec
 - 1000 msec

Typematic Rate

The Typematic Rate field controls the speed characters repeat when you hold down a keyboard key. The higher the number the faster the repeat. The delay times are as follows:

- 6 char/sec (default)
- 8 char/sec
- 10 char/sec
- 12 char/sec
- 15 char/sec
- 20 char/sec
- 24 char/sec
- 30 char/sec.

Scan User Flash Area

Allows a user's program to scan the user Flash area for user data. Can be set as "Disabled" or "Enabled." The default is "Disabled."

Boot Virus Detection

Enables an anti-virus program resident in the BIOS to scan for any virus in the system. The program can also repair the virus-infected area. The default is "Enabled."

Video Mode

This field cannot be entered, it is an information field only. The system has a video controller, the default is "EGA/VGA."

Mouse

This field cannot be entered, it is an information field only. The system supports a PS/2 mouse. If the mouse is not installed the field will not be displayed. The default is “Installed.”

Base Memory

This field cannot be entered, it is an information field only. The system uses 640 KB of base memory.

Extended Memory

This field cannot be entered, it is an information field only. Displays the amount of system memory above 1 MB.

BIOS Version

This field cannot be entered, it is an information field only. Reports the BIOS identification string.

ADVANCED MENU

Selecting “Advanced” from the menu bar on the Main Menu displays a menu with the following options. Use the arrow keys to select an item from the Advanced menu and press **Enter**. Explanations of each topic follow.

- Processor Type
- Processor Speed
- Cache Size
- Peripheral Configuration
- Advanced Chipset Configuration
- Power Management Configuration
- Plug and Play Configuration
- Event Logging Configuration



CAUTION

Setting items in this menu to incorrect values can cause your system to malfunction.

Processor Type

This field cannot be entered, it is an information field only. The processor is a Pentium processor that is backward compatible with 8086, 80286, Intel 386, and Intel 486 processors.

Processor Speed

This field cannot be entered, it is an information field only. The processor operates at the rated internal and external speeds.

Cache Size

This field cannot be entered, it is an information field only.

Peripheral Configuration

When the cursor is placed in the Peripheral Configuration field, you can select it by pressing **Enter**. The Peripheral Submenu appears for setting parameters that affect the IDE devices, diskette drive, serial ports, and parallel port.

Peripheral Submenu

The Peripheral Submenu lets you check or change the following peripheral parameters.

IDE Interface (Primary and Secondary)

The Primary and Secondary IDE Interface fields enable the IDE interface connectors on the system board. These fields can be either “Auto Configured” detected or “Disabled.” The default is “Auto Configured.”

Floppy Interface

The Floppy Interface field enables the diskette drive interface connector on the system board. This field can be either “Auto Configured” detected or “Disabled.” The default is “Auto Configured.”

Serial Port (1 and 2) Address

The serial ports 1 and 2 may be “Auto Configured” detected or “Disabled.” The default is “Auto Configured.” When “Auto Configured” is selected, the first free Serial port is assigned regardless of what is selected.

The serial COM port and addresses are as follows. When an option is selected for one serial port, the selection is not available for the second port.

- Disabled
- COM1, 3F8h, IRQ4
- COM2, 2F8h, IRQ3
- COM3, 3E8h, IRQ4
- COM4, 2E8h, IRQ3

Serial Port 2 IR Mode

The Serial Port 2 IR Mode field allows you to dedicate Serial Port 2 for infra-red applications. This field can be either “Enabled” or “Disabled.” The default is “Enabled.”

Parallel Port Interface

The parallel port may be “Auto” detected or “Disabled.” The default is “Auto.” When “Auto” is selected, the first free LPT port is assigned regardless of what is selected. The parallel port address options are as follows.

- Disabled
- LPT3, 3BCh, IRQ5 or IRQ7
- LPT1, 378h, IRQ5 or IRQ7
- LPT2, 278h, IRQ5 or IRQ7
- Auto

Parallel Port Type

The Parallel Port Type field options are as follows.

- Compatible – sets the parallel port to the standard AT compatibility.
- Bi-directional (default) – sets the parallel port to input/output mode only.
- ECP – sets the parallel port to the Enhanced Capabilities Port (ECP) mode.
- EPP – sets the parallel port to the Enhanced Parallel Port (EPP) mode.

Audio Interface

For multimedia systems, this option “Enables” the Vibra 16C audio subsystem. If this option is “Disabled,” then the I/O resources and addresses that are used to support the audio interface are freed. The default is “Enabled.”

Hardware Monitor Interface

This option “Enables” or “Disables” the hardware monitor subsystem. The default is “Enabled.”

PCI LAN Interface

For network-ready systems, this option “Enables” or “Disables” the onboard LAN interface. The default is “Enabled.”

Advanced Chipset Configuration

When the cursor is placed in the Advanced Chipset Configuration field, you can select it by pressing **Enter**. The Advanced Chipset Submenu appears, allowing parameters which affect the system performance to be changed.

Advanced Chipset Submenu

The Advanced Chipset Submenu lets you check or change the following chipset parameters.

- Base Memory Size
- ISA LFB Size
- ISA LFB Base Address
- Video Palette Snoop
- Latency Timer (PCI Clocks)
- Banks 0, 1 and 2 SIMM Detected

Base Memory Size

The Base Memory Size field controls the mapping of addresses between “512 KB” and “640 KB.” The two choices are described as follows.

- 512 KB – directs address mapping between 512 KB and 640 KB to the ISA bus.
- 640 KB (default) – directs address mapping between 512 KB and 640 KB to the system DRAM. Unless using an ISA expansion board that requires access to this address range, this field should not be changed.

ISA LFB Size

The ISA Video Linear Frame Buffer (LFB) Size provides a mechanism for creating a hole in the system memory map. Address accesses made to this hole will be directed to the ISA bus instead of main memory.

This “Disabled” setting should not be changed unless you are using an ISA board which has memory greater than 64K, needs to be accessed by the CPU, and you are not using the Plug and Play run-time utilities. The following choices are available.

- Disabled (default)
- 1 MB
- 2 MB
- 4 MB

ISA LFB Base Address

This field cannot be entered, it is an information field only. If the ISA LFB field is “Disabled,” this field does not appear.

The ISA Video LFB Base Address field displays “15 MB” (the starting address of the ISA memory hole) if “1 MB” is chosen as the ISA LFB Size parameter.

Video Palette Snoop

The Video Palette Snoop field enables card “snoop” (also called RAMDAC shadowing) write cycles to the ISA video card’s palette registers. This field can be either “Enabled” or “Disabled,” the default is “Disabled.”

This should only be set to “Enabled” if all of the following conditions occur.

- An ISA card connects to a PCI Graphics card via the VESA connector.
- The ISA card connects to a color monitor.
- The card uses the RAMDAC on the PCI card.
- The palette snooping feature is broken on the PCI card.

Latency Timer (PCI Clock)

The Latency Timer (PCI CLOCK) field controls the length of time an agent on the PCI bus can hold the bus when another agent has requested the bus. Value choices range between 0 and 256, the default value is 66.

Banks 0, 1 and 2 SIMM Detected

These fields cannot be entered, it is an information field only. These fields display either “Fast Page Mode,” “EDO Mode,” or “None installed” depending upon what the BIOS detects.

Power Management Configuration

Place the cursor in the Power Management Configuration field and select it by pressing **Enter**. The Power Management Submenu appears for setting parameters that affect the power saving features.

Power Management Submenu

The Power Management Submenu lets you check or change the Advanced Power Management parameter. Selecting the Advanced Power Management field enables or disables power management support in the BIOS.

Power management reduces the amount of energy used after specified periods of inactivity. The Advanced Power Management menu offers you the choice of operating the system in a full on state or standby state with partial power reduction when idle.



This field must be enabled to be Energy Star Compliant.

- Enabled (default) – allows the BIOS to work with the OS and reduce power consumption when idle. This selection allows you to customize the following power management fields.
- Disabled – keeps the computer in a full on state and eliminates the following power management options.

IDE Drive Power Down

The IDE Drive Power Down field controls whether or not a spin down command will be issued to the IDE drives when the system goes into low power mode. This field can be either “Enabled” or “Disabled.” The default is “Enabled.”

Inactivity Timer (Minutes)

The Inactivity Timer (Minutes) field controls the number of minutes that the system will detect no user activity before going into low power mode. Minutes range between 0 and 255; the default value is 10 minutes.

Hot Key

The Hot Key field is used to define a key which, when entered, will cause the BIOS to put the OS into power management mode. Use this field to choose an *alphabetic character*. Press **CTRL – ALT – *user defined alphabetic character*** when not in Setup to use the feature. Typically, there is some delay before the system enters power management mode and the speaker issues two tones.

If there is a User Password in effect the Num Lock, Caps Lock, and Scroll Lock lamps on the keyboard flash in sequence, indicating that the system is in Secure Mode. (See Set User Password field in Security Menu.)

In this case, the password has to be entered before you regain control of the system. This password is not echoed to the screen. The following table describes how the Powerdown Hot Key interacts with the Security Hot Key.

Hot Key Parameters

HOT KEY	FUNCTION
Powerdown Hot Key Enabled Only	System powers down. Powers up when any key/mouse activity is detected.
Security Hot Key Enabled Only	System secure immediately. Keyboard lamps blink. Input accepted when password typed.
Both Hot Keys Enabled	System secure immediately. System powers down. Keyboard lamps blink. Input accepted when password typed. Powers up when any key/mouse activity is detected.

Plug and Play Configuration

When the cursor is placed in the Plug and Play Configuration field, you can select it by pressing **Enter**. The Plug and Play Submenu appears for setting PCI/ISA Plug and Play expansion board parameters.

Plug and Play Submenu

The Plug and Play Submenu lets you check or change the Configuration Mode parameters.

Use the Configuration Mode field to choose the method on how the BIOS gets information about ISA expansion boards that do not have Plug and Play capabilities. This allows the BIOS to set up PCI and ISA Plug and Play expansion boards without conflicting with non-Plug and Play ISA boards.

The choices are as follows.

- Use BIOS Setup – The BIOS depends upon the information provided by run-time Plug and Play software (Configuration Managers and ICU). When “Use BIOS Setup” is chosen, the BIOS depends on run-time software to ensure that there are no conflicts between ISA boards with Plug and Play capabilities and those without.
- Use PnP OS (default) – If “Use PnP OS” is selected, the BIOS depends on run-time software to ensure that there are no conflicts between ISA boards with Plug and Play capabilities and those without. Only “Boot With PnP OS” is visible.

Boot with PnP OS

The Boot with PnP OS field enables the system to boot with an operating system capable of managing Plug and Play add-in cards. The choices are as follows.

- None
- Other
- Windows 95 (default)

ISA Shared Memory Size

The ISA Shared Memory Size field is used to set a block of system memory which will not be shadowed. (Shadowing is a technique which copies a block of memory from an address in the expansion board’s ROM to the same address in the system memory to allow faster access to the code and achieve higher performance.)

If “Disabled,” all upper memory is shadowed and ISA Shared Memory Base Address field is not displayed. This field provides the following choices.

When a value other than “Disabled” is selected, a block is unshadowed and the ISA Shared Memory Base Address field will appear.

- Disabled (default)
- 16 KB
- 32 KB
- 48 KB
- 64 KB
- 80 KB
- 96 KB



If a value of “96 KB” is selected, then the ISA Shared Memory Base Address field can only be set to C8000h; if “80 KB,” then a value of C8000 or CC000h, etc.

ISA Shared Memory Base Address

The ISA Shared Memory Base Address field is only displayed when an ISA Shared Memory Size has been selected. The choices are as follows.

- C8000h (default)
- CC000h
- D0000h
- D4000h
- D8000h
- DC000h

Available interrupt requests (IRQ) between IRQ3 through IRQ15 will be displayed. Interrupts consumed by on-board resources will not be visible.



All but one IRQ can be set to “Used By ISA Card.” One must remain available for a PCI expansion board.

Event Logging Configuration

When set to Enabled, keeps track of system events.

SECURITY MENU

There are two types of passwords available: “User Password” and “Administrative Password.” The user passwords can be used to access the Setup Utility, the keyboard upon initial boot and the keyboard when used in conjunction with the Security Hot Key. The Administrative Password is used to control access to the Setup Utility. The following table describes the interaction between these passwords.

Security Passwords

PASSWORD ENABLED	PASSWORD AT BOOT	ACCESS SETUP	ACCESS ALL SETUP FIELDS	SET UNATTENDED START	SET SECURITY HOT KEY
User Password Only	Yes	No	Yes	Yes	Yes
Administrative Password Only	No	Yes	Yes	No	No
Both User and Administrative Passwords	Yes	No	No (User) Yes (Admin)	Yes	Yes
No Passwords Enabled	No	No	Yes	No	No

If the Administrative Password is in effect and Setup is entered with the User Password, only the following fields may be changed.

- System Date
- System Time
- User Password
- Security Hot Key
- Unattended Start
- Power Management Hot Key



You can enter the Setup program with either a User or Supervisor password. However, more Setup choices are available with the Supervisor password.

The Security Submenu lets you check or change the following password parameters.



If neither the User or Administrative Password is “Enabled,” the Unattended Start and Security Hot Key fields are not displayed.

■ User Password

This field allows you to enable a user level password during POST and to enter Setup. When both the “User Password” and “Administrative Password” are “Enabled,” only the Administrative Password gives you full access to all Setup fields. This field can be either “Enabled” or “Disabled.” The default is “Disabled.”

■ Administrative Password

This field allows you to enable an administrative level password during POST and to enter Setup. When both the “User Password” and “Administrative Password” are “Enabled,” only the Administrative Password gives you full access to all Setup fields. This field can be either “Enabled” or “Disabled.” The default is “Disabled.”

Set User Password and Set Administrative Password

Enable either or both the User or Administrative Passwords and a dialog box with the following prompts appears. Passwords are not case sensitive.

To set a password, type the password and press **Enter**.
Reenter your password and press **Enter**.

Enter new password: []
Confirm new password: []

If there is already a User or Administrative Password, then a dialog box with the following prompts appears.

Enter current password: []
Enter new password: []
Confirm new password: []

Unattended Start

The Unattended Start field controls the point at which the User Password is required. The Unattended Start field can only be set if a User Password is in effect.

Disabled (default) – prompts the user for the password before the system boots. The text string prompt “Enter Password (1).” is displayed.

Enabled – completely boots the system (including running CONFIG.SYS and AUTOEXEC.BAT), then locks the keyboard. The User Password must be entered to unlock it. The BIOS does not provide any prompt string.

Security Hot Key (CTRL-ALT-)

The Security Hot Key field is used to lock the keyboard when you step away from the system. When you press **CTRL – ALT – *alpha-numeric key*** (the alpha-numeric key is defined by the user) the system enters secure mode (locks the keyboard).

When this Hot Key combination is entered the Num Lock, Caps Lock, and Scroll Lock lamps on the keyboard will flash in sequence, indicating that the system is in secure mode.

EXIT MENU

Selecting “Exit” from the menu bar displays the following exit options. Click on a topic for a description of the Exit Menu options. Note that **Esc** does not exit this menu. You must select one of the items from the menu or menu bar to exit.

-
- Exit Saving Changes
 - Exit Discarding Changes
 - Load Setup Defaults
 - Discard Changes.

Exit Saving Changes

After making your selections on the Setup menus, always select “Exit Saving Changes” to make them operative.

When “Exit Saving Changes,” has been selected, the program displays this message:

```
Exit Saving Changes?  
Press Enter to Continue  
Press ESC to Abort
```

To save the changes and exit Setup press **Enter**. Press **Esc** to return to the Exit submenu without affecting your changes.

Exit Discarding Changes

Use this option to exit Setup without recording any changes you may have made. After you select “Exit Discarding Changes, the program displays this message:

```
Exit Discarding Changes?  
Press Enter to Continue  
Press ESC to Abort
```

To exit Setup without saving the changes press **Enter**. Press **Esc** to return to the Exit submenu without affecting your changes.

Load Setup Defaults

To load all the default Setup values in the Setup menus, select “Load Setup Defaults” from the Exit Submenu. Reloading the defaults does not affect the any set passwords. The program displays this message:

```
Load Setup Defaults?  
Press Enter to Continue  
Press ESC to Abort
```

To load the defaults shipped with the system press **Enter**. Press **Esc** to return to the Exit submenu without affecting your changes.

Discard Changes

To undo any changes you have made in the Setup menus since Setup was last saved, select “Discard Changes.” The program displays this message:

```
Discard Changes?  
Press Enter to Continue  
Press ESC to Abort
```

To reset all changes made in the current session of Setup, press **Enter**. Press **Esc** to return to the Exit submenu without affecting your changes.

FLASH UTILITY

The system BIOS resides on a flash read only memory (ROM) in your system. The flash ROM can be updated with a very simple procedure.

Performing an update is done with a BIOS flash diskette. The diskette contains the latest version of the BIOS code. You can obtain the flash diskette from NECCSD.

Update the BIOS from the BIOS flash diskette as follows.

1. Write down the Setup parameters currently set on the system.
2. Turn off the system.
3. Insert the flash diskette in drive A, and turn on the system.
4. When the flash upgrade menu appears, choose "Update Flash Memory Area from a file."
5. When the menu asks you to enter a path/filename, use the arrow keys to select the ".bio" file, and press **Enter**.
6. The utility asks for a confirmation that you want to load the new flash into memory. Select "Continue with Programming."
7. After the upgrade completes, remove the upgrade diskette.
8. Reboot the system and start the Setup program. Press <F5> to reset the BIOS defaults. Then, use the copy of the Setup selections you made at the beginning of this procedure to set the options.

PRODUCT RECOVERY CD

The Product Recovery CD that comes with your system contains everything you need to:

- restore individual files on your system
- completely recover your system.

You also need a CD-ROM drive (standard with multimedia systems) to run the Product Recovery CD.

The Product Recovery CD lets you copy individual program files from the Product Recovery CD if any of your factory-installed software files become corrupted. You can also restore all your system software files to their original factory-installed state if your preinstalled software becomes unusable.

The following information describes the available restoration options and how to restore your system software if it becomes necessary.

System Restore Options

System restore options available to you are as follows:

- **Restore Individual Files**
This option lets you select the files and directories you want restored from the Product Recovery CD. Use this option to restore only a few files or to have total control of which files and directories are restored to their factory state. This option is also useful for restoring AUTOEXEC, CONFIG, and INI files.

This procedure is done in Windows 95. The restore individual files procedure requires booting the system from the hard disk, entering Windows, and inserting the CD into the CD-ROM reader.

- System Recovery

Use this option as a last resort when your preinstalled software becomes unusable and you cannot reboot from the hard disk. This option requires booting from the Recovery CD.

The System Recovery option provides a *full* system recovery. This option lets you restore your system to its original factory-shipped state. Full System Recovery reformats hard drive C and *erases all information* on the disk. It then restores files on drive C from the System Recovery CD.

The following sections describe each of these options. If your preinstalled software becomes unusable, see “Recovery Options” later in this chapter.

Restore Individual Files

Restore individual files to your hard disk as follows:

1. With system power on, insert the Product Recovery CD into the CD-ROM reader.
2. On the Windows 95 desktop, double click “My Computer.”
3. Double click the CD-ROM reader “(F:)” icon. The NEC System Restore screen appears.
4. At the System Restore screen, click “OK” to restore individual files. A license agreement appears.
5. Read the license agreement and click “I agree” to continue. The Restore Individual Files screen appears. The screen is divided into two areas:
 - 1 Select files to restore — This is where you select the specific files you want to restore.

-
- 2 Check list of files to be restored — This area lets you check the files you selected for restoration.

The following sections explain how to use the Restore Individual Files screen. Complete all sections to restore your files.

Selecting Files

Under “Select files to restore,” select your files as follows:

1. From the left dialog box, highlight the directory that contains the files you want to restore.
2. From the right dialog box, highlight the files you want to use:
 - To restore all of the files listed, click “Select all of the above.” This highlights and selects all the files listed.
 - To restore only some of the files listed, click the file you want and highlight it.
3. Once your files are highlighted, select the appropriate button under the list. The buttons include:
 - Add selected files to list — click this button to add the selected files to the list of files to be restored.
 - Clear all selections — click this button to deselect the files listed.
4. Repeat steps 1 through 3 to select files from other directories. Continue until all the files you want restored are selected.

Checking Selected Files

To continue the restoration process, check the files to be restored as follows.

1. Look at the list of files in the “Check list of files to be restored” area of the screen.
2. If you need to add any files to the list, go back to the preceding section and repeat those steps.
3. If you need to remove any files from the list, do so as follows.
 - To remove only selected files, highlight the file name and click “Delete item in list.” This method lets you remove one item at a time.
 - To remove the entire list, click “Clear list.”

Once the list is set, continue to the next section.

Restoring the Files

Complete the restoration process as follows.

1. In the “Restore the files from the CD” area of the screen, locate the two options:
 - Restore the files listed — this option lets you proceed with the restoration and continue to the next step. Go to the next step to complete the restoration.
 - Cancel — click this option to cancel the restoration. This returns you to the NEC System Restore menu.
2. To proceed with the restoration, click “Restore the files listed.” When the restoration is completed, a file restore message appears.

-
3. Click “OK.”
 4. If you replaced any Windows system files, exit Windows and reboot the system.

System Recovery

If your preinstalled software becomes unusable and you cannot reboot from the hard disk, you can restore your system to its initial shipping configuration.

System Recovery *erases* and resets the hard disk *completely* before reinstalling the files.



CAUTION

If you are doing a Full System Recovery, ALL files on the hard drive will be deleted and replaced by the factory installed files.

You will lose your data and you will need to reinstall any software you installed yourself.

A Full System Recovery should only be used if the preinstalled software is unusable. If you are unsure about using this procedure, call the NECCSD/ETC Technical Support Center. The support personnel will help you determine if this is your situation. See Chapter 7 for the NECCSD/ETC technical support telephone number.

The System Recovery requires booting from the Product Recovery CD. Use the following procedure to start the recovery procedure. Follow it carefully.

1. With system power on, insert the Product Recovery CD into the CD-ROM reader.
2. Turn system power off.

-
3. Turn on system power. The System Recovery screen provides information about the restore process. Read this information.

You can choose one of the following two options:

- Continue — Proceeds with the recovery program.
 - Quit — Exits the recovery program back to MS-DOS.
4. Click “Continue” to proceed with the System Recovery. A license agreement appears.
 5. Read the license agreement and click “I agree” to continue. The Start System Recovery screen appears.
 6. The Start System Recovery screen states that all the files will be removed and that this process is irreversible. At the “Are you sure?” prompt, click “Yes” to continue.

The system files are restored and the System Recovery Completed screen appears. Click “OK” to end. Remove the System Recovery CD.

5 Setting System Board Jumpers

This chapter provides jumper setting information for configuring your system for a particular system requirement. Situations that require changing the jumper settings include the following:

- You are upgrading your processor.
- You have interrupted the Flash utility during a BIOS upgrade.
- You want to clear all customized CMOS settings back to the factory defaults.
- You want to deny access to the Setup utility.
- You forgot your password and cannot boot your system.
- You require more system resources.



CAUTION

Jumpers are set correctly at the factory for your configuration.

If your system requires a jumper change, change only the setting for that condition. Otherwise, keep the settings at their factory settings.

CHANGING PROCESSOR JUMPER SETTINGS

The following procedure explains how to locate and change the jumper setting when you upgrade your processor.

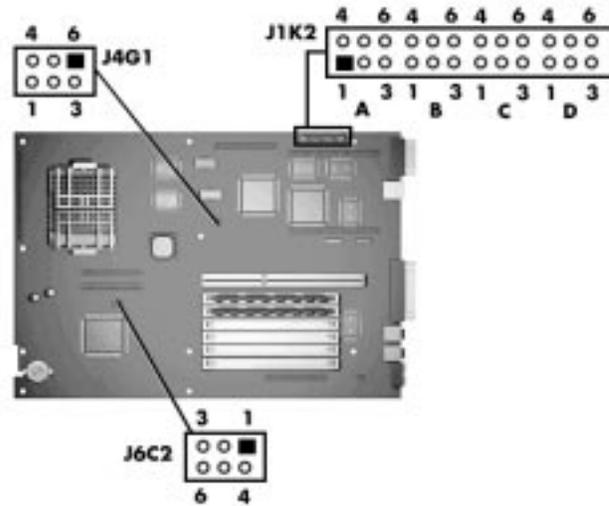


WARNING

The system power must be off before changing a jumper setting.

1. Power off and unplug the system and any peripherals.
2. Remove the system unit cover (see “Removing the System Unit Cover” in Chapter 3).
3. Locate the following jumpers on the system board (see the following figure).

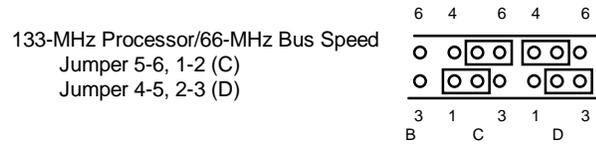
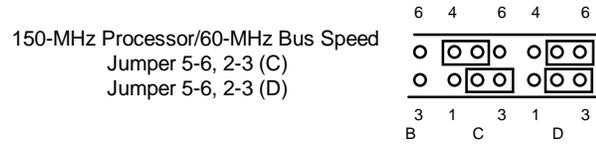
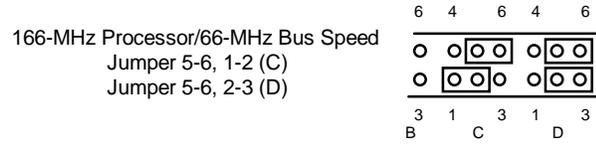
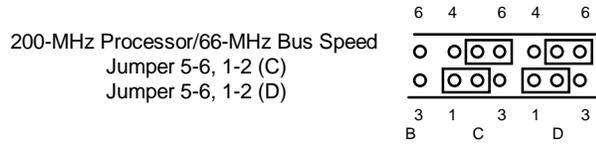
You may have to remove any installed expansion boards to access the jumpers (see “Removing Expansion Boards” in Chapter 3).



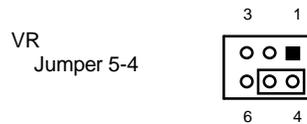
Locating system configuration jumpers

4. Set the Processor/Bus Speed jumpers for your processor. Change the jumper setting by lifting the plastic block and placing it on the appropriate pins as shown in the following figure. We suggest using needle-nose pliers to move a jumper.

Microprocessor Speed – J1K2



Processor Voltage – J6C2



Processor/bus speed jumper settings



CAUTION

The wrong Processor Voltage (VR/VRE) jumper setting could damage the system board processor. Be sure the Processor Voltage jumper is set correctly for your processor.

5. Reinstall any removed expansion boards (see “Replacing Expansion Boards” in Chapter 3).
6. Replace the system unit cover (see “Replacing the System Unit Cover” in Chapter 3).
7. Power on the system.

BIOS RECOVERY

If an interruption occurs during the BIOS upgrade that prevents continuation of the process, it is possible that the BIOS may be left in an unstable state. Use the following procedure to recover your BIOS.

1. Power off the system and unplug any peripherals.



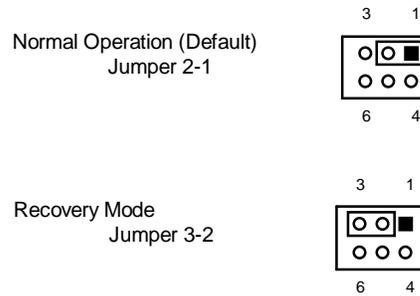
WARNING

The system power must be off before removing the cover and changing a jumper setting.

2. Remove the system unit cover (see “Removing the System Unit Cover” in Chapter 3).

-
3. Locate the BIOS Recovery jumper J6C2 on the system board (see the figure “Locating system configuration jumpers”).
 4. You may have to remove any installed expansion boards to access the jumpers (see “Removing Expansion Boards” in Chapter 3).
 5. Move the jumper block to the Recovery Mode pins.

BIOS Recovery – J6C2



BIOS recovery jumper settings

6. Replace the system unit cover (see “Replacing the System Unit Cover” in Chapter 3).
7. Connect system power cables and monitor.
8. Power on the system. The system displays a system configuration error message.
9. Power off, unplug the system and monitor, and remove the cover.
10. Return the jumper block to the Normal Operation position.
11. If you removed any expansion boards, replace them (see “Replacing Expansion Boards” in Chapter 3).

-
12. Replace the system unit cover. Reconnect the system power cables and peripheral devices.
 13. Power on the system.
 14. Run Setup (see Chapter 4, “Setting System Parameters”).

CLEARING CMOS

If you want to return your system to the factory default settings, use the following procedure to clear CMOS to the default factory settings.



CAUTION:

Clearing CMOS changes your setup configuration including hard disk settings.

1. Power off the system and unplug any peripherals.



WARNING

The system power must be off before removing the cover and changing a jumper setting.

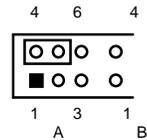
2. Remove the system unit cover (see “Replacing the System Unit Cover” in Chapter 3).
3. Locate the CMOS Clear jumper J1K2 on the system board (see the figure “Locating system configuration jumpers”).

You may have to remove any installed expansion boards to access the jumpers (see “Removing Expansion Boards” in Chapter 3).

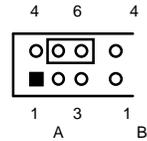
-
4. Move the jumper block to the Clear position.

CMOS Clear – J1K2

Normal Operation (Default)
Jumper 4-5



Clear
Jumper 5-6



Clear CMOS jumper settings

5. Replace the system unit cover (“Replacing the System Unit Cover” in Chapter 3).
6. Connect system power cables and monitor.
7. Power on the system. The system displays a system configuration error message.
8. Power off, unplug the system and monitor, and remove the cover.
9. Return the jumper block to the Normal Operation position.
10. If you removed any expansion boards, replace them (see “Replacing Expansion Boards” in Chapter 3).
11. Replace the system unit cover. Reconnect the system power cables and peripheral devices.
12. Power on the system.
13. Run Setup (see Chapter 4, “Setting System Parameters”).

DENYING ACCESS TO SETUP

In special cases, you may want to deny the user access to the Setup utility. In this case you must change the jumper from its default position. Use the following procedure to change the jumper setting.

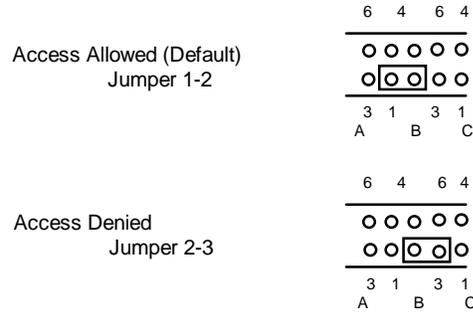
1. Power off the system and unplug any peripherals.

 **WARNING**

The system power must be off before removing the cover and changing a jumper setting.

2. Remove the system unit cover (see “Removing the System Unit Cover” in Chapter 3).
3. Locate the Setup Access jumper J1K2 (B) on the system board (see the figure “Locating system configuration jumpers”).
4. You may have to remove any installed expansion boards to access the jumpers (see “Removing Expansion Boards” in Chapter 3).
5. Move the jumper block to the Access Denied position.

Setup Access – J1K2



Setup access jumper settings

6. If you removed any expansion boards, replace them (see “Replacing Expansion Boards” in Chapter 3).
7. Replace the system unit cover. Reconnect the system power cables and peripheral devices.
8. Power on the system.
9. Run Setup (see Chapter 4, “Setting System Parameters”).

CLEARING YOUR PASSWORD

If you set a system password and you forget your password, use the following procedure to clear your current system password and set a new one.

1. Power off and unplug the system and any peripherals.

 **WARNING**

The system power must be off before removing the cover and changing a jumper setting.

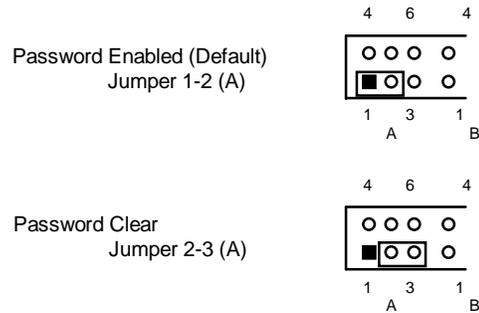
-
2. Remove the system unit cover (“Removing the System Unit Cover” in Chapter 3).

3. Locate the Password Clear jumper J1K2 (A) on the system board (see the figure “Locating system configuration jumpers” earlier in the chapter).

You may have to remove any installed expansion boards to access the jumpers (see “Removing Expansion Boards” in Chapter 3).

4. Move the jumper block to the Password Clear position.

Password Clear – J1K2



Clear Password jumper settings

5. Replace the system unit cover (see “Replacing the System Unit Cover” in Chapter 3).
6. Connect system power cables and monitor.
7. Power on the system. The system lets you boot your computer.
8. Power off, unplug the system and monitor, and remove the cover.
9. Return the jumper block to the Password Enabled position.

-
10. If you removed any expansion boards, replace them (see “Replacing Expansion Boards” in Chapter 3).
 11. Replace the system unit cover.
 12. Power on the system.
 13. Run Setup to set a new password (see Chapter 4, “Setting System Parameters”).

PCI EXPANSION SLOTS

The following jumpers are set for your system in manufacturing. These jumpers set the number of PCI slots available to you. Use the information in the following figure for verification purposes only.

1. Power off and unplug the system and any peripherals.

 **WARNING**

The system power must be off before removing the cover and changing a jumper setting.

2. Remove the system unit cover (see “Removing the System Unit Cover” in Chapter 3).
3. Locate the PCI Slot jumper J4G1 on the system board (see the figure “Locating system configuration jumpers” earlier in the chapter).

You may have to remove any installed expansion boards to access the jumpers (see “Removing Expansion Boards” in Chapter 3).

4. Move the jumper to the number of PCI slots you want enabled.



When the jumper is set for Two PCI Slots, the shared PCI/ISA slot functions only as an ISA slot.

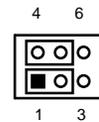


CAUTION

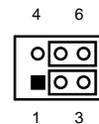
Do not change the jumper from Two PCI Slots (Default) to Three PCI Slots in network configurations. Changing the jumper affects network functionality.

PCI Slots – J4G1

Two PCI Slots
Jumper 4-5, 1-2



Three PCI Slots
Jumper 5-6, 2-3



Change PCI slot settings

5. If you removed any expansion boards, replace them (see “Replacing Expansion Boards” in Chapter 3).
6. Replace the system unit cover (“Replacing the System Unit Cover” in Chapter 3).
7. Connect system power cables and monitor.
8. Power on the system. The system reboots.

6 Using Voyetra Sound Software

Your PowerMate multimedia configuration ships with Voyetra[®] multimedia sound software. Use this software to adjust the volume of your speakers, record sound using a microphone, play, edit, and record .WAV files, play music on your CD-ROM, and record, play or edit Musical Instrument Digital Interface (MIDI) sequences and save them as .MID files.

This chapter explains how to use these multimedia sound software features. In addition, you can access the online help files.

The following components comprise the multimedia sound software package.

- Audio Mixer
- CD Player
- WAV Player
- MIDI Player

To access these components from Windows 95, click on the Start button and select Programs. From Programs, select Voyetra and a menu appears with the list of components.

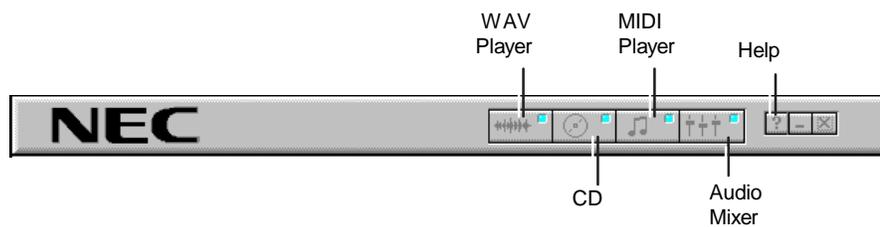
The Voyetra's sound software screen resembles a modular stereo system, as shown in the following figure. Each module controls a function of your sound system. An explanation of each module follows the figure.



AudioStation main screen layout

POWER BAR

The Power Bar is the most important module as it controls the other modules. It rearranges, opens and closes each module, which are then removed from the screen. It quits AudioStation and activates Help. See the following figure.



Power bar layout

To activate a module, click on the appropriate button. If the module is open, it closes and disappears from the stack. If the module is closed, it opens and appears at the bottom of the stack. To quit AudioStation, click on the Close button.

The Power Bar buttons are explained as follows.



Launches Help for each component.



Launches or closes the Audio Mixer module.



Launches or closes the MIDI Player module.



Launches or closes the CD Player module.



Launches or closes the WAV Player module.



The online help gives detailed information on each module.

AUDIO MIXER

Use the Audio Mixer to adjust the volume levels for your speakers and other AudioStation functions. The levels are adjusted by placing your pointer on the appropriate slider and dragging it up or down.

Adjusting the Sound Using Software

With your sound software, you can control sound right from the Windows 95 desktop. You can adjust the volume, speaker balance, and more.

- From the Programs group — click on the Voyetra icon.
- From the Control Panel — click on the Sound icon.
- From the Windows 95 taskbar — double click on the speaker icon next to the time on your taskbar.

Adjusting the Sound Using the Speakers

The controls on your speakers let you adjust the treble, bass, and volume (see “Speakers” in Chapter 1 for control locations).

CD PLAYER

The CD Player lets you play audio CDs. To play a CD, use the following procedure.

1. Place the CD into the CD-ROM reader tray with the print side up and press the button or gently push on the tray.
2. Click the **Mode** button to select a playback mode, if you wish.
3. To start the CD, press the **Play** button.

WAV PLAYER

The WAV Player records sound by turning incoming electrical signals into numbers and saving the numbers in computer memory. To play back the sound, the software changes the data numbers back into electrical signals that the audio equipment amplifies and directs to the speakers or headphones.

The data format created by the WAV Player is called .WAV files which is compatible with Windows 95. The “tada” sound that you hear when Windows 95 starts up is an example of a .WAV file.

The following sections explain how to use the WAV Player to record, play, and edit digital audio files.

Recording Digital Audio Files

To record .WAV files, use the following procedures.

1. Connect your audio source (microphone, CD player, tape deck) to the input jack at the back of the system.
2. From the Mixer module, select your input source and set the recording volume.
3. Click on the record button. This will put the WAV Player in Record Standby mode (the red light blinks).
4. Click on the Play button to start recording. The blinking red light becomes a steady red light indicating that WAV Player is recording.
5. Speak into the microphone or play the input source to record.
6. When you finish recording, click the Stop button to stop recording.
7. Click the Play button to hear what you just recorded. If it is satisfactory, choose Save from the File menu.
8. Type a new *filename* in the dialog box and choose OK.

Playing Digital Audio Files

Use the following procedure to load and play digital audio files.

1. To play a .WAV or .VOC digital audio file you must first insert the files you wish to hear in the playlist.
2. Once you have created a playlist, Press OK to close the playlist.
3. Click the Play button to hear the files in the playlist.

The digital audio file plays and stops when it reaches the end.

Editing Digital Audio Files

To edit digital audio files, click on the Edit button. This launches the AudioView program with the current file open.

MIDI PLAYER

The MIDI player plays, edits, and records musical instrument digital interface (MIDI) sequences and saves them as .MID files. MIDI sequences are organized series of MIDI commands.

MIDI files require only a fraction of the storage space of digital audio files (.WAV).



To record MIDI files, a MIDI connector and a MIDI keyboard are required.

To play MIDI files, follow these procedures.

1. Click on the Playlist button to open the MIDI file playlist window.
2. In the File section, select the files by highlighting the files you want and click on the Add button. This inserts the files into a playlist.
3. Click OK to close the playlist and return to the MIDI player.
4. Click on the Play button (single arrow) to play the playlist. If you have multiple files in the playlist the Next/Previous will skip or jump back to other files in the playlist.

7

Solving System Problems

Your system has a built-in checking program that automatically tests its components when you turn the system unit power on. If there is a problem, the system displays an error message. If this happens, follow any instructions on the screen.

If screen messages do not help or an error message does not appear, use the information in this chapter to determine and solve the problem. The problem is often one that you can solve yourself.

See the following sections in this chapter for help:

- “Problem Checklist”
See this section first to determine the cause of your problem.
- “Solutions to Common Problems”
Refer to this section to solve common minor problems.
- “Diagnostic Diskette”
If your system boots, use the diagnostic diskette to determine and resolve the problem.
- “Getting Technical Help”
See this section for technical help available to you when you cannot solve a problem yourself.

PROBLEM CHECKLIST

If you have problems, go through the following checklist for possible solutions.

- **Is the power switch on for the computer and any connected peripherals (monitor, printer)?**

Check that all power switches are on.

- **Is the computer and its peripherals connected to a working AC power outlet or surge protector?**

Check the outlet or surge protector by plugging a lamp into the outlet or surge protector.

- **Are all cables and power cords connected securely?**

Check that all cables and power cords are securely connected.

- **Is the monitor screen blank or is the display hard to read?**

Check that the monitor is on. Adjust the brightness and contrast controls on the monitor.

- **Was a Non-System Disk error message displayed when you started the system?**

You have a diskette in the diskette drive. Remove the diskette from drive A and restart the system.

- **Is your mouse or keyboard not responding?**

You may have connected the mouse and keyboard after turning on your system. Turn the system off, make sure the mouse and keyboard are connected, and turn the system back on.

- **Does your system fail to recognize the CD-ROM?**

Your drive designation may be incorrect. The reader is assigned as drive F.

SOLUTIONS TO COMMON PROBLEMS

See the following sections to match your problem area and view the possible causes and solutions.

When trying to solve problems, you should note what the system was doing when the problem occurred and what you attempted to do to correct the problem. This information is useful if you request assistance.

System Problems

Check the following list to match your problem and see the possible cause and solution.

- **No power and power lamp not lit**

Check that the power cable is plugged into the system power socket. Check that the other end of the cable is plugged into a live, properly grounded AC power outlet.

- **System does not boot and error message displayed on screen**

Run the Setup Utility. Check that the parameters are set correctly, particularly if you just installed an option.

- **System sounds continuous beeps**

Turn the system off, wait at least five seconds, and turn the system on. If the beeps continue, call NECCSD/ETC technical support at 888-ETC-SUPT (888-382-7878).

- **System does not maintain date, time, system configuration information**

Replace the CMOS battery.

- **System does not boot from hard disk**

The system tries to start from the diskette drive before it starts from the hard drive. Remove the diskette from the diskette drive.

Run the Setup Utility and check the Boot parameter settings to verify that the initial boot parameter is set for hard drive C and not for a diskette drive.

- **System performance appears sluggish**

Check that your system is set for optimal operation. See your operating system documentation.

Check the memory requirements of your software applications. If required, install additional SIMM memory.

If you added optional memory, check that you correctly installed the SIMM memory.

- **System did not recognize additional SIMM memory**

You added only one SIMM stick. SIMMs must be added in pairs. Add a second SIMM of the same type.

- **System password forgotten**

Clear the password and reset it. See “Clearing Your Password” in Chapter 5.

Diskette Drive Problems

Check the following problems to see the possible cause and solution.

■ Diskette won't load

Check that the diskette is being loaded correctly.

Check that the system and monitor power lamps are on and the power-on screen appears.

Check that the diskette is formatted. If not, format it. See your operating system documentation.

Check that the diskette size is 1.44 MB.

If the diskette drive busy lamp does not light when you load the diskette, try a different diskette. If this loads, the problem is in the software.

■ Non-System Disk or Disk Error message displayed

If you are booting from the diskette drive, insert a diskette with system files into drive A.

If a bootable diskette does not boot, use the Setup Utility to verify that the initial boot parameter is set to diskette drive A and not a hard disk.

Monitor Problems

Check the following problems to see the possible cause and solution.

■ Monitor screen is dark

Check that the monitor power cable is connected to the monitor and a power outlet, the monitor signal cable is connected to the system, and the brightness and contrast controls are adjusted.

Press the space bar or move the mouse to take the system out of the power management mode.

■ Distorted image appears on your monitor screen

Adjust the monitor's video controls. If this does not help, turn the monitor off for several seconds, then back on.

■ There is constant movement on the screen.

A magnetic field is affecting your monitor. Move any devices (fan, motor, another monitor) that generate magnetic fields away from your monitor.

■ The screen display is fuzzy or flickering, graphics characters or garbage appears on the screen.

Check that your monitor is set up correctly and that all connections have been made.

Check that the video refresh rate and video driver are correct. Click the right mouse button anywhere on the Windows 95 desktop and a menu appears. Click on Properties and the Display Properties window appears.

Keyboard/Mouse Problems

Check the following problem to see the possible cause and solution.

- **Image appears on screen but nothing happens when you use the mouse or keyboard**

Tighten the keyboard or mouse cable connection.

If this does not help, turn off the system, wait five or more seconds, and turn on the system.

CD-ROM Problems

Check the following problems to see the possible cause and solution.

- **The system does not see the CD-ROM reader**

The drive designation is wrong and should be changed. The CD-ROM reader is assigned as drive F.

- **The CD-ROM reader is not reading a disc**

Check that the disc is inserted in the CD tray with the label printed side up.

Check that the disc is a data disc, not a music disc.

Try a different disc to see if the problem is limited to one disc.

- **The CD-ROM disc does not eject due to a power failure or software error**

Turn off the system and use the CD-ROM emergency eject feature.

- **The CD-ROM plays music CD but the sound is not heard. However, .WAV and .MIDI sounds can be heard when played.**

Check that the cable connecting the back of the CD-ROM drive to the system board CD audio connector is in place and secure.

- **The CD-ROM does not play music CDs**

See “CD Player” in Chapter 6, for further information on playing music CDs.

Speaker Problems

Check the following problems to see the possible cause and solution.

- **No sound from the speakers**

Check that the speaker power is on. Verify that all speaker cable connections are correct and secure.

- **Speaker volume is too low**

Adjust the volume control on the speaker. If the volume is still too low, adjust the volume through the system software. See “Audio Mixer” in Chapter 6.

- **Sound is only coming from one speaker**

Balance the speaker output by adjusting the balance in the sound software. See “Audio Mixer” in Chapter 6.

Microphone Problems

Check the following problem to see the possible cause and solution.

- **You get no response from the microphone**

Check that the microphone is connected to the microphone in connector on the back of your system.

Adjust the microphone (MIC) level through sound software.

REPLACING THE CMOS BATTERY

A 3-volt lithium battery in your computer maintains system configuration information. If your system fails to maintain system configuration information, replace it with an identically rated battery from the same manufacturer.



CAUTION

Removing the battery from the system board causes the computer to lose system configuration information. If you can, run the Setup Utility and print out or write down your system configuration settings. Then you can restore your system to its current settings.



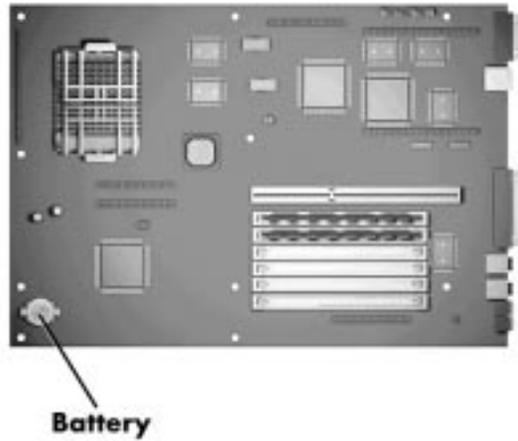
WARNING

The battery can explode if it is incorrectly replaced or improperly discarded. Use only the same battery or an equivalent type recommended by the manufacturer when replacing the battery.

Lithium acts as a catalyst when exposed to water and causes spontaneous combustion on contact. Discard used batteries according to the manufacturer's instructions.

If you need to replace the battery, follow these steps:

1. Turn off and unplug the computer and any external components connected to it.
2. Remove the system unit cover. Observe all safety precautions when removing the cover.
3. Locate the battery socket on the system board. You may have to remove any expansion boards in the way.

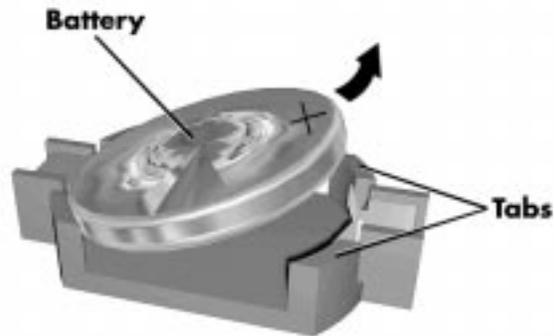


Locating the battery socket on the system board

-
- Carefully release the battery from the tabs on one side of the socket and slide the battery out.

 **CAUTION**

To maintain a tight battery contact with the socket, do not over-bend the battery clip.



Removing the battery

- Remove the battery and discard in accordance with the manufacturer's instructions.
- With the positive (+) side facing up, snap the new battery into the socket.
- Replace any removed expansion boards.
- Replace the system unit cover.

-
9. Connect external peripherals and power cables
 10. Run the Setup Utility to reconfigure your system parameters.

DIAGNOSTIC DISKETTE

If you are unable to resolve your system's problem using the Problem/Solutions topics in this chapter, we suggest that you run the diagnostic diskette.

The diagnostic diskette permits quick testing of all major system components, individual testing of different system components, and access to various testing options.

To run diagnostics, insert the diagnostic diskette into drive A: with the system unit off. Power on the system. The system boots from the diskette and provides you with the test options.

GETTING TECHNICAL HELP

If you tried correcting problems yourself and weren't successful, you can obtain technical help at any time, 24 hours a day, 7 days a week, by calling 888-ETC-SUPT (888-382-7878).

A Setting Up a Healthy Work Environment

 **WARNING**

Prolonged or improper use of a computer workstation may pose a risk of serious injury. To reduce your risk of injury, set up and use your computer in the manner described in this appendix.

Contact a doctor if you experience pain, tenderness, swelling, burning, cramping, stiffness, throbbing, weakness, soreness, tingling and/or numbness in the hands, wrists, arms, shoulders, neck, back, and/or legs.

MAKING YOUR COMPUTER WORK FOR YOU

Computers are everywhere. More and more people sit at computers for longer periods of time. This appendix explains how to set up your computer to fit your physical needs. This information is based on ergonomics — the science of making the workplace fit the needs of the worker.

Some nerve, tendon, and muscle disorders (*musculoskeletal disorders*) may be associated with repetitive activities, improper work environments, and incorrect work habits. Examples of musculoskeletal disorders that may be associated with certain forms of repetitive activities include: carpal tunnel syndrome, tendinitis, tenosynovitis, de Quervain's tenosynovitis, and trigger finger, as well as other nerve, tendon, and muscle disorders.

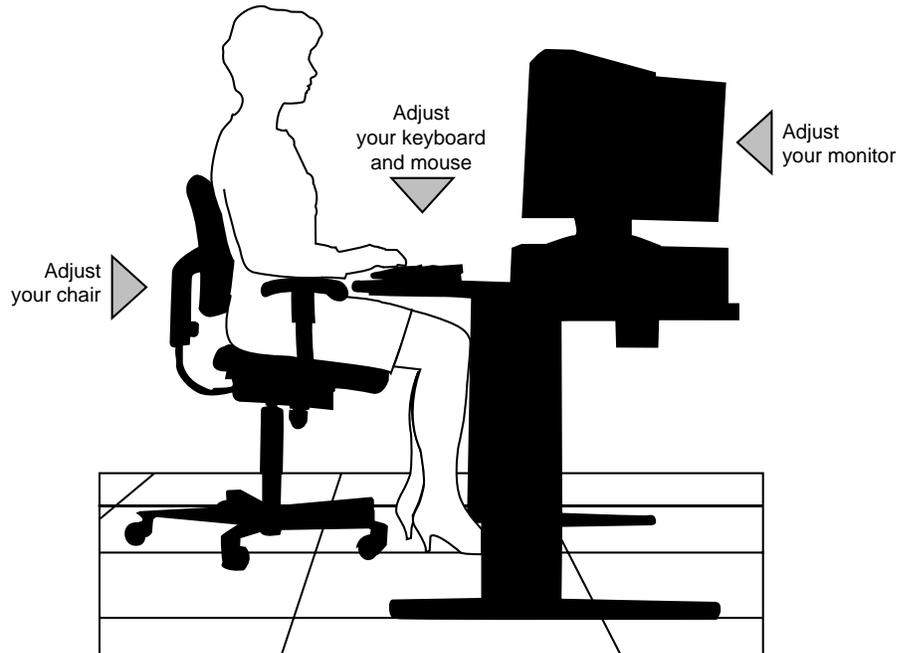
Although some studies have shown an association between increasing hours of keyboard use and the development of some musculoskeletal disorders, it is still unclear whether working at a computer causes such disorders. Some doctors believe that using the keyboard and mouse may aggravate existing musculoskeletal disorders.

Some people are more susceptible to developing these disorders due to pre-existing conditions or psychosocial factors (see “Pre-existing Conditions and Psychosocial Factors” later in the appendix).

To reduce your risk of developing these disorders, follow the instructions in this appendix. If you experience discomfort while working at your computer or afterwards, even at night, contact a doctor as soon as possible. Signs of discomfort might include pain, tenderness, swelling, burning, cramping, stiffness, throbbing, weakness, soreness, tingling and/or numbness in the hands, wrists, arms, shoulders, neck, back, and/or legs.

ARRANGE YOUR EQUIPMENT

Arrange your equipment so that you can work in a natural and relaxed position. Place items that you use frequently within easy reach. Adjust your workstation setup to the proper height (as described in this appendix) by lowering the table or stand that holds your computer equipment or raising the seat height of your chair. To create more desk space, you can put your computer base on the floor.



ADJUST YOUR CHAIR

Your chair should be adjustable and stable. Vary your posture throughout the day.

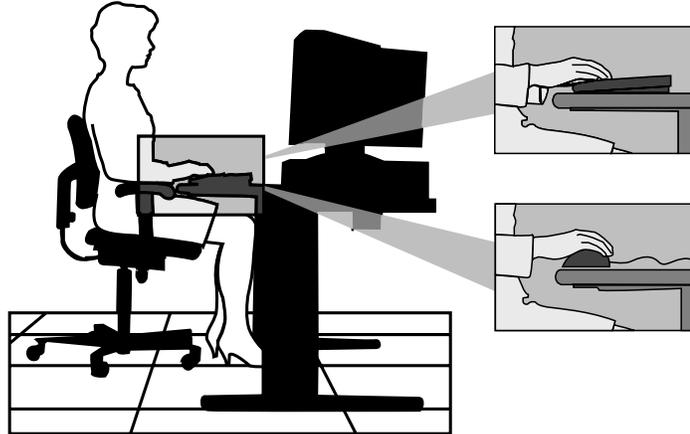


Check the following:

- Keep your body in a relaxed yet upright position. The backrest of your chair should support the inward curve of your back.
- Use the entire seat and backrest to support your body. Tilt the backrest slightly backwards. The angle formed by your thighs and back should be 90° or more.

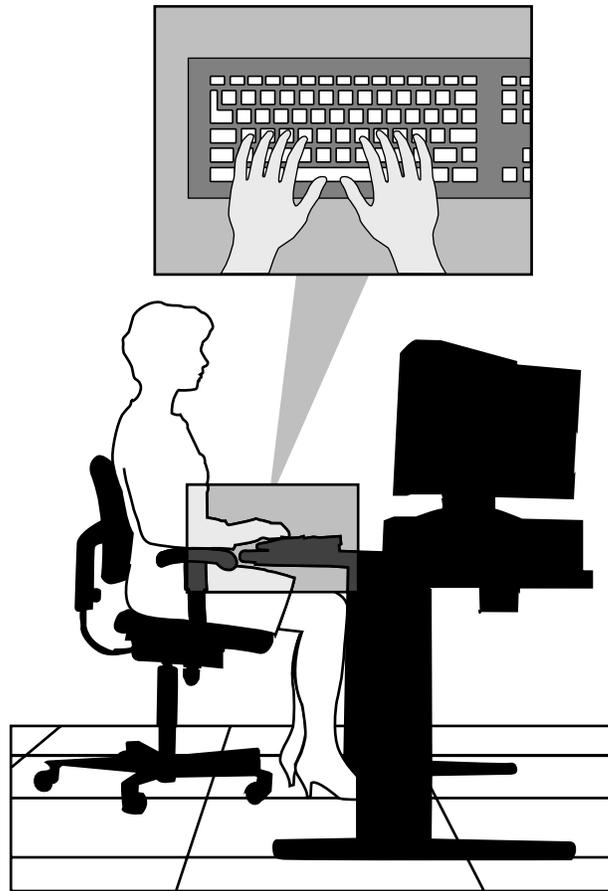
-
- Your seat depth should allow your lower back to comfortably contact the backrest. Make sure that the backs of your lower legs do not press against the front of the chair.
 - Extend your lower legs slightly so that the angle between your thighs and lower legs is 90° or more.
 - Place your feet flat on the floor. Only use a footrest when attempts to adjust your chair and workstation fail to keep your feet flat.
 - Be sure that you have adequate clearance between the top of your thighs and the underside of your workstation.
 - Use armrests or forearm supports to support your forearms. If adjustable, the armrests or forearm supports should initially be lowered while all the other adjustments discussed in this appendix are made. Once all these adjustments are completed, raise the armrests or adjust the forearm supports until they touch the forearms and allow the shoulder muscles to relax.

ADJUST YOUR INPUT DEVICES



Follow these points in positioning your keyboard and mouse.

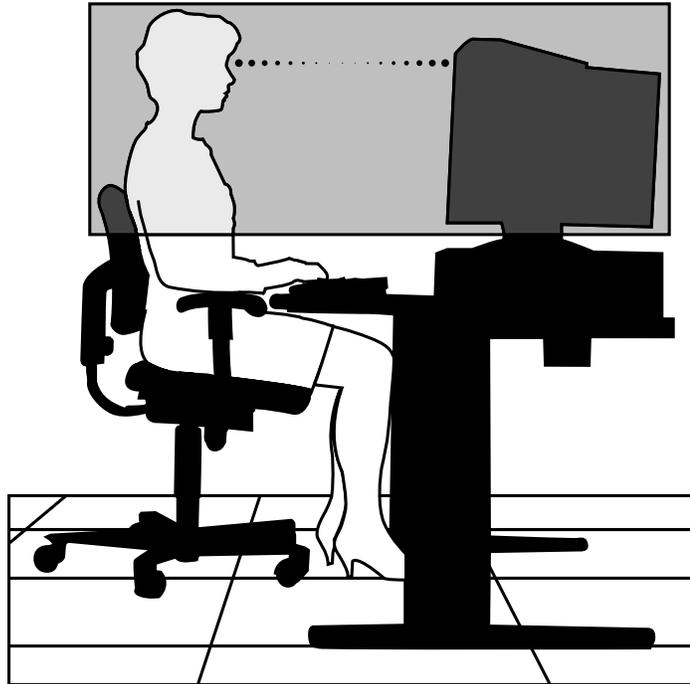
- Position your keyboard directly in front of you. Avoid reaching when using your keyboard or mouse.
- If you use a mouse, position it at the same height as the keyboard and next to the keyboard. Keep your wrists straight and use your entire arm when moving a mouse. Do not grasp the mouse tightly. Grasp the mouse lightly and loosely.
- Adjust the keyboard height so that your elbows are near your body and your forearms are parallel to the floor, with your forearms resting on either armrests or forearm supports, in the manner described previously. If you do not have armrests or forearm supports, your upper arms should hang comfortably at your sides.
- Adjust your keyboard slope so that your wrists are straight while you are typing.



- Type with your hands and wrists floating above the keyboard. Use a wrist pad only to rest your wrists between typing. Avoid resting your wrists on sharp edges.
- Type with your wrists straight. Instead of twisting your wrists sideways to press hard-to-reach keys, move your whole arm. Keep from bending your wrists, hands, or fingers sideways.
- Press the keys gently; do not bang them. Keep your shoulders, arms, hands, and fingers relaxed.

ADJUST YOUR MONITOR

Correct placement and adjustment of the monitor can reduce eye, shoulder, and neck fatigue. Check the following when you position the monitor.



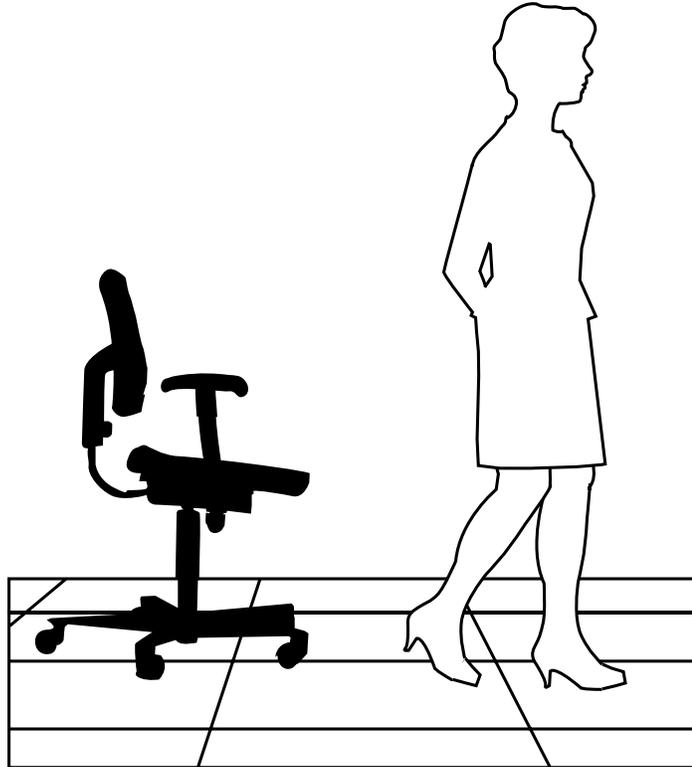
- Adjust the monitor height so that the top of the screen is at or slightly below eye level. Your eyes should look slightly downward when viewing the middle of the screen.
- Position your monitor no closer than 12 inches and no further away than 28 inches from your eyes. The optimal distance is between 14 and 18 inches.

-
- Rest your eyes periodically by focusing on an object at least 20 feet away. Blink often.
 - Position the monitor at a 90° angle to windows and other light sources to minimize glare and reflections. Adjust the monitor tilt so that ceiling lights do not reflect on your screen.
 - If reflected light makes it hard for you to see your screen, use an anti-glare filter.
 - Clean your monitor regularly. Use a lint-free, non-abrasive cloth and a non-alcohol, neutral, non-abrasive cleaning solution or glass cleaner to minimize dust.
 - Adjust the monitor's brightness and contrast controls to enhance readability.
 - Use a document holder placed close to the screen.
 - Position whatever you are looking at most of the time (the screen or reference material) directly in front of you to minimize turning your head while you are typing.
 - Get regular eye check-ups.

VARY YOUR WORKDAY

If you use your computer for prolonged periods, follow these instructions.

- Vary your tasks throughout the day.
- Take frequent short breaks that involve walking, standing, and stretching. During these breaks, stretch muscles and joints that were in one position for an extended period of time. Relax muscles and joints that were active.



-
- Use a timer or reminder software to remind you to take breaks.
 - To enhance blood circulation, alter your sitting posture periodically and keep your hands and wrists warm.



For more information on workstation setup, see the American National Standard for Human Factors Engineering of Visual Display Terminal Workstations. ANSI/HFS Standard No. 100-1988. The Human Factors Society, Inc., P.O. Box 1369, Santa Monica, California 90406.

PRE-EXISTING CONDITIONS AND PSYCHOSOCIAL FACTORS

Pre-existing conditions that may cause or make some people more susceptible to musculoskeletal disorders include the following: hereditary factors, vascular disorders, obesity, nutritional deficiencies (e.g., Vitamin B deficiency), endocrine disorders (e.g., diabetes), hormonal imbalances, connective tissue disorders (e.g., arthritis), prior trauma (to the hands, wrists, arms, shoulders, neck, back, or legs), prior musculoskeletal disorders, aging, fluid retention due to pregnancy, poor physical conditioning and dietary habits, and other conditions.

Psychosocial factors associated with these disorders include: workplace stress, poor job satisfaction, lack of support by management, and/or lack of control over one's work.

Contact a doctor if you experience pain, tenderness, swelling, burning, cramping, stiffness, throbbing, weakness, soreness, tingling and/or numbness in the hands, wrists, arms, shoulders, neck, back, and/or legs.

CHECKING YOUR COMFORT: HOW DO YOU MEASURE UP?

Use this checklist to see if you are setting up your work environment to fit your physical needs.

Checking Your Chair

- Do you sit in an upright position with the backrest supporting your lower back?
- When sitting, are your feet flat on the floor?
- Do you periodically adjust your chair and your posture?

Checking Your Keyboard

- Is your keyboard angled so your wrists are straight when you type?
- Is your keyboard directly in front of you?
- Do you avoid resting your wrists on sharp edges?
- Do you press the keys gently and not bang on them?

Checking Your Mouse

- Is your mouse at the same height as the keyboard and next to the keyboard?
- Are your wrists straight and your touch light when moving the mouse?

Checking Your Monitor

- Did you adjust your monitor so that the top of the screen is at or slightly below eye level?
- Do you periodically rest your eyes by blinking often or looking away from the screen?
- Is your monitor no closer than 12 inches and no further away than 28 inches from your eyes?
- Do you use a document holder placed close to the screen?

Checking You

- Is your work area set up to promote a natural and relaxing working position with frequently used work items within close reach?
- Do you take frequent short breaks?
- Do you stretch and walk during your breaks?
- Do you vary your tasks during the day?
- Do you have regular eye checkups?
- Do you contact your doctor if you feel any sustained discomfort?

For more information on workstation setup, see the American National Standard for Human Factors Engineering of Visual Display Terminal Workstations. ANSI/HFS Standard No. 100-1988. The Human Factors Society, Inc., P.O. Box 1369, Santa Monica, California 90406.

This appendix was prepared in consultation with Dr. David Rempel of the University of California/San Francisco Ergonomics Program and Mr. M.F. Schneider of HUMANTECH, Inc., Ann Arbor, Michigan.

B Reviewing System Interrupts

The interrupt controller accepts requests from peripherals, issues interrupt requests to the processor, resolves interrupt priorities, and provides vectors for the processor to determine which interrupt routine to execute. The interrupt controller has priority assignment modes that can be reconfigured at any time during system operations.

The interrupt levels are described in the following table. Interrupt-level assignments 0 through 15 are in order of decreasing priority. See Chapter 4, Setting System Parameters, for information on changing the interrupts using Setup.

Interrupt Level Assignments

INTERRUPT PRIORITY	INTERRUPT DEVICE
IRQ00	Counter/Timer
IRQ01	Keyboard
IRQ02	Cascade (INT output from slave)
IRQ03	COM2 and COM4
IRQ04	COM1 and COM3
IRQ05	Parallel Port 2/Audio (if present)
IRQ06	Diskette Drive Controller
IRQ07	Parallel Port 1

Interrupt Level Assignments

INTERRUPT PRIORITY	INTERRUPT DEVICE
IRQ08	Real-time clock
IRQ09	Available
IRQ10	Available (Audio on multimedia configurations)
IRQ11	Network interface board
IRQ12	PS/2 mouse
IRQ13	Coprocessor
IRQ14	Primary IDE
IRQ15	Secondary IDE

C Limited Warranty

NEC Computer Systems Division, Packard Bell NEC, Inc. (hereinafter "NECCSD") warrants this Product to be free from defects in material and workmanship under the following terms:

HOW LONG IS THE WARRANTY?

Labor and parts are warranted for three (3) years from the date of the first consumer purchase in the U.S.A. All 3 years are on-site. Spare parts are warranted for ninety (90) days.

WHO IS PROTECTED?

This warranty is non-transferable and may be enforced only by the first consumer purchaser.

WHAT IS COVERED AND WHAT IS NOT COVERED?

Except as specified below, this warranty covers all defects in material and workmanship in the PowerMate ETC Series Desktop Computer.

1. Any Product which is not distributed in the U.S.A. by NECCSD, or by an authorized NECCSD dealer or distributor.
2. Any Product on which the serial number has been defaced, modified or removed.

-
3. Damage, deterioration or malfunction resulting from, but not limited to:
 - a. Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature, unauthorized Product modification, or failure to follow instructions supplied with the Product.
 - b. Repair or attempted repair by anyone not authorized by NECCSD.
 - c. Any shipment of the Product (claims must be presented to the carrier).
 - d. Removal or installation of the Product.
 - e. Any other cause which does not relate to a Product defect.
 4. Cartons, carrying cases, pens, external cabinets, magnetic media, or any accessories used in connection with the Products.
 5. This warranty covers only NECCSD-supplied components. Service required as a result of third party Products is not covered under this warranty.

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items, but we will not pay for the following:

1. Removal or installation charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls. These costs are the responsibility of the NECCSD dealer from whom the Product was purchased.
3. Payment of shipping and related charges incurred in returning the Product for warranty repair.

HOW YOU CAN GET WARRANTY SERVICE

NECCSD provides an on-site limited warranty for all PowerMate ETC Series Desktop Computers installed within a 100-mile radius of a NECCSD authorized third-party maintenance organization.

On-site warranty service is available Monday through Friday during normal local business hours, exclusive of NECCSD holidays.

Such on-site warranty service may be obtained by calling **1-888-ETC-SUPT** (1-888-382-7878). Beyond the 100-mile radius, travel charges will be applied.

LIMITATION OF DAMAGES AND IMPLIED WARRANTIES

NECCSD'S SOLE LIABILITY FOR ANY DEFECTIVE PRODUCT IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT AT OUR OPTION. NECCSD SHALL NOT BE LIABLE FOR:

1. DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS IN THIS PRODUCT, DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME OR DATA, LOSS OF SOFTWARE, COMMERCIAL LOSS; OR
2. ANY OTHER DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SOME STATES DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES OR THE LIMITATION OR EXCLUSION OF LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES; THEREFORE, THE ABOVE EXCLUSIONS OR LIMITATIONS MAY NOT APPLY TO YOU.

HOW STATE LAW RELATES TO THE WARRANTY

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

**FOR WARRANTY INFORMATION, TELEPHONE
1-888-ETC-SUPT (1-888-382-7878)**

NOTE: All Products returned to NECCSD for service MUST have prior approval; this may be obtained by calling the above number.

NECCSD Products are warranted in accordance with the terms of the applicable NECCSD limited warranty. Product performance is affected by system configuration, software, the application, customer data, and operator control of the system, among other factors. While NECCSD Products are considered to be compatible with many systems, the specific functional implementation by the customers of the Product may vary. Therefore, the suitability of a Product for a specific purpose or application must be determined by the customer and is not warranted by NECCSD.

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NEC Computer Systems Division,
A Division of Packard Bell NEC, Inc.

DECLARATION OF CONFORMITY

We, the Responsible Party

NEC Computer Systems Division
Packard Bell NEC, Inc.
1414 Massachusetts Ave.
Boxborough, MA 01719
(508) 264-8000

declare that the product

NEC

PowerMate MT V/P Series

is in conformity with part 15 of the FCC Rules. Operation of this product 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.

(For United States Use Only)

**FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE STATEMENT**

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from the one to which the receiver is connected.

Use shielded and properly grounded I/O cables and power cable to ensure compliance of this unit to the specified limits of the rules.

(For Canadian Use Only)

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

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

BATTERY REPLACEMENT

A lithium battery in your computer maintains system configuration information. In the event that the battery fails to maintain system configuration information, NEC recommends that you replace the battery. See “Replacing the CMOS Battery” in Chapter 7 of this guide for battery replacement information.

WARNING: There is a danger of explosion if the 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.

ATTENTION: Il y a danger d’explosion s’il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d’un type recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

BATTERY DISPOSAL

Do not place used batteries in your regular trash.

The nickel-cadmium or nickel metal-hydride batteries must be collected, recycled, or disposed of in an environmentally-approved manner.

The incineration, landfilling, or mixing of batteries with the municipal solid waste stream is **prohibited by law** in most areas.

Return batteries to a federal or state approved battery recycler. This may be where you purchased the battery or a local seller of automotive batteries. In MINNESOTA, call 1-800-225-PRBA if further disposal information is required.

Contact your local waste management officials for other information regarding the environmentally sound collection, recycling, and disposal of the batteries.