PROPRIETARY NOTICE AND LIABILITY DISCLAIMER

Using this Guide

The *NEC Versa® 2700 Series User's Guide* gives you the information you need to maximize the use of your NEC Versa 2700 Series notebook computer. The information in this guide refers to the Windows 95 operating system, only. For information about Windows NT® or Windows for Workgroups, refer to the operating system specific supplement that shipped with your NEC Versa.

Read this guide to familiarize yourself with the system and its features. For specific information see

- Chapter 1, "Getting Started," to acquaint yourself with system hardware.

- Chapter 2, "Understanding the Software," for a summary of the applications loaded on your system. Software included lets you experience the full spectrum of the system, from creating vivid multimedia presentations to accessing the Internet via Microsoft Internet Explorer.

- Chapter 3, "Using Setup and Power Management," to customize your notebook's parameter and power management settings.

- Chapter 4, "Using Your NEC Versa," for an understanding of NEC Versa features and functionality. You'll also master procedures for connecting external options like headphone, microphone or speakers.

- Chapter 5, "Using Multimedia," for steps on integrating video and sound clips into impressive presentations.

- Chapter 6, "Traveling with Your NEC Versa," lists valuable tips for getting the most out of your system while on the road.

- Chapter 7, "Solving Problems," provides simple solutions to common problems that may arise while operating your notebook.

- Appendix A, "Setting Up a Healthy Work Environment," provides guidelines to help promote a healthy work setting.

- Appendix B, "Specifications," to review NEC Versa 2700 Series system specifications.

- Appendix C, "NECCSD Information Services," describes the variety of services available for you when you need help with your system.

TEXT SETUP

To make this guide as easy to use as possible, text is set up in the following ways.

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

⚠ **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 system hardware or software.

> **NOTE** Notes give particularly important information about whatever is being described.

- Names of keys are printed as they appear on the keyboard, for example, **Ctrl**, **Alt**, or **Enter**.

- Text that you must type or keys that you must press are presented in bold type. For example, type **dir** and press **Enter**.

RELATED DOCUMENTS

See the following documents for additional information on your NEC Versa 2700 Series notebook computer:

- The *NEC Versa 2700 Series Quick Setup* sheet helps you get your system up and running.

- The *NEC Versa 2700 Series Quick Reference* card provides an easy-to-carry reference to LED meanings, controls, function key combinations, and NEC help numbers.

- Modern Age Books', *Using Windows 95* provides online help for your Windows 95 operating system.

- An online version of this user's guide also comes on your hard disk drive. That way, you can leave the guide at home and still have all the information you need at your fingertips.

(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 a shielded and properly grounded I/O cable to ensure compliance of this unit to the specified limits of the rules.

FCC Modem Connection Requirements

The Federal Communications Commission (FCC) has established Rules that permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin lines.

If the modem is malfunctioning, it may also be harming the telephone network. Disconnect the modem until the source of the problem is determined and repairs are made. If this is not done, the telephone company may temporarily disconnect service.

The telephone company may make changes in its technical operations and procedures. If such changes affect the compatibility or use of the modem, the telephone company is required to give adequate notice of the changes. You will be advised of your right to file a complaint with the FCC.

If the telephone company requires information on what equipment is connected to their lines, inform them of:

- The telephone number to which this unit is connected
- The ringer equivalence number (see the modem label)
- The USOC jack required.
- The FCC Registration number (see the modem label).

The ringer equivalence (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5). If too many devices are attached, they may not ring properly.

Modem Service Requirements

If the modem malfunctions, all repairs should be performed by an NEC Authorized Service Center. It is the responsibility of users requiring service to report the need for service to an NEC Authorized Service Center. Service can be obtained at:

NEC Computer Systems Division
Packard Bell NEC, Inc.
1414 Massachusetts Avenue
Boxborough, Massachusetts 01719-9984

Phone: 1-800-632-4525

Canadian Department of Communications Modem Connection Requirements

NOTE: The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

WARNING: Users should not attempt to make such connections themselves, but should contact the appropriate inspection authority or electrician.

The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100.

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2 Understanding the Software

3 Using Setup and Power Management

4 Using Your NEC Versa

5 Using Multimedia

Glossary

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1 Getting Started

> ## ⚠ WARNING
>
> Prolonged or improper use of a computer work-station 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.

After completing the steps in the quick setup sheet that comes with your computer, your NEC Versa 2700 Series system is ready to go! To get started:

■ Read Appendix A, Setting Up a Healthy Work Environment, for guidelines that help you use your computer productively and safely. Information includes how to set up and use your computer to reduce your risk of developing nerve, muscle, or tendon disorders.

■ Read through this guide to familiarize yourself with the NEC Versa.

GETTING TO KNOW YOUR NEC VERSA

The NEC Versa 2700 Series notebook computer offers you a portable system filled with exciting resources for home, business or travel. Standard features include a powerful Intel® Pentium microprocessor that works together with the latest Peripheral Component Interconnect (PCI) architecture. Depending on the model, your NEC Versa is equipped with one of the following processors, 133MMX, 150MMX, 166MMX, 200MMX, or 233MMX.

With the NEC Versa MMX models, your system integrates Intel's Multimedia Extensions (MMX) technology. MMX speeds audio, video, and 3D graphics processing, providing more distinct sound and visuals for your presentations.

In addition, your all-in-one system provides a high-performance hard disk drive, diskette drive, 16X or 20X CD-ROM reader, PC card slots, and a 56 kilobits per second (Kbps) modem (modem only available on some models). As a multimedia system, your NEC Versa provides the tools needed to create and present impressive images using video clips and sound.

To get comfortable with your notebook, read the following sections and take a tour around your system!
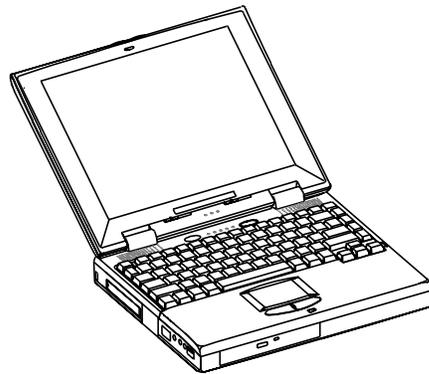
NEC Versa 2700 Series notebook computer

AROUND THE FRONT OF THE SYSTEM

The NEC Versa is compact with features on every side.
First, look at the front of the system. The following sections
describe front features, beginning with the liquid crystal
display (LCD) panel.

LCD Panel

The NEC Versa 2700 Series comes with a color LCD that
you can adjust for a comfortable viewing position. The
LCD is a 12.1-inch Dual Scan Super-Twisted Nematic
(DSTN) or Thin Film Transistor (TFT), Super Video
Graphics Array (SVGA) color display. The features of the
LCD panel are described after the figure.
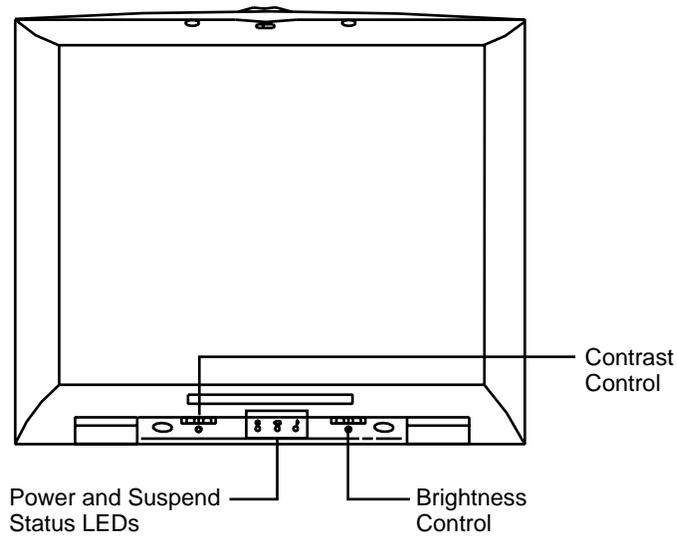
LCD panel

■ Brightness and Contrast Controls — use the slide
switches to adjust screen brightness and contrast.

> **NOTE** NEC Versa models equipped with the 12.1-inch Thin Film Transistor (TFT) LCD panel have a brightness control switch only. Increasing the brightness increases the screen contrast.

■ Power and Suspend Status LEDs — (identified by icons) are located just under the front of the LCD panel. The status LEDs are duplicated on the back of the LCD panel to allow viewing when the panel is closed.
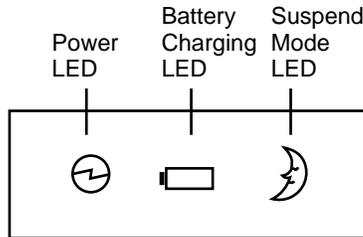
Power and Suspend LEDs

— Power LED — lets you know that power to the system is turned on. This LED is positioned so that you see the power state whether the LCD panel is opened or closed.

– Lights green when the system is powered on using the AC Adapter or Xtender Airplane & Auto Adapter.

– Lights amber when the system is powered on using the battery.

– Slowly blinks amber when the system is powered on using a battery at 5-8% capacity.

– Quickly flashes amber when the system is powered on using a battery at 4% or less capacity.

— Battery Charging LED — lights to indicate battery charging status.

– Lights green to indicate battery is fully charged.

– Lights amber to indicate battery is charging.

— Suspend Mode LED — blinks green when the system is in Suspend mode.

Control Panel

The NEC Versa 2700 Series control panel provides the features shown in the following figure. The control panel features are described after the figure.
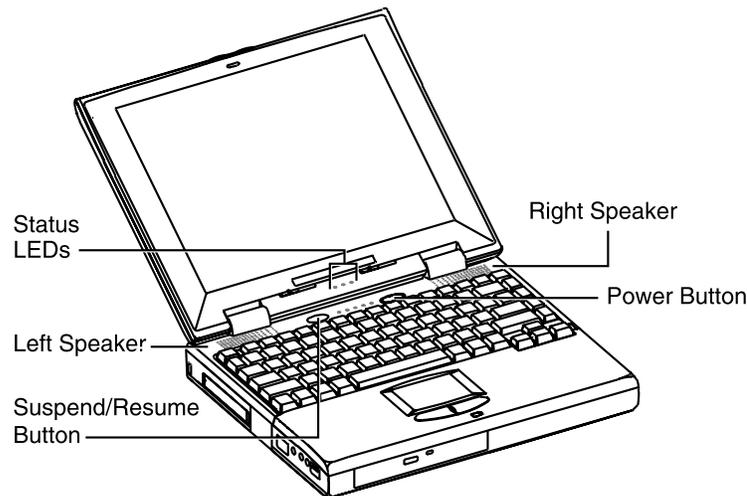
Control Panel

- Status LEDs — keep you informed of your NEC Versa's current operating status. Descriptions of the status icons appear in the following section.

- Built-in Stereo Speakers — provide stereo sound for your multimedia presentations or listening pleasure.

■ Power Button — slide the Power button to the right to power on and power off the system.

The Power button is a "smart" switch, meaning that it recognizes when the system is in Suspend mode. If in Suspend mode, you cannot power off until you press the suspend button again to bring it out of Suspend mode.

> (NOTE) If you are unable to power off the system, use the power override. Slide the Power button to the right and hold it in place for four seconds. The system powers off.

■ Suspend/Resume (S/R) Button — press the Suspend button to put the unit in Suspend mode when you need to be away from your system for a short period of time and want to return where you left off. Suspend mode saves power and extends battery life when running on battery power. Press the S/R button again to bring the NEC Versa out of Suspend mode.

Status Icons

The NEC Versa 2700 Series uses status lights marked with icons to communicate system status. See the following figure and list for each icon's meaning.

Hard Drive Access   Diskette Drive Access   Caps Lock   Scroll Lock   Num Lock
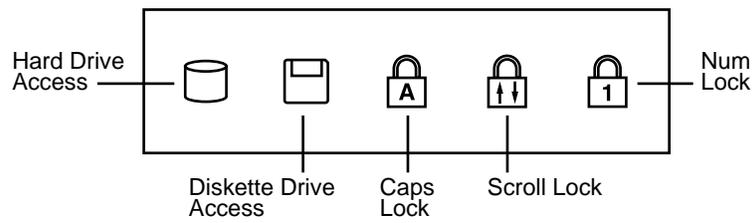
Status LED icons

- Hard Drive Access — lights when the NEC Versa writes data to or retrieves data from the hard disk drive.

- Diskette Drive Access — lights when the NEC Versa writes data to or retrieves data from the diskette drive.

- Caps Lock — lights when caps lock is in effect.

- Scroll Lock — lights when scroll lock is in effect.

- Num Lock — lights when Num Lock mode is active.

Keyboard Panel and Base Unit

The NEC Versa 2700 Series keyboard panel and base unit contain the following features. The keyboard panel and base unit features are described after the figure.

Keyboard Panel and Base Unit
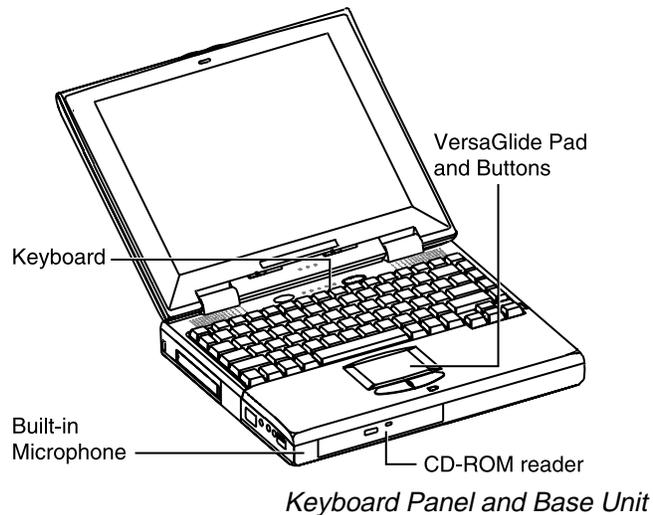
- NEC VersaGlide — works like a standard computer mouse. Simply move your fingertip over the VersaGlide to control the position of the cursor. Use the selection buttons below the VersaGlide to select menu items. See "NEC VersaGlide" in Chapter 4 for information about customizing VersaGlide settings.

- CD-ROM Reader — allows you to load and start programs from a compact disc (CD) and play audio CDs. See Chapter 4, "Using Your NEC Versa Computer," for details about using the CD-ROM reader.

- Microphone — allows you to record monophonic sound directly into your notebook computer. See Chapter 5, "Using Multimedia," for details about recording.

■ Keyboard — standard QWERTY-key layout. See "Using the Keyboard" in Chapter 4 for details about control keys, function keys, and keyboard features. (Models shipped outside of the U.S. are equipped with country-specific keyboard layouts.)

AROUND THE BACK OF THE SYSTEM

You'll find system ports for connecting your NEC Versa to optional devices (like a printer or external monitor) on the back of your NEC Versa. The ports are described after the figure.

PS/2 Port

Parallel Port   Fan   Expansion Port

Serial Port   Monitor Port
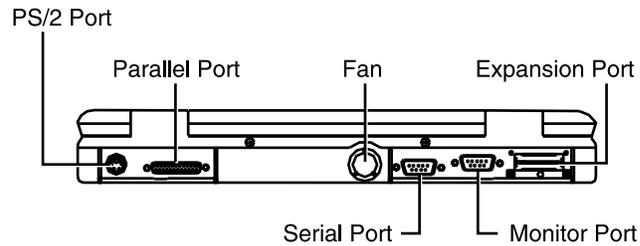
Back system features

■ PS/2 Port — Use the standard PS/2 port to connect an external PS/2-style mouse, PS/2-style keyboard, or PS/2 style Numeric Keypad to the system. With an optional Y-cable adapter, you can connect any combination of two of these devices at the same time.

■ Parallel Port — Use this port to connect a parallel printer or other parallel device. The parallel port supports Enhanced Capabilities Port (ECP) and Enhanced Parallel Port (EPP) standards. Both standards provide you with a greater processing speed than the conventional parallel port. The port also supports bi-directional and uni-directional protocols.

> **NOTE** The default setting for the parallel port on your NEC Versa is set to Enhanced Capabilities Port (ECP). Some older parallel devices may not function with the ECP default setting. You may need to adjust the setting to accommodate your parallel device. Follow the instructions in Chapter 3, "Using Setup and Power Management," to adjust the setting.

■ Fan — Allows your system to cool properly and maintain a safe operating environment.

⚠ CAUTION

Do not block the fan while the NEC Versa is in use.

■ Serial Port — Use this port to connect a serial printer or other serial device.

■ Monitor (Video) Port — Use this 15-pin port to attach an external monitor to your NEC Versa. You can run the LCD display and the external monitor simultaneously or run either alone.

■ Expansion Port — Use this port to connect the NEC PortBar 2700.

AROUND THE LEFT SIDE OF THE SYSTEM

The left side of your NEC Versa provides the features shown in the following figure. The left side features are described after the figure.

PortBar Notch

Microphone Jack

Line-In Jack

PC Card Slots

USB Port

Modem Port

IR Port

Speaker Jack

Volume Control
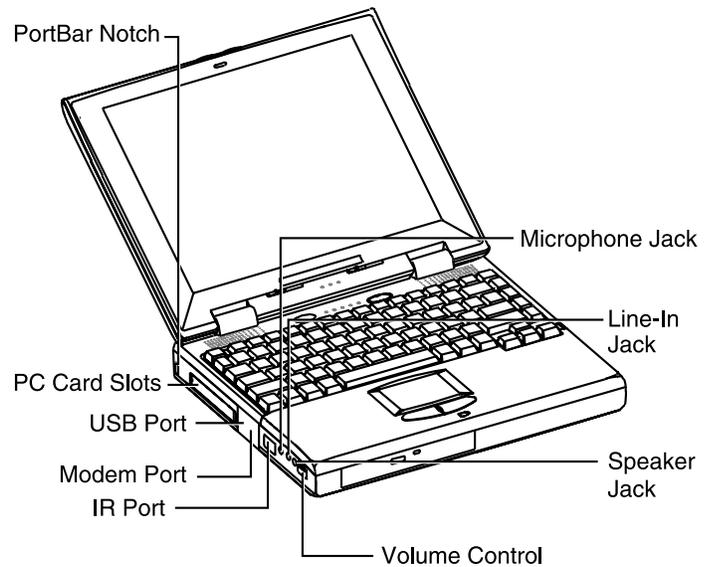
Left side features

■ PortBar Notch — Use this notch to secure the PortBar to the back of the system. (Another PortBar notch is located at the back of the right side of the system.)

■ PC Card Slots — Two PC Card slots allow you to insert two Type II PC cards or one Type III PC card in the bottom slot.

- USB Port — The Universal Serial Bus (USB) port allows you to connect up to 127 USB-equipped peripheral devices (for example, printers, monitors, scanners) to your NEC Versa.

- Modem Port (modem only available on some models) — NEC includes a 56K internal voice/fax/data modem. It keeps you connected to the outside world!

- IR Port — Use this port to transfer files between your NEC Versa and an IR-equipped desktop or notebook computer. You can also print to an IR-equipped printer without using cables. Use the IRMON utility in Windows 95 with your IR-equipped printer.

- Audio Ports

  - Microphone — Allows you to connect an external microphone for monophonic recording or amplification through the unit. Plugging in an external microphone disables the built-in microphone.

  - Line In — Lets you use another audio system, like a home stereo, as an input source. Use a cable to connect to the Line-Out port on the other audio system to record or play.

  - Headphones — Lets you plug in stereo headphones or powered speakers.

- Volume Control — Allows you to control the speaker volume.

AROUND THE RIGHT SIDE OF THE SYSTEM

The right side of the NEC Versa offers the features shown in the following figure. The right side features are described after the figure.

Kensington
Lock

Diskette
Drive

Battery
Bay

AC Power
Port

PortBar Notch
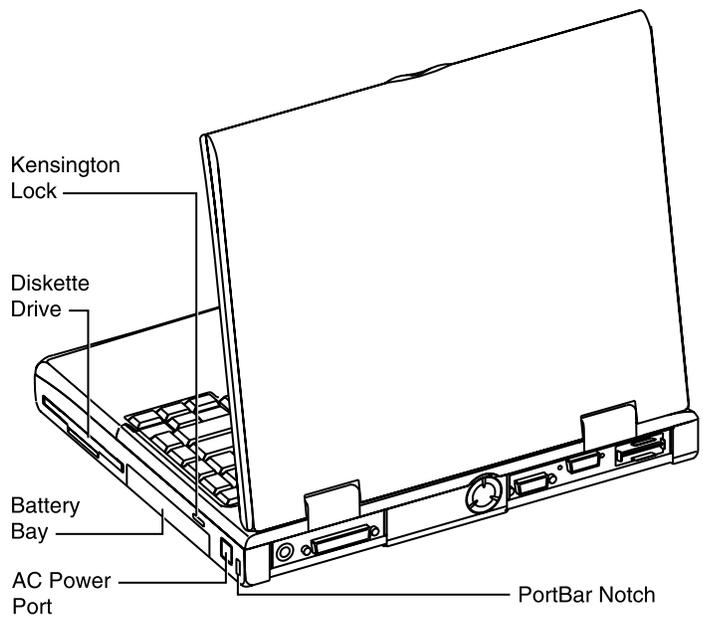
Right side features

- Diskette Drive — A 3.5-inch, 1.44-MB diskette drive comes installed in the NEC Versa 2700 Series system. The drive accepts 1.44-MB high-density diskettes as well as 720-KB double-sided double-density diskettes.

- Battery Bay — Depending upon the model, the battery bay contains a rechargeable Nickel-Metal-Hydride (NiMH) or Lithium-Ion (Li-Ion) battery pack.

- Kensington Lock — Lets you provide added security by installing an optional Kensington Lock.

- AC Power Port — Lets you attach the NEC Versa to the AC power source using the AC adapter that comes with your system. Keep the system connected to AC power whenever possible to keep the battery pack and internal CMOS battery charged.

■ PortBar Notch — Use this latch to secure the PortBar to the back of the system. (Another PortBar notch is located at the back of the left side of the system.)

AROUND THE BOTTOM OF THE SYSTEM

The bottom of the NEC Versa offers the following features. The features are described after the figure.
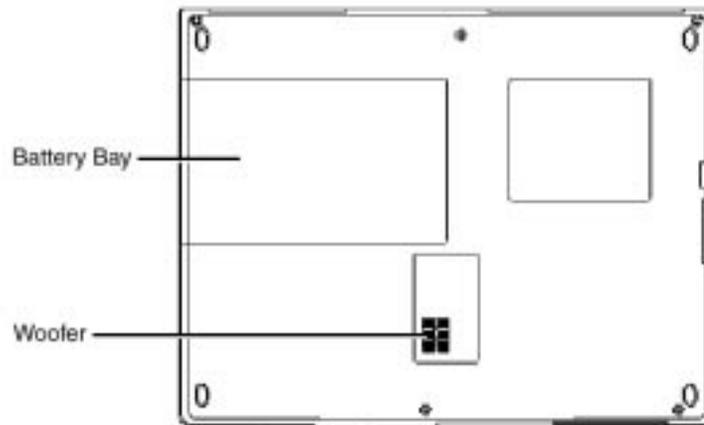
Bottom of the system

■ Battery Bay — equipped with a rechargeable Nickel-Metal-Hydride (NiMH) or (depending on the model) Lithium-Ion (Li-Ion) battery.

■ Woofer — enhances the speakers bass response.

NEC VERSA POWER SOURCES

The NEC Versa can be powered using different sources, making it a truly portable system. Operate your NEC Versa system just about anywhere using one of the following power sources:

- the AC adapter connected to an electrical wall outlet (using AC power).

- the battery pack.

- the PowerXtender Airplane and Auto Adapter. (See the *Versa Tools Catalog* for details.)

Read the following sections for specific steps on powering on the system.

Using the AC Adapter

Use the AC adapter and power cable that came with your NEC Versa to run your computer on alternating current (AC) power, or to recharge the battery pack. Use the AC adapter whenever a wall outlet is nearby.

⚠ WARNING

Do not attempt to disassemble the AC adapter. The AC adapter has no user-replaceable or serviceable parts inside. Dangerous voltage in the AC adapter can cause serious personal injury or death. The AC adapter is intended for use with a computer. Both must meet EN60950 standards.

When connected, the AC adapter charges the battery whether or not the NEC Versa is powered on.

> **NOTE** Check that the AC outlet voltage falls in the range of 100–240 Volts AC. Verify that the cord and plug are appropriate for your AC source.

Connect the AC adapter as follows:

> ⚠ **CAUTION**
>
> Use only the AC adapter that comes with your NEC Versa 2700 Series system. Although other AC adapters may look similar, using them can damage the system.

1. Connect the AC adapter cable to the power port on the right side of your NEC Versa 2700 Series system.

2. Plug one end of the AC power cable into the AC adapter and the other end into a 120- or 240-volt wall outlet.
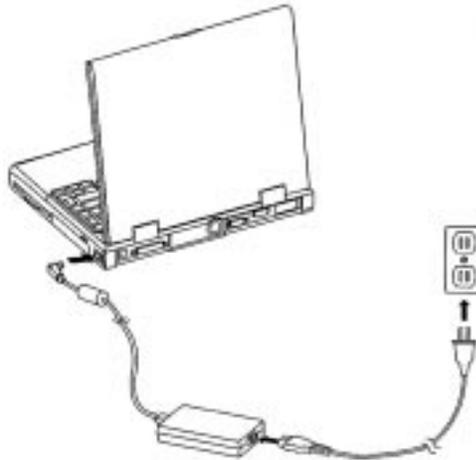
Connecting the AC adapter

⚠ WARNING

Do not cover or place objects on the AC adapter. Doing so can cause the adapter to overheat.

Powering On

To power on, locate the Power button on the control panel above the keyboard and slide it to the right. To power off the system, slide the Power button to the right a second time.

Using the Battery Pack

The NEC Versa 2700 Series system comes with a rechargeable Nickel Metal-Hydride (NiMH) or Lithium-Ion (Li-Ion) battery pack. You can run your system on battery power for 2 to 4 hours with power management features enabled. Battery packs are easy to install and remove.

> **NOTE** Although the battery is fully charged at the factory, transit and shelf time may reduce the initial battery charge. We recommend that the first time you use your system, connect it to AC power using the AC adapter. This also recharges your battery.

Your NEC Versa 2700 Series system provides status LEDs to help you keep track of the battery's power level.

When battery power is very low, the power LED blinks and the system beeps a warning.

Replacing the Battery Pack

Install the battery pack in your system as follows:

⚠ **CAUTION**

Be sure to save your data before replacing the battery pack or connecting the AC adapter. Failure to do so can result in data loss.

1. If your system is on, save your data, and press the Suspend button or turn off the system power.

2. Close the LCD and turn the system over.

3. Release the battery bay cover latch, slide the battery bay cover away from the system, and lift it off.

4. Use your fingers to pry the battery up and lift it out of the bay.

5. Align the terminals on the new battery with the terminal connector in the bay. Lower the battery into the bay.

6. Press down on the battery to secure the terminal connection.

7. Replace the battery bay cover as follows:

   ■ Align the tabs on the bay cover with the grooves on the system chassis.

   ■ Lower the cover onto the bay and slide into place.

8. Turn the system over and press the Suspend/Resume button to resume, or power on the system.

When Battery Power is Low

When battery power gets low, proceed as follows:

1. If your system is on, save your data, and press the Suspend button or turn off the system power.

2. Connect your system to the AC adapter and AC power or install a charged battery pack.

3. Press the Resume button or power on your system.

⚠ WARNING

To prevent accidental battery ignition or explosion, adhere to the following:

- Keep the battery away from extreme heat.
- Keep metal objects away from the battery terminals to prevent causing a short circuit.
- Make sure the battery is properly installed in the battery bay.
- Read the precautions printed on the battery.

Battery Handling

Review the following before handling the system's battery.

⚠ **CAUTION**

Use the NiMH or Li-Ion batteries only in the NEC Versa computer for which they are designed. Mixing other NEC Versa batteries, other manufacturer's batteries, or using a combination of very old and new batteries can deteriorate battery and equipment performance.

■ Turn off power to the system after use. Keeping system power on can degrade battery performance and shorten battery life.

■ Clean the battery terminals with a dry cloth if they get dirty.

■ When not in use, store the battery in a cool dry area.

The following symptoms indicate that battery life is nearing an end. Discard batteries that display these symptoms:

■ shorter work times

■ discoloration, warping

■ hot to the touch

■ strange odor.

Battery Life

The NEC Versa NiMH or Li-Ion battery has an approximate life of 2 hours under the following conditions:

- When it is new and fully charged.

- When no peripherals are connected to your NEC Versa.

- When you have no options installed.

Enabling power management features increases battery life.

Extending Battery Life

While on the road, it is important to be aware of the simple things you can do to extend the life of the system's main battery. Turning down the screen brightness and contrast extends battery life. Press **Fn-F7** to toggle through different power management modes and extend battery life. "Using Power Management" in Chapter 3 gives details about power management features and the modes available.

Battery Charging

Charge time depends on whether or not you are using the system. There are two ways to charge your battery while it is installed in the NEC Versa:

■ When the system is off or in Suspend mode and the AC adapter is connected, charge time is approximately 2 hours.

■ When the system is powered on and the AC adapter is connected, charge time is approximately 4 hours.

For maximum battery performance, fully discharge the battery before recharging it. To do so, unplug the AC adapter, turn off power management features (through Setup and Windows), and turn on the system. Once the battery is fully discharged, plug in the AC adapter and re-charge the battery.

If you do not discharge the battery completely, it not only fails to accept a full recharge, but also sends incorrect in-formation to the Battery Gauge utility. The utility may indi-cate that you have plenty of battery power when you actually have very little. This can result in data loss when the battery suddenly dies.

The warning beep that sounds when battery power becomes critically low is always a true indicator that battery power is low. Be sure to save your data when you hear the beep and take proper steps to provide power to your system.

Battery Precautions

To prevent accidental battery ignition, rupture, or explosion, adhere to the following precautions.

⚠️ **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.

- Keep the battery away from heat sources including direct sunlight, open fires, microwave ovens, and high-voltage containers. Temperatures over 60°C (140°F) may cause damage.

- Do not drop or impact the battery.

- Do not disassemble the battery.

- Do not solder the battery.

- Do not puncture the battery.

- Do not use a battery that appears damaged or deformed, has any rust on its casing, is discolored, overheats, or emits a foul odor.

- Keep the battery dry and away from water.

- Keep metal objects away from battery terminals. Metal objects in contact with the terminals can cause a short circuit and damage.

- If the battery leaks onto skin or clothing, wash the area immediately. Battery fluid can cause a skin rash and damage fabric.

- If battery fluid gets in eyes, DO NOT rub; rinse with clear water immediately and see a doctor.

Battery Disposal

Before disposing of the battery, put adhesive tape on the terminals. Depending upon the NEC Versa model, the main battery is made of Nickel Metal-Hydride (NiMH) or Lithium-Ion (Li-Ion).

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

INTERNAL BATTERIES

The Nickel Metal-Hydride or Lithium-Ion battery is the main power source in your NEC Versa computer. Appendix B lists battery specifications. In addition to the main battery, the CMOS battery provides power to maintain system configuration settings and the bridge battery provides power for up to 5 minutes while the main battery is being replaced.

CMOS Battery

This battery provides battery backup and prevents data loss in the system's complementary metal oxide semiconductor (CMOS) RAM. This memory area contains information on the system's configuration, for example, date, time, drives, and memory. The CMOS battery lasts approximately two years. An authorized NEC service technician can replace the CMOS battery for you.

Bridge Battery

An internal bridge battery in your system saves your system status in Suspend mode for up to five minutes. This gives you time to install a fully charged battery or plug in AC power when your battery charge becomes low.

Only an authorized dealer can change a bridge battery.

SYSTEM CARE

The NEC Versa is a durable, dependable system built for extensive use and travel. Follow these guidelines to maintain the condition and performance of your computer.

⚠ **CAUTION**

Immediately turn off and unplug the NEC Versa under the following conditions:

- The power cord is damaged or frayed.

- Liquid spills on or into the NEC Versa.

- Someone drops the system or damages the casing.

Precautions

Follow these precautions when using your NEC Versa and AC adapter.

- Avoid dropping or bumping the computer or the AC adapter.

- Do not stack heavy objects on the computer, the AC adapter, or the battery packs.

- Avoid moving the NEC Versa during system operation, especially while the hard disk, diskette drive, or CD-ROM reader is being accessed.

- When using the AC adapter, make sure the power source falls within the system's compatible range of 100–240 volts AC. Never use the AC adapter if the voltage falls outside of this range. (Watch for this when traveling to other countries.)

- Turn computer power off before attaching or removing non-plug and play devices.

- Do not push any foreign objects into the NEC Versa bays, connectors, and slots.

- Avoid using the computer or AC adapter for extended periods in direct sunlight.

- Do not use the system in humid or dusty environments.

- Keep liquids and food away from the system.

- Turn computer power off before cleaning it.

- Avoid exposing the NEC Versa or AC adapter to extreme changes in temperature or humidity. If it is unavoidable, allow your NEC Versa to adjust to room temperature before use.

- When cleaning the system, use a soft, clean, dry cloth. Avoid wiping the display surface with abrasive material, including rough fabric. Do not use a cleaning solution, this may damage the notebook's plastic.

- If the AC adapter becomes extremely hot, unplug the adapter and let it cool.

- Do not use the IR port directly under fluorescent lighting, or near flashing incandescent light.

⚠ **CAUTION**

This equipment uses an ungrounded power cable. Replace the cord if it becomes damaged. U.S. and Canadian replacement cords must be UL-approved (CSA certified in Canada) type SPT-2, 18 AWG, 2-conductor cord with a permanently attached NEMA type 5-15P plug at one end, and a permanently attached connector body on the other. Cord length may not exceed 15 feet.

Outside the U.S. and Canada the cord must be rated for at least 250VAC at 10 amps, and must indicate international safety agency approval. The plug must be a type appropriate for the country where it is used. Check with your local dealer for HAR type 18 AWG, 2 conductor cord, or better. (Reference the booklet, "Getting Service and Support for Asia, Australia, and Europe" to find out how to contact the local office in your country.)

Obtain replacement cords at an authorized service center. The replacement must be of the same type and voltage rating as the original cord.

Disconnect all supply lines before the hinged front cover is removed. Replace the hinged front cover before the unit is restarted.

Storage Requirements

Store the computer and AC adapter in an environment that meets the following conditions:

■ Maintain storage temperatures between –4°F and 140°F (–20°C and 60°C).

⚠ CAUTION

If the temperature of the NEC Versa suddenly rises or falls (for example, when you move the system from a warm place to a cold place), vapor condenses inside the system. Turning on the system under this condition can damage the internal system components.

Before turning on the system, wait until the system's internal temperature equalizes with the new environment and any internal moisture can evaporate.

■ Keep the storage area free from vibration and magnetic fields.

■ Keep the system and its components away from organic solvents or corrosive gases.

■ Avoid leaving the system and its components in direct sunlight or near heat sources.

Routine Cleaning

Clean or dust your system as follows.

⚠ **CAUTION**

Never use harsh solutions, household cleaners, or spray cleaners that contain caustic materials on the NEC Versa.

These cleaners are usually high in alkalinity which is measured in pH. Using these cleaners can cause the plastic surface to crack or discolor.

- LCD screen — Carefully wipe the LCD screen with a soft cloth or a screen wipe designed for that purpose. Special screen wipes are available through your local computer dealer.

- System case — NEC recommends that you carefully wipe the case with a slightly damp, almost dry cloth.

2 Understanding the Software

This chapter introduces you to the software that comes with the NEC Versa 2700 Series system, including:

■ the Windows 95 operating system

■ Online Help

■ NEC Utilities

— Setup

— NEC Customize Utility

— HDPREPEZ Utility

■ Other Software

— Intel's LANDesk Client Manager

— LapLink for Windows 95®

— QuickLink MessageCenter III

— McAfee VirusScan™

— McAfee WebScan™

— Mediamatics MPEG Arcade™ Player

— Mixman*

— You Don't Know Jack Censored*

— Microsoft® Works*

— Microsoft Money 97*

* Software only available in North America.

— Microsoft Encarta 97 Encyclopedia*

— Microsoft Best of Entertainment*

— Microsoft Word*

— Microsoft Greetings Workshop*

— Microsoft Arcade*

— Microsoft HPC Explorer*

— Microsoft Net Meeting*

— Microsoft Schedule+*

■ Online Services

— America Online

— CompuServe

— AT & T WorldNet

— Microsoft Internet Explorer

— Official Airline Guide (OAG®)

WINDOWS 95

Windows 95 gives you the newest features offered by Microsoft, including a Desktop with room to maneuver, a Taskbar for quick navigation between open windows, plug and play features, online networking functions, and more.

The following icons are loaded on your desktop:

■ My Computer — provides access to drives, printers, the control panel, and network features.

■ Inbox — lets you access the Microsoft fax and mail software as well as Microsoft network services.

■ Recycle Bin — once you delete a file, it's placed here, providing a safety area for files deleted by mistake.

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* Software only available in North America.

- The Internet — lets you automatically set up a new connection to the Internet, or manually configure an existing account for your NEC Versa.

- NEC Setup — Double click the NEC Setup shortcut and select Customize to give your desktop a distinct NEC look and feel.

  For example, NEC customizations include loading McAfee VirusScan 95 and the Vshield icon on your toolbar, removing the default Microsoft Windows 95 desktop wallpaper, and installing NEC's unique desktop wallpaper.

- The Microsoft Network — shows you the computers connected to your workgroup and those on the entire network (if your system is connected to a network).

- My Briefcase — allows easy file transfer between the NEC Versa and other systems.

- Online Services — a folder containing your system's online service setup programs including America Online, AT&T WorldNet Setup, and CompuServe 3.0 Setup.

- Start — displays a pop-up menu with which to start programs and applications, opens documents, accesses system settings, looks at online help, and shuts down your system.

- NEC Versa 2700 Help Center — gives you easy access to NEC Versa system online help and customer service information.

- IR Alert — provides you with important information about the IR port on your NEC Versa 2700 Series system.

GUIDE TO ONLINE HELP

The NEC Versa has online information for you. You can access online documents from the NEC Versa 2700 Help Center icon on the desktop. The NEC Versa 2700 Help Center contains information about your NEC Versa, as follows.

■ *NEC Versa 2700 Series Online User's Guide*

The *NEC Versa 2700 Series Online User's Guide* provides general information on system usage as well as more extensive topics including using power management, PC card technology and system memory map.

■ *NEC Customer Support Guide*

The *NEC Customer Support Guide* discusses the various levels of support NEC offers you, our customer. We provide information to help you become self-sufficient with your NEC Versa, but if you need help, we're there for you. (If you purchased your system outside of the United States or Canada, please contact your local dealer for customer support information.)

■ *NEC UltraCare Guide*

The *NEC UltraCare Guide* describes NEC's extended warranty program to help you protect your investment in an NEC Versa Series system. (If you purchased your system outside of the United States or Canada, please contact your local dealer for extended warranty information.)

■ *NEC Versa 2700 Modem Guide*

The *NEC Versa 2700 Modem Guide* provides a command reference, technical specifications, and procedures for using your internal modem.

In addition to the NEC Versa Help Center, your system ships with *Using Windows 95,* an online "book" that lets you explore Windows 95 and learn about navigating through the new interface. Using Windows 95 is found under the Modern Age Books program group.

GUIDE TO NEC UTILITIES

NEC provides several programs and routines designed to make your NEC Versa run more efficiently. These programs are known as utilities.

Setup

The Setup utility automatically configures your NEC Versa each time you start it up. This utility is not accessible from Windows. Access Setup at power-on. Just press **F2** when the following prompt appears.

Press <F2> to enter SETUP

See Chapter 3, "Using Setup," for a discussion of the Setup utility. In addition, online help assists you in changing settings.

NEC Customize Utility

The NEC Customize utility installs NEC-designed desktop features, including custom wallpaper, and the automatic running of McAfee antivirus software each time you boot.

HDPREPEZ Utility

Using the HDPREPEZ utility automatically configures your NEC Versa system's save-to-disk area on the hard disk when you increase system memory. You only need to access this utility when you install additional memory that increases your total system memory to more than 48 MB.

Using HDPREPEZ

Use these steps to run the HDPREPEZ utility.

1. Power off and restart your NEC Versa.

2. At the statement "Starting Windows 95," press **F8**.

3. From the Startup menu, select option 6, "Safe Mode Command Prompt Only."

4. Enter MS-DOS. At the c: prompt, type **cd\necutils** and press **Enter** to change to the \necutils directory.

5. Type **HDPREPEZ** and press **Enter**. The utility automatically prepares your NEC Versa for the newly installed memory.

6. Power off your system and then power on. A file, large enough to accommodate the new memory capacity, is created on the hard disk.

OTHER SOFTWARE

Your NEC Versa comes with other applications that let you take full advantage of your system resources. The rest of this chapter discusses each application, including what it can do for you, how to get started, and how to use the program help.

Intel LANDesk Client Manager

The Intel LANDesk Client Manager provides the capability for managing a variety of components within a PC system. These components include network interface cards, memory modules, printers, and software applications. LANDesk Client Manager uses the Desktop Management Interface (DMI) standard established by the Desktop Management Task Force (DMTF).

Set up the LANDesk Client Manager software on your NEC Versa 2700 computer using the easy-to-follow setup program.

To find out more about Intel's LANDesk Client Manager capabilities and uses, refer to the online help that is available when you open Client Manager.

LapLink for Windows 95

LapLink offers the following features:

- File Transfer — lets you move or copy files between computers. To speed file transfer, LapLink compares files being updated and transfers only the changed information.

- Remote Control — gives you access and control over a remote computer. Activity you perform on a system, such as keystrokes, file access and change, and program execution, actually occurs on the remote system.

- Chat — provides a way for you to exchange information, instructions, or other messages with a user at a remote computer.

LapLink software must be loaded on both the sending (local) and receiving (remote) system for communication between them to work properly.

How to Use LapLink

Follow these steps to get started using LapLink. Once you have LapLink up and running, refer to the LapLink online help for more information.

1. Press **Start**, slide the cursor to Programs, and locate LapLink for Windows 95. Highlight LapLink for Windows 95 and press the VersaGlide selection button or tap the pad once.

If you do not have a port enabled, LapLink prompts you to enable one. (The IR port is disabled for wireless communications when the system ships.) Before following the on-screen instructions to configure the IR port in LapLink, proceed to device manager in Windows 95 to enable the IR port.

NOTE When LapLink displays a message indicating that the wireless (serial, com2) is currently unavailable, use the Device Manager under the Windows 95 Control Panel to enable the IR port. If LapLink still fails to recognize the IR port, reboot your system, go into Setup, and enable the port.

For information about enabling and disabling devices, see "Enabling and Disabling Devices" in Chapter 4.

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2. Once your ports are configured, select your communication method by pressing the appropriate button. The buttons give you the following connection options.

- Connect over cable

- Connect over wireless

- Connect over modem (if installed)

- Connect over network

- Connect over dial-up network

Once communication is established between systems, the LapLink window appears.

3. Select the procedure you want to use by pressing one of the last three buttons in the LapLink toolbar at the top of the screen.

- Press the file transfer button to transfer files between systems.

- Press the Remote Control button to exercise control over a remote system.

- Press the Chat button to converse with another user at the remote system.

4. When you finish, press the disconnect button to break the link between the local and remote systems. Press OK.

   The other system is notified of the break in communication.

Laplink Online Registration

Traveling Software, the maker of LapLink, makes product registration easy. Follow the steps below to register your LapLink software.

1. Press Start, slide the cursor to Programs, and locate LapLink for Windows 95. Highlight Online Registration and press the VersaGlide selection button or tap the pad once. The product registration welcome screen appears.

2. Follow the on-screen instructions to complete the registration form.

> **NOTE** The LapLink online registration form requires a serial number and a lot number. Enter your NEC Versa serial number in both the serial number and lot number fields. Find your NEC Versa serial number on the label on the bottom of your system.

To find out more about LapLink capabilities and uses, refer to the online help that is available when you open LapLink.

QuickLink MessageCenter III

QuickLink MessageCenter III offers the following features:

- Integrated voice mail, fax, and data communications

- Customizable voice mailboxes

- Incoming call routing and transfer

- Call monitoring

- Fax transmission (send/receive/schedule)

- File transfer protocols

See Chapter 4, "Using Your NEC Versa" for more information about this application.

McAfee AntiVirus Software

The McAfee AntiVirus software is installed to scan your system for any virus infections. WebScan and VirusScan are two scanning software tools included on the NEC Versa 2700 Series system.

- WebScan software protects your system against virus infection from files attached to mail messages or from files you download from the Internet. WebScan is activated any time you download executable and Microsoft Word document files and scans mail through the Pegasus Mail system. Also included is the SPRY Mosaic browser and the WebScan Web browser, which gives access to the Internet.

- VirusScan detects, identifies and disinfects known computer viruses. It checks memory as well as both the system and data areas of disks for virus infections. In most cases, it will eliminate and fully repair infected programs or system areas to their original condition.

Set up the WebScan software on your NEC Versa 2700 system using the easy-to-follow setup program.

Mediamatics MPEG Arcade Player

Provides MPEG Playback software. See Chapter 5, "Using Multimedia," for instructions on using this application.

Mixman

The Mixman multimedia application turns your NEC Versa into a turbo-charged, studio quality, remixing machine. Mixman provides a graphical representation of the traditional DJ's setup and built in music tracks that allow you to simulate the audio track-mixing process.

You Don't Know Jack Censored

You Don't Know Jack Censored is a multimedia application that simulates the fast-paced environment of a TV trivia game show. The user plays the role of contestant answering a mix of questions ranging from the classics to pop-culture awareness.

Microsoft Works 4.0

Microsoft Works 4.0 gives you all that you need to create forms, format letters, start a data base and pull it all together to create reports. Works includes a word processing program, data base program, and sets of preformatted documents for you to use.

Microsoft Money

Microsoft Money gives you a new option for handling your finances. With this package, you can balance your checking account, track spending trends, and even make payments over the network.

Microsoft Encarta 97 Encyclopedia

Encarta 97 Encyclopedia uses state-of-the-art interactive features that provide an exciting multimedia encyclopedia for the whole family.

> **NOTE** Find Encarta 97 Encyclopedia under the Microsoft Bookshelf program group.

Microsoft Best of Entertainment

Best of Entertainment is a collection of the most popular Microsoft games for Windows. Games include such familiar names as TETRIS™, Taipei, and TriPeaks.

Microsoft Word

Microsoft Word is a powerful word processor that provides users with innovative tools to create professional looking documents quickly and easily. Word 97 takes advantage of emerging technology to implement sophisticated features that include 3-D graphics integration, improved spell checking, and an interactive help system.

Microsoft Greetings Workshop

Greetings Workshop allows you to create colorful and exciting cards, banners, invitations, and more. Greetings Workshop contains more than 4,000 graphics, 200 images, and 100 fonts, borders, and backgrounds.

Microsoft Arcade

Microsoft Arcade provides you with five classic arcade games for your home or business computer.

Microsoft HPC Explorer

Microsoft Handheld Personal Computer (HPC) Explorer provides a Windows Explorer-like view of your HPC. HPC Explorer allows you to transfer files between your HPC and notebook computer, synchronize calendar, contact, and task information from your Schedule+ data files, and backup and restore files to ensure data security.

Microsoft Net Meeting

Microsoft NetMeeting provides real-time communication over the Internet or your local Intranet. NetMeeting is a conferencing tool that allows you to share files, participate in chat groups, collaborate with others in shared programs, and more!

Microsoft Schedule+

Microsoft Schedule + is a flexible, customizable productivity tool for individuals and networked groups. Schedule + allows you to schedule and view appointments as well as manage calendars, tasks, and contacts.

ONLINE SERVICES

Your NEC Versa comes with the most popular online services available including America Online, CompuServe, and AT&T WorldNet Signup. These can be found in the Online Services program group on the desktop. To use the services, you need to install the software. Simply highlight and click on the installation icon and follow the on-screen instructions.

For a fee, online services give you access to the Internet, email, the World Wide Web, travel information, news reports, and more, depending on the service selected. Some online services give you a free trial period.

Here are the things you must do in order to use an online service:

- make sure that your modem is connected to a working phone line. The line must be an analog line. If you are unsure what type of line you have, call your local telephone company or contact your telecommunications administrator.

- set up the selected online service on your NEC Versa using an easy-to-follow setup program.

- select the newly created online service icon, register with the service, and begin your online adventure.

Just follow these steps to set up and use your selected online service:

1. Connect your modem port to a phone line.

2. Press Start, move to the Programs group, slide to Online Install, and slide to the online service group that you want to install. Tap the VersaGlide pad once or click once.

3. The setup screen for the selected online service displays. Follow the on-screen instructions to install the service on your NEC Versa.

   A program group is created for your selected online service.

4. To use the selected online service, follow the on-screen instructions to log onto the service.

America Online

If you subscribe to America Online, use the service to obtain information about NEC and its products. Use America Online to email technical questions to NEC's Technical Support staff, post technical questions and messages on the Message Board, and access the NEC Software Library to download files.

> NOTE If you are using your NEC Versa computer outside North America, there may not be any local access points for this online service. It may require a long distance or international call.

Use the following steps to access America Online and NEC's online information services.

1. Log onto America Online.

2. At the opening screen, click on Go To in the Main Menu.

3. At the Go To menu, click Keyword.

4. At the prompt, type **NEC**, then either press **Enter** or click on Go.

5. At the NEC menu, double-click on one of the following topics, then follow the prompts:

- About NEC

- Terms and Conditions

- News

- Product Information

- Questions and Answers

- NEC Web Site

- Message Board

- Software Library.

6. Exit anytime by double-clicking on the rectangle in the upper left corner of the screen.

CompuServe

An installation program for CompuServe is part of your Windows 95 software.

If you subscribe to CompuServe, you can use the service to obtain information about NEC and its products. Use CompuServe to email technical questions to NEC's Technical Support staff, post technical questions and messages on the Bulletin Board, and access NEC's Bulletin Board.

> **NOTE** You cannot download information from the NEC Bulletin Board via CompuServe. You must call the NEC Bulletin Board directly to download information.
>
> If you are using your NEC Versa outside North America, there may not be any local access points for online services. It may require a long distance or international call.

Use the following steps to access CompuServe and NEC's online information services.

1. Log onto CompuServe.

2. At the opening screen, click on Service, type in **GO NECTECH** at the prompt, and click OK.

3. At the NEC menu, double-click on one of the following topics, then follow the prompts:

- NEC Bulletin Board

- Information About This Service

- Access NEC BBS

- Access CompuServe Information Services

- Exit.

4. Exit anytime by double-clicking on the rectangle in the upper left corner of the screen.

AT&T WorldNet

One of the world's largest telephone service providers now offers internet access. Click on AT&T WorldNet Signup in the Online Services group to install this software, learn more about it, and sign up with this service.

Microsoft Internet Explorer

The first time you use Microsoft Internet Explorer you must register your copy of the program and allow the system to detect your internal modem. (Modem only available on some models.)

> **NOTE** If you are using an optional, external or PC card modem, connect your modem before setting up Microsoft Internet Explorer. If it is not connected, the process stops.
>
> If you connect the modem and the system fails to detect it, open the Windows Control Panel, select the modem icon, and specify your modem type and port.

Official Airline Guide (OAG)

OAG shows the convenience of "information to go." You can purchase the full package or subscribe to future releases through the software publisher. Technical support for OAG is provided by the software publisher.

The Official Airline Guide is an online service that gives you access to flight details for all commercial airlines worldwide. NEC provides a sample of the monthly data that OAG provides. OAG offers NEC Versa owners a special rate when they subscribe to OAG for monthly updates.

OAG is an invaluable service for anyone who travels on a regular basis. All you have to do is enter your departure city, destination city, and date. If you have a preferred airline, you can also enter its name. The service then lists all the flights available from the departure city, the times, and the flight numbers. If you purchased the complete OAG package, you can also check on seat availability and prices.

1. Access OAG as follows.

   ■ Make sure the internal modem is connected to a working phone line.

■ Press Start, move the cursor to the Programs group and open the OAG FlightDisk group. In the group, highlight "OAG FlightDisk Worldwide Edition" and release the mouse button.

2. The first time you open OAG, an agreement screen appears. Follow the on-screen instructions.

3. In the Trip Plan screen, fill in the fields with the trip information requested. Press **Enter** after making selections from the available drop-down lists.

4. If you are a subscriber, press the appropriate button to retrieve seat availability and price information.

5. Follow the on-screen instructions to register for a free trial of the OAG travel service.

3 Using Setup and Power Management

SETUP UTILITY

Your NEC Versa 2700 Series system comes with a hardware configuration program called Setup that allows you to view and set system parameters. Setup also allows you to set password features that protect your system from unauthorized use.

Use Setup to

- set the current time and date (you can also set the date and time through Windows)

- customize your operating system to reflect your computer hardware

- secure your system with a password

- balance your performance needs with power conservation.

How to Enter Setup

Access Setup at power-on. Just press **F2** when the following prompt appears.

Press <F2> to enter SETUP

When you press **F2** to enter Setup, the system interrupts the Power-On-Self-Test (POST) and displays the current CMOS RAM settings.

If the system detects an error during POST, it prompts you with a double beep and a message: "Press <F1> to resume." If you press **F1**, the system may enter setup to allow you to correct the error. If you want to fix the error, carefully read the error message that appears above the prompt (taking notes if you want). If the system does not enter setup, the standard bootup procedure resumes.

When you enter setup, the system displays the Setup Main screen, similar to the following.

```
┌─────────────────────────────────────────────────────────────┐
│         AMIBIOS HIFLEX SETUP UTILITY - VERSION 1.05          │
│      (C)1996 American Megatrends, Inc. All Rights Reserved   │
├─────────────────────────────────────────────────────────────┤
│                                                             │
│                   Standard CMOS Setup                        │
│                                                             │
│                   Advanced CMOS Setup                        │
│                 Power Management Setup                       │
│                     Peripheral Setup                         │
│                                                             │
│                  Change User Password                        │
│               Change Supervisor Password                     │
│                                                             │
│               Auto Configuration with Defaults               │
│                                                             │
│                  Save Settings and Exit                      │
│                   Exit Without Saving                        │
│                                                             │
├─────────────────────────────────────────────────────────────┤
│   Standard CMOS setup for changing time, date, hard disk type, etc. │
└─────────────────────────────────────────────────────────────┘
```
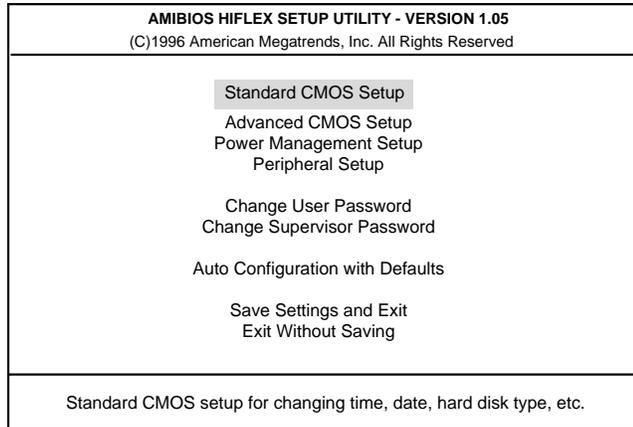
How to Use Setup

The following sections describe how to use Setup, including these topics:

- Looking at screens

- Using keys

- Checking and setting system parameters.

Looking at Screens

Setup screens have three areas as shown.

```
┌─────────────────────────────────────────────────────┐
│           AMIBIOS SETUP - ADVANCED CMOS SETUP         │
│     (C) 1966 American Megatrends, Inc. All Rights Reserved │
├──────────────────────────────────┬──────────────────┤
│ Plug and Play Aware O/S     Auto │  Available Option │
│ BootUp Sequence            A:, C: │  C:, A:           │
│ Initial Display Mode       Silent │  A:, C:           │
│ BootUp Num-Lock            Off    │                   │
│ LCD Panel View Expansion   On     │                   │
│ Password Check             Setup  │                   │
│                                   │  ESC: Exit ↑↓ :Sel│
│                                   │  PgUp/PgDn:Modify  │
│                                   │  F3/F4: Color      │
└──────────────────────────────────┴──────────────────┘
```

- Parameters
  The left part of the screen. This area lists parameters
  and their current settings.

- Available Options
  The right part of the screen. This area lists alternate set-
  tings.

- Key Legend
  The bottom right corner of the screen. These lines dis-
  play the keys that move the cursor and select parame-
  ters.

Using Keys

The following table lists Setup keys and their functions.

Setup Key Functions

KEY	WHAT IT DOES
↑ ↓	Moves the cursor between the displayed parameters.
PgUp/PgDn	Modifies the current parameter settings.
Tab	For some parameter settings, moves the cursor between the subfields. Also moves the cursor to the next line or selection. For example, for System Time, Tab moves the cursor from hour to minute to second.
Esc	Exits the current screen and returns to the main menu.
F3/F4	Changes the screen color.
F10	Save changes and exit (works only from the main menu).

Checking/Setting System Parameters

See the following table for a list of parameters, their factory default settings, and alternate settings. A description of each setting follows the table.

To reset all parameters to the default settings, select Auto Configuration with Defaults from the Setup Main Menu and press **Y**.

Setup Parameters

PARAMETER	DEFAULT SETTING	ALTERNATE SETTING(S)
Standard CMOS Setup		
System Date	mm/dd/yyyy	
System Time	hh:mm:ss	
Diskette Drive A	1.44 MB, 3.5"	
Primary Master	Auto	User Defined
Secondary Master	Auto	
System Memory	16 MB	(Auto Detect)
Advanced CMOS Setup		
Plug and Play Aware O/S	Auto	Yes, No
BootUp sequence	A:, C:	C:, A:
Initial Display Mode	Silent	
BootUp NumLock	Auto	On, Off
LCD Panel View Expansion	On	Off
Password Check	Setup	Always
Internal Keyboard	US	Europe
Power Management Setup		
Power Management Under AC	Off	On
Power Savings Level	Longest Life	Off, Custom, High Perform
Hard Disk Timeout	2 min	Off, 5/30/45 sec, 1/4/6/8/10/15 min
Video Timeout*	2 min	Off, 30/45 sec, 1/4/6/8/10/15 min
Peripheral Timeout	On	Off
Audio Device Timeout*	On	Off
Standby Timeout*	4 min	Off, 1/2/6/8/10/15/ min
Auto Suspend Timeout	10 min	Off, 5/15/20/25/30 min
Suspend Option	Suspend	STF
Auto Save to File	Enabled	Disabled
Panel Backlight	Auto	Full, Standard
Suspend Warning Tone	On	Off
Modem Ring Resume	On	Off
Wake Up From Suspend Alarm	Off	On
Resume Alarm Time	Off	12:00 a.m. to 11:55 p.m. in five minute increments

* Changeable when power savings is set to custom.

Setup Parameters

PARAMETER	DEFAULT SETTING	ALTERNATE SETTING(S)
Peripheral Setup		
Serial Port	Auto	Disabled COM1/IRQ4, COM2/IRQ3, COM3/IRQ4, COM4/IRQ3, (PnP OS Setup)
Parallel Port	Auto	Disabled LPT1/LPT2, (PnP OS Setup)
Parallel Mode	ECP	EPP, Uni-Dir, Bi-Dir
IR Serial Port	Disabled	Auto COM3/IRQ9, COM2/IRQ3, COM4/IRQ3, (PnP OS Setup)
Sound	Auto	Disabled, (PnP OS Setup) 220h, 240h, 260h, 280h
Sound IRQ	N/A	IRQ5,7,9,10,11
SB-Compatible DMA	N/A	DMA0,1,3
Full Duplex Mode DMA	N/A	DMA0,1,3
PortBar Joystick	Enabled	Disabled

Setup Menus

Read the following descriptions for explanations of items that appear in the Setup menus, as listed in the preceding table. See the item-specific help that appears on the Setup screen for more details.

Standard CMOS Setup

When you select the Standard CMOS Setup screen the System Time, System Date and drive parameters appear.

■ Date — This field lets you set your NEC Versa calendar month, day, and year. The calendar clock is year 2000-compliant. These settings remain in memory even after you turn off the system.

To set the date use the **Tab** or arrow keys to move from field to field. Use the **PgUp** or **PgDn** key to change numbers within each field.

■ Time — To set the time, enter the current hour, minute, and second on hr/min/sec, 24 hour format.

To set the time use the **Tab** or arrow keys to move from field to field. Use the **PgUp** or **PgDn** key to change numbers within each field.

■ Diskette Drive, Primary Master, Secondary Master — These fields allow you to view settings for your diskette drive, hard disk drive, and CD-ROM drive.

■ System Memory — This field displays the amount of system memory and is display-only. The system automatically senses the amount of installed memory.

Advanced CMOS Setup

Advanced CMOS settings let you define the following functions.

- Plug and Play Aware OS — Selects whether or not the system boots to a Plug and Play operating system.

- BootUp Sequence — Sets the order that the drives (A:, C:) initialize, or sets the order to search for the boot disk.

> **NOTE** If a bootable CD is installed in your NEC Versa, the system boots from CD-ROM drive E.

- Initial Display Mode — Sets the initial display mode for system startup. Silent mode suppresses a number of startup screens.

- BootUp NumLock — Specifies whether NumLock is On or Off at system startup. Auto checks for an external keyboard at startup.

- LCD Panel View expansion — Specifies whether the panel view is reduced/off or expanded/on. Set to On, an application screen expands to fill the LCD panel.

- Password Check — Specifies if the system prompts you to enter a password when entering setup, booting the system, and resuming form suspend.

- Internal Keyboard — Indicates keyboard layout for internal keyboard (U.S. or Europe).

Power Management Setup

The Power Management setup menu lets you balance high performance and energy conservation using parameters including the following.

> **NOTE** Some operating systems, like Windows 95, have their own power management software which overrides CMOS settings. In this case, use the Setup utility to set your desired power management settings.

■ Power Management Under AC — Specifies whether to enable power management features when AC power is in use. When AC power is connected to your NEC Versa system, power management is usually disabled. If you enable this parameter, the system automatically activates the power management features even when AC power is used.

■ Power Savings Level — Lets you choose one of four levels of power management.

— High Perform provides the greatest system performance with only minimal power conservation.

— Longest Life provides the maximum amount of power savings and extends battery life.

— Off disables power management and all device timeouts.

— Custom lets you define your own power management configuration by selecting values for specific device timeouts. Custom lets you set the following timeouts.

– Hard Disk Timeout — Allows you to select the amount of time before your hard disk shuts down.

– Video Timeout — Allows you to select the amount of time before your video shuts down.

–   Peripheral Timeout — Lets you enable/on or dis-
    able/off power management for onboard serial,
    parallel, and floppy devices.

–   Audio Device Timeout — Selects the amount of
    time before your audio device shuts down.

–   Standby Timeout — Allows you to select the
    system standby timeout period.

–   Auto Suspend Timeout — Defines how much
    time elapses before the system automatically
    enters the Suspend Mode.

■   Suspend Option — Allows you to specify either
    Suspend or Save to File (STF) as the default power
    management mode. In Suspend, after a specified amount
    of inactivity, your NEC Versa shuts down all devices
    and saves the machine state to memory. All your data is
    automatically recovered from where you left off when
    you Resume.

    In automatic STF — After 30 minutes in Suspend mode
    the current environment is automatically saved to a spe-
    cial file on the hard disk and the system shuts down. To
    resume, you must press the power button. The system
    reads the saved file and sets up your system automati-
    cally.

NOTE If your CD-ROM is set to Auto Play, the sys-
tem continuously checks the CD-ROM reader. This
keeps the system from using the Automatic STF
feature. See "Changing the Auto Play Setting" in
Chapter 4 for information about disabling Auto Play.

If HDPREPEZ is present, press the **Fn-Suspend** key combination or the Suspend/Resume button to put the system into Save to File mode.

■ Panel Backlight — Lets you select the LCD screen backlight intensity.

■ Suspend Warning Tone — Specifies whether the system warning tone sounds when Suspend mode starts. It is best to keep this option enabled.

■ Modem Ring Resume — Lets you choose whether the system resumes automatically when an external modem receives a ring signal.

■ Wake Up from Suspend Alarm/Resume Alarm Time — Lets you set a resume time from Suspend mode.

Peripherals Setup

The Peripherals Setup menu allows you to specify different port assignments for a variety of system ports.

> **NOTE** If you disable a device in Setup, you cannot enable or assign it using the Windows 95 device manager. The device is not listed in the Windows 95 device list. To control the device using the Windows 95 device manager, select any setting other than "Disable" in Setup.

■ Serial Port — Allows you to disable the port or change its address assignment.

■ Parallel Port/Parallel Mode — Allows you to disable or reassign the parallel port and select a parallel mode.

■ IR Serial Port — Allows you to disable or reassign the IR Serial port.

- Sound/Sound IRQ/SB-Compatible DMA/Full Duplex DMA — Allows you to configure the system to assign a conflict free resource to this device.

- PortBar Joystick — Allows you to enable or disable the joystick port on the PortBar 2700.

Other Setup Options

Setup offers other options, including the following:

- Change User Password — Lets you set a user password once a Supervisor password is set.

- Change Supervisor Password — Sets a Supervisor password at system startup.

- Auto Configuration with Defaults — Loads default settings.

- Save Settings and Exit — Accepts changes made to current settings, saves to CMOS, and exits Setup.

- Exit Without Saving — Reverts to previously selected settings and exits Setup.

USING SETUP TO SET POWER MANAGEMENT

Setup allows you to use the factory-defined power savings level (Longest Life), or choose between High Perform, Custom, or Off. Each provides a special environment for your current work effort. These power management levels were designed with you in mind. For example, you can use them under the following circumstances:

- Longest Life — provides best battery life and good performance. Use while traveling long distances.

- High Perform — Provides best performance and good battery life. Use while connected to AC power or traveling short distances.

- Custom — Lets you decide! Set power management levels according to your own needs and present environment.

- Off — Works well in an office environment while powering your NEC Versa with AC power.

Using the Save to File (STF) Feature

STF protects the integrity of your working environment. For example, if you are called away from your NEC Versa and Suspend mode is selected with auto Save to File active, your system automatically goes into Suspend mode. After 30 minutes, if you don't return, your working environment is saved to a special file on your hard disk.

> (NOTE) If your CD-ROM reader is set to Auto Play, the system checks the reader at regular intervals. This action prevents the system from entering STF.
>
> See "Changing the Auto Play Setting" in Chapter 4 for details about disabling the Auto Play feature.

There are two ways to set your NEC Versa STF features. One method is via the setup utility. Select Power Management from the Setup Main Menu. Move the cursor down and highlight Suspend mode. Press the **PgUp** key and select STF. Save the settings and exit Setup.

The second method is to press the **Fn-Suspend** combination before you leave your NEC Versa. This function initiates STF on demand.

> **NOTE** When the status bar reads that there is only 4% power remaining in the system, the NEC Versa automatically performs a Save to File.

STF Benefits

Using STF can benefit you in the following ways.

- When in STF, there is minimum battery drain.

- Preserves the life of your NEC Versa.

- Saves you time. When you return from that urgent call or meeting, you don't have to reboot, simply slide the On/Off switch to resume system operation.

4 Using Your NEC Versa

The more you use your NEC Versa 2700 Series system, the more proficient you become at everything — from using function keys to setting up presentations.

This chapter gives concise information on these and other important tasks, including how to use the:

- LCD panel
- keyboard
- NEC VersaGlide
- integrated drives
- 16X or 20X CD-ROM reader
- internal modem
- PC Card slots
- USB Port
- IR port.

In addition, this chapter focuses on expanding memory capacity and installing options.

LCD PANEL

The LCD panel on your NEC Versa 2700 Series system is fully adjustable to provide comfortable viewing. To adjust the viewing angle, gently tilt the LCD panel into position.

KEYBOARD

The NEC Versa keyboard is equipped with many features. These include:

- Function keys
- Windows 95 keys
- Cursor control keys
- Typewriter keys
- Numeric keypad
- Control keys.

Key features and operations are described after the figure.
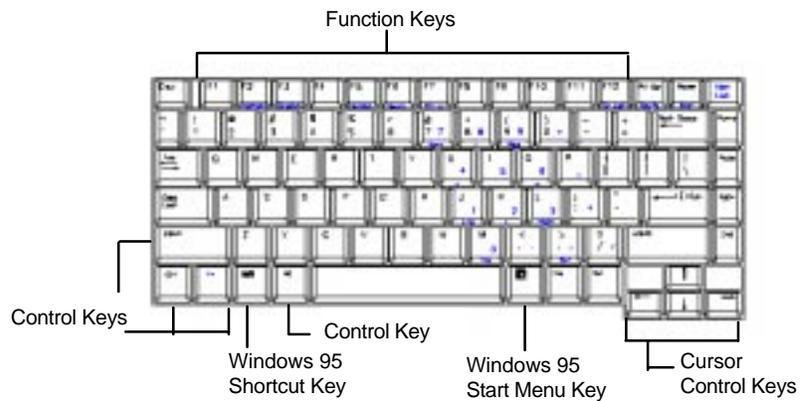
Keyboard

- Function Keys — Twelve function keys, **F1** through **F12**, are available on the NEC Versa keyboard. These keys work together with the **Fn** key to activate special functions. Eight keys are preprogrammed with dual functions, six of which are printed in blue on the key. (**Fn-F4** is unmarked; it immediately puts the system into Standby mode.)

Function keys are application-driven. See the specific application's user guide for information about how each function key works within the application you are using.

■ The following function key combinations are pre-programmed for the NEC Versa.

Fn-F2 — Highlight toggles character highlighting on and off (DOS display only).

Fn-F3 — Display toggles between three video modes, LCD, CRT, or simultaneous display on both.

Fn-F4 — Standby sets standby power management mode to on. Press any key to turn off standby mode.

Fn-F5 — Backlight toggles the LCD display from full to standard lighting intensity.

Fn-F6 — System Speaker Volume sets the volume of the built-in speakers to low, medium, high, or mute.

Fn-F7 — Power Management Level sets the power saving mode. Beeps indicate the level chosen as follows:

1 beep	Off
2 beeps	Custom
3 beeps	Highest Performance
4 beeps	Longest Life

Fn-F8 — LCD Expansion expands 640 x 480 applications to fill the LCD panel (DOS mode only).

Fn-F12 — Scroll Lock On/Off sets the state of scroll lock feature on your system.

Fn-LeftCtrl — Pressing the **Fn** key and the left **Ctrl** key simulates the right **Ctrl** key.

Fn-Suspend — Save to File on Demand immediately saves your system working state to a reserved area on the hard disk drive.

■ The following key combinations are available with some applications.

Fn-SysReq — System request is used in terminal emulation applications.

Fn-Break — Break sends a break command.

■ External Keyboard Function keys — When you connect an external keyboard to your NEC Versa, the following hot key combinations are available on the external keyboard.

— **Ctrl-Alt-F2** — In DOS display only, toggles text highlighting on and off.

— **Ctrl-Alt-F3** — Toggles the display through three video modes: LCD, CRT, or simultaneous display on both.

— **Ctrl-Alt-F5** — Toggles the LCD panel backlight between full and standard intensity lighting.

— **Ctrl-Alt-F6** — Sets speaker volume to low, medium, high, or mute.

— **Ctrl-Alt-F7** — Toggles between four power management levels. Beeps sound as follows to indicate the level chosen.

1 beep	Off
2 beeps	Custom
3 beeps	Highest Performance
4 beeps	Longest Life

■ **Power-Suspend** — This button combination powers off your system in emergencies. *Only* use this button combination if the NEC Versa does not respond to keyboard input, VersaGlide action, or the power button.

■ Windows 95 keys — Use the following two keys to facilitate your work.

— Shortcut/Application key – provides quick access to shortcut menus. (This key acts like a right mouse button.)

— Floating Window key – displays the Start menu.

■ Cursor Control keys — Cursor control keys let you position the cursor on the screen where you want. On the screen, the cursor is a blinking underline, block, or vertical bar depending on the application. The cursor indicates where the next text typed is inserted.

■ Typewriter keys — Typewriter keys (also called *alphanumeric* keys) are used to enter text and characters. Keys with blue print on them behave differently when combined with control keys or the **Fn** key.

■ Numeric Keypad — Pressing **Num Lock** on the keyboard activates the numeric keypad numbers and functions printed in blue on top of the keys.

The keypad lets you type numbers and mathematical operands (+, –) as you would on a calculator. The keypad is ideal for entering long lists of numbers.

When you press **Num Lock** again, the keys revert to their normal functions as typewriter keys.

- Control keys — **Ctrl**, **Alt**, **Fn**, and **Shift** are controls used in conjunction with other keys to change their functions. To use control keys, press and hold the control key while pressing another key. For example, "press **Ctrl c**" means to hold down the **Ctrl** key and type the letter **c**. Key combinations work specific to the application you are running.

NEC VersaGlide

The NEC VersaGlide is an easy way to control the cursor with your finger. Lightly glide your finger across the NEC VersaGlide and the cursor follows. To use the VersaGlide, you can

- Double tap your finger on the VersaGlide (emulates the left mouse button).

- Double click the left button (this is the primary button).
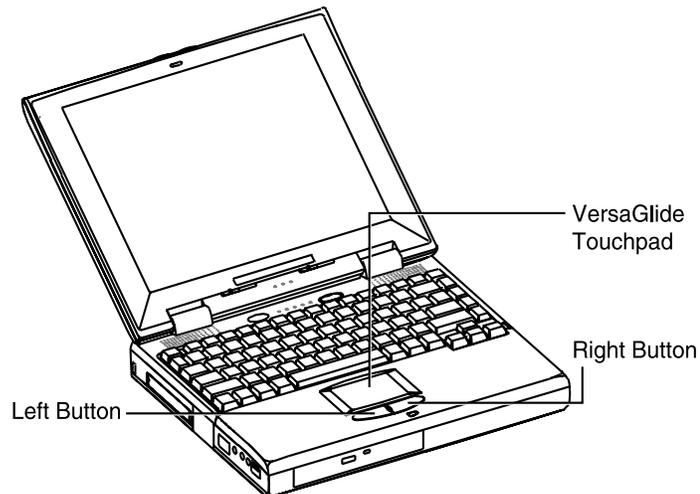
VersaGlide features

Try both ways and decide which you prefer. If you find the double tap difficult to use, go to the next section for general directions about adjusting the touchpad properties.

> NOTE If you install another mouse driver over the shipping default, the double-tap capability may be lost.

Making VersaGlide Adjustments

The NEC VersaGlide offers a number of options that let you customize how it functions. To access these options, locate the Control Panel and double click on the mouse icon.

The options let you control the size and color of the cursor, cursor speed, the accepted double-click speed, and selection button orientation.

VersaGlide Tips

Follow these basic ergonomic tips while working:

■ Use a light touch on the VersaGlide surface.

■ Set up the NEC Versa with your keyboard and VersaGlide at a comfortable height. Keep your forearms parallel to the floor. Your wrists should be relaxed and straight.

■ While using the keyboard and VersaGlide, keep your shoulders and arms as relaxed as possible.

■ Take regular breaks from the computer to rest your eyes. Perform stretching exercises to relax your fingers, hands, wrists, forearms, and shoulders.

See Appendix A, "Setting Up a Healthy Work Environment," for more information.

INTEGRATED DRIVES

The NEC Versa comes with three integrated drives — one in the front of the system, one on the right side of the system, and one inside of the system. The drives are as follows:

- CD-ROM Drive — Your system ships with a 16X or 20X CD-ROM reader already installed in the front of the system.

- Diskette Drive — Your system ships with a standard 3.5-inch 1.44-MB diskette drive already installed in the right side of the system.

- Hard Disk Drive — Depending upon the model, your system ships with a 1.44-GB or 2.1-GB hard disk drive already installed under the base unit cover, in front of the keyboard.

16X or 20X CD-ROM Reader

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. The 16X and 20X CD-ROM readers are compatible with industry data and audio CDs.

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.

> **NOTE** The CD-ROM reader is a Class 1 Laser Product.
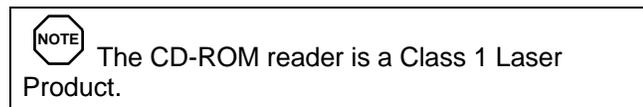
CD-ROM reader features include the following:

- Release Button — ejects the CD tray. Press this button when power is on to insert a CD into or remove a CD from the reader.

■ Emergency Eject Hole — allows you to manually re-move a CD from the reader if the eject function is dis-abled by software or a power failure occurs.

To remove a CD, insert the end of a paper clip into the eject hole, and push in until you hear a click. Now you can manually open the drawer.

■ Status LED — lights during data read operations. Do not eject the CD or turn off the NEC Versa when the indicator is lit.

CD Loading

To insert a CD into the CD-ROM reader, follow these steps.

1. Press the Release button and pull the CD tray out from the reader door.

2. Put your CD, printed side up, into the circular impres-sion in the tray.

3. Push the CD tray in until it clicks shut.

> (NOTE) Some CDs vibrate when playing. This does not affect CD-ROM reader functioning.

CD Care

When handling CDs, keep the following guidelines in mind.

■ Always pick up the CD by its edges.

■ Avoid scratching or soiling the side of the CD that has no printing or writing on it.

■ Do not write on or apply labels to either side of the CD.

- Keep the CD away from direct sunlight or high temperatures.

- Clean fingerprints or dust from the CD by wiping it with a soft cloth.

Changing the Auto Play Setting

Your system ships so that a CD inserted into the reader will automatically start playing. The system periodically checks the reader to see if a CD was inserted. Although this feature makes using your CDs very convenient, it interferes with the system's automatic Save to File feature.

To disable the Auto Play feature or re-enable it, follow these instructions:

1. From the Windows 95 Start menu, select Settings and Control Panel.

2. In the Control Panel, highlight and double click on the System icon to show system properties.

3. Go to the Device Manager tab.

4. Locate and open the CD-ROM folder.

5. Highlight the TEAC CD-316E line for the 16X CD-ROM reader or the TEAC CD-220E line for the 20X CD-ROM reader.

6. Press the Properties button at the bottom of the window and select the Settings tab.

7. Proceed as follows:

   - To disable Auto Play, click to remove the check mark next to the line "Auto insert notification."

   - To enable Auto Play, click to add a check mark next to the line "Auto insert notification."

8. Select OK twice to accept the settings in the Settings tab and exit the Properties window.

9. To activate the new setting, reboot the system when prompted.

56K INTERNAL MODEM

The NEC Versa comes equipped with a 56K capable internal voice/fax/data modem that allows you to communicate with others via fax, email, or connect to an online service or bulletin board. (The modem is only available on some models.)

> (NOTE) Due to FCC regulations in effect at the time that this document was printed, the 56K internal modem transmits at a maximum speed of 52K.
>
> The speed of data transmission is dependent on the quality of telephone lines. Digitally terminated lines improve the speed of data transmission. Contact your service provider for more information.
>
> Be sure to check the NEC Bulletin Board (978-635-4706) for the latest firmware enhancements to the 56K internal modem.

To find out more about your modem capabilities and uses, refer to the online modem user's guide that is available on your NEC Versa system.

Connecting the Internal Modem

The built-in voice/fax/data modem provides one standard phone connector. NEC provides one analog cable for your convenience.

Use the following steps to connect the analog phone cable to your modem.

1. Locate the analog phone cable in the accessories box in the NEC Versa computer shipping carton. Each end of the cable has an RJ-11 connector that plugs into a standard wall outlet.

> **NOTE** The analog phone cable is an industry standard cable. Longer cables are available at your local electronics store.

2. Connect one end of the cable into a standard telephone wall outlet.

3. Connect the other end of the cable into the computer's modem port.

> **NOTE** Depending on your operational requirements, you may need to disable the modem in order to enable the IR port for wireless data transfer.
>
> For information about enabling and disabling devices on your NEC Versa, see "Enabling and Disabling Devices," later in this chapter.

QuickLink Message Center III

You can send and receive facsimiles, transfer and receive data files, customize your voice mailbox, and route incoming calls on your NEC Versa system using QuickLink Message Center III.

To find out more about QuickLink Message Center III, refer to the online help that is available when you open QuickLink.

PC CARDS

PC cards are all approximately the same size and vary only in thickness. All have a standard 68-pin connector. There are three types of cards, which vary in thickness.

You can install up to two Type II cards or one Type III card in the bottom slot of your NEC Versa system.

Type II Cards

Type II cards have a thickness of 5.0 millimeters (mm). Type II cards are often storage or communications devices such as battery backed Static Random Access Memory (SRAM), Read Only Memory (ROM), Flash Memory, LAN, and Small Computer System Interface (SCSI). Typical Type II cards include input/output (I/O) features such as modems and LANs.

Type II Extended Cards

Many PC cards are Type II extended cards. The extended card has an additional physical component that protrudes beyond the traditional card size. The extension can be as large as 40 mm deep by 9.65 mm high. This extension provides room for additional electronics as well as a location for external connectors.

Type III Cards

Type III cards are thicker (10.5 mm) than Type II cards and allow no extensions. Type III card uses include advanced function I/O cards with added features such as multimode cards (cards with more than one function such as a combined modem and LAN card) and small hard drive cards.

Communication Cards

You can use both fax/modem and network PC cards with your NEC Versa. Here are some suggestions to help you get the best system performance.

> **NOTE** If you are using this unit outside of the United States or Canada, contact a local dealer for availability information.
>
> If you purchased this system outside of the United States or Canada, see the booklet, "Getting Service and Support in Asia, Australia, and Europe" to find out how to contact the local office in your country.

- Network Cards —You can use a network card with your system to gain access to a local area network (LAN).

- Fax/Modem Cards — You can use a PC card modem with your system to communicate with others via fax, email, or connect to an online service or bulletin board.

> **NOTE** Outside of the U.S. and Canada, you might need a modem and telephone adapter approved for the local telephone system. Check with your local dealer for details about purchasing the equipment.

You can insert a fax/modem in either slot. Always insert the fax/modem card before using your fax/modem software application. If you start the application before inserting the fax/modem card, the application typically does not find the card.

Storage Cards

When you insert a storage card or small hard drive card in an NEC notebook computer, it appears as a unique drive depending on the type of card and the slot you are using.

The following table provides sample drive designations.

Sample Drive Designations

DRIVE LETTER	LOCATION/DEVICE
C:	Internal hard disk
D:	Internal hard disk, 2nd partition
E:	CD-ROM reader
F:	Slot 1, IDE/ATA hard drive
G:	Slot 0, high-speed memory card
H:	Slot 1, high-speed memory card

Other Cards

Many other kinds of PC cards are available to notebook computer users. They include the following cards:

- Global Positioning System (GPS) − to enable the tracking of remote units (for example, delivery trucks)
- Paging − for receiving remote paging messages
- Serial − for adding an extra serial communications port
- Multimedia − for combining animation and sound
- Video − for recording, displaying, and capturing full-motion video (NEC VersaVideo™)
- Audio − to enable the use of sound.

Card Bus/PC Card Slots

Your NEC Versa offers two PC card slots for inserting two Type II PC cards or one Type III PC card. The 32-bit card bus also has zoomed video support in the bottom slot only.

> NOTE This 32-bit structure is backward compatible, but also accepts new cards.

Using the system's PC card slots, you can add optional PC cards and connect external devices to your NEC Versa. These devices include peripheral devices, such as modems, LAN cards, and storage cards. For details on how to obtain these devices, see the online *NEC Versa Tools Catalog*.

Inserting a PC Card

Follow these steps to insert a PC card in your system.

⚠ CAUTION

Some PC cards require additional system resources. Before inserting a PC card you may have to disable either the IR port, USB port, or the 56K internal modem. Check the Windows 95 device manager to ensure that one of these devices is disabled before inserting a PC card.

For information about enabling and disabling devices on your NEC Versa, see "Enabling and Disabling Devices," later in this chapter.

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1. Align the card so that the 68-pin connector points towards the slot and the arrow on the PC card faces up.
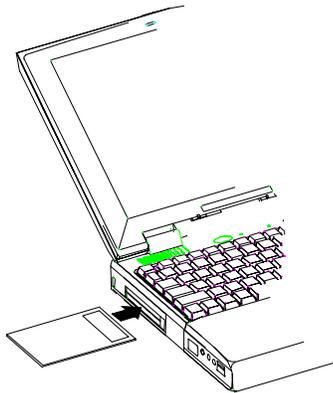
Inserting a PC card

2. Slide the card into either slot. A low tone followed by a high tone lets you know that the card is fully inserted and recognized. (If you turn off the sound, no sound is emitted.)

⚠ **CAUTION**

Other two-tone sequences such as high, then low tones indicate that the card is inserted, but the card type is unknown.

NOTE When you insert a PC card, a button pops out of the PC card bay. Pivot the button towards the front of the system until it fits into the recessed space next to the slot.

3. You can use the PC card software preinstalled on your system to check PC card slot availability. For example, look for the PC Card icon in the Windows 95 Control Panel. It shows which slot contains a PC card and which is empty.

Removing a Card

Remove PC cards as follows.

> **NOTE** Pivot the PC card button out of the recessed space before beginning the following procedure.

1. From the screen, select "My Computer," then "Control Panel." (You can also double click on the PC Card icon in the lower right side of the toolbar on your desktop.)

2. Select the PC Card icon.

3. Select the PC card to remove and select "Stop." Windows 95 alerts you if any applications are still using the card. If all applications using that card are closed, services for that card are shut down, and you get a message telling you it is safe to remove the card.

4. Press the button beside the PC card slot.

5. When the card pops out slightly, pull it out of the slot.

> **NOTE** PC cards draw power even when not in use. To save energy, press the button to disconnect the card when it is not in use. You can leave the card in the slot while it is disconnected for easy storage.

IR Port

The IR port on the left side of your system lets your NEC Versa communicate with other devices that also use infrared technology. The IR port is Infrared Data Association (IrDA) compatible. You can easily transfer files between your NEC Versa and an IR-equipped desktop, or print to an IR-equipped printer without using cables.

There are three transfer rates for the IR port on your NEC Versa. The transfer rates are FIR (Fast Infrared - 4.0 Mbit/sec), MIR (Medium Infrared - 1.152 Mbit/sec), and SIR (Serial Infrared Standard - 2.4 Kbit/sec).

Your NEC Versa transfers data at the speed compatible with the receiving device. If the receiving device is also FIR equipped, your NEC Versa recognizes this capability and transfers data at the FIR rate.

⚠ CAUTION

Your NEC Versa ships with the IR port disabled. The first time that you use the IR port you must enable the device through the setup utility.

Once the IR port is enabled in setup, use the Windows 95 device manager to enable and disable devices.

For information about enabling and disabling devices on your NEC Versa, see "Enabling and Disabling Devices," later in this chapter.

Follow these steps to enable the IR port using the setup utility.

1. Enter the setup utility as indicated in Chapter 3, "Using Setup and Power Management."

2. Select Peripherals Setup.

3. Use the **PgDn** feature to set the IR port to AUTO.

4. Press **Esc** to exit Peripherals Setup.

5. Save settings and exit.

> **NOTE** To use the IR port to communicate with an external device when a PC card is installed, use the Windows 95 device manager to disable either the USB port or the 56K internal modem (modem only available on some models). Ensure that the IR port has been enabled through the setup utility.
>
> To take advantage of the FIR transfer rate, disable the 56K internal modem.
>
> For information about enabling and disabling devices on your NEC Versa, see "Enabling and Disabling Devices," later in this chapter.

For the infrared technology to work, follow these guidelines:

■ position the NEC Versa no more than three feet way from the IR peripheral device you are using, and

■ keep the IR ports between the computer and the device parallel.

The LapLink software that ships with your NEC Versa system provides ways for you to use the IR port. Read the instructions "How to Use LapLink" in Chapter 2.

USB Port

The USB Port on the left side of your system allows you to connect up to 127 USB equipped peripheral devices to your NEC Versa notebook computer. These peripherals may include digital cameras, scanners, printers, CD-ROM drives, modems, keyboards, telephones, and games devices.

USB devices called USB hubs can serve as connection ports for other USB peripherals. Only one device needs to be plugged into your NEC Versa. Additional peripherals can be connected in a daisy chain configuration where one device is connected to another in a series. Up to 127 USB devices can be connected together in this way.

(NOTE) Connect the USB device to the port on your NEC Versa that displays the USB icon.

Depending on your operational requirements, you may need to disable the USB port in order release system resources to use other devices.

For information about enabling and disabling devices on your NEC Versa, see "Enabling and Disabling Devices," later in this chapter.

ENABLING AND DISABLING DEVICES

Depending on your operational requirements you may need to enable and disable devices on your NEC Versa to optimize system resources.

Follow these steps to enable or disable a device on your NEC Versa:

1. Press Start, slide the cursor to Settings, and locate the Control Panel.

2. Double click the System icon and select Device Manager.

3. Double click the appropriate device (for example, the Infrared Port), then double click the device name (NEC Versa Fast Infrared Port).

4. Enable or disable a device as follows:

   ■ To enable a device, click to remove the check mark beside "Disable in this hardware profile" in the device usage portion of the screen.

   ■ To disable a device, click to add the check mark beside "Disable in this hardware profile" in the device usage portion of the screen.

5. Click OK and follow the on-screen instructions, as appropriate.

NOTE When a device is disabled, a red X appears beside the device name in the device manager device list.

⚠ CAUTION

Reboot your system after enabling or disabling a device to implement the modification to the system configuration.

INCREASING SYSTEM STORAGE AND MEMORY

As your needs grow and change, you may need to add an optional hard disk drive with a greater capacity or additional memory. Read the following sections to learn how to install an optional hard disk drive or a memory module.

Hard Disk Drive

You can increase the system's storage capacity by replacing the standard hard disk drive with a drive with greater storage capacity.

> (NOTE) If you wish to replace your hard disk, contact your local dealer for more information about this dealer-installable device.
>
> If you purchased this system outside of the United States or Canada, see the booklet, "Getting Service and Support in Asia, Australia, and Europe," to find out how to contact the local office in your country.

Memory Module Installation

Your NEC Versa comes standard with 16 megabytes (MB) of Extended Data Out (EDO) memory. This new technology gives your system higher performance. You can increase system memory to a maximum of 128 MB by installing two small outline double inline memory modules (SO-DIMMs) in the system.

> **NOTE** If you increase your system memory to more than 48 MB, you must run the HDPREPEZ utility. The HDPREPEZ utility increases the amount of space reserved on the hard drive for use when the system goes into the Save to File state. (See Chapter 2, "Understanding the Software," for details about running HDPREPEZ.

The following module capacities are available:

■ 16-MB memory module

■ 32-MB memory module.

■ 64-MB memory module.

Install DIMMs as follows.

1. Make sure the system is powered off and that no peripheral devices are attached.

2. Turn the system over and locate the two screws that secure the palm rest.
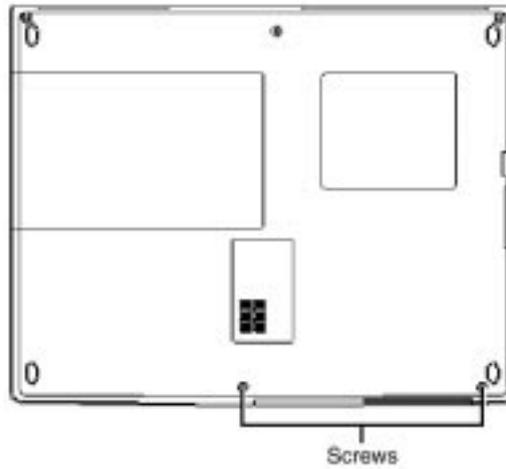
Locating the palm rest screws

3. Remove the screws and turn the system over.

4. Open the LCD panel.

5. Slide the palm rest about a half inch towards the front of the system and tilt it back towards the keyboard.

6. Locate the alignment notch on the module.
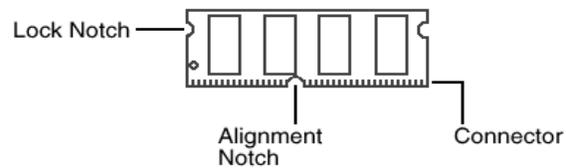
DIMM features

7. Locate the memory module sockets. Your system comes with one module already installed in the socket closest to the keyboard. When installing additional memory, use the socket closest to the front of the system.

⚠ **CAUTION**

Avoid touching the exposed components inside the system. Doing so can damage the system.
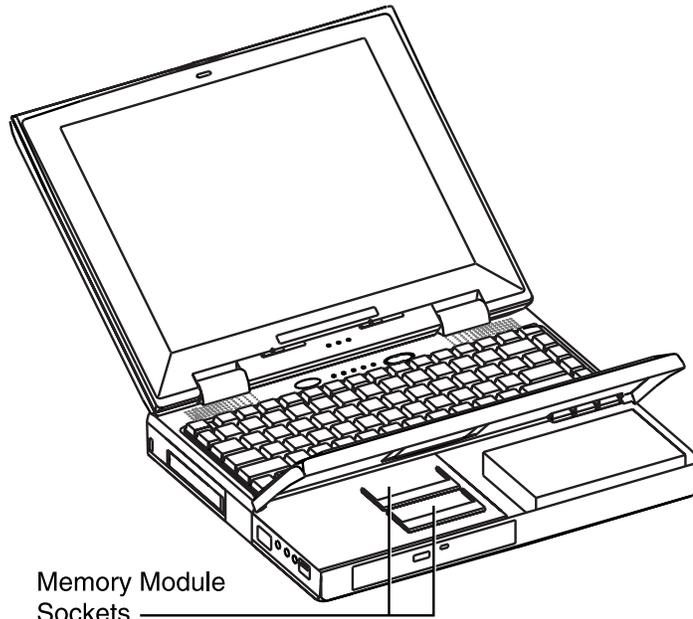
Memory Module
Sockets

Memory module sockets

8. Align the notch with the notch in the socket connector and insert the module as follows:

■ Hold the SO-DIMM at a 60-degree angle and align the SO-DIMM connector with the socket in the system. Push the connector into the socket.

■ Press down on the edge of the SO-DIMM until the locking tabs on the sides snap into place, securing the module.

To remove a SO-DIMM, press the locking tabs away from the sides of the module until the module pops up. Then, remove the SO-DIMM.

9. Reassemble the NEC Versa components as follows.

■ Gently lower the palm rest back into place.

■ Close the LCD panel.

■ Turn the system over and replace the two screws.

⚠ **CAUTION**

Replace the two screws snugly, do not overtighten or the CD-ROM tray may not open.

CONNECTING OPTIONS

Your NEC Versa notebook provides industry-standard connectors so that you can integrate the following.

■ External Monitor

■ Printers (parallel and serial)

■ External keyboard

■ External mouse

■ External audio options.

In addition, NEC offers the NEC PortBar 2700 which was developed to work specifically with your NEC Versa.

See the following sections for steps on using the options. Refer to the diagram that follows to identify ports for connecting external options.

Back system features
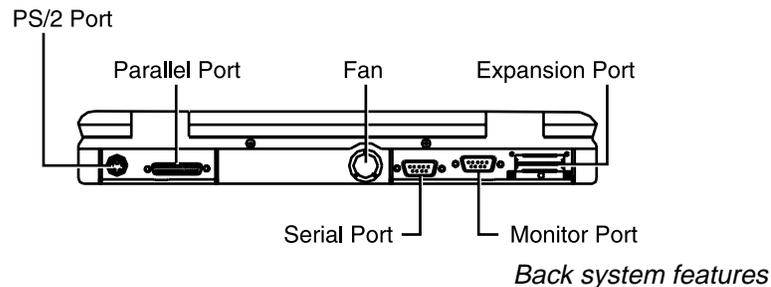
External Monitor

You can add a standard external monitor to your NEC Versa. You need a display signal cable (usually provided with the monitor). One end of the cable must have a 15-pin connector for the system.

Follow these steps to connect an external monitor to your NEC Versa.

1. Check that the NEC Versa is powered off and the monitor power switch is turned off.

> [NOTE] The NEC Versa must be powered off or suspended while the monitor is being connected.

2. Open the port cover on the back of the system.
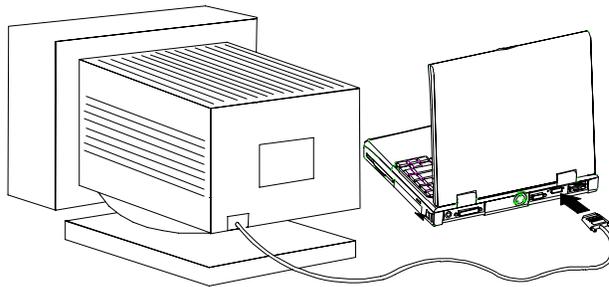
Connecting a monitor

3. Attach the 15-pin cable connector to the monitor port on the system. Secure the cable connection with the screws provided.

4. Connect the monitor power cable and plug it into a properly grounded wall outlet.

5. Follow any setup instructions in the monitor's user's guide.

6. Turn on power to the monitor.

7. Power on the NEC Versa.

Press the **Fn-F3** function key combination to toggle between the LCD, CRT, or simultaneous display on both.

Printer

You can attach a printer with either a parallel or a serial connector. A parallel printer connector has 25 pins; a serial connector has 9 pins. Some printers come with both types of connectors.

Parallel Devices

To install a parallel device, such as a printer, you need a cable with a male 25-pin connector for the system and, for some parallel printers, a Centronics®-compatible 36-pin connector.

> (NOTE) When you connect a printer, be sure to install the appropriate printer driver through the Windows Control Panel.

Connect a parallel device to your NEC Versa as follows.

1. Check that both the NEC Versa and parallel device power are off.

2. Open the port cover on the back of the system and locate the parallel port.

3. Align and connect the 25-pin parallel cable connector to the parallel port on the system. Secure the cable with the screws provided.

4. Align and connect the other end of the cable to the parallel port on the device. Lock the connector clips.

Connecting a parallel device

5. Connect the power cable to the device and a properly grounded wall outlet.

6. Turn on power to the system and the device.

> **NOTE** Check that the device is online before you try to use it. See the instructions that came with the device for more information.

Serial Devices

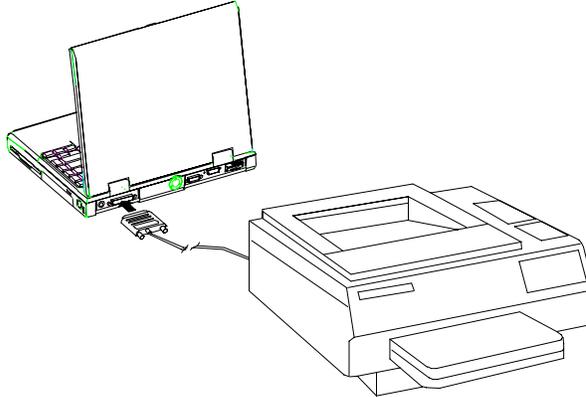To install a serial device such as a printer or an external mouse, you need a cable with a female 9-pin connector.

> (NOTE) When you connect a printer, be sure to install the appropriate printer driver through the Windows Control Panel.

Follow these steps to connect a serial device to your NEC Versa.

1. Check that both the NEC Versa and the device power are off.

2. Open the port cover on the back of the system and locate the serial port.

3. Align and connect the 9-pin connector with the serial port on the system. Secure the connection with the screws provided.
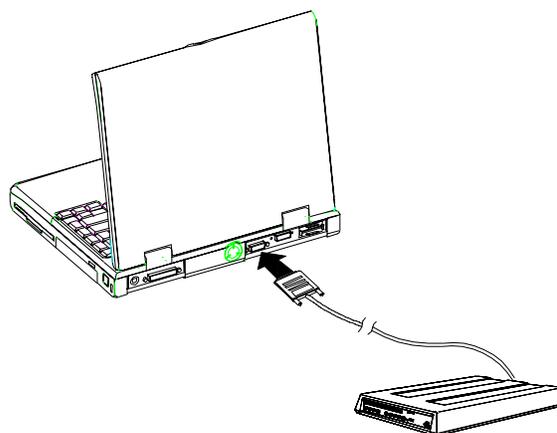
Connecting a serial device

4. Align and connect the other end of the cable to the appropriate port on the device. Secure the connections with the screws provided.

5. Connect the power cable to the device and a properly grounded wall outlet.

6. Turn on power to the system and the device.

External Keyboard/Mouse/Keypad

You can add a full-size PS/2-style keyboard or PS/2-style mouse to your NEC Versa.

When you connect an external keyboard, you can use both the built-in keyboard and external keyboard simultaneously. (The embedded numeric keypad on the NEC Versa does not work in this case. Use the keypad on the external keyboard.)

To attach two external PS/2-style devices at the same time, use the optional NEC Y-adapter. Contact the authorized NEC dealer in your area for information.

Follow these steps to connect an external keyboard, mouse, or keypad to your system.

⚠ CAUTION

If you are connecting an external mouse, you *must* power off the system. You can connect an external keyboard or keypad while the system is in Suspend mode.

---

1. Connect the keyboard, mouse, or keypad cable connector to the PS/2 port on the system.
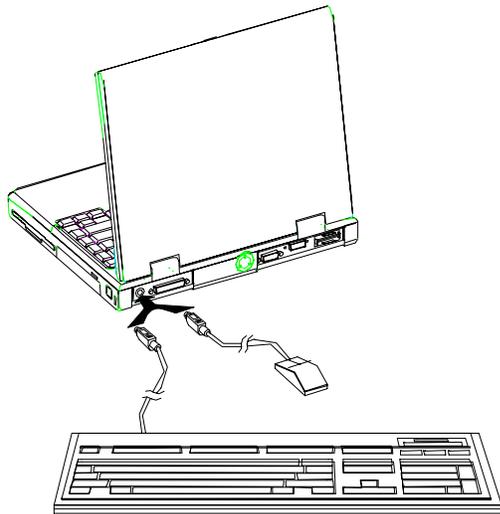
Connecting an external keyboard/mouse

2. If power is turned off, power on the NEC Versa to resume operation.

The system immediately recognizes the device.

External Audio Options

The NEC Versa comes equipped with built-in audio ports that let you record and play sound.

Connect audio jacks, like a microphone or external speakers, to the audio ports as follows.

> (NOTE) Some audio device cable connectors are designed with an icon representative of the device. When connecting the audio device to your NEC Versa, be sure to match the icon on the cable connector to the icon on the system port.

1. Locate the audio port that you want to use.

2. Plug the jack into the port on the left side of the system.

Microphone Jack

Line-in Jack

Line-out Jack
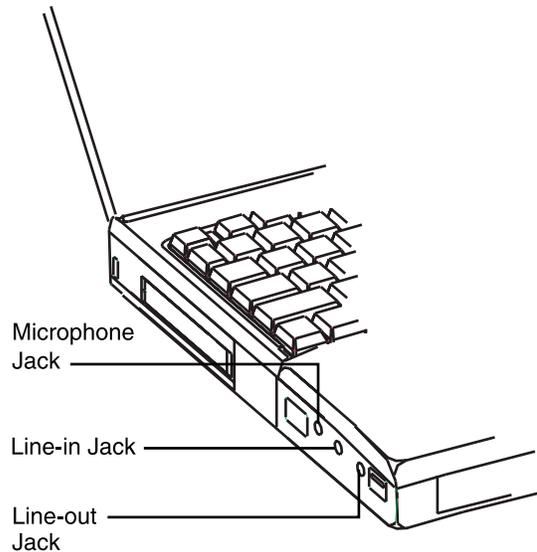
Audio ports

> **NOTE** If you use external speakers and experience sound distortion or feedback, lower the volume.
>
> Some feedback is caused by having the microphone and speakers too close to each other, so moving the external audio option away from the unit may also help.

NEC PortBar 2700

The NEC PortBar™ 2700 is an accessory that duplicates the ports found on the back of your NEC Versa 2700 Series system. Keep the NEC PortBar 2700 in your office connected to peripherals while you take your NEC Versa on the road. (PortBar ports are described in the next section.)

Using the PortBar 2700

Follow these steps to install the optional PortBar.

1. Open the door that covers the expansion connector, monitor port, and serial port.

2. Press the release bars on each side of the PortBar 2700.

3. Plug the PortBar into the expansion connector on the back of the NEC Versa 2700 Series computer. Be sure that the PortBar snaps into the PortBar latches on each side of the NEC Versa.

Mini-DIN
PS/2
Keyboard
Port

MIDI/Game
Port

VGA Port

Parallel Port

USB Port

AC Power Port

Mini-DIN
PS/2 Mouse Port

Serial Port
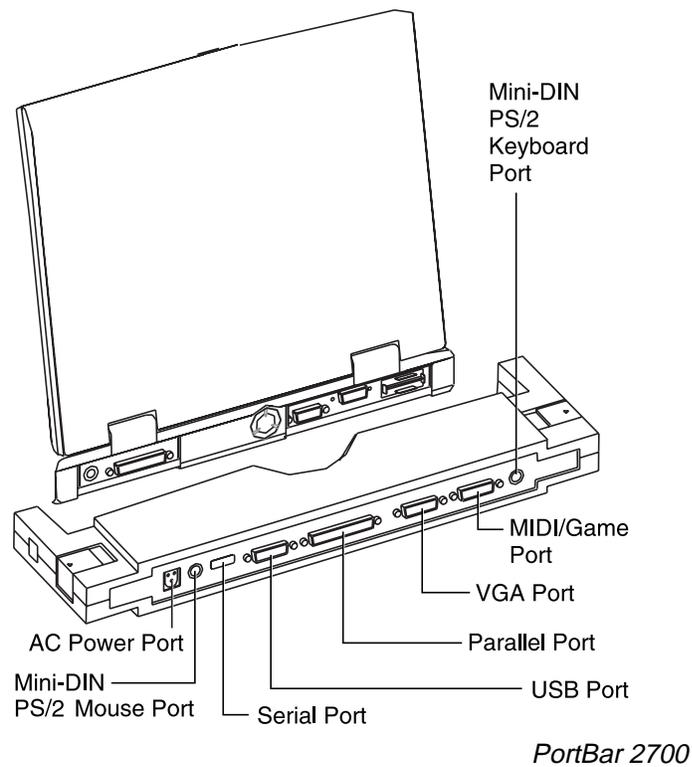
PortBar 2700

The ports on the PortBar 2700 are described next.

- AC Power Port — Connects an AC adapter to your notebook computer.

- Mini-DIN PS/2 Mouse Port — Connects to a PS/2 mouse.

- USB Port — Connects up to 127 peripheral devices to your notebook computer. (The USB port on the PortBar 2700 is additional to the USB port on the left side of the system.)

- Serial Port — Connects a serial device to your notebook computer, such as an external modem or mouse.

- Parallel Port — Connects a printer to your notebook computer. You can change the LPT Mode in the Setup program.

- Monitor Port — Connects an external VGA/SVGA monitor to your notebook computer.

- MIDI/Game Port — Connects a joystick or MIDI device to your notebook computer.

- Mini-DIN PS/2 Keyboard Port — Connects to a 6-pin standard PS/2-style keyboard.

SETTING SWITCHES

Depending on the model, your NEC Versa is equipped with one or two dip switch bank(s) located underneath the palm rest in front of the keyboard. (To access the switch bank(s), reference the diagrams of the switch bank configurations and follow the instructions in "Changing the Switch Settings.") The switch banks have the following settings and provide the functions noted.

- BIOS Flash Enable — The default setting for this switch is "OFF." Change the setting to "ON" to enable the switch so that you can update the system basic input/output system (BIOS) flash memory. See "Updating the System BIOS" for details about this procedure.

- Password Override Switch — The default setting for this switch is "OFF." If you forget your password and cannot access the data on your NEC Versa, change the setting to "ON." (See "Changing Switch Settings" later in this chapter.) Then go into the Setup utility and specify a new password. Save your changes and Exit Setup. Reset the switch to "OFF."

■ CPU Voltage Switch — The default setting depends upon your NEC Versa model. This switch sets the voltage for the central processing unit (CPU). (This switch is present in the two dip switch bank configuration, only).

> **NOTE** The CPU Voltage Switch is for factory use only. Do not remove the protective tape or adjust the switch setting.

See Chapter 3, "Using Setup," for instructions on how to enter the setup utility to change your password. You may want to keep the new password in a special place so that you do not forget it again.

Updating the System BIOS

Use the following steps to update your NEC Versa 2700 Series system BIOS with the BIOS Update Diskette (BUD). Specifically, the BIOS is the code transmitted onto your system's read-only memory (ROM).

> **NOTE** You only need to update the BIOS if NEC makes significant improvements or fixes to the current system BIOS. Your authorized dealer or Technical Support representative can help you determine this.

If you are informed that the BIOS needs an upgrade, contact the NEC Customer Service and Support at (800) 632-4525, Fax (978) 635-4100 to receive a copy of the BUD.

You can also download the BIOS from the NECCSD BBS or web site. Refer to appendix C for detailed instructions on how to download the BIOS.

Only use the BIOS upgrade diskette for your specific model.

> **NOTE** If you purchased or are using this system outside of the U.S. or Canada, please contact a local office or dealer in your country.
>
> If you purchased this system outside of the United States or Canada, see the booklet, "Getting Service and Support in Asia, Australia, and Europe" to find out how to contact the local office in your country.

Updating the BIOS involves the following procedures:

■ removing the screws on the bottom of the system

■ lifting the palm rest in front of the keyboard

■ setting the switch

■ reassembling the unit and updating the BIOS

■ resetting the switch.

Changing Switch Settings

Use the following steps to change switch settings.

1. Make sure that the system power is off and that no peripheral devices are attached to the system.

2. Turn the system over and locate the two screws that secure the palm rest.
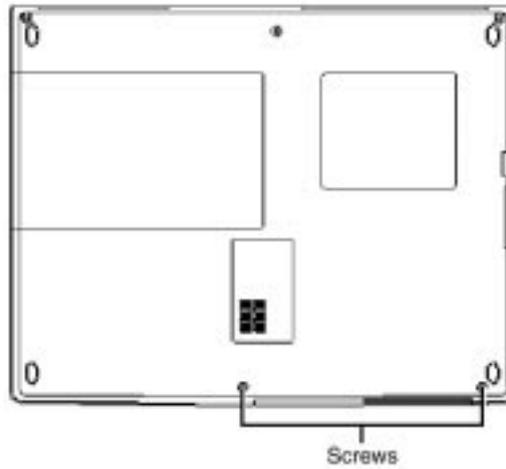
Locating the palm rest screws

3. Remove the screws and turn the system over.

4. Open the LCD panel.

5. Slide the palm rest forward about a half inch and lift it towards the keyboard.

6. Locate the dip switch bank(s).
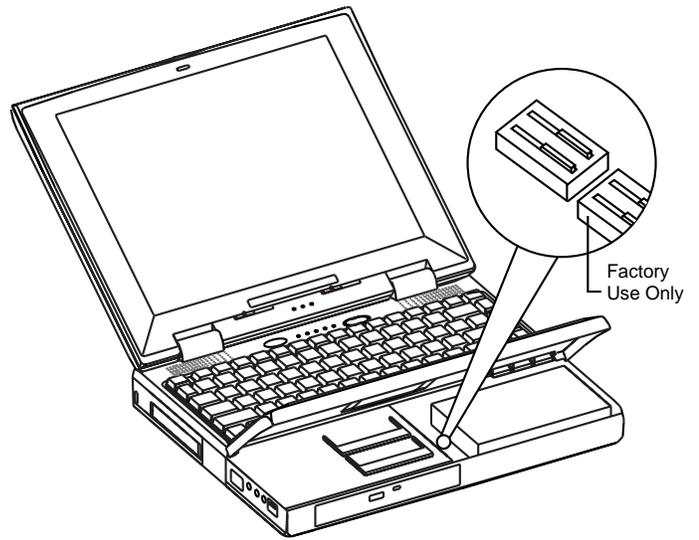
Two dip switch banks
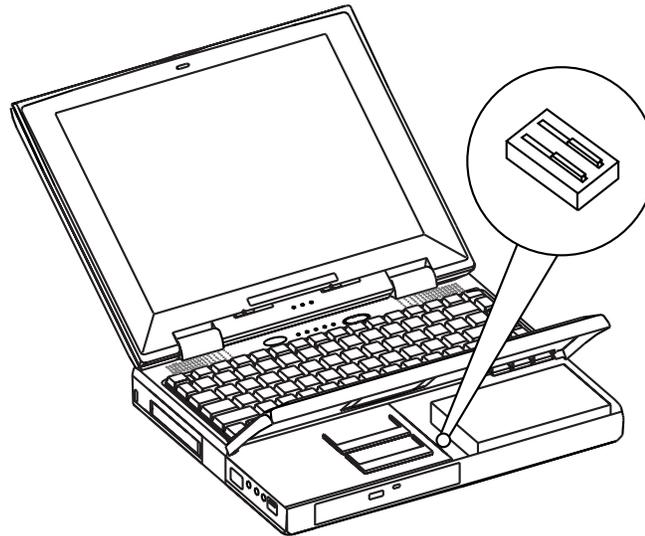
Factory
Use Only

One dip switch bank

7. Using a fine-tipped object, change the switch settings as follows (the figure that follows shows the factory default settings).

> (NOTE) In the two dip switch bank configuration, access the bank closest to the back of the NEC Versa.
>
> Do not touch the bank closest to the front of the NEC Versa.

- Set the BIOS Flash Enable to ON to enable the switch and upgrade the BIOS.

- Set the Password Override Switch to ON to change the password.

⚠ **CAUTION**

Never use a pencil tip to change switch settings. Residue from the pencil can damage the system.

Password Override Switch

ON Position

OFF Position

BIOS Flash Enable Switch
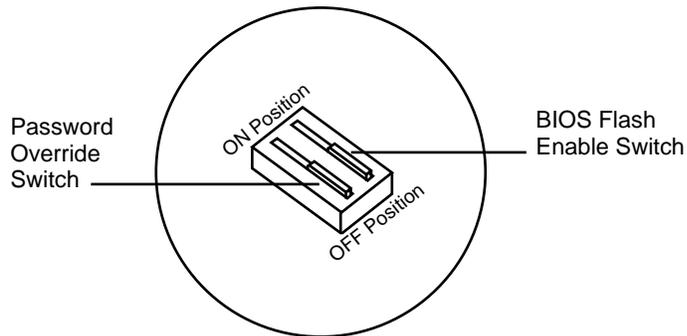
Factory default switch settings

8. Reassemble the NEC Versa as follows.

- Lower the palm rest and slide it back into place.

- Turn the system over and replace the two screws.

9. Your system is now ready for the BIOS update or Password change. Continue to the next section to update the BIOS. See Chapter 3, "Using Setup," for details about changing your password.

Performing the BIOS Update

If you made any changes through the Setup utility, you may want to jot them down. When you update the BIOS, any customized settings you made are lost. After completing the BIOS update, you can then use your notes to reset them to your preferences.

Use the following procedure to perform the BIOS update.

1. Make sure that the system is plugged into the AC adapter and AC power and that system power is off.

(NOTE) Your system must be connected to AC power to perform the BIOS update.

---

2. Insert the BIOS Update diskette into the diskette drive.

3. Power on the system with the diskette in the diskette drive. The system boots and automatically loads the utility. A message appears on the screen. Be sure to read the message and follow all instructions.

4. Press any key to continue.

The utility checks the currently installed BIOS version and the diskette's BIOS version. The Main Menu appears.

5. Use the arrow keys to highlight the "Display BIOS Version" option on the Main Menu. Use this option to check the currently installed BIOS version and the version of the new replacement BIOS.

   Press any key to return to the Main Menu.

6. Highlight the "Install New BIOS" option and press **Enter**.

7. Press **Y** and then press **Enter**. After a brief pause, the utility updates the BIOS.

8. A message appears indicating that your system has been updated and that you should power off your system.

9. Power off your system and remove the diskette. The next time you power on your system, you will have the newly installed NEC Versa 2700 Series BIOS revision level.

10. Follow the instructions in the previous section and reset the BIOS Flash Enable switch to OFF.

11. Power on the system. A message similar to the following appears:

    Wait:
    CMOS checksum Bad
    Press F1 to run SETUP

12. Press F1 to enter Setup. Highlight Auto Configuration with Defaults. Press **Enter**, select **Y**, and press **Enter**. While in Setup, restore any customized settings that you made.

13. Highlight Save Settings and Exit. Press **Enter**, select **Y**, and press **Enter**.

5 Using Multimedia

With its fast MMX Pentium™ processor and enhanced audio and video capabilities, you can perform fantastic multimedia feats with your NEC Versa 2700! This section describes the NEC Versa 2700's multimedia features and how you can use them to create high-quality, powerful presentations.

Multimedia combines audio, text, animation, photo images, and video sources into one presentation.

AUDIO

The NEC Versa 2700 provides entertainment-level sound quality through the stereo speakers and woofer. It handles musical instrument digital interface (MIDI) files, digital audio files, and analog audio sources. This means the NEC Versa 2700 recognizes .WAV, .MID, and .AVI files. The system is also Sound Blaster™ compatible.

Recording

All information on a computer must be stored in digital form. Analog audio signals from sources such as tape cassettes or music CDs must be digitized before being recorded and stored on disk.

You can make recordings from two classes of audio input: line level and microphone level. Line level accepts analog audio signals from electronic sources such as tape cassettes, VCRs, and CD players through the Line-In port.

> **NOTE** When using the built-in microphone, make sure the speaker volume is turned down or feedback may occur.

The following procedure describes how to use the Sound Recorder in the Microsoft Windows Accessories group to record sound into a file on the NEC Versa. (For details, see the online help that is available when you open the Sound Recorder.)

1. Locate the Sound Recorder by sliding the cursor over Programs, Accessories, Multimedia, and the Sound Recorder line. Release your finger from the VersaGlide to open the recorder. (You may have to press the left selector button on the VersaGlide.)

2. Use the VersaGlide to press the Record button on the screen. The Record button has a red circle in the middle.

3. Speak into the microphone to create a sound file.

4. When you finish recording, press the Stop button. Be careful when recording; audio files can become quite large.

To listen to the sounds you've recorded, use the VersaGlide to press the Play button. (The Play button has a single right facing triangle on it.)

To improve the quality of the recorded or playback sound, check the sound settings as follows:

1. Double click on the My Computer icon and open the Control Panel.

2. Locate and double click on the icon titled "OPL3-SAx Config."

3. In the window that opens, check the following settings:

■ In MIC Volume Control, make sure a check mark appears next to "MIC +20dB."

■ Under 3D Enhanced, make sure "NotePC 2" is active. (A black dot appears in the circle.) This option should be active at all times for the best results.

You can change Quality setting from Normal. If you do so, the resulting sound will use more processing power.

Treble and Bass tone controls are also available in this window.

4. Press OK to accept your settings.

(NOTE) Your NEC Versa system ships with recommended settings for advanced sound quality. Modifying these settings or setting the configuration to Default, overrides the recommended settings.

To restore the recommended settings, access the Control Panel, select OPL3-SAx Config and click NotePC2.

Line-In

Analog signals come in through the NEC Versa 2700's Line-In port. The analog signals are converted into digital bits and bytes (digitized) through a converter known as an ADC (analog-to-digital converter). The resulting digital sound bytes can be stored, edited, processed, and transferred. You can record ambient sound effects, specific sound effects, or music to enhance a presentation.

Ambient sound effects create a sense of place or environment and include sounds such as rain, heavy traffic, chirping birds. *Specific* sound effects accent or illustrate an action. Examples of specific sound effects include footsteps, a crash, a clock chime. There are many sources of prerecorded sound effects available on the market, or, you can record your own sounds.

Line-In accepts analog signals from external devices such as a tape deck, a stereo CD-player, or a stereo tuner. The Line-In port has a mini-type connector. You may need an adapter to connect your input device to the NEC Versa 2700 through Line-In.

(NOTE) Using Line-In does not disable the internal speakers.

CD-ROM Input

You can record music and sound effects from a CD (compact disc) and store them on your hard disk. The audio signal from the CD-ROM reader connects directly to your NEC Versa 2700. Simply follow the instructions in "Recording" to record sound from your CD player.

Microphone

You can capture and record sounds through the internal microphone on the NEC Versa 2700 or through an external microphone that connects to the system through the microphone port. You can record voice-overs for narrations, reminders, or special instructions.

See "Recording" earlier in this chapter, for details about recording sound with the microphone.

Playing Back

You can play back your recorded soundtrack through stereo headphones, the internal NEC Versa 2700 stereo speakers, or external stereo speakers. You can play .WAV and MIDI files as well as CD audio. Adjust the volume through the software (a volume control feature can be found in Accessories or on the system tray in the Toolbar) or with the volume control knob on the left side of the system.

Play audio from files or audio devices as follows. (This example shows how to use the Media player option in Accessories. You can also play audio by opening a file through the Sound Recorder and pressing the Play button.)

1. Go to Programs, Accessories, Multimedia, and open the Media Player.

2. Select your audio source as follows:

   ■ If playing a file, use the File menu to specify the file name.

   ■ If playing from a device, use the Device menu to select your audio source.

   Once your file is open or your source specified, press the Play button.

3. Press the square Stop button to stop playing the audio.

Using Headphones

The NEC Versa headphone port delivers sound at half a watt. Stereo headphones plug in through the headphone jack located on the left side of the NEC Versa. Use the audio software that comes on your system to adjust the volume.

> **NOTE** Using headphones disables the internal speakers.

Using the Built-In Speakers

The NEC Versa 2700 has built-in stereo speakers and a woofer. Adjust the volume through the software or with the volume control knob located on the left side of the system.

Using External Stereo Speakers

For full stereo sound impact, you can plug a pair of stereo speakers into the headphones jack located on the side of the system. Adjust the volume through software, with the controls on the external speakers (if equipped with controls), or with the volume control knob on the NEC Versa.

MIDI Files

The musical instrument digital interface (MIDI) lets you enhance a presentation by adding computer-generated music and sound effects. Using MIDI, you can record multiple tracks of performances from a master controller, such as a keyboard, and orchestrate playback on one or more instruments. You can also purchase a wide range of public domain and commercial recordings in MIDI format.

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

VIDEO

Depending on the model, the NEC Versa 2700 features a dazzling DSTN or TFT backlit SVGA color display for sharp effective visuals right on the system or projected onto an external CRT monitor.

Your NEC Versa 2700 system has hardware assisted MPEG which supports full motion, full-screen MPEG video including full length movies. Your system ships with the Mediamatics MPEG Arcade™ Player. Use this application to take a full advantage of your system's MPEG capabilties.

Access the Mediamatics MPEG Player to play Video CD's as follows:

1. Go to Programs, Mediamatics Software MPEG, and select Video CD Player.

   A remote control device appears on the screen. If the CD is inserted in the CD-ROM reader, the video title displays.

2. Simply select the video title to play the video.

Using Digital Video Files

With commercial video capture hardware and application software, you can plug any video device, including VCRs, televisions, camcorders, and laser disc players into your NEC Versa 2700 and record motion graphics to your hard drive.

Use a video frame grabber and store a stream of grabbed stills on your hard disk.

Using Animation Files

You can create a dynamic presentation using an animation application. Animation can illustrate a concept, drive home an important point, or command attention. Graphics animation can add punch to a presentation with an animated illustration, a flashing arrow, or a flying logo.

MULTIMEDIA APPLICATIONS

A growing number of multimedia applications are available for PC users. These multimedia software packages include graphics packages, animation software, and presentation authoring systems as follows:

- Animation software allows you to create 3-D effects and 3-D titles and add interest to an otherwise static presentation.

- Authoring packages let you pull all the elements of your design into an exciting, interactive multimedia presentation.

6 Traveling with Your NEC Versa

The NEC Versa makes a natural traveling companion. Using a battery, you can use the computer anywhere you go. Here is some information you might find helpful when taking the NEC Versa on the road.

■ Carry an extra charged battery pack for additional battery power.

■ Check that you have everything you need before you leave on a trip. Be sure you have all the necessary cables and accessories. (See the checklist at the end of this chapter.)

■ If you run your system with battery power, maximize battery life by using power-saving features whenever possible.

■ Bring your optional PowerXtender™ Airplane & Auto adapter to connect to automobile cigarette lighters or EMPOWER™ connectors available on many major airlines.

■ Take the AC adapter in case you have an electrical outlet handy. This saves battery power for when you really need it.

■ Take along any application or data files on diskette that you might need.

POWER CONNECTIONS

With the right accessories, you can run your NEC Versa 2700 Series system almost anywhere! Your system self-adjusts to various power sources. The United States, Canada, and most of Central and South America use 120-volt alternating current (AC). Most other countries of the world use 240-volt AC. The NEC Versa adapts to voltages ranging from 100 to 240 volts, 50 to 60 Hz.

There are a few countries with areas that use direct current (DC) as their main power source. You need a DC-to-AC converter in particular areas of Argentina, Brazil, India, Madeira, and South Africa.

CHECKLISTS

The following checklists can help you prepare for your trip with your NEC Versa. Look them over and use what fits your situation.

What to Take

You should take the following with you when you travel with your NEC Versa:

- extra fully charged batteries

- single-outlet surge protector

- appropriate AC plug adapter

- copy of proof of purchase for computer and other equipment for customs check

- customer support phone numbers for your software

- AC extension cord.

Preparing Your NEC Versa for Travel

Here is what you should do before you leave home:

> **NOTE** Speed the trip through airport security by carrying a charged system. Inspectors want to see the screen display a message. The boot message is usually sufficient.
>
> If your system is fully charged, the inspection only takes a minute or so. Otherwise, be prepared to attach the AC adapter and power cable. And if you don't have these, the inspection might include a disassembly of the system.

■ Back up your NEC Versa's hard disk.

■ Put your system into Suspend or Standby mode so you can quickly boot up at the airport security check.

■ Fully charge all your batteries.

■ Tape your business card to your NEC Versa, AC adapter, and batteries.

7 Solving Problems

Once in a while you may encounter a problem with your
NEC Versa 2700. If the screen is blank, the instructions
don't help, or no error message appears, use the information
here to determine and fix the problem. You still may be able
to solve the problem yourself!

PROBLEM CHECKLIST

First check the items in the following list. If these items
don't help, see the table that follows the list.

- Power is on to the computer.

- The electrical outlet to which your AC adapter is
  connected is working. Test the outlet by plugging in a
  lamp or other electrical device.

- All cables are tightly connected.

- The display setting is configured correctly.

- The display's brightness control is adjusted properly.

- If using battery power, check that the battery pack is
  properly inserted and fully charged.

Troubleshooting

PROBLEM	WHAT TO DO
The system does not power on.	If you are operating the system with battery power, check that the battery pack is correctly inserted. Attach the AC adapter to recharge the battery.
	If you have the AC adapter attached, check that the electrical outlet you are using works.
LCD screen is dark and blank.	Power-saving mode has shut off the backlight. Press a keyboard key or the Suspend button.
	The built-in LCD may not be selected. Press **Fn-F3** once or twice.
	Screen brightness needs adjustment. Adjust the control.
	The system entered Suspend mode due to low battery power. Plug in the AC adapter before resuming operation.
Battery power does not last long.	Use power-saving modes.
	Fully charge and fully discharge the battery several times to recondition it.
	Replace the battery.
Information on the LCD screen is difficult to see.	Adjust the brightness and contrast using the brightness and contrast controls.
An optional component does not work.	Make sure the component is securely installed or connected. Verify that the system parameter for the I/O port configuration is set correctly in Setup.
The Suspend/Resume button does not work.	A disk drive might be busy. Wait until the disk drive stops and try again.
	If system does not resume, it may have auto suspended on a low battery. Attach the AC adapter and try again.
	If the system still does not resume, check that Auto Play is disabled. See "Changing the Auto Play Setting" in Chapter 4 for details.

START-UP PROBLEMS

The system displays an invalid configuration error message at power on when there are the following conditions:

■ the current configuration information doesn't match configuration information stored in Setup, such as when an internal option is added.

■ the system loses configuration information.

If either condition is true, the system displays an "invalid configuration information" message.

To continue start-up procedures, press **F2** and run the Setup utility to set current system parameters.

If an error message appears before the operating system starts, look up the error message in the following table. Follow the instructions. If you see other error messages, the hardware might need repair.

If the system frequently loses the setup configuration data, the internal CMOS battery may need to be replaced at an authorized NEC repair center.

> **NOTE** When the NEC Versa detects an error related to display devices, it cannot display on either the LCD or a CRT. The system warns you by beeping.

POST Error Messages

The NEC Versa 2700 has a built-in checking program that automatically tests its components when you turn the system power on. This diagnostic test is called the Power-On Self-Test (POST). If the system finds a problem during POST, the system displays an error message. If this happens, follow the instructions in the POST error message table.

POST ERROR MESSAGES

ERROR MESSAGE	EXPLANATION
Address Line Short	Error in the address decoding circuitry on the system board. Contact your NEC service representative for service work.
C: Drive Error	Hard disk drive C: does not respond. Check that C: hard disk type in Setup is correct.
C: Drive Failure	Hard disk drive C: does not respond. You may need to replace the hard disk drive.
Cache Memory Bad, Do Not Enable Cache	Cache memory is defective. It must be replaced. Contact your NEC service representative for service work.
CH-2 Timer Error	Most PCI computers include two timers. There is an error in timer 2. Contact your NEC service representative for service work.
CMOS Battery State Low	CMOS RAM is powered by a battery. The battery power is low. Contact your NEC service representative to replace the CMOS battery.
CMOS Checksum Failure	After CMOS RAM values are saved, a checksum value is generated for error checking. The previous value is different from the current value. Run Setup to reset the value.
CMOS System Options Not Set	The values stored in CMOS RAM are either corrupt or nonexistent. Run Setup to reset the value.
CMOS Display Type Mismatch	The amount of memory on the system board is different than the amount in CMOS RAM. Run Setup to reset the value.

POST ERROR MESSAGES

ERROR MESSAGE	EXPLANATION
CMOS Time and Date Not Set	Run Setup to set the date and time.
Diskette Boot Failure	The boot diskette in floppy drive A: is corrupt. It cannot be used to boot the computer. Use another boot diskette and follow the on-screen instructions.
DMA Error	Error in the DMA controller. Contact your NEC service representative to replace the CMOS battery.
DMA #1 Error	Error in the first DMA channel. Contact your NEC service representative for service.
DMA #2 Error	Error in the second DMA channel. Contact your NEC service representative for service.
FDD Controller Failure	The BIOS cannot communicate with the floppy disk drive controller. Contact your NEC service representative to check all appropriate connections.
HDD Controller Failure	The BIOS cannot communicate with the hard disk drive controller. Contact your NEC service representative to check all appropriate connections.
INTR #1 Error	Interrupt channel 1 failed POST. Contact your NEC service representative for service.
INTR #2 Error	Interrupt channel 2 failed POST. Contact your NEC service representative for service.

POST ERROR MESSAGES

ERROR MESSAGE	EXPLANATION
Invalid Boot Diskette	The BIOS can read the disk in diskette drive A:, but cannot boot the computer. Use another boot diskette.
Keyboard is Locked Unlock It	The keyboard lock on the computer is engaged. The computer must be unlocked to continue.
Keyboard Error	There is a timing problem with the keyboard. Set the *Keyboard* option in Setup to *Not Installed* to skip the keyboard POST routines.
KB/Interface Error	There is an error in the keyboard connector. Contact your NEC service representative for service.
Off Board Parity Error	Parity error in memory installed in an expansion slot. Contact your NEC service representative to be sure that the memory module is installed correctly.
	The error format is: OFF BOARD PARITY ERROR ADDR(HEX) = *(XXXX)* *XXXX* is the hex address where the error occurred.
On Board Parity Error	Parity error in system board memory. Contact your NEC service representative for service.
Parity Error ????	Parity error in system memory at an unknown address. Contact your NEC service representative for service.

Fatal errors that occur during POST are communicated through a series of beeps. All beep code errors, except beep code 8, are fatal errors and do not allow the system to continue to boot.

If beep codes occur during POST, check the items in the Problem Checklist (at the start of this chapter), verify that all the hardware is set up properly and securely connected, and try rebooting. If you still get a beep code, go to the section "If You Need Assistance" at the end of this chapter.

Beep Codes are listed in the table that follows.

Beep Codes

NUMBER OF BEEPS	ERROR	DESCRIPTION
1	Refresh Failure	The memory refresh circuitry on the motherboard is faulty.
2	Parity Error	Parity error in the first 64 KB of memory.
3	Base 64 KB Memory Failure	Memory failure in the first 64 KB.
4	Timer Not Operational	Memory failure in the first 64 KB of memory or Timer 1 on the motherboard is not functioning.
5	Processor Error	The CPU on the motherboard generated an error.
6	Gate A20 Failure	The keyboard controller may be bad. The BIOS cannot switch to protected mode.
7	Processor Exception Interrupt Error	The CPU generated an exception interrupt.
8	Display Memory Read/Write Error	The system video adapter is either missing or its memory is faulty. (This is not a fatal error.)

Beep Codes

NUMBER OF BEEPS	ERROR	DESCRIPTION
9	ROM Checksum Error	The ROM checksum value does not match the value encoded in the BIOS.
10	CMOS Shutdown Register Read/Write Error	The shutdown register for CMOS RAM failed.
11	Cache Error/ External Cache Bad	The external cache is faulty.

IF YOU NEED ASSISTANCE

If you have a problem with your computer, first review the checklist and troubleshooting table in the previous section.

If you still have a problem, see Appendix C, "Information Services," for details about contacting NECCSD.

> **NOTE** If you purchased your computer outside of the U.S. or Canada, please contact the local NEC office or their dealers for the support and service available in your country.

USING THE PRODUCT RECOVERY CD

If you determine that you need to restore your system to its initial installation state, follow the instructions given here.

> ## ⚠ CAUTION
>
> Only use the Product Recovery CD as a last resort. Check the problem checklist at the beginning of this chapter for information about solving problems before using the CD. The recovery CD provides two options that either remove or replace existing system files. This will result in data loss.

You can use the Product Recovery CD to do the following:

- Full Restore — Formats your hard drive and then performs a full restore procedure. This option removes all data and applications from your system.

- Selective Installation — Allows you to selectively reinstall drivers, applications, and utilities without reformatting your hard disk.

Full Restore

If your preinstalled software becomes unusable and you cannot boot from the hard disk, use the Product Recovery CD to restore your system to its initial shipping configuration.

Full restore *erases* the hard disk *completely* before reinstalling the files.

┌───┐
│   │
│   ⚠ **CAUTION**   │
│   │
│   A Full restore deletes *all* files on the hard drive and │
│   replaces them with the original factory installed files. │
│   │
│   Only use a Full Restore if the preinstalled software │
│   is unusable.   │
│   │
└───┘

Use the Product Recovery CD to perform a full restore as
follows:

1. Check the Product Recovery CD title and make sure that
it is the correct CD for your NEC Versa computer and
operating system.

2. Put the CD into the CD-ROM reader tray, close the
reader door, and reboot your computer.

3. Read the License Verification screen that appears. Use
the cursor keys or VersaGlide touchpad to position the
cursor on the Agree button. Press **Enter** or left click to
accept the agreement.

You have the option of rejecting the agreement (press
Reject) or exiting (press Exit). If you reject the agree-
ment, the recovery program exits.

4. In the Recovery Mode screen, use the cursor arrows or
VersaGlide touchpad to select the type of full recovery
procedure to use.

⚠ **CAUTION**

Choose your restore option carefully to prevent
losing data and applications installed on your
system.

The choices are as follows:

■ Automatic Recovery — completely rebuilds your
  hard disk drive, destroying all existing data in the
  process. Once you choose this option, the recovery
  proceeds without requiring any intervention or re-
  sponses on your part. Simply walk away and return
  in about half an hour.

■ Custom Recovery — lets you preserve your existing
  hard disk drive partition structure and format only
  the active partition without affecting the non-active
  partition. This procedure is interactive and requires
  that you respond to system prompts.

A series of dialog boxes and screens let you know the
progress of the recovery.

⚠ **CAUTION**

Do not turn off or disturb the system during the re-
covery process.

5. Follow the on-screen instructions to complete the full re-
covery. When prompted, remove the CD from the reader
and press OK to restart your system.

The system reboots and the Windows setup screen ap-
pears.

6. Follow the on-screen instructions to set up Windows.

You are required to reenter your Microsoft Windows license number.

Selective Installation

If a driver, application, or utility becomes unusable, use the product Recovery CD to restore the selected files(s) as follows:

1. Boot your system into Windows.

2. Insert the Product Recovery CD into the CD-ROM reader.

- If your system is set to automatically start CDs that are inserted, a License Agreement window appears. Go to the next step.

- If your CD did not start automatically, double click on the My Computer icon. Then double-click on the CD-ROM reader icon.

A License Agreement window appears.

3. Read the License Agreement and press the Agree button to continue. (If you press the Do Not Agree button, the utility window closes.)

The Selective Installation Utility window opens and is comprised of three sections:

- Installation type — located in the top right-hand corner of the window, this section lets you specify what you are installing — drivers, applications, or utilities.

- Selection area — located on the left-hand side of the window, this area lists the available selections for the installation type and lets you highlight the items to install.

■ Description — located just below the Selection list, this window gives a brief description of the highlighted selection.

Buttons on the main window provide the following options:

■ Information — when this button is active, pressing the button usually displays a file containing information about the highlighted selection or instructions on installing the selection. We recommend that you access the information provided before proceeding with installation.

■ Setup — pressing the Setup button either displays an information file with setup instructions or begins the setup procedure.

■ About — provides copyright and revision information related to the Selective Installation Utility.

■ Exit — lets you exit the utility.

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.

> **NOTE** To increase your comfort and safety when using your notebook computer as your primary computer system at your home or office, note the following recommendations:
>
> - use a separate, external keyboard attached to your notebook computer
>
> - use a separate, external monitor attached to your notebook computer.

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. Position your notebook computer directly in front of you for increased safety and comfort.

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 fore-
arms. If adjustable, the armrests or forearm supports
should initially be lowered while all the other adjust-
ments 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

Note the following points when positioning your notebook
computer or any external input devices.

■ 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 the keyboard slope so that your wrists are
straight while you are typing.

■ Type with your hands and wrists floating above the key-
board. 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 SCREEN OR MONITOR

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

■ Adjust the height of your screen or external monitor 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 or external monitor.

■ Position your screen or external 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 screen or external 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 or external monitor.

■ If reflected light makes it hard for you to see your screen or external monitor, use an anti-glare filter.

■ Clean your screen or external 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 screen or external monitor's brightness and contrast controls to enhance readability.

■ Use a document holder placed close to the screen or external monitor.

- 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.

> **NOTE** 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.

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 Specifications

The following specifications are standard except where
noted.

System Processor

Depending on the model:

- NEC Versa 2730MT, (Intel Pentium 133MMX)

- NEC Versa 2750MT, (Intel Pentium 150MMX)

- NEC Versa 2760MT, (Intel Pentium 166MMX)

- NEC Versa 2770MT, (Intel Pentium 200MMX)

- NEC Versa 2780MT, (Intel Pentium 233MMX)

Architecture

32-bit Peripheral Component Interconnect (PCI)

Random Access Memory (RAM)

- Standard Main Memory — 16MB or 32MB high-speed
  interleaved access (depending on the model)

- Optional Expansion — 2 SO-DIMM slots.

  — Expandable in 16-MB, 32-MB, or 64-MB incre-
    ments.

  — Maximum 128 MB total.

- Video RAM — 2 MB

- Cache RAM — 256-KB or 512KB L2 cache (depending
  on the model)

Read-Only Memory (ROM)

256 KB x 8 bit, Flash ROM

Calendar Clock

Year/month/day/hour/minute/second maintained by internal back-up battery

Input/Output (I/O) Facilities

Integrated industry-standard interfaces

- Parallel — 1 port, 25-pin D-sub (supports both ECP and EPP modes)
- Serial — 1 port, 9-pin D-sub
- Infrared — 1 port, IrDA-1 compatible
- VGA — 1 port, 15-pin high-density D-sub
- PS/2 Port — 1 port, PS/2, 6-pin MiniDin
- Expansion — 1 port, 160-pin for optional NEC Port Bar 2700
- USB Port — 1 port, 4-pin (additional USB Port with Port Bar 2700)
- Modem Port (except in Asia and Europe) — 1 port, RJ-11 Jack
- Stereo Headphones – 1 port, 3-pin, Mini Pin Jack, .5 watts per channel
- Stereo Line-In — 1 port, 3-pin, Mini Pin Jack
- Microphone — 1 port, 3-pin, Mini Pin Jack
- DC In — 1 port, for AC adapter cable

Main Battery

- Types:

  — Nickel-Metal-Hydride, (NiMH), eight cell

    – Output Voltage – 9.6v

    – Capacity – 3,500 mAh

  — Lithium-Ion (Li-Ion), eight cell

    – Output Voltage – 14.4v

    – Capacity – 2,800 mAh

- Battery Life — Approximately 2 hours depending on model and power management features enabled.

- Recharging Time — Approximately 2 hours when system is not in use; approximately 4 hours when system is in use.

Woofer

- Output Sound Pressure Level — approximately 79dB/0.1W, no Baffle (average value 0.25m for 1k/1.2k/1.5k.2kHz)

- Effective Frequency Band — 200Hz~1.5Hz (Within -10 B from Output Sound Pressure Level.)

Card Slots

Two 32-bit card slots for two Type II or one Type III PC card, 5 V or 3.3 V interface

LCD Display

- Panel (depending on the model):

  — 12.1-inch Thin Film Transistor (TFT) cold cathode fluorescent tube (CCFT) backlit Super VGA (SVGA) color

— 12.1-inch Dualscan Super-Twisted Nematic
(DSTN), cold-cathode fluorescent tube (CCFT)
backlit Super VGA (SVGA) color

- Resolution — 800 x 600 pixels

- Dot Pitch — 0.29 mm

- Colors — 256,000/18 bits

Keyboard

Membrane-type, with standard QWERTY-key layout
(International keyboards are country specific)

- Function keys — 12 keys

- Cursor Control keys — 8 keys; arrow keys arranged in
inverted T layout

- Numeric keypad — embedded

- Special Windows 95 keyset

- Fn key — function key for ROM-based key functions

- Stroke — 3 mm

Diskette Drive

Standard 1.44-MB

- Size — 3.5 inch

- Capacity — 1.44 MB (formatted), 2 MB (unformatted)

- Access Time (average) — 94 ms

- Transfer Rate — 250 to 500 K/bps

- Interleave 1:1

Hard Disk Drives

- Internal, 2.5-inch, IDE

- Capacity (depending on the model)

— 1.44 GB Hard Disk Drive

— 2.1 GB Hard Disk Drive

CD-ROM Reader

- Thin-type CD-ROM Pack

- Data Transfer Rate — 16.7 MB maximum

- Access Time:

    — 200 milliseconds (ms) (16X CD-ROM)

    — 180 milliseconds (ms) (20X CD-ROM)

- Interface — IDE (ATAPI)

- Photo CD Compatibility — Multisession Photo CD, Single Session Photo CD, Video CD, CS-I, CD-I Ready, CD-G and CD-Plus

56K Internal Modem

- Field-upgradeable firmware

- K56 Flex compatible

- V.34 protocol

- Class 1 and 2 Fax protocols

- Full Duplex speakerphone

AC Adapter

Input Voltage — 100 to 240 volts (V) AC, 50 or 60 Hz, 1.0 A, 36 watt (max.)

Dimensions

System

- Width — 12.0 in. (306 mm)

- Depth — 9.6 in. (242 mm)

■ Height — 1.9 in. (49 mm)

Weight

NEC Versa 2700 Series —7.4 lb (3300 g)

Recommended Environment

Operation

■ Temperature — 41°F to 95°F (5°C to 35°C)
■ Relative Humidity — 20% to 80% (Noncondensing)

Storage

■ Temperature — –4°F to 104°F (–20°C to 40°C)
■ Relative Humidity — 20% to 80% (Noncondensing)

MEMORY MAP

The system supports system and video shadowing, both controlled through complementary metal oxide semiconductor (CMOS). The system supports BIOS as a cacheable area with write protection. The following table shows the system's memory map.

MEMORY SPACE	SIZE	FUNCTION
00000-9FBFFh	639 KB	Base Memory
9FC00-9FFFFh	1 KB	Extended BIOS Data Area
A0000-BFFFFh	128 KB	Video Memory
C0000-C9FFFh	48 KB	Video ROM
CA000-DFFFFh	80 KB	Unused
E0000-FFFFFh	128 KB	System ROM BIOS

INTERRUPT CONTROLLERS

The following table shows default interrupt level assignments 0 through 15.

IRQ#*	PRIORITY**	DEVICE
IRQ00	0	System Timer
IRQ01	1	Keyboard
IRQ02	2	Programmable Interrupt Controller
IRQ03	11	Modem (FIR, if modem installed)
IRQ04	12	COM 1 (Serial Port)
IRQ05	13	Audio Board
IRQ06	14	Floppy Diskette Controller
IRQ07	15	ECP LPT1 (Parallel Port)
IRQ08	3	RTC Alarm
IRQ09	4	Available for PCMCIA or FIR
IRQ10	5	Available for PCMCIA or FIR
IRQ11	6	USB
IRQ12	7	PS/2 Mouse
IRQ13	8	FPU
IRQ14	9	Hard Disk Drive
IRQ15	10	CD-ROM

*IRQs 00 through 07 are serviced by the Master controller; 08 through 15 are serviced by the Slave controller.
**The lower the priority number, the higher the priority level.

DMA SETTINGS

The following table shows default DMA settings for channel assignments 01 through 06.

DMA CHANNEL	DEVICE
DMA00	Audio
DMA01	Audio
DMA02	Floppy Diskette Controller
DMA03	FIR (if enabled)
DMA04	DMA Controller
DMA05	
DMA06	

C NECCSD Information Services

NEC Computer Systems Division (NECCSD) makes it easy for you to get information and help when you need it. We offer a variety of services, including a 24-hour technical support line. This appendix describes these services, including:

- NECCSD Diskette Fulfillment Center

- NECCSD Technical Support Center (U.S. and Canada customers only)

- NECCSD Customer Assistance Center

- NECCSD FaxFlash^{SM} Service

- NECCSD Bulletin Board Service

- NECCSD on America Online$^{®}$ Service

- NECCSD on CompuServe$^{®}$ Online Service

- E-mail to NECCSD Technical Support Center through a commercial online service or Internet

- Fax Service to NECCSD Technical Support Center

- NECCSD Web and FTP sites.

> **NOTE** If you purchased your computer outside of the U.S. or Canada, please contact the local NEC office or their dealers for the support and service available in your country.

If you have access to a modem and/or fax machine (telephone for Technical Support), you can use some of these services to obtain information about your system at any time, day or night, seven days a week.

Not only do these services provide general information about your system, they can also be used to answer your questions and help solve any problems you may have with your system, should that ever be necessary.

HOW TO REACH US

Check the descriptions that follow for service hours and any special instructions you might need to reach us.

NECCSD Diskette Fulfillment Center

(800) 842-6446

NECCSD provides driver files and BIOS updates free of charge through our Bulletin Board System (BBS). Also, diskettes containing these updates can be mailed at a rate of $15/per disk for duplication, shipping and handling. Call the fulfillment center from 8:30 AM to 6:00 PM (EST), Monday through Friday.

NECCSD Technical Support Center

(800) 632-4525

Fax: (978) 635-4100

NECCSD also offers Technical Support services on all products including Versa notebooks, PowerMate Desktop computers, Servers, and MobilePro Handheld computers. Call the NECCSD Technical Support Center, toll free, at **1-800-632-4525** (U.S. and Canada only). International customers should contact the local NEC office or their dealers.

The Technical Support Center is available 24 hours a day, 7 days a week. for the following support.

- System hardware — toll-free phone support is limited to the length of the standard warranty.

- Preinstalled software — toll-free phone support for 90 days from the time of your first call to the NECCSD Technical Support Center.

For software support *after* the initial 90 days or hardware support after the warranty period, the charges are per incident. You can charge these fees to either a MasterCard or VISA credit card.

Please have your system name, model number, serial number, and as much information as possible about the problem available before calling.

Outside the U.S. or Canada, please contact your local NEC office or their dealers.

NECCSD Customer Assistance Center

NECCSD offers Customer Service for extended warranty and contract information, spare parts ordering, warranty claims, repair services, and service authorizations.

Direct assistance is available Monday through Friday from 8:30 a.m. to 8:00 p.m. Call the NECCSD Customer Assistance Center, toll free, at **1-888-632-9128** (U.S. and Canada only).

NECCSD FaxFlash Service

U.S. and Canada:	(888) 329-0088
International:	(978) 635-6090

This automated fax service offers product brochures, installation procedures, quick reference guides, promotional forms, troubleshooting information and more. Automated fax service is not toll free for overseas customers.

Using FaxFlash

FaxFlash is a self-help, automated electronic information service for obtaining up-to-date product application notes, installation procedures, troubleshooting tips, data sheets, technical information bulletins, illustrated parts lists, part numbers, and other information about your system.

Using a fax machine, you can obtain information from FaxFlash 24 hours a day, 7 days a week. Simply call the FaxFlash number on your touch-tone telephone and follow the voice prompts to order the information you want. Fax-Flash automatically faxes the information to you.

If you are new to FaxFlash, you should first order one of the following catalogs. Each catalog lists the available documents and their document numbers. Current catalogs include:

■ Catalog 1, Telephone Directory and information about Online Services.

■ Catalog 3, Product specifications, warranty policy, UltraCare guidelines, and sales information.

■ Catalog 5, Pro Serva and Express 5800 Server Systems technical support information.

■ Catalog 6, NEC Ready Systems technical support information.

■ Catalog 7, PowerMate Systems technical support information.

■ Catalog 8, NEC Portable Systems (including Versa Notebooks and MobilePro Handheld Personal Computers) technical support information.

Technical support information includes BBS and FTP file listings, Illustrated Parts Breakdowns (IPB), part numbers, Frequently Asked Questions (FAQ) lists, and other documents specific to each product.

Ordering Information

Order information from FaxFlash as follows:

1. Be sure that your fax machine or fax/modem is on. Have the document number ready for the document you want, if you already know the number.

2. From your touch-tone telephone, enter 888-329-0088 (U.S. and Canada only).

   For international use, enter the international long-distance access number, the U.S. country code, and the U.S. telephone number (978-635-6090).

3. Listen to the instructions provided by the voice prompts.

   Press **1** if you do not want an introduction to FaxFlash. Follow the automated instructions for ordering your document or catalog.

   Press **2** if you want an introduction to FaxFlash. Follow the automated instructions for ordering your catalog or document.

4. When prompted, enter your fax number and name.

   For international use, first enter the international long-distance access number (011), your country code, your area code or city code, then your fax number.

The information you requested is automatically sent to your fax machine. Wait for the ordered document to arrive at your fax machine before calling to order more documents. If FaxFlash attempts to send the second order before the first order is completed, the order may be canceled. After three tries, FaxFlash assumes that your line is busy and terminates any further processing of the order.

NECCSD Bulletin Board System (BBS)

(978) 635-4706

The NEC Electronic Bulletin Board System is a remote database system containing files that are dedicated to enhancing the functions of NECCSD products. It also gives general public access to drivers for NECCSD products for use with various software applications.

If you have access to a modem, you can use the NECCSD Bulletin Board Service (BBS) to get the latest information on hardware and software. The BBS allows you to download files (video drivers, printer drivers, BIOS updates, etc.) for system enhancements and upgrades.

The BBS can also be accessed through the CompuServe online service.

Logging On

Log onto the BBS as follows.

1. From the Windows desktop, click the **Start** button.

2. Point to Programs. Point to Accessories and then click **HyperTerminal**.

3. Double click the **Hypertrm.exe** icon. The HyperTerminal program appears.

4. Follow the instructions on the screen to set up your modem. Click the **HyperTerminal** help button for information about dialing the phone number.

   If you need to check communications settings, check that the settings match the following BBS parameters.

   - Baud rate: select any baud rate that matches your modem

   - Parity: none

   - Data bits: 8

   - Stop bits: 1

   - Flow control: Xon/Xoff (select Hardware if using 14.4 bps or higher).

5. Following the HyperTerminal instructions, enter the BBS phone number (978-635-4706). Your business phone system and/or location might require a 9 1 or 1 prefix.

NOTE The first time that you use the BBS, you are requested to provide information for a new user questionnaire.

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6. Press **Enter** twice.

7. Enter your first name, last name, and password. Press **Enter** after each.

8. Follow the screen prompts until the Main Menu is displayed.

9. At the Main Menu, select **J** to join a conference. Select **Conference 1** for the desktop conference.

10. From the Main Menu, press **F** and **Enter** for the File menu.

11. At the File menu, select **F** for a list of downloadable files. Follow the prompts to select a file for downloading.

⚠ **CAUTION**

Some executable files automatically format your diskette when you download files from the BBS. Formatting destroys any data on the diskette. Before you download files from the BBS, check that you do not have information on the diskette that you need.

Logging Off

After you complete downloading your file, log off the BBS as follows:

1. Press **Enter** (to continue).

2. Press **G** (command for Goodbye/Hangup).

3. Press **Enter**.

NECCSD on CompuServe

CompuServe Keyword   GO NECTECH

If you subscribe to CompuServe, you can use the service to obtain information about NECCSD and its products. You can use CompuServe to E-mail technical questions to NECCSD Technical Support staff, post technical questions and messages on the Bulletin Board, and access NECCSD BBS.

> **NOTE** You cannot download information from the NECCSD Bulletin Board from CompuServe. You must call the NECCSD Bulletin Board directly using the procedure described earlier in this chapter.

Using CompuServe

Use the following steps to access CompuServe and NECCSD online information services.

1. Log on to CompuServe.

2. At the opening screen, click the Go button, then type **NECTECH** at the prompt, and click OK.

3. At the NEC menu, double-click one of the following topics, then follow the prompts:

   - NEC Bulletin Board

   - Information About This Service

   - Access NEC Bulletin Board

   - Access CompuServe Information Services

   - Exit.

4. Exit anytime by double-clicking on the rectangle in the upper left corner of the screen.

NECCSD on America Online

America Online Keyword   NEC

If you subscribe to America Online, you can use the service to obtain information about NECCSD and its products. You can use America Online to E-mail technical questions to NECCSD Technical Support staff, post technical questions and messages on the Message Board, and access the NEC Software Library to download files.

Using America Online

Use the following steps to access America Online and NECCSD online information services.

1. Log onto America Online.

2. At the opening screen, click Go To in the Main Menu.

3. At the Go To menu, click Keyword.

4. At the prompt, type **NEC** or **NECTECH**, then either press **Enter** or click Go.

5. At the NEC menu, double-click one of the following topics, then follow the prompts:

   ■ About NEC
   ■ Terms and Conditions
   ■ News
   ■ Product Information
   ■ Questions and Answers
   ■ NEC Promotions
   ■ Message Board
   ■ Software Library.

Exit anytime by double-clicking the rectangle in the upper left corner of the screen.

NECCSD on the Internet

Internet Address   tech-support@neccsd.com

If you have a modem, you can access the NECCSD Home Page on the Internet World Wide Web. You can do this through a commercial online service or through your Internet account. The NECCSD Home Page contains general information about NECCSD products.

You can also use the Internet to access the NECCSD FTP (file transfer protocol) site to download various files (video drivers, printer drivers, BIOS updates). The files are essentially the same files as on the NECCSD Bulletin Board Service.

NECCSD WWW and FTP Sites

To access the World-Wide-Web NECCSD Home Page, enter the following Internet Uniform Resource Locator (URL) through your service:

http://www.nec-computers.com

To access the NECCSD FTP site, enter the following Internet ftp address through your service:

ftp.nectech.com

Once in the file menu, follow the prompts to choose and download the file(s) you want.

NECCSD E-Mail and Fax

Worldwide Web Address:

www.nec-computers.com

The NECCSD Technical Support Center offers technical support by E-mail over the Internet network if you have a modem. The Internet address is:

tech-support@neccsd.com

You can also fax technical questions to the NECCSD Technical Support Center if you have access to a fax machine or fax/modem. The fax number is:

(978) 635-4100

When using the E-mail or fax support service, you should include the following words in the subject field for prompt response from the appropriate technical person:

- Desktop
- Notebook
- Servers.

You should provide as much specific information about your questions as possible. Also, if you are sending a fax, please include your voice telephone number and your fax number with the question. You will receive a response to your questions within one business day.

WARRANTY AND NON-WARRANTY REPAIR SERVICE

Before you call for repair service, see the problem checklist in Chapter 7 to determine if you can solve the problem yourself, within your company, or through your NEC authorized dealer.

Direct assistance is available 24 hours a day, 7 days a week. Call the Technical Support Center (TSC) at 1-800-632-4525 for the following support:

■ Preinstalled software — toll-free phone support for 90 days from your first phone call.

   After the initial 90 days, get preinstalled software support for a fee.

■ System hardware — toll-free phone support for one year after the date of purchase (standard warranty).

   For hardware support after the 1 year warranty, get system hardware support for a fee.

Before calling, please have your system name, model number, serial number, and purchase date ready. Also have as much information as possible about the problem you are having, including any message errors that occurred.

(NOTE) Free technical specifications, troubleshooting tips and other helpful information for out-of-warranty products are available through NECCSD FaxFlash Service at 888-329-0088 by requesting catalog number three.

If you purchased your computer outside of the U.S. or Canada, please contact the local NEC office or the NEC dealers in your area for your specific warranty service.

NECCSD is a member of TSANet (Technical Support Alliance Network).

BATTERY REPLACEMENT

A lithium CMOS clock 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. Have an authorized NEC service representative replace the battery.

⚠ 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 replacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rébut les batteries usagées conformément aux instructions du fabricant.

BATTERY DISPOSAL

The CMOS clock battery is made of nickel metal hydride (NiMH). Depending upon the model, the main battery is made of nickel metal hydride (NiMH) or lithium-ion (Li-Ion). Contact your local waste management officials for other information regarding the environmentally sound collection, recycling, and disposal of the batteries. For additional information on the proper collection or disposal of rechargeable batteries, please call 1-800-8-BATTERY.

Glossary

A **AC Adapter**

A device that connects an NEC Versa portable computer and an AC wall outlet to provide AC power for running the system or recharging the battery.

A/D Conversion

The process of converting an analog signal into a digital signal.

applications programs

Software designed to perform specific functions, like solving business or mathematical problems.

audio

The range of frequencies that humans hear.

B **base RAM**

Area of system memory between 0 and 640 kilobytes available to the user for operating system and application programs.

BIOS

Basic Input Output System. A collection of primitive computer routines, usually burnt into ROM, that controls the real-time clock, keyboard, disk drives, video display, and other peripheral devices.

bit

Binary digit. The smallest unit of computer data.

bits per second

(bps) A unit of transmission. Also called baud rate.

board

Printed circuit board. Board onto which computer components are soldered and thin wires are printed to connect the components.

boot

To start up a computer. See cold boot and warm boot.

bus

An electronic circuit within a computer used for transmitting data or electrical power from one device to another.

byte

Group of eight contiguous bits.

C **card bus**

A new 32-bit high-performance bus defined by the new PC Card Standard and released by the PCMCIA standards body and trade association. Card Bus offers wider and faster 32-bit bus and bus mastering operation for improved adapter performance. Card Bus can operate at speeds up to 32 MHz.

CD audio

Also called digital audio, uses the same format as conventional music CDs. CD audio sounds have been digitized at a high sampling rate.

CD-ROM reader

A computer-controlled device that reads high capacity optical disks and sends the output to the computer.

clock

Electronic timer used to synchronize computer operations.

CMOS

Complementary Metal Oxide Semiconductor. A chip that contains nonvolatile memory in the Versa. CMOS is backed up by an internal lithium battery that preserves clock/calendar data and system configuration parameters stored in CMOS.

cold boot

Process of starting up the computer by turning on the power. If power is already on, the process means to turn off the computer and turn it on again. A cold boot reinitializes all devices.

crt

Cathode-Ray Tube. A type of display screen used in desk-top monitors. It forms the screen image using tiny dots called pixels. See also LCD.

cursor

A movable image on the display screen that indicates where the next entered data appears.

D **default**

A value, option, or setting that the computer automatically selects unless you direct it otherwise.

diskette

A thin flexible platter coated with a magnetic material for storing information.

diskette drive

A magnetic drive that writes on and retrieves data from a diskette.

digital audio

Recorded sounds such as speech and sound effects. These are played back by the sound card's Digital-to-Analog Converter (DAC).

digital sound

A description of a sound wave that consists of binary numbers.

digitizing

The process of converting an analog sound into a digital representation.

DMI

Desktop Management Interface (DMI), software to collect information about a computer environment. Using DMI, a management program can determine what software and expansion boards are installed on a computer.

DSTN

Double-Scan Super-Twisted Nematic. A type of technology used in some Versa LCD screen displays.

E **EDO Memory**

Extended Data-Out is the newest DRAM chip technology which improves memory performance 10 to 15% over equivalent Fast Page Mode devices. Computer systems must be designed to take advantage of the performance increase EDO offers.

enhanced VGA

A video interface that offers more colors or higher resolution than VGA.

extended RAM

The area of RAM above the first megabyte of memory in the system available for enhancing system performance.

enhanced parallel port (EPP)

A parallel port standard that provides faster data processing. It also supports bi-directional and normal protocols.

enhanced capabilities port (ECP)

A parallel port standard that provides faster throughput.

extended graphics array (XGA)

A color bit-mapped graphics display standard that provides a resolution of 1024 x 768 with up to 256 colors displayed simultaneously.

F **Fast Page Mode**

A mode that decreases cycle times by allowing the memory controller to access other data bits that are in the same row address. This saves time by not having to set up the next row address instruction. Data accessed in the same row is referred to as a "page".

FIR

Fast Infrared. Using infrared technology Fast Infrared mode sends data at 4.0 Mbit/second (4 million bits per second).

FM synthesis

A technique for synthesizing sound that uses a combination of modulated sine waves to produce different waveforms.

function key

The set of keys on the keyboard (usually F1 through F12) that let you get help and error message information or quickly select frequently used commands.

H **hard disk**

A rigid magnetic storage device that provides fast access to stored data.

hardware

The electrical and mechanical parts from which a computer is made.

hertz

(Hz) A unit of frequency equal to one cycle per second.

hot key

Combination of two or three keys (such as **Ctrl-Alt-D**) that you press simultaneously for a particular function.

I **input/output**

(I/O) The process of transferring data between the computer and external devices.

IDE

Intelligent Drive Electronics. A hard disk drive type that has controller electronics built into the drive and delivers high throughput.

Infrared technology

A method of transmitting data from one device to another without using cables. The data is transmitted using infrared light waves.

interface

A connection that enables two devices to communicate.

interrupt

A special control signal from an I/O device that diverts the attention of the microprocessor from the program to a special address.

K kilobyte

(KB) 1024 bytes.

L LAN

Local Area Network.

LCD

Liquid Crystal Display. An LCD consists of a thin sandwich of two glass plates with sealed edges, containing nematic liquid-crystal material that forms the screen image. Versa displays are LCD type.

load

To copy a program into the computer's memory from a storage device.

M megabyte

(MB) 1,048,576 bytes.

memory

Electronic storage area in a computer that retains information and programs. A computer has two types of memory — read-only memory (ROM) and random access memory (RAM).

menu

A video display of programs or options.

microprocessor

A semiconductor central processing unit that is the principal component of a microcomputer. Usually contained on a single chip that includes an arithmetic logic unit, control logic, and control-memory unit.

MIR

Medium Infrared. Using infrared technology Medium Infrared mode sends data at 1.152 Mbit/second (1,152,000 bits per second).

MIDI

Musical Instrument Digital Interface. A standard serial bus, digital interface designed to connect electronic musical devices. MIDI has no innate sound of its own.

MMX

The latest design in multimedia processors for enhancing audio, video, and other multimedia applications. Intel's MMX is a set of 57 instructions added to the Pentium's original design. the internal cache of the MMX processor is doubled from 16 to 32 KB for enhanced performance. These improvements in microprocessor design ensure expert-quality 3D graphics, high-quality motion video, and stereo sound.

mode

A method of operation; for example, the Versa operates in either normal or power-saving modes.

modem

MOdulator-DEModulator. A device that links computers over a telephone line.

multimedia

Computer technology that integrates different forms of media such as sound, text , graphics, and video.

multimedia extensions (MMX)

Intel's Multimedia Extensions technology that speeds audio, video, and 3D graphics processing, providing more distinct sound and visuals for your presentations.

N **nonvolatile memory**

Storage media that retains its data when system power is turned off. Nonvolatile memory in the Versa is a complementary metal oxide semiconductor (CMOS) chip which is backed up by an internal battery. The backup battery preserves the clock/calendar data and system configuration parameters stored in CMOS. See volatile memory.

O **operating system**

Set of programs that manage the overall operation of the computer.

overwrite

Storing information at a location where information is already stored, thus destroying the original information.

P **page**

A type of message transmission in which a message is sent or received via modem to a paging device from a computer (with paging communications software) or telephone.

parallel interface

Interface that communicates eight bits at a time.

parallel printer

A printer with a parallel interface.

parameter

A characteristic of a device or system.

password

A string of characters that the user must enter before the system allows access or system privileges.

PC card

A credit card sized peripheral for portable devices. Types of PC cards currently offered by major vendors include fax/modems, LAN, storage cards, and wireless communications devices.

PCI local bus

The 32-bit industry-standard PCI bus is a highly integrated input/output (I/O) interface that offers the highest performance local bus available for the Pentium-based processor.

peripheral

Input or output device not under direct computer control. A printer is a peripheral device.

pixels

Picture elements. Tiny dots that make up a screen image.

port

Provides the means for an interface between the microprocessor and external devices. A cable connector is usually plugged into the port to attach the device to the computer.

processor

In a computer, a functional unit that interprets and executes instructions.

prompt

A special symbol indicating the beginning of an input line. Also a message that appears on the screen indicating that the user must take a certain action.

R RAM

Random Access Memory. A storage device into which data is entered and from which data is retrieved in a nonsequential manner.

read

To extract data from a storage device such as a diskette.

ROM

Read-Only Memory. Memory in which stored data cannot be modified by the user except under special conditions.

reset

The process of returning a device to zero or to an initial or arbitrarily selected condition.

resolution

The degree of screen image clarity. Video display resolution is determined by the number of pixels on the screen. Resolution is usually specified in pixels by scan lines, for example, 640 by 480. See pixels.

RS-232C

Standard interface for serial devices.

S Save to File (STF)

After 30 minutes in Suspend mode, the current system working state is automatically saved to a special file on the hard disk. The system is powered then down. When the system is powered on again, it returns to the working state that was saved.

scanner

An optical device that reads printed material and converts it to a computer screen image.

serial interface

An interface that communicates information one bit at a time.

serial printer

A printer with a serial interface.

software

Programs that run on a computer, such as operating systems, word processors, and spreadsheets.

suspend mode

This is a power savings mode that promotes longer battery and system life. The system pauses and shuts down operation in a sleep-like state after a specified amount of system inactivity. Press the Resume button to return to the point where you left off.

super video graphics array (SVGA)

A color bit-mapped graphics display standard, that provides a resolution of 1024x 768 with up to 256 colors displayed simultaneously.

system board

The main printed circuit board inside the system unit into which other boards and major chip components, such as the system microprocessor, are connected.

swap

Replacing one device with another device. See warm swap.

T **TFT**

Thin Film Transistor. A type of Versa LCD color screen that supports 256 colors and provides exceptional screen display.

U **Universal Serial Bus**

A new external bus standard that supports data transfer rates of 12 Mbps (12 million bits per second). A single USB port allows you to connect up to 127 peripheral devices such as mice, modems, and keyboards. USB also supports Plug-and-Play installation and hot plugging. USB will eventually replace serial and parallel ports.

V **VGA**

Video Graphics Array. Graphics technology that supports up to 256 K colors and a graphics resolution of 640 by 480 pixels.

volatile memory

Storage media that loses its data when system power is turned off. Standard memory and memory that you add to the Versa are volatile memory. See nonvolatile memory.

W warm boot

Process of resetting the computer without turning off the power through keyboard input (pressing **Ctrl**, **Alt**, and **Del** keys simultaneously) or the reset button. The system returns to an initial or arbitrarily selected condition.

warm swap

The ability to add and remove devices to and from a computer while the computer is in Suspend mode. The operating system automatically recognizes the change when the system returns to active mode.

waveform

A graphic representation of a sound wave as displayed on an oscilloscope, which converts sound waves into electronic signals.

write

To record or store information to a storage device.

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