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Using This Guide

This *Versa™ 2000 Series User's Guide* contains information on using your notebook computer. Read the following chapters to find out more about the system.

- Chapter 1 gives introduces the computer, its features, and how to care for it.
- Chapter 2 explains how to use the NEC Versa 2000 hardware.
- Chapter 3 describes the software that comes with your NEC Versa 2000.
- Chapter 4 discusses traveling with your NEC Versa 2000.
- Chapter 5 gives you a checklist to follow if you have problems with the NEC Versa 2000. Common problems and their solutions are also included.
- Chapter 6 provides a list of numbers for NEC customer support services.
- Appendix A, *Setting Up a Healthy Work Environment*, contains guidelines to help you use your computer productively and safely. This appendix also instructs you on how to set up and use your computer to reduce your risk of developing nerve, muscle, or tendon disorders.
- Appendix B provides system specifications and environment recommendations.

Text Setup

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

- Cautions, notes, and tips have the following format:

**CAUTION:**

Cautions indicate situations that can damage the system hardware or software.



Notes give particularly important information about whatever is being described.



TIP: Tips give helpful hints about getting the most out of your system.

- Names of keys are printed as they appear on the keyboard, for example, Ctrl, Alt, or Enter.
- Text that you have to type or keys that you must press are presented in bold type. For example, type **DIR** and press **Enter**.

RELATED DOCUMENTS

In addition to this guide, a number of other documents ship with your Versa system, including:

- The *NEC Versa 2000 Series Quick Setup* shows you how to set up your system after you unpack it.
- The *Versa 2000 Series Quick Reference Guide* contains brief descriptions of function keys, LEDs, NEC help telephone numbers and troubleshooting tips. Tuck this card inside the notebook when you take it with you. The card is designed as a quick, portable reference to frequently-used functions.

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1

Getting to Know Your NEC Versa 2000

Your NEC Versa™ 2000 is ready to go! It's packed with features to make your work experience fun and productive. Take the online System Tour or flip through this guide to familiarize yourself with the NEC Versa.

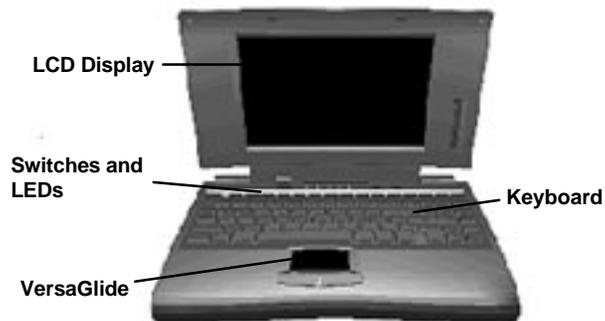
Let's first look around the system.

AROUND THE SYSTEM

The NEC Versa 2000 is light and compact with features all around it.

Front

Take a look at the front of the NEC Versa 2000.



Front of System

LCD

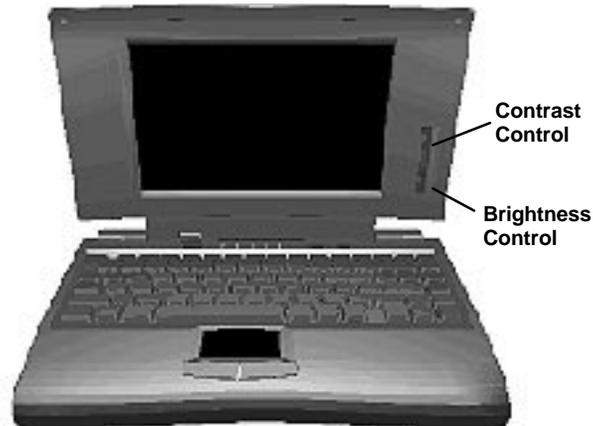
Your NEC Versa 2000 comes with either a 10.4-inch DSTN (Double-Scan Super-Twisted Nematic) color display or a 9.5-inch color TFT (Thin Film Transistor) active-matrix display.

Contrast Control

You can adjust the contrast on the LCD with the control slide switch on the side of the screen (DSTN screen only).

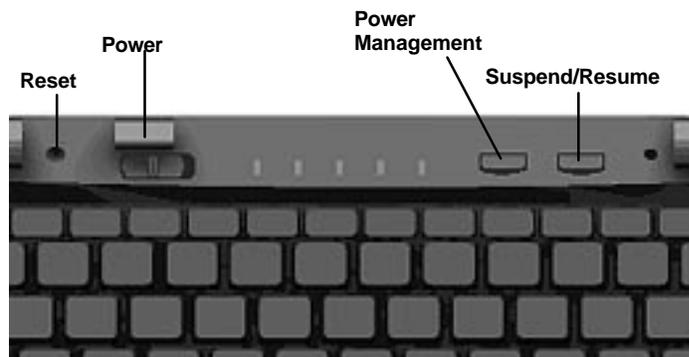
Brightness Control

You can adjust the screen backlight brightness with the control slide switch on the side of the screen.



Switches

The NEC Versa 2000 has the following switches:



Power — Slide right to turn on; slide right again to turn off.

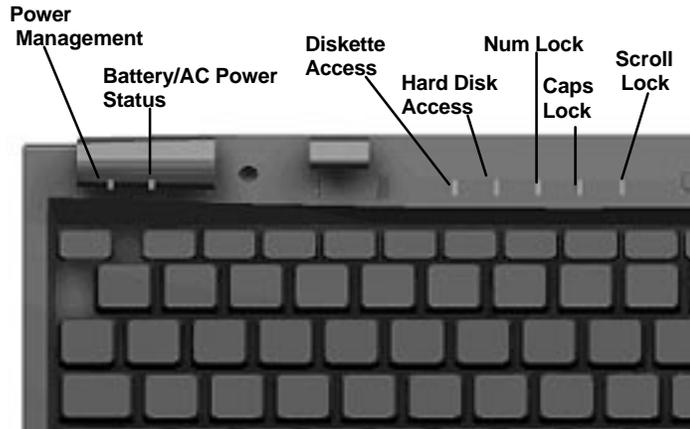
Power Management — Slide the switch to turn Power Management on; slide again to turn it off.

Suspend/Resume — Slide the switch for Suspend mode; slide again to resume active mode.

Reset — This recessed switch resets the system if the NEC Versa does not respond to keyboard input or VersaGlide movement. Use it before powering down the system and restarting it.

LEDs

The NEC Versa 2000 has several LED lights to let you know what's happening on your system.



Power Management — Green when on; no color when off. Blinking green when the system is in Suspend mode.

Battery/AC Power Status — There are several light indicators.

| BATTERY STATUS | LED |
|----------------|-----------------|
| AC Powered | Green |
| 50% to 100% | Green |
| 25% to 49% | Yellow |
| 10% to 24% | Orange |
| 0% to 9% | Blinking Orange |
| Charging | Blinking Green |
| Power off | No color |

Hard Disk — Green when the NEC Versa is writing data to or retrieving from the system's hard disk.

Diskette — Green when the NEC Versa 2000 is writing data to or retrieving from the diskette in the A drive.

Num Lock — Green is On; no color is Off.

Caps Lock — Green is On; no color is Off.

Scroll Lock — Green is On; no color is Off.

Keyboard

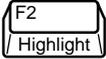
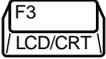
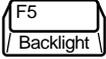
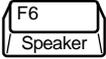
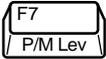
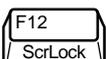
The NEC Versa 2000 keyboard is equipped with many features, including:

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

Function keys — The Fn (Function) key activates the functions printed in blue on keys having dual functions. Press the **Fn** key and the desired function key simultaneously.

The applications that you run determine how these keys function. See the user's guide for the applications.

Function key combinations —

| | |
|---|-------------------------------|
|  +  | Highlight |
|  +  | LCD/CRT |
|  +  | Backlight |
|  +  | Speaker Volume |
|  +  | Power Management (P/M) |
|  +  | Scroll Lock On/Off |

Typewriter keys — The typewriter keys (also called alphanumeric keys) are used almost exactly as on a typewriter. Those that behave differently do so when combined with control keys or function keys.

Cursor control keys — Cursor control keys let you position the cursor on the screen wherever you want. On the screen, the cursor is a blinking underline, block or pointer, depending on the application. It indicates where the next text type is inserted.

Numeric keypad — Pressing the **Num Lock** on the keyboard activates the numeric keypad when an external keyboard is not connected. The numeric keys are printed in blue. 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.

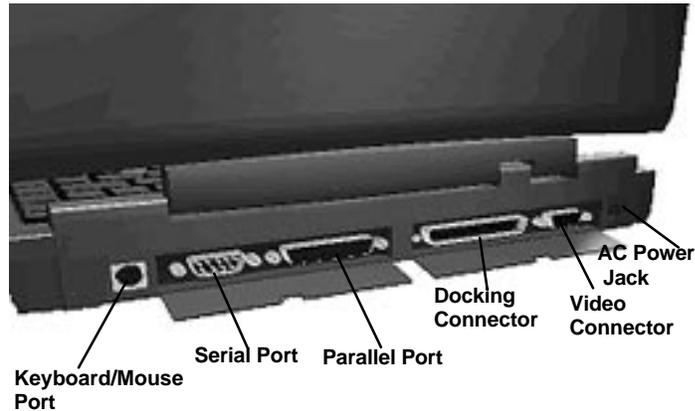
Control keys — Cursor control keys include **Ctrl**, **Alt**, **Fn**, and **Shift**. They are used in conjunction with other keys to change their functions. To use these control keys, press and hold the control key while pressing another key. For example, “**press Ctrl C**” means to hold down the **Ctrl** key and type the letter **c**. How the key combination works depends on the applications you are running. Other control keys include **Num Lock**, **Scroll Lock**, and **Ins**.

NEC VersaGlide

This is the mechanism by which you control the pointer on the screen. It serves the same function as the mouse or trackball on other systems. For more information on the VersaGlide, see “Learning to Use the Hardware.”

Rear

The rear of the system has ports for connecting your NEC Versa 2000 to other devices, like a printer or an external mouse, and power sources.



Keyboard and Mouse Port — Use the standard PS/2 port to connect an external PS/2 mouse or an external PS/2 keyboard. If you want to connect both, use the optional NEC Versa Y Adapter. (See the online *NEC Versa 2000 Options Catalog*.)

Serial Port — Use this to connect an external modem or a serial printer. You can tell that it's serial by looking at the cable. A serial cable has a 9-pin connector.

Parallel Port — Use to connect a parallel printer. A parallel device has a 25-pin cable connector.

Docking Connector — Use this bus connector to attach the NEC Versa 2000 to a MiniDock 2000 or MediaDock 2000 to further expand your options.

Video Port — Use this 15-pin connector port to attached an external CRT monitor to your NEC Versa. You can run both the LCD display and the external monitor simultaneously, or one alone.

AC Power Jack — Use the power jack to attach the NEC Versa 2000 to an AC power source such as the AC adapter.

Left Side

The left side of your NEC Versa 2000 has two slots for PCMCIA cards and a hard disk drive compartment.



PCMCIA Slots — PCMCIA is a standard interface for peripheral devices like fax/modems, local area network (LAN) cards, storage cards, and pagers. A PCMCIA card is about the size and shape of a credit card and inserts into one of the two slots.

Hard Disk Drive — The hard disk drive is removable. Depending on your NEC Versa 2000's configuration, it contains either 350MB, 540MB, or 720MB storage space. You can exchange hard disks in the NEC Versa 2000.

Right Side

On the right side of the NEC Versa 2000 is a diskette drive and a removable battery.



Diskette Drive — You can save your files to diskette and install software from diskette using the diskette drive, called drive A.

Battery — On the right front is the Lithium Ion (Li-Ion) battery.

Underside

Every inch of the NEC Versa 2000 has a purpose — even the underside! Turn your system upside down. You'll see three compartments. The small compartment is for expansion memory modules. Another compartment contains the Lithium Ion (Li-Ion) battery. There is also a compartment for the built-in modem. You should not try to remove this — call NEC Customer Support for help with the modem, should you encounter problems.





There is a small compartment in the center of the underside that contains the CMOS battery. You should not attempt to remove this battery.

SYSTEM CARE

The NEC Versa 2000 is a durable, dependable system built for extensive use and travel. Follow these guidelines to maintain the condition and performance of your computer.

Precautions

Follow these precautions when using your NEC Versa 2000 and AC adapter.

- Avoid dropping or bumping the computer or the AC adapter.
- Do not stack heavy objects on the computer.
- Avoid moving the NEC Versa 2000 during system operation, especially while the hard disk or diskette drive is being accessed.
- When using the AC adapter, make sure the power source falls within the system's compatible range of 100–120 or 224–240 volts AC. Never use the AC adapter if the voltage falls outside of this range. (Watch for this when traveling to foreign countries.)
- Turn computer power off before attaching or removing non-plug and play devices.
- Avoid using the computer or AC adapter for extended periods in direct sunlight.
- Do not use the system in humid or dusty environments.
- Avoid exposing the NEC Versa 2000 or AC adapter to extreme changes in temperature or humidity. If it is unavoidable, allow your NEC Versa to adjust to room temperature before using.
- When cleaning the system, use a soft, clean, dry cloth. Avoid wiping the display surface with abrasive material, including rough cloth.

-
- The VersaGlide has a sealed surface that resists normal dust and moisture and should require nothing more than an occasional cleaning. To clean the VersaGlide, simply wipe it off with a clean cloth. For stubborn grime, use a lightly moistened cloth and a dab of mild dishwashing detergent.
 - If the AC adapter becomes extremely hot, unplug the adapter and let it cool.

Storage Requirements

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

- Maintain storage temperatures between -4°F and 104°F (-20°C and 40°C).
- 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.

- 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 — If the NEC Versa 2000 case gets dirty, carefully wipe it with a slightly damp, almost dry cloth. Be extremely careful not to drip any moisture onto or into the NEC Versa 2000. *Never* use harsh solutions or spray chemical cleaning products on the NEC Versa 2000.
- VersaGlide — Wipe the pad surface with a clean cloth. For stubborn grime, use a lightly moistened (with water) cloth.

**CAUTION:**

If the environmental temperature of the NEC Versa suddenly rises (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 cause damage to the internal components. Wait before turning the system on so that the internal temperature of the system can equalize with the cooler environment and any moisture can dry.

**CAUTION:**

Never use household cleaning solvents that contain caustic materials. The use of these cleaners may cause cracking or discoloration of the plastic surface.

2 Learning to Use the Hardware

Like any computer, the NEC Versa 2000 is made up of the hardware — the physical unit and its components — and the software — the programs that run on the computer. This chapter discusses the hardware. The topics include:

- Powering the system
- Keyboard
- NEC VersaGlide
- Options and PCMCIA Expansion

Powering Your NEC Versa

Since the NEC Versa 2000 is a truly portable computer, you can use it practically anywhere using any one of a number of power sources, including:

- the AC adapter connected to an electrical wall outlet (using AC power)
- the battery pack
- the optional DC adapter connected to a car cigarette lighter.

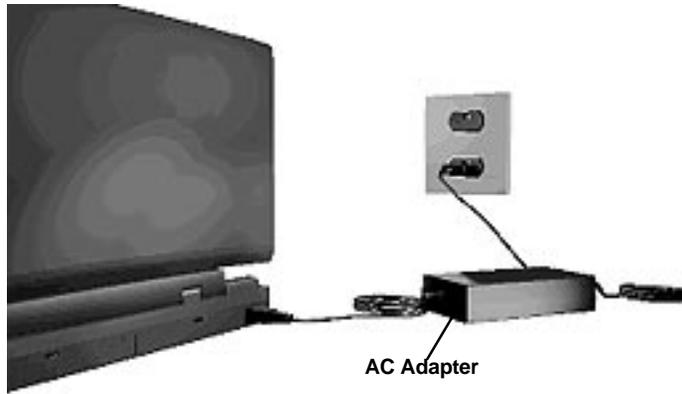
AC Adapter

Use the AC adapter that came with your NEC Versa 2000 to run your computer with AC (alternating current) power, or recharge the battery pack. Use the AC adapter whenever a wall outlet is nearby.

Keep the adapter connected whenever possible. The AC adapter keeps the battery charged while you use the system and when the NEC Versa 2000 is powered off.

Here's how you connect the AC adapter:

1. Connect the AC adapter to your NEC Versa 2000.



Connecting the AC adapter

2. Connect the other end to a 100- or 240-volt wall outlet.

Battery Pack

The NEC Versa 2000 comes with a rechargeable Lithium Ion (Li-Ion) battery. With it, you can run your system without a wall outlet for up to four hours with Power Management or two hours without Power Management. It's easy to install and remove.

You can keep track of the battery's status through the LEDs on the front of the system or with the battery gauge in Windows. Both let you know how much battery power you have left.

When your battery power is getting low, you can remove it and replace it with a charged Li-Ion battery while your system is off or in Suspend mode or leave it in the system and simply plug in your NEC Versa 2000 into a wall outlet. The battery recharges over a period of 1.6 hours while in the NEC Versa 2000 and the system is powered off. You can recharge the battery in two to three hours while the system is on.

Optionally, you can buy a battery charger to quickly charge your battery. See the online *NEC Versa 2000 Options Catalog*.

WARNING

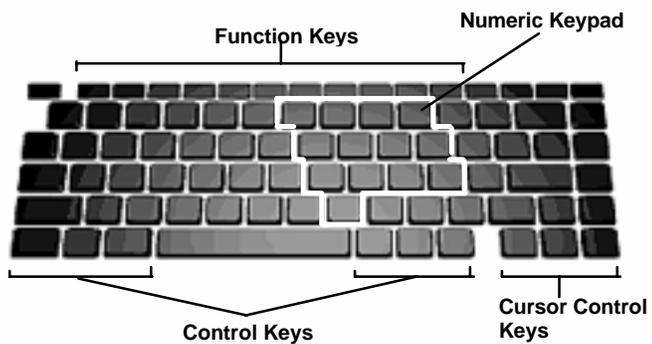
To prevent accidental battery ignition or explosion, adhere to the following:

- 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 and in the online *Basics*.

Keyboard

The NEC Versa 2000 keyboard is equipped with many features. They include the following.

- Function keys
- Cursor control keys
- Typewriter keys
- Numeric keypad
- Control keys



Keyboard

Function keys — There are 12 function keys, **F1** through **F12**. The **Fn** key activates key functions printed in blue on keys having dual functions.

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 or block, depending on the application. It indicates where the next text typed is inserted.

Typewriter keys — The typewriter keys (also called alphanumeric keys) are used to enter text and characters. Those keys that have blue printing on them behave differently when combined with control keys or Fn keys.

Numeric Keypad — Pressing **Num Lock** on the keyboard activates the numeric keypad (when an external keyboard is *not* connected). 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**, **Ins**, and **Shift** are controls that are used in conjunction with other keys to change their functions. To use these 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**. How the key combination works depends on the applications you are running.

The NEC VersaGlide

The NEC VersaGlide is an easy way to control the screen pointer (cursor) with your finger. Simply glide your finger across the NEC VersaGlide pad and the cursor follows. You select in either of two ways:

- Double click the left button (this is the primary button)
- Double tap your finger on the VersaGlide pad.

Try both ways and decide which you prefer.

You can also reverse the primary and secondary button.

AutoCentering

The NEC VersaGlide has an autocentering feature that makes finding the cursor on your screen quick and easy. Click on the key sequence you've defined in NEC Mouse Shortcuts, and the cursor jumps to the spot on the screen you have preselected. See the Windows Control Panel, NEC Mouse.

Personalized Modes

You can save and retrieve several personalized NEC VersaGlide modes — up to four, in fact. You might want one mode for office use, another for using in meetings, another for playing games at home. Or you might want different settings for different people with whom you share your NEC Versa. See the Windows Control Panel, NEC Mouse.

Pointer Size, Speed

You can change the size, color, and speed of the pointer controlled by the NEC VersaGlide. See the Windows Control Panel, NEC Mouse Pointer and Motion.

Ergonomics

Follow these basic ergonomic tips while working:

- Use a light touch on the VersaGlide surface.
- Set up your NEC Versa 2000 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, and perform stretching exercises to relax your fingers, hand, wrists, forearms, and shoulders.

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

OPTIONS AND PCMCIA EXPANSION

You can add a number of options and connect a number of external devices and PCMCIA cards to your NEC Versa 2000. You can get details on how to obtain these options from the online *NEC Versa 2000 Options Catalog*.

Hard Disk

You can increase the system's storage capacity by replacing the standard hard disk, or you can have two hard drives for alternate usage (for example, one for office use and one for home use). Here is how to replace the hard disk:

1. Check that the NEC Versa power is off.
2. Open the hard disk drive cover, swing the lever down, and pull the drive out of the compartment.
3. Swing the lever on the new drive down to the side. Install the drive, sliding it into the compartment. Press firmly to make sure the drive is fully seated. Swing the drive lever up.



4. Close the disk compartment cover.
5. Run Auto Setup to check the new configuration. Auto Setup recognizes the new drive if it's a different size from the first drive.

Memory Expansion

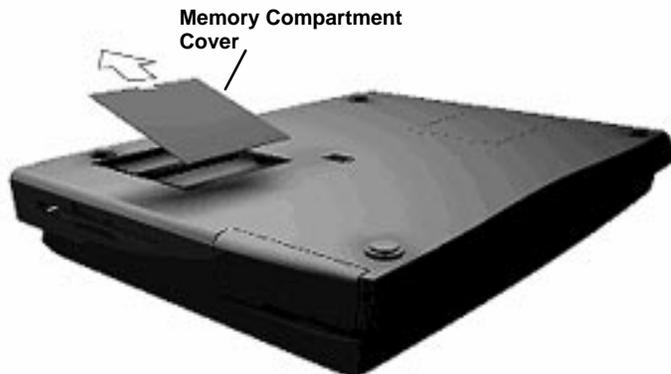
Your NEC Versa 2000 comes standard with either 4 or 8 megabytes (MB) of random access memory (RAM). You can increase system memory to a maximum of 36 or 40 MB, respectively, by installing any one or two of the following memory modules in the system.

- 4-MB memory card
- 8-MB memory card

■ 16-MB memory card

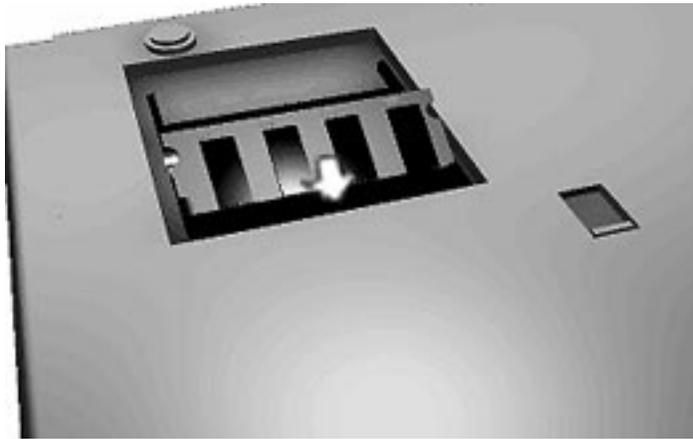
Use the following steps to install a memory card.

1. Make sure the system power is off.
2. Turn the NEC Versa 2000 upside down.
3. Remove the memory compartment cover from the system by releasing the small latch and lifting the cover off the system



Removing cover

4. Install the memory card as follows.
 - Align the memory card connector with the connector in the system.
(The card fits in either slot.)
 - Insert the card connector by sliding it into the system connector. Press the card to make sure it is securely seated.



Inserting a memory card

5. Replace the memory compartment cover.

Run Auto Setup to check the new configuration. Auto Setup should show a blinking arrow next to the extended memory field. The new value should reflect the increase in memory. (Refer to “Using Auto Setup” in the online *Advanced Topics*.)

External Monitor

You can add a standard external monitor to your NEC Versa 2000. 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. (See the back of the NEC Versa 2000, behind the right-rear cover, for the monitor connector.)

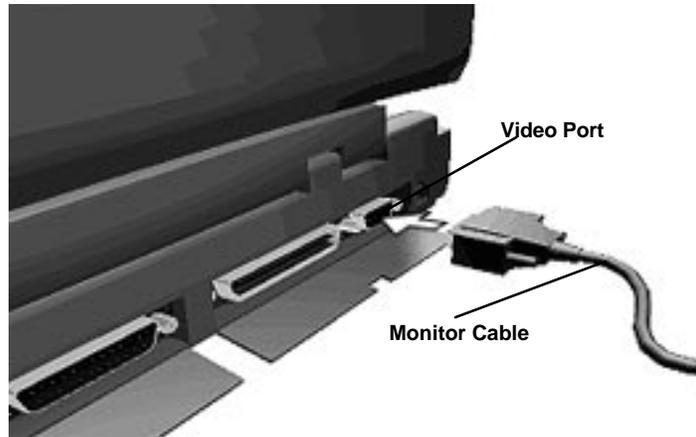
Follow these steps to connect an external monitor to your NEC Versa 2000.

1. Check that the NEC Versa 2000 is in Suspend mode or powered off and the monitor power switch is turned off.



The NEC Versa must be in Suspend mode or powered off while the monitor is being connected.

-
2. Open the right-rear cover of the system.
 3. Attach the 15-pin cable connector to the video port on the system. (The video port is the second from the right.) Secure the cable connection with the screws provided.



Connecting a monitor

4. Connect the monitor power cable and plug it into a properly grounded wall outlet.
5. Follow any setup instructions in the monitor manual.
6. Turn on power to the monitor.
7. Press the Suspend button to resume Active mode or power on the NEC Versa 2000.

Toggle the **Fn + F3** function key combination to select both the LCD and CRT monitor.

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. Chances are your printer came with both types of connectors.

Parallel Printers

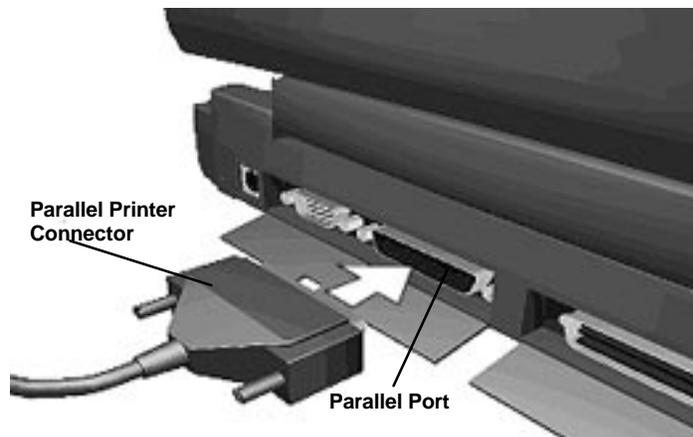
To install a parallel printer, you need a cable with a male 25-pin connector for the system and, for most parallel printers, a Centronics®-compatible 36-pin connector.



When you connect a printer, be sure you install the appropriate printer driver through the Windows Control Panel. See the online *Windows QuickStart Guide* or *Using Windows 95* for instructions on using the Control Panel.

To connect a parallel printer to your NEC Versa 2000, do the following.

1. Check that both the NEC Versa and printer power are off.
2. Open the left-rear cover of the system and locate the printer port.
3. Align and connect the 25-pin printer cable connector to the parallel port on the system. (The parallel printer port is the third from the left.) Secure the cable with the screws provided.



Connecting a parallel printer

-
4. Align and connect the other end of the cable to the parallel port on the device. Lock the connector clips.
 5. Connect the power cable to the printer and a properly grounded wall outlet.
 6. Turn on power to the system and the printer.



Check that the printer is online before you try to print. See the instructions that came with your printer for printing information.

Serial Devices

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



When you connect a printer, be sure you install the appropriate printer driver through the Windows Control Panel. See the online *Windows QuickStart Guide* or *Using Windows 95* for instructions on using the Control Panel.

Follow these steps to connect a serial device to your NEC Versa 2000.

1. Check that both the NEC Versa 2000 and the device power are off.
2. Open the left-rear port cover 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.
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.



Make sure your printer is online before trying to print. See the printer guide for instructions.

External Keyboard

You can add a full-size PS/2-style keyboard to your NEC Versa 2000 using the Plug and Play feature. You can still use the system keyboard while an external keyboard is connected.

If you want to attach both an external keyboard and a PS/2-style external mouse at the same time, use the optional NEC Y-adapter. See the online *NEC Versa 2000 Options Catalog*.

Follow these steps to connect an external keyboard to your system.

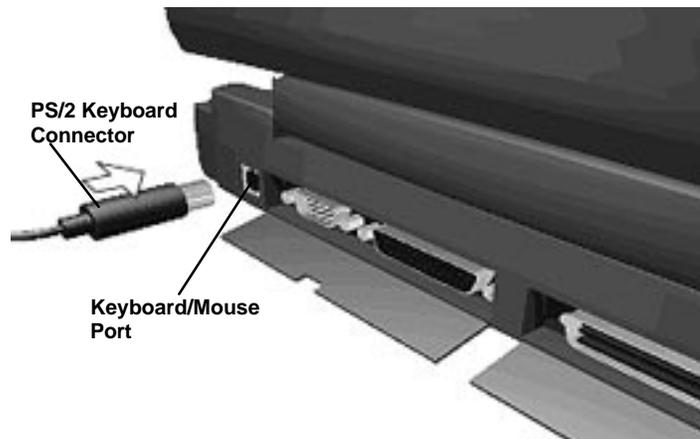
1. Slide the Suspend button on the NEC Versa. Check that the system is in Suspend mode.



CAUTION

Make sure the NEC Versa is in Suspend mode whenever you add or remove the keyboard. Doing so with the power on in Active mode may damage the keyboard controller chip.

2. Connect the keyboard cable connector to the keyboard port on the system. (The keyboard/mouse port is the first one.)



Connecting an external keyboard

3. Slide the Suspend button again to resume Active mode.

The system will immediately recognize the keyboard.

After you connect an external keyboard, you can use both the built-in keyboard and external keyboard simultaneously.



For instructions on connecting an external keyboard to the docking station, see the user's guide that came with your docking station.

Mouse

You can add an external mouse to your NEC Versa 2000 to use in place of the NEC VersaGlide for moving the pointer. Use the following procedure to connect a PS/2-style mouse to the system. The Plug and Play feature allows you to do this with the system powered on, but in Suspend mode.

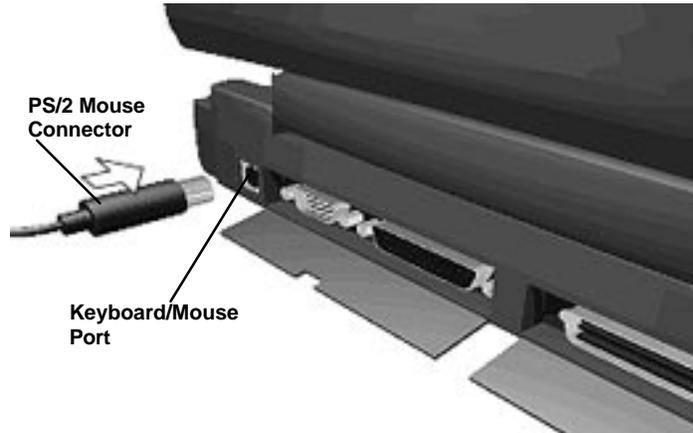
1. Check that the NEC Versa 2000 is in Suspend mode.



CAUTION:

Make sure the NEC Versa 2000 is in Suspend mode or powered off whenever you add or remove a mouse. Doing so with the power on in Active mode may damage the system.

2. Connect the mouse cable connector to the keyboard/mouse port on the system. (The keyboard/mouse port is the first one.)



Connecting an external mouse

3. Slide the Suspend button again to resume Active mode on the NEC Versa.



For instructions on connecting an external mouse to the docking station, see the user's guide that came with your docking station.

Internal Modem

The NEC Versa 2000C comes equipped with a built-in modem to enable you to send and receive faxes, cruise the Internet, and download information. A modem converts data so it can be transmitted over phone lines and then converts it back again so you can read it on your computer.

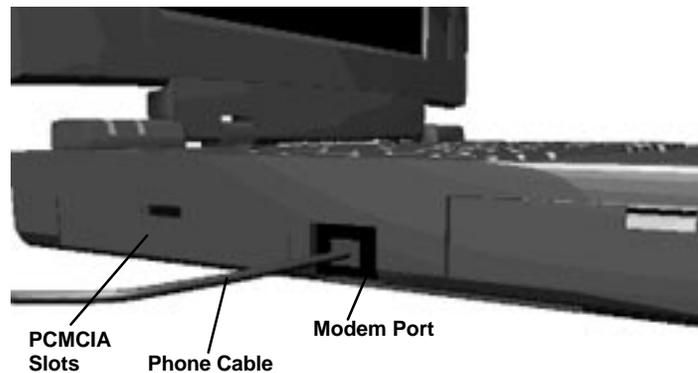


If you have the NEC Versa 2000D, you do not have an internal modem, but you can purchase one as an option. Or you can use a PC card modem. See the online *NEC Versa 2000 Options Catalog* for both options.

Your NEC Versa 2000 comes with fax software and several online service gateways — all the basics you need to communicate with the outside world.

Use the following procedure to connect a phone line to the NEC Versa 2000.

1. Unplug the telephone cable from the telephone.
2. Plug the telephone cable into the modem connector on the NEC Versa 2000. If you have an NEC Versa 2000D, plug the phone cable into the PC card which is inserted in a PCMCIA slot.



Connecting to the Modem

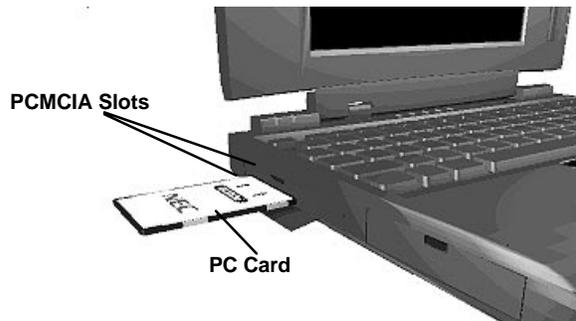
You are now ready to use your communication software to send faxes, run an online service, or download the latest NEC Bulletin Board Services information.

PCMCIA

You can easily install and interchange peripheral devices, such as modems, LAN cards, and storage cards in your NEC Versa 2000. The NEC Versa 2000 series notebook computers have software that automatically allocates system resources when you install or remove a PC card using PCMCIA technology.

To insert a PC card, open the slot cover and follow these steps.

1. Align the card so the 68-pin connector points toward the slot.
2. Slide the card into either slot. A low, then high tone lets you know that it's fully inserted and recognized. (If you turned off the sound on the Versa, the tones do not sound.) Other two-tone sequences such as high, then low tones indicate the card is inserted, but the type is unknown.



3. Optionally, look for the CardWizard™ icon on the Windows Program Manager. It shows which slot contains a PC card and which is empty.
4. To remove the card, press the button on the side of the slot. You'll hear another double tone.

NEC Versa MediaDock 2000*

The NEC Versa 2000 expansion options give you one touch connection to external peripherals or a full-blown multimedia station. The MediaDock 2000 provides CD-ROM capability and a stereo sound system. See the *Versa MediaDock 2000 User's Guide* for instructions on connecting the docking station.

NEC Versa MiniDock 2000*

The Versa MiniDock 2000 option provides you with the convenience of a dock at your desk without taking up a lot of space. With your NEC Versa 2000 securely attached to the MiniDock, you can have one connection with all your peripheral resources — printer, local area network, monitor, mouse, and keyboard — instead of five. The NEC MiniDock 2000 also provides two additional PCMCIA slots.



NEC Versa 2000 docked with a MiniDock 2000

*Availability to be announced

3

About the Software

This chapter introduces you to the software that comes with the NEC Versa 2000, including:

- Windows 95 and Windows for Workgroups
- MS-DOS[®]
- Online Help
- NEC Utilities

WINDOWS INTRODUCTION

Your NEC Versa 2000 gives you the option of loading either Windows 95 or Windows for Workgroups to use on your system. Both Microsoft operating systems provide a means of running applications, navigating through your file structure, and using your notebook computer. Each operating system offers its own look and means of operation.

Both Windows 95 and Windows for Workgroups use a graphical interface to make the operating systems easy to use.

Most popular programs today are designed specifically for Windows, using menus and dialog boxes that operate in much the same way. Learning one program, therefore, helps you learn other Windows programs.

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.

When you choose to install Windows 95, 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** — gives you a trash container in which to put unwanted files.
 - **The Microsoft Network** — shows you the network, integrated LANs, and WANs if your system is connected to a network.
 - **My Briefcase** — gives you quick access to files you frequently use.
 - **Start** — lets you access a pop-up menu to start programs and applications, open documents, and shut down your system.

Windows for Workgroups

Windows for Workgroups offers the Windows interface to which experienced users are accustomed. The Program Manager contains the following program groups.

- **Main** — Includes programs and tools to help you control printing; set up printers, plotters, and modems; customize the desktop; and manage files.
- **Accessories** — Includes desktop programs that come with Windows, such as a simple word processing program, a drawing program, a calendar, and a calculator.
- **Startup** — Lets you add programs to start automatically when you start Windows.
- **Games** — Gives you a means to practice your VersaGlide skills or just relax.
- **Applications** — Includes any applications that Windows detects on your hard disk during installation.
- **NEC Information** — Includes online topics specific to the NEC Versa, NEC customer support, and Windows and DOS.
- **NEC Utilities** — Includes small programs written by NEC to help you manage your NEC Versa computer.

Every application in Windows is assigned an icon. Application icons are placed in group windows, which are represented by group icons. To start an application, highlight and double click or double tap the application icon.

See the online *Windows QuickStart* in the NEC Information program group for detailed instructions on using Windows for Workgroups. See the online *Using Windows 95* for instructions on using Windows 95.

DOS INTRODUCTION

MS-DOS is the Microsoft disk operating system that runs the computer. DOS uses commands that every personal computer user needs to know at least a little about. The Windows environment makes it possible for you to manage your system and application programs without knowing DOS commands, but as you become more comfortable with computers you may want to begin learning DOS.

For detailed instructions on how to use MS-DOS, refer to the online book *MS-DOS 6.22 QuickStart* in the NEC Information program group.

GUIDE TO ONLINE HELP

The NEC Versa 2000 has plenty of information for you online.

NEC Versa 2000 InfoCenter

The NEC Versa 2000 InfoCenter contains several specific areas of information to help you.

System Tour



The NEC Versa 2000 *System Tour* takes you completely around the computer, pointing out components, switches, software, and utilities. It's intended to get you comfortable with your new notebook computer. The Tour takes about five minutes.

Basics



Basics describes the NEC Versa 2000 main features, how to travel with the system, use power management, and care for the system. It includes a glossary.

Advanced Topics



Advanced Topics covers more specific areas such as adding options, changing setup options, and solving problems. It includes a glossary.

Questions and Answers



Questions and Answers provides frequently asked questions and their answers about notebook computers to help you solve common problems yourself.

NEC Versa 2000 Series Options Catalog



The NEC Versa 2000 Series *Options Catalog* lists options such as memory cards, hard drives, carrying cases, and PCMCIA cards that you can purchase for the NEC Versa 2000.

Additional Topics

Customer Service Guide



The *NEC Customer Service Guide* discusses the various levels of support NEC offers you, our customer. We provide lots of information to help you become self-sufficient with your NEC Versa 2000, but if you need help, we're there for you.

UltraCare Guide



The *NEC UltraCare Guide* describes NEC's one-year warranty program to help you protect your investment in an NEC Versa 2000 Series computer.

The Windows QuickStart Guide



This online "book" provides a series of lessons on using Microsoft Windows for Workgroups on the NEC Versa 2000.

Using Windows 95



This online "book" provides a series of lessons on using Microsoft Windows 95 on the NEC Versa 2000.

The MS-DOS 6.2 QuickStart Guide



An online “book” that presents a series of lessons on using MS-DOS, which also runs on the NEC Versa 2000. This appears on Windows for Workgroups only.

GUIDE TO NEC UTILITIES

NEC provides several programs and routines designed to make your NEC Versa 2000 run more efficiently. These programs are known as utilities. You can access most of these utilities from Windows.

Distribution Diskette Creator



This utility lets you create distribution diskettes for the system contents. Use the distribution diskettes to make a backup copy of all the programs that came on your NEC Versa 2000. Save the diskettes in case you need reload the system.

PowerCenter



This utility lets you turn Power Management on and off.

Preference Tools Utility



This utility displays your preferred system settings such as screen highlight on/off, speaker on/off, and other settings.

Monitor Assistant



You can use this utility to select and configure an external monitor for use with your NEC Versa 2000. This utility is used on Windows for Workgroups only.

Function (Fn) Key Utility



This utility provides a visual reminder of the current **Fn** key settings you have activated.

NEC Battery Gauge

You can use this utility to periodically check on your battery status. The gauge shows you the percentage of power left in your Li-Ion battery.

System Backup

This utility allows you to back up to diskette the entire contents of your system. You'll need a large number of diskettes for this. This utility is used on Windows for Workgroups only.

Auto Setup Utility

Auto Setup automatically configures your NEC Versa 2000 each time you start it up. This utility also lets you change your system start-up settings.

Use Auto Setup as follows:

1. Reboot your system. When the screen displays the blinking block at boot-up, press **F1**.
2. When the Auto Setup Summary screen is displayed, the enter the highlighted letter in the menu bar to that represents the category you want.

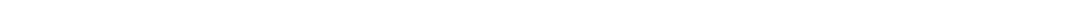
For example, type **D** to open the Disk Drive Settings window.

3. Use the up and down arrows to move between selections displayed on the screen. Press **Alt** + the arrow keys to display setting options.
4. Follow the instructions at the bottom of the screen to make selections, change values, and exit.



Be sure to keep track of any password you enter. If you set a system password, a key icon appears at bootup. You must enter the password to access the system. To change the password, enter the password followed by a forward slash (/) and a new password. To remove the password, enter the password followed by a forward slash (/).

Refer to the online *Advanced Topics* for details on Auto Setup.



4 Traveling with Your NEC Versa

The NEC Versa 2000 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.
- Take the AC adapter in case you have an electrical outlet handy. This saves battery power for when you really need it.
- Carry along the Cosession bootable diskette in case the system fails to start up for some reason. Also take along any application or data files on diskette that you might need.



TIP: 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.

POWER CONNECTIONS

With the right accessories, you can run your NEC Versa 2000 almost anywhere! Your system self-adjusts to various power sources. The United States, Canada, and most of Central and South America use 110-volt alternating current (AC). Most other countries of the world use 220-volt AC. The NEC Versa 2000 adapts to voltages ranging from 100 to 240 volts.

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.

To use your system overseas, you need an adapter plug and transformer. There are five different plugs available worldwide. You can buy these at an electronics supply store.



TIP: When using a modem outside the U.S. and Canada, you might need an international telephone adapter. You can buy this at an electronics supply store.

For more information on using the modem, see "Learning to Use the Hardware" in this guide.

CHECKLISTS

The following checklists can help you prepare for your trip with your NEC Versa 2000. Look them over and use what fits your situation.

What to Take

The following are what you should take with you when you travel with your NEC Versa 2000.

- At least two fully charged batteries
- Single-outlet surge protector
- Long telephone extension cord with RJ-11 plugs
- Appropriate AC plug adapter
- Copy of proof of purchase for computer and other equipment for customs check
- Customer support phone numbers for your software
- *NEC Versa 2000 Series Quick Reference*
- AC extension cord.

Things to Do

Here is what you should do before you leave home:

- Back up your NEC Versa 2000'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 2000, AC adapter, and batteries.

5

Solving Problems

Once in a while you may encounter a problem with your NEC Versa 2000. The NEC Information program group has *Questions and Answers* that might be helpful to you.

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 | <p>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.</p> <p>If you have the AC adapter attached, check that the electrical outlet you are using works.</p> |
| LCD screen is dark and blank | <p>Power-saving mode has shut off the backlight. Press any key, Fn F5, or use the suspend button. The built-in LCD may not be selected. Press Fn F3 once or twice.</p> <p>Brightness control needs adjustment. Adjust the control. Power-saving mode has shut off the backlight. Press any key, Fn F5, or use the suspend button.</p> <p>The system entered Suspend mode due to low battery power. Plug in the AC adapter or replace the battery pack, then press the suspend button to resume operation.</p> |
| Battery power does not last long | Use power-saving modes. |
| Information on the LCD screen is difficult to see | Adjust the brightness control. |
| 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 Auto Setup. |
| The power management button does not work | <p>Power management is disabled in Auto Setup.</p> <p>A disk drive might be busy. Wait until the disk drive stops and try again.</p> <p>The docking station might be connected to the NEC Versa 2000. Some power management functions do not work when the docking station is connected.</p> |

START-UP PROBLEMS

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

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

If either of these conditions is true, the system displays an “invalid configuration information” message.

To continue start-up procedures, press **F1** and run Auto Setup 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.



When the NEC Versa 2000 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 2000 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 the POST, the system displays an error message. If this happens, follow the instructions in the POST error message table.

POST Error Messages

| MESSAGE | WHAT TO DO |
|--------------------------|---|
| Diskette drive A failure | Drive A does not work or is not properly connected. Drive A is the diskette drive. Check that drive A is securely connected and power is on. Press F1 to start Auto Setup to check the diskette drive parameters. |

POST Error Messages

| MESSAGE | WHAT TO DO |
|--|--|
| | If there's still a problem, drive A might need repair. |
| Diskette read failure – press F1 to run Auto Setup. Press any other key to retry boot | Remove the diskette from drive A and press F1 to start the system from the hard disk. Or, insert a bootable disk in drive A and press F1 . |
| Non-system disk or disk error; replace and press any key when ready | Remove the diskette from drive A and press any key to start the system from the hard disk. Or, insert a bootable disk in drive A and press any key. |
| No boot device available – press F1 to run Auto Setup | Press F1 to start Auto Setup. Change the hard disk type to the correct setting. Exit and save Auto Setup. |
| Invalid configuration information – run Setup program | One or more system configuration parameters are not properly set. Start Auto Setup, set them correctly, and exit and save to update the parameters. |
| Real time clock failure | Set time and date using Auto Setup. Exit and save to update the parameters. |
| Time-of-day not set – run Setup program | Set the time and date using Auto Setup. Exit and save Setup to update the parameters. |
| Fixed disk configuration error | Start Auto Setup. Exit and save to update the parameters. Check to see if the hard disk connector is seated properly. If there is still a problem, the hard disk might need repair. |
| Fixed disk failure | Press F1 to start Auto Setup. Exit and save to update the parameters. Check to see if the hard disk connector is seated properly. If there is still a problem, the hard disk might need repair. |

POST Error Messages

| MESSAGE | WHAT TO DO |
|-------------------------------|--|
| Fixed disk controller failure | <p>Press F1 to start Auto Setup. Exit and save to update the parameters.</p> <p>Check to see if the hard disk connector is seated properly.</p> <p>The hard disk controller does not work and might need repair.</p> <p>Check in Auto Setup to make sure the IDE interface is set to internal only.</p> |
| Keyboard clock line failure | <p>Unplug external keyboard if attached. Have the keyboard repaired.</p> |
| Keyboard data line failure | <p>Unplug external keyboard if attached. Have the keyboard repaired.</p> |
| Keyboard controller failure | <p>Unplug external keyboard if attached and reboot the system. If it still fails, have the keyboard repaired.</p> <p>NOTE: <i>Repeated keystrokes during boot may produce an error message.</i></p> |
| Keyboard stuck key failure | <p>A key is jammed. Remove any obstruction you find.</p> <p>You may have repeatedly pressed the F1 key when trying to enter Auto Setup.</p> <p>If the error message remains, you may have to have the keyboard repaired.</p> |

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, call the NEC Technical Support Center (TSC), toll free, at 1-800-632-4525. Direct technical assistance is available 24 hours a day, seven days a week.

Your NEC Versa 2000 is supplied with remote diagnostic software and a built-in modem (NEC Versa 2000C only) so a TSC technician may be able to diagnose the system remotely.

Direct Technical Support

When TSC receives a call from you, a technician attempts to diagnose your problem over the telephone. The technician determines if your problem requires troubleshooting your system remotely with the Remote Support Session software that comes on your NEC Hardware Utilities diskette.

Remote Technical Support

With Remote Support Session, the technician can diagnose your system from a TSC computer. To use this utility, you must connect your modem to a telephone line. (See “Connecting Phone Lines” in Chapter 3.)

If the Remote Support Session software is required, the technician asks you for your phone number and helps you to prepare your system for remote support.

Follow these steps to prepare your system for remote support. You must have the modem connected to a telephone line.

1. With the system power off, insert the NEC Hardware Utilities diskette into the diskette drive.
2. Turn on the system power. A menu appears.
3. Type **2** to select “Remote Support Session.” Your screen displays “Wait Dial-In Set” and a message indicating that the system is waiting for the remote dial-in.



TIP: Do not touch your keyboard while waiting for the remote dial-in. You may interfere with the remote connection.

To cancel the remote dial-in, remove the diskette and simultaneously press **Ctrl-Alt-Del**.

Features

Remote Support Session has the following features:

- The remote screen (technician's screen) looks like your computer's screen.
- The technician can access data, run and control applications on your system, and print reports using the remote keyboard and mouse. Or the technician can simply observe your computer's operations.
- You can simultaneously view what the technician sees on the remote screen.
- The technician can view your keystrokes and whatever appears on your screen.

6 Getting Help

NEC is ready and willing to help you with our products.
Here's how to reach us.

NEC Versa Diskette Fulfillment Center (800) 842-6446

To purchase backup diskettes and manuals.

NEC Customer Service and Support (800) 632-4525

Fax (508) 635-4666

Spare parts ordering, warranty claims, repair services,
technical support, and service authorizations.

NEC FastFacts (800) 366-0476 (U.S and Canada)

(708) 860-9500 x2621 (International)

Automated fax service that offers product brochures, installation procedures, quick reference guides, promotional forms, troubleshooting information, and more.

NEC Electronic Bulletin Board (508) 635-4706

Remote database system containing files that are dedicated to enhancing the functions of NEC products, It also gives general public access to drivers for NEC products to be used with various software applications.

CompuServe Password: "GO NECTECH"

Internet Address: tech-support@NECTECH.com

America On-Line: nectech

Worldwide Web Address www.nec.com

NEC is a member of TSANet (Technical Support Alliance Network).

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.



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 (90° to 105°). 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.

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- Use armrests or forearm supports to support your forearms. If adjustable, the armrests or forearm supports should initially be lowered while all the other adjustments discussed in this appendix are made. Once all these adjustments are completed, raise the armrests or adjust the forearm supports until they touch the forearms and allow the shoulder muscles to relax.

ADJUST YOUR INPUT DEVICES

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 keyboard. Use a wrist pad only to rest your wrists between typing. Avoid resting your wrists on sharp edges.
- Type with your wrists straight. Instead of twisting your wrists sideways to press hard-to-reach keys, move your whole arm. Keep from bending your wrists, hands, or fingers sideways.

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- 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.

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- Position whatever you are looking at most of the time (the screen or reference material) directly in front of you to minimize turning your head while you are typing.
 - Get regular eye check-ups.

VARY YOUR WORKDAY

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

- Vary your tasks throughout the day.
- Take frequent short breaks that involve walking, standing, and stretching. During these breaks, stretch muscles and joints that were in one position for an extended period of time. Relax muscles and joints that were active.
- Use a timer or reminder software to remind you to take breaks.
- To enhance blood circulation, alter your sitting posture periodically and keep your hands and wrists warm.



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

PRE-EXISTING CONDITIONS AND PSYCHOSOCIAL FACTORS

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

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

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

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 and Environment

The following specifications are standard except where noted.

System Processor

P24C-75Mhz (Intel 486 DX4-75)

Random Access Memory (RAM)

Standard Main Memory —

4-MB high-speed interleaved access (DSTN model)

8-MB high-speed interleaved access (Active-matrix model)

Expansion Optional — Two slots for DIMM sockets. Expandable in 4-MB, 8-MB, 16-MB increments. Maximum 36MB or 40MB total.

Video RAM — 1 MB

Cache RAM — L2: 128-KB (DX4-100 only)

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
- Serial — 1 port, 9-pin D-sub
- VGA — 1 port, 15-pin high-density D-sub

E32bit Local Bus

EHardware Windows Acceleration

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- External Keyboard/External Mouse — 1 port, PS/2, 6-pin MiniDin; exclusionary use
 - Expansion — 1 port, VGA CRT signal, external keyboard signal, PS/2 mouse signal

Card Slots

Two slots for two Type I/Type II PCMCIA cards or one Type III PCMCIA card. 3.3V interface.

Internal Fax/Modem

14.4K bps for data and fax transmit and receive with RJ/11 receptacle. (NEC Versa 2000C model only.)

Display

LCD

- 9.5-inch Thin-film transistor (TFT) CCFT backlit color
- 10.4-inch Double-scan Super Twisted Nematic (DSTN) color

Resolution — 640 x 480 pixels

- Dot Pitch — 0.3 mm
- Colors — 4,096 (64K colors on external CRT with video subsystem)

Viewing Area — 192 mm by 144 mm (7.56 in. by 5.67 in.) (9.4 in or 10.4 in diagonal)

Aspect Ratio — 4:3 (or true CRT aspect ratio)

Keyboard

Membrane Ultra Low Profile 83 keys with standard QWERTY-key layout (79 keys for International)

- Function keys — 12 keys (5 keys for the Versa 2000)
- Cursor Control keys — 8 keys; arrow keys arranged in inverted T layout
- Numeric keypad — embedded
- Fn key — function key for ROM-based key functions
- Stroke — 3 mm

Diskette Drive

Standard 1.44-MB drive

- Size — 3.5 inch

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- Capacity — 720 KB or 1.44 MB
 - Access Time (average) — 94 ms
 - Transfer Rate — 250 to 500K bps
 - Interleave 1:1
 - Controller — NS PC87334VJG

Hard Disk Drive

Internal 2.5-inch, 350-MB, 540-MB, or 720-MB drive, removable

Track-to-track seek rate — 4ms

Average seek — 13ms (read), 14ms (write)

Revolutions per minute — 4000

I/F data rate — Mode 3-11 MB per second

Media data rates — 39.5 – 27 Mbps

Power

AC Adapter

- Input Voltage — 100 to 240 volts (V) AC, 50 or 60 Hz, 1.2-0.6 A
- Output Voltage — 19 V DC, 2200mA (40.3W)

Battery Pack

- Type — Lithium Ion (Li-Ion)
- Output Voltage — 14.4 V
- Capacity — 2,800 mAH
- Battery Life — Approximately two or three hours, depending on model, under typical operating conditions.

— Recharging Time

Approximately 1.6 hours when the system is off (Quick Charge)

Approximately 6 to 7 hours when the system is on (Normal Charge)

— Bridge Battery

Fully charged, backs up memory contents and system status for up to 30 minutes under Suspend mode, but battery change time is under 5 minutes.

Dimensions

System Unit

-
- Width — 11.7 in. (300 mm)
 - Depth — 9.1 in. (233.3 mm)
 - Height — 1.9 in. (48.7 mm), 2.2 in. (56 mm)

Battery Pack

- Width — 4.2 in. (108 mm)
- Depth — 4.5 in. (114.5 mm)
- Height — 0.85 in. (21.8 mm)

Weight

NEC Versa 2000C TFT System — 6.51 lb (2.95 kg)

NEC Versa 2000D or /75 DSTN System — 6.31 lb (2.86 kg)

Battery Pack — 1.16 lb (527.6 kg)

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)

BATTERY REPLACEMENT

A lithium battery in your computer maintains system configuration information. In the event that the battery fails to maintain system configuration information, NEC recommends that you replace the battery. 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 remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

BATTERY DISPOSAL

The main battery and CMOS clock battery are made of Lithium Ion (Li-Ion). Your bridge battery (not the main battery) is made of nickel-metal hydride (NiMH).

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.