

NEC Versa Series Notebook Computers

NEC VERSA® VXi

SERVICE AND REFERENCE MANUAL

NEC

NEC COMPUTERS INC.

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Contents

Preface	vii
Abbreviations.....	ix
1 System Overview	
About the NEC Versa VXi Notebook.....	1-2
Around the Front of the System.....	1-3
LCD Panel.....	1-3
Control Panel	1-4
Power Button	1-4
Status Icons.....	1-5
Keyboard Panel and Base Unit	1-6
Around the Back of the System	1-9
Around the Left Side of the System.....	1-10
Around the Right Side of the System	1-10
Around the Bottom of the System	1-11
Around the Port Replicator.....	1-11
Internal Components.....	1-12
Battery Pack.....	1-12
Diskette Drive.....	1-12
CD-ROM/DVD-ROM/CD-Read/Write Drive	1-12
Hard Disk Drive.....	1-12
CMOS Battery	1-13
Chipsets	1-13
2 System Configuration and Setup	
Power Sources for the NEC Versa.....	2-2
Using the AC Adapter.....	2-2
Connecting the AC Adapter.....	2-2
Powering the System On and Off	2-3
Powering On with Windows 2000	2-3
Using the Battery	2-3
Replacing the Battery.....	2-4
Low Battery Power	2-5
Returning the Battery to its Normal State	2-5
Battery Handling.....	2-5
Extending Battery Life.....	2-5
Conserving Battery Power	2-6
Charging the Battery	2-6
Battery Precautions	2-7
Precautions for Recharging the Battery	2-7
Disposing of the Battery	2-7
System Batteries.....	2-7
System Power Cord	2-8
BIOS Setup.....	2-8
BIOS Setup Main Menu.....	2-9
Looking at Screens.....	2-9
Using Keys.....	2-10
Checking/Setting System Parameters	2-10
Resetting System Parameters	2-10
Standard CMOS Setup.....	2-11
Advanced CMOS Setup.....	2-12
System Security Setup	2-13
Password Protection.....	2-14
Establishing Passwords.....	2-14

SmartCard Protection	2-14
FingerPrint Protection	2-15
Hard Disk Drive Passwords	2-15
Establishing Hard Disk Drive Passwords	2-15
Changing Hard Disk Drive Passwords.....	2-15
Using Hard Disk Drive Password Protection.....	2-16
Moving the Hard Drive.....	2-16
Power Management Setup.....	2-16
Boot Device Setup.....	2-19
Peripheral Setup	2-20
Other BIOS Setup Options	2-20
Updating the BIOS.....	2-21
Obtaining the BIOS Update	2-21
Preparing the BIOS Update Diskette.....	2-22
Performing the BIOS Update	2-22
Managing System Power	2-23
Windows 98 Power Management Properties	2-23
Windows 98 Power Schemes	2-23
Windows 98 Alarms.....	2-24
Windows 98 Power Meter.....	2-24
Windows 98 Advanced	2-25
Windows 98 Hibernate.....	2-25
Windows 2000 Power Options Properties.....	2-25
Windows 2000 Power Schemes	2-26
Windows 2000 Alarms.....	2-26
Windows 2000 Power Meter.....	2-27
Windows 2000 Advanced	2-27
Windows 2000 Hibernate.....	2-28
Windows 98/2000 Power Management States	2-28
Recognizing the Windows 98/2000 Power Management States	2-28
Windows NT Power Management States.....	2-29
Recognizing the Windows NT Power Management States.....	2-29
NEC Utilities.....	2-29
NEC Customize Utility	2-30
Using the NEC Customize Utility.....	2-30
HDPREPEZ Utility	2-30
Using the HDPREPEZ Utility	2-30
SpeedStep Applet.....	2-31
SoftDVD Player	2-31
NEC CD-RW CD.....	2-31
Personal Code Setting Utility.....	2-31
Installing the Personal Code Setting Utility	2-31
Setting a Personal Code.....	2-32
NEC Info Center	2-32
Installing the NEC Info Center.....	2-32
Uninstalling the NEC Info Center.....	2-32
Partition Magic	2-33
Application and Driver CD	2-33
Launching the Application and Driver CD with Windows 98	2-33
Launching the Application and Driver CD with Windows 2000/NT	2-34
Application and Driver CD Dialog Box.....	2-34
Installing the Application and Driver CD Software	2-34
Product Recovery CD	2-34
Guidelines for Using the Product Recovery CD	2-35
Product Recovery CD Options	2-35
Full Disk Drive Restore.....	2-35
Partition Only Restore.....	2-37
DIP Switch Settings	2-38

3 Disassembly and Reassembly	
Required Tools and Equipment	3-2
Disassembly	3-2
Battery Pack	3-3
Memory Module	3-4
Mini PCI Card	3-5
Hard Disk Drive	3-5
LED/Button Assembly	3-7
LCD Panel	3-8
Keyboard and Heat Plate	3-10
Top Cover	3-11
VersaGlide Assembly	3-14
CD-ROM Drive	3-14
Audio Board	3-15
DC/DC Board	3-16
I/O Board	3-17
CMOS Battery	3-18
Microphone	3-18
Diskette Drive	3-19
Speakers	3-20
Kensington Lock Latch	3-20
Main Board	3-21
CPU Removal	3-21
PC Card Assembly	3-22
Reassembly	3-23
4 System Board Layout	
Audio Board Connectors	4-2
DC/DC Board Connectors	4-2
I/O Board Connectors	4-3
Main Board Connectors	4-3
5 Illustrated Parts Breakdown	
Illustrated Parts Breakdown	5-2
Parts List	5-3
6 Preventive Maintenance	
Cleaning the Exterior	6-2
Cleaning the Interior	6-2
Protecting the Hard Disk Drive	6-2
Handling the Battery Pack	6-3
7 Troubleshooting	
Quick Troubleshooting	7-2
Helpful Questions	7-5
8 Getting Services and Support	
Services and Support Contact Information	8-2
NEC Computers Web Site	8-2
NEC Computers FTP Site	8-3
Email/Fax to Support Services	8-3
NEC Computers Technical Support Services	8-3

9 Specifications

System Components.....	9-2
Memory Map	9-8
Interrupt Controllers.....	9-8

Glossary

Index

Preface

This service and reference manual contains the technical information necessary to set up and maintain the NEC Versa® VXi notebook computer.

The manual also provides hardware and interface information for users who need an overview of the system design. The manual is written for NEC Computers-trained customer engineers, system analysts, service center personnel, and dealers.

The manual is organized as follows:

Chapter 1, System Overview, provides an overview of the hardware and interface components.

Chapter 2, System Configuration and Setup, provides information on setup and how to operate the notebook.

Chapter 3, Disassembly and Reassembly, provides detailed instructions on how to disassemble the notebook.

Chapter 4, System Board Layout, shows the system boards and the board connectors.

Chapter 5, Illustrated Parts Breakdown, shows the Illustrated Parts Breakdown (IPB) and lists field replaceable units (FRUs).

Chapter 6, Preventive Maintenance, lists general notebook preventive maintenance procedures.

Chapter 7, Troubleshooting, lists troubleshooting procedures as well as helpful servicing hints.

Chapter 8, Getting Services and Support, provides information on how to contact NEC Computers for service information and technical support.

Chapter 9, Specifications, lists physical specifications, memory map, and interrupt controllers.

A **Glossary** and an **Index** are included for convenience.

Abbreviations

A	ampere	ECC	error checking and correction
AC	alternating current	ECP	enhanced capabilities port
AGP	Advanced Graphics Port	EDO	extended data output
AT	advanced technology (IBM PC)	EGA	Enhanced Graphics Adapter
		EPP	enhanced parallel port
BCD	binary-coded decimal	EPROM	erasable and programmable ROM
BCU	BIOS Customized Utility		
BIOS	basic input/output system	EVGA	Enhanced Video Graphics Array
bit	binary digit		
BUU	BIOS Upgrade Utility	F	Fahrenheit
bpi	bits per inch	FAX	facsimile transmission
bps	bits per second	FCC	Federal Communications Commission
C	capacitance		
C	centigrade	FG	frame ground
Cache	high-speed buffer storage	FM	frequency modulation
CAM	constantly addressable memory	FP	fast page
		FRU	field-replaceable unit
CAS	column address strobe	FTP	file transfer protocol
CD-ROM	compact disk-ROM	GB	gigabyte
CD-RW	compact disk-read/write	GND	ground
CG	character generator	HEX	hexadecimal
CGA	Color Graphics Adapter	Hz	hertz
CGB	Color Graphics Board	IC	integrated circuit
CH	channel	ID	identification
clk	clock	IDE	intelligent device electronics
cm	centimeter	IDTR	interrupt descriptor table register
CMOS	complementary metal oxide semiconductor	in.	inch
		INTA	interrupt acknowledge
COM	communication	IPB	illustrated parts breakdown
CONT	contrast	IR	infrared
CPGA	ceramic pin grid array	IRR	Interrupt Request register
CPU	central processing unit	ISA	Industry Standard Architecture
DAC	digital-to-analog converter	ISR	In Service register
DACK	DMA acknowledge	I/O	input/output
DC	direct current	IPC	integrated peripheral controller
DIP	dual in-line package		
DLAB	Divisor Latch Address bit	ips	inches per second
DMA	direct memory access	IRQ	interrupt request
DMAC	DMA controller	K	kilo (1024)
DOS	disk operating system	k	kilo (1000)
DRAM	dynamic RAM	KB	kilobyte
DVD	digital video disk	kg	kilogram
DVD-ROM	digital video disk-ROM		

kHz	kilohertz	R	read
lb	pound	RTC	real-time clock
LED	light-emitting diode	R/W	read/write
LCD	liquid crystal display	S	slave
LSB	least-significant bit	SCSI	Small Computer System Interface
LSI	large-scale integration	SDRAM	synchronous dynamic random-access memory
M	mega	SG	signal ground
mA	milliamps	SIMM	single inline memory module
max	maximum	SPM	standard page mode
MB	megabyte	SRS	Sound Retrieval System
MDA	Monochrome Display Adapter	SVGA	Super Video Graphics Array
MFM	modified frequency modulation	SW	switch
MHz	megahertz	TFT	thin film transistor
mm	millimeter	TSC	Technical Support Center
ms	millisecond	TTL	transistor/transistor logic
MSB	most-significant bit	tpi	tracks per inch
NASC	National Authorized Service Center	URL	uniform resource locator
NC	not connected	USB	universal serial bus
NMI	Non-maskable Interrupt	V	volt
ns	nanosecond	Vac	volts, alternating current
NSRC	National Service Response Center	Vdc	volts, direct current
PAL	programmable array logic	VESA	video electronics standards association
PCB	printed circuit board	VFC	VESA-compliant feature connector
PCI	Peripheral Component Interconnect	VGA	Video Graphics Array
PDA	personal digital assistant	VRAM	video RAM
PFP	plastic flat package	W	watt
PIO	parallel input/output	W	write
pixel	picture element	www	world wide web
PLCC	plastic leaded chip carrier	XGA	Extended Graphics Array
PLL	phase lock loop		
p-p	peak-to-peak		
PPI	programmable peripheral interface		
PROM	programmable ROM		
QFP	quad flat pack		
RAM	random-access memory		
RAMDAC	RAM digital-to-analog converter		
RAS	row address strobe		
RGB	red green blue		
RGBI	red green blue intensity		
ROM	read-only memory		
rpm	revolutions per minute		

1

System Overview

- About the NEC Versa VXi Notebook
- Around the Front of the System
- Around the Back of the System
- Around the Left Side of the System
- Around the Right Side of the System
- Around the Bottom of the System
- Around the Port Replicator
- Internal Components
- Chipset

About the NEC Versa VXi Notebook

The NEC Versa VXi notebook computer features include a powerful Intel® Celeron™ microprocessor running at 600 MHz, 650 MHz, 700 MHz, 750 MHz or higher, or a Pentium® III microprocessor running at 700 MHz, 750 MHz, 800 MHz, 850 MHz, 900 MHz, or 1 GHz. These processors are designed to work together with the latest Peripheral Component Interconnect (PCI) architecture.

In addition, the system provides a high-performance hard disk drive, diskette drive, PC card support, 24X CD-ROM drive, DVD-ROM drive, CD read/write drive, or combination DVD-ROM and CD read/write drive. The NEC Versa VXi comes with Windows 98SE, Windows NT, or Windows 2000 operating system preinstalled. To optimize connectivity options, some models ship with an internal mini-PCI modem, internal mini-PCI LAN, or combination internal mini-PCI LAN/modem. As a multimedia system, the NEC Versa VXi provides the tools needed to create and present impressive images using video clips and sound.

NEC Versa VXi notebook computer



Around the Front of the System

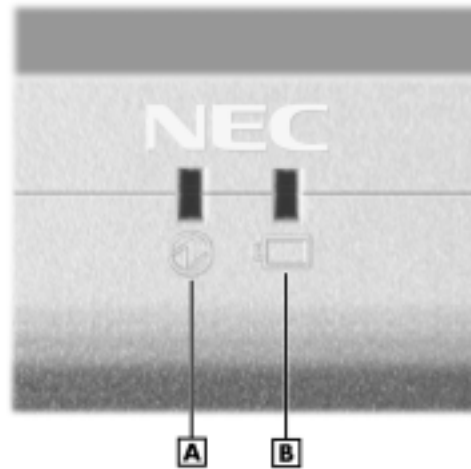
The NEC Versa is a compact notebook with features on every side. The following sections describe front features, beginning with the liquid crystal display (LCD) panel.

LCD Panel

The NEC Versa VXi comes with a color LCD panel that is adjustable for a comfortable viewing position. The LCD panel is available with a 12.1-inch Super Video Graphics Array (SVGA) color display or a 13.3/14.1-inch Extended Graphics Array (XGA) color display. Each screen is TFT (thin film transistor) for sharp, bright imagery and text.

The power and battery charging 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 battery charging LEDs



A – Power LED

B – Battery Charging LED

The power LED lets you know that system power is on. The LED is positioned so that you see the power state whether the LCD panel is opened or closed. The LED

- lights green when the system is powered on with the AC adapter, battery, or auto adapter
- lights green when on and has normal battery power
- lights yellow when on and low (8% to 4%) battery power
- lights amber when in Windows 98/2000/NT Standby mode, Windows NT Suspend mode, and very low (4% or less) battery power.

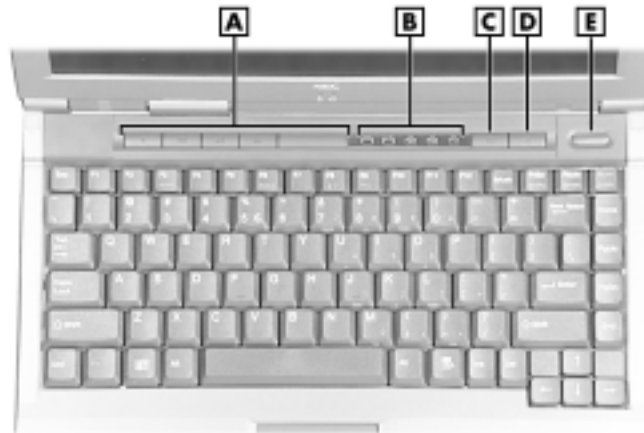
The battery charging LED lights to indicate battery charging status. The LED

- lights amber to indicate the battery is charging
- blinks amber to indicate an error
- lights off to indicate the battery is fully charged.

Control Panel

The NEC Versa VXi control panel provides the features shown in the following figure. The control panel features are described after the figure.

Control panel



A – CD Control Buttons or Password Buttons **D** – Internet Button
B – Status LEDs **E** – Power Button
C – Email Button

- CD Control Buttons — controls the CD-ROM drive, DVD-ROM drive, CD read/write drive, or combination DVD-ROM and CD read/write drive (with stop, reverse, play/pause, and fast forward). Available on some systems.
- Personal Code Buttons — sets a personal code for security. Available on some systems.
- Status LEDs — keeps you informed of the NEC Versa VXi’s current operating status. Descriptions of the status icons appear in the following section.
- Email Button — press to access the email software.
- Internet Button — press to access the Internet.
- Power Button — press to power on or off the system.

Note If unable to power off the system, use the power override. Press the Power button and hold it in place approximately 4 to 5 seconds until the system powers off.

Power Button

The Power button is a “smart” switch, meaning that it recognizes when the system is in Standby (Windows 98/2000) or Suspend (Windows NT) mode, if the BIOS parameter “System Switch” is set to “Sleep.” If in Suspend or Standby mode, you cannot power off until you press the Power button to resume operation.

Put the unit in Standby or Suspend mode when away from the system for a short period of time and want to return to where you left off. Standby mode in Windows 98/2000 and Suspend mode in Windows NT shuts down all devices in the system while retaining data and system status.

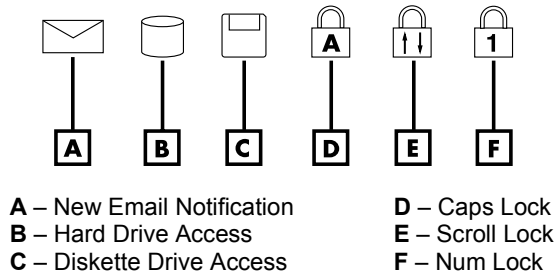
- In Windows 98/2000, go to Start, Shutdown, Standby to put the system into Standby mode.
- In Windows NT, press the Power button for less than 4 seconds to put the system into Suspend mode.

-
- Use the Power button in the following ways:
 - Press the Power button to power on.
 - Press the Power button to resume from Standby (Windows 98/2000) or Suspend (Windows NT) mode and proceed with normal operation.
 - Hold the Power button in place for 4 or more seconds to initiate power override (powers off the system). Only use this option if you cannot power off the system using Start, Shutdown.

Status Icons

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

Status LED Icons



- New Email Notification — lights when new email arrives; stays lit until new messages are read.
- Hard Drive Access — lights when the NEC Versa VXi accesses the hard disk drive, CD-ROM drive, or DVD-ROM drive.
- Diskette Drive Access — lights when the NEC Versa VXi 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 (not supported in U.S./Canada).
- Num Lock — lights when Num Lock mode is active.

Keyboard Panel and Base Unit

The NEC Versa VXi keyboard panel and base unit has the following features. The keyboard panel and base unit features are described after the figure.

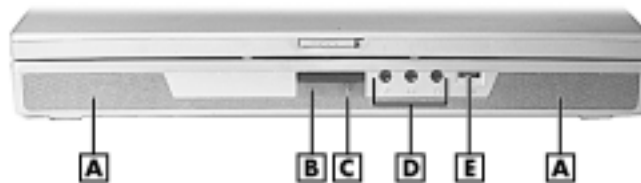
Keyboard panel



A – Keyboard

B – NEC VersaGlide

Base unit



A – Speakers

B – IR Port

C – Microphone

D – Audio Ports

E – Volume Control

- Keyboard — standard QWERTY-key layout. (Models shipped outside of the U.S. are equipped with country-specific keyboard layouts.) The keyboard is equipped with many features, including:
 - Function keys
 - Windows keys
 - Cursor control keys
 - Typewriter keys
 - Numeric keypad
 - Control keys.

Key features and operations are described after the following figure.

Keyboard



A – Function Keys **D** – Control Keys (Ctrl, Fn, Alt, Shift)
B – Numeric Keypad **E** – Cursor Control Keys
C – Typewriter Keys

- **Function Keys** — Twelve function keys, **F1** through **F12**, are available on the NEC Versa VXi keyboard. These keys work together with the **Fn** key to activate special functions. Eight keys (printed in blue) are preprogrammed with dual functions.

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

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

Fn-Left Ctrl — Simulates pressing the right control key to support IBM 327X connections (not supported in U.S./Canada).

Fn-F3 — Toggles the video mode between LCD only, CRT only, Simultaneous mode, and TV out.

Fn-F4 — Sets standby power management mode on, in Windows NT.

— In Windows NT, press any key to resume from Standby mode.

— No function when Windows 98/2000 configured for Advanced Configuration and Power Interface (ACPI). In Windows 98/2000, Standby is equivalent to Windows NT Suspend mode. To resume from Windows 98/2000 Standby mode, press the Power button.

Fn-F6 — Toggles the system beep off and on.

Fn-F7 — Toggles between various power management levels in Windows NT. Beeps indicate the level chosen as follows:

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

No function when Windows 98/2000 configured for Advanced Configuration and Power Interface (ACPI).

Fn-F8 — Increases the LCD's brightness (eight settings).

Fn-F9 — Reduces the LCD's brightness (eight settings).

Fn-F10 — Provides zoom in/out control.

Fn-F12 — Toggles the scroll lock feature (not supported in U.S./Canada).

Windows keys — Use the following two shortcut keys for quick access to several functions.

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

— Floating Window key – displays the Start menu.

- 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.

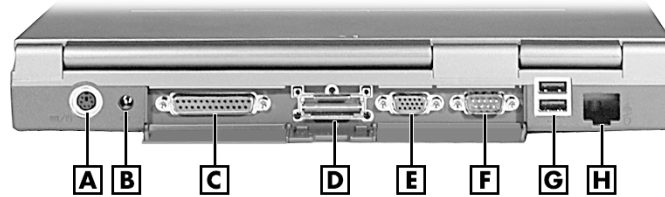
When you press **Num Lock** again, the keys revert to their normal functions as typewriter keys.

- 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.
- 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.
- Cursor Control keys — Cursor control keys 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.
- NEC VersaGlide — works like a standard computer mouse. Move your fingertip over the VersaGlide to control the position of the cursor. Use the selection buttons below the VersaGlide to select menu items.
- Speakers — provides stereo sound for multimedia presentations or listening pleasure.
- IR Port — allows file transfer between the NEC Versa and an IR-equipped desktop or notebook computer.
- Microphone — allows recording of monophonic sound directly into the notebook computer.
- Audio Ports
 - Microphone — Allows connection of an external microphone for monophonic recording or amplification through the unit. Plugging in an external microphone disables the built-in microphone.
 - Line In — Allows use of 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 — Allows use of plug in stereo headphones or powered speakers.
- Volume Control — Allows speaker volume control through the thumb wheel.

Around the Back of the System

System ports for connecting the NEC Versa VXi to optional devices (like a printer or external monitor) are on the back of the system. The ports are described after the figure.

Back system features



A – PS/2 Port
B – AC Power Port
C – Parallel Port
D – Expansion Port

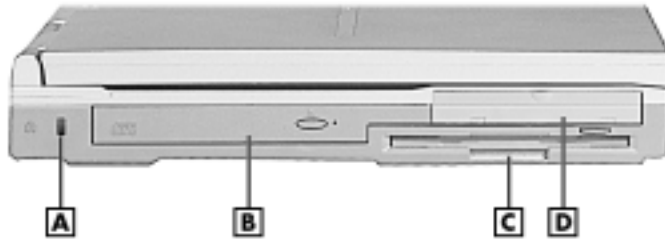
E – VGA Port
F – Serial Port
G – USB Ports
H – Modem/LAN Port

- 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-adapter cable, you can connect up to two of these devices at the same time.
- AC Power Port — Attach the NEC Versa VXi to the AC power source using the AC adapter that comes with the system. Keep the system connected to AC power whenever possible to keep the battery pack and internal CMOS battery charged.
- Parallel Port — Use this port to connect a parallel printer or other parallel device. The parallel port default is bidirectional (Bi-Dir). The port also supports Enhanced Capabilities (ECP) and output only protocols.
- Expansion Port — Use this port to connect the Port Replicator.
- VGA Port — Use this 15-pin port to attach an external monitor to the NEC Versa VXi.
- Serial Port — Use this port to connect a serial printer or other serial device.
- USB Ports — Each Universal Serial Bus (USB) port allows connection of up to 127 USB-equipped peripheral devices (for example, printers, monitors, scanners) to the NEC Versa VXi.
- Modem/LAN Port — NEC includes a 56K fax/data modem, mini-PCI LAN, or combination mini-PCI LAN/modem.

Around the Left Side of the System

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

Left side features



A – Kensington Lock Latch
B – CD-ROM Drive
C – Diskette Drive
D – Hard Disk Drive

- Kensington Lock Latch — This latch allows the attachment of a Kensington security lock or other compatible lock to secure the notebook from theft.
- CD-ROM Drive — Allows loading and starting programs from a compact disc (CD) and play audio CDs. Some systems ship with a DVD-ROM drive, a CD read/write drive, or a combination DVD-ROM and CD read/write drive installed.
- Diskette Drive — A 3.5-inch, 1.44-MB diskette drive comes installed in the NEC Versa.
- Hard Disk Drive — An internal hard disk drive comes installed in the NEC Versa. The disk drive is upgradeable.

Around the Right Side of the System

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

Right side features



A – Battery Bay
B – Fan
C – PC Card Slots
D – TV Out

- Battery Bay — Depending upon the model, the battery bay contains a rechargeable Nickel-Metal-Hydrate (NiMH) or Lithium-Ion (Li-Ion) battery pack.
- Fan — Allows the system to cool properly and maintain a safe operating environment.



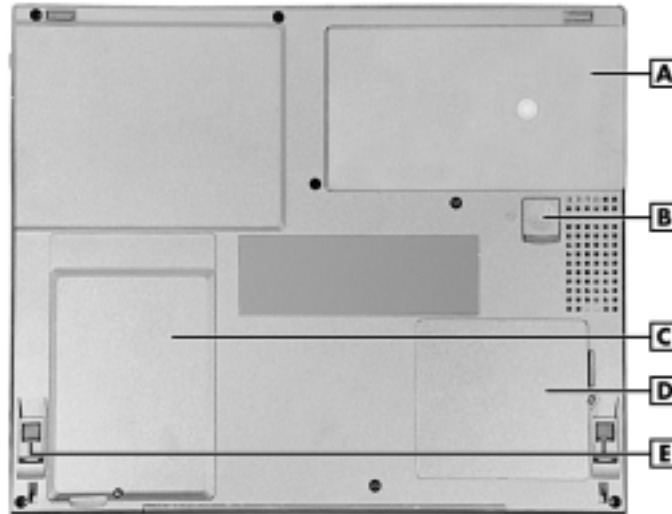
CAUTION Do not block the fan while the NEC Versa VXi is in use.

- PC Card Slots — Two PC card slots allow insertion of two Type II PC cards or one Type III PC card in the bottom slot. Card BUS cards are supported and Zoom Video is supported in the top slot.
- TV Out — Allows you to connect to a television.

Around the Bottom of the System

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

Bottom features



- | | |
|----------------------------------|-----------------------------|
| A – Battery Bay | D – Memory Module Bay Cover |
| B – Battery Release Latch | E – Tilt Foot |
| C – PCI LAN/Modem Card Bay Cover | |

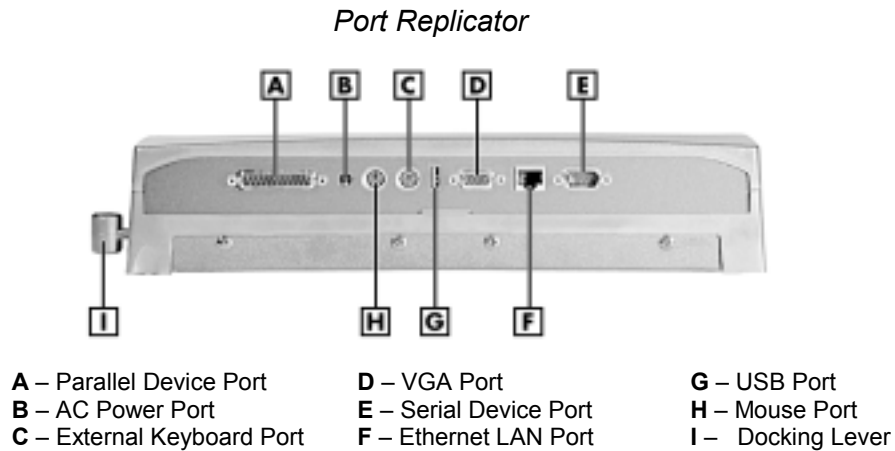
- Battery Bay — Equipped with a rechargeable Nickel-Metal-Hydride (NiMH) or (depending on the model) Lithium-Ion (Li-Ion) battery.
- Battery Release Latch — Slide the latch to the other end and hold it. While holding the latch, slide the battery bay outwards to remove the battery.
- Memory Module Bay Cover — Remove the screw to access two SO-DIMM slots. One slot has a SDRAM memory board configured by the factory. The other is empty for upgrade use.
- PCI LAN/Modem Card Bay Cover — Remove the screw to access the 56K fax/data modem, mini-PCI LAN, or combination mini-PCI LAN/modem.
- Tilt Foot — Adjust to provide flexible keyboard angle.

Around the Port Replicator

The NEC Port Replicator is an accessory that duplicates some of the ports found on the back of the NEC Versa VXi system. It also has a LAN port for a network connection and a Kensington lock. The lock secures the NEC Versa VXi to the Port Replicator and secures the Port Replicator to the desk. The user can keep the NEC Port Replicator in the office and connected to peripherals while taking the NEC Versa VXi on the road.

The ports on the Port Replicator are as follows.

- Parallel Port — Connects to a printer. You can change the LPT Mode in the Setup program.
- AC Power Port — Connects to an AC adapter.
- PS/2 Mouse Port — Connects to a PS/2 mouse.
- PS/2 Keyboard Port — Connects to a 6-pin standard PS/2-style keyboard.
- USB Port — Connects up to 127 peripheral devices to your notebook computer.
- VGA Port — Connects to an external VGA/SVGA monitor.
- LAN Port — Connects via an RJ45 connector to the system's built-in LAN or modem/LAN card.
- Serial Port — Connects to a serial device, such as an external modem.



Internal Components

Review the following sections for a description of the system's internal hardware.

Battery Pack

The Nickel Metal-Hydride or Lithium-Ion battery is the main power source in the NEC Versa VXi computer. Chapter 9 lists battery specifications. The battery pack installs in the compartment on the bottom of the NEC Versa.

Diskette Drive

The NEC Versa VXi ships with a 3.5-inch, 1.44 MB diskette drive.

CD-ROM/DVD-ROM/CD-Read/Write Drive

A 24X CD-ROM drive, a DVD-ROM drive, or a CD-read/write (CD-RW) drive comes installed in the NEC Versa VXi system.

Hard Disk Drive

A standard 2.5-inch, 9.5 mm hard disk drive ships with the system.

CMOS Battery

This lithium battery (3 Volts, 30 mAH capacity) 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 charges when the NEC Versa is connected to AC power. The CMOS battery may discharge completely if the NEC Versa notebook remains unused for approximately two months.

Chipsets

The following table provides information on the system chipsets.

System Chipsets

Chip	Manufacturer	Description
Intel Celeron 600 MHz, 650 MHz, 700 MHz, 750 MHz, or higher	Intel	CPU
Intel Pentium III 700 MHz, 750 MHz, 800 MHz, 850 MHz, 900 MHz, or 1 GHz (all with SpeedStep)		
82440MX	Intel	System Controller
FDC37N869	Standard Microsystems	Super I/O
Mobility-M1	Ati	Video
YMF743	Yamaha	Audio
M38813E4	Mitsubishi	Keyboard Controller
PCI1420	Texas Instruments	PCI CardBus Controller

2

System Configuration and Setup

- Power Sources for the NEC Versa
- BIOS Setup
- Updating the BIOS
- Managing System Power
- NEC Utilities
- SpeedStep Applet
- SoftDVD Player
- NEC CW-RW CD
- Personal Code Setting Utility
- NEC Info Center
- Partition Magic
- Application and Driver CD
- Product Recovery CD
- DIP Switch Settings

Power Sources for the NEC Versa

The NEC Versa can be operated just about anywhere using one of the following power sources:

- AC adapter connected to an electrical wall outlet (using AC power)
- battery pack
- optional auto adapter (for details about its use, refer to the accessory sheet that ships with the option).

See the following sections for specific information about using the NEC power sources.

Using the AC Adapter

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

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

! 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 and must meet EN609050 standards.

Note The AC outlet voltage should be in the range of 100-240 volts AC. Verify that the cord and plug are appropriate for the AC source.

Connecting the AC Adapter

Connect the AC adapter as follows:

1. Connect the AC adapter cable to the power port on the back of the NEC Versa VXi.
2. Plug one end of the AC power cable into the AC adapter and the other end into a properly grounded 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 the System On and Off

To power on, locate the Power button on the upper right hand side of the notebook, above the keyboard, and press the button. To power off the system, press the Power button. In Windows, the computer automatically shuts down, when “Shut Down” is selected from the Start menu. You do not need to press the Power button to switch off the computer.

Powering On with Windows 2000

If a generic Windows 2000 operating system is installed or hibernate support is disabled , a message about the hibernation file appears at power on. Enable Hibernate support to remove this message.

Follow these steps to enable Hibernate support:

1. On the Windows taskbar, click Start, Settings, and Control Panel.
2. Double click Power Options.
3. Select the Hibernate tab.
4. Check the box to enable Hibernate support.
5. Click OK and close Control Panel.

Using the Battery


The NEC Versa VXi system comes with a rechargeable Nickel Metal-Hydride (NiMH) or Lithium-Ion (Li-Ion) battery. 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 the system, connect it to AC power using the AC adapter. This also recharges the battery.

When battery power drops to the 8% level where the Battery Warning is activated, the power LED lights yellow.

When battery power reaches 3% (Windows 98 and Windows 2000), the power LED lights amber and the system beeps a warning and the system goes into Suspend or Save to File mode.

When battery power reaches 8% (Windows NT), the power LED lights amber and the system goes into Suspend.

 **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 a short circuit.
 - Make sure the battery is properly installed in the battery bay.
 - Read the precautions printed on the battery.
-

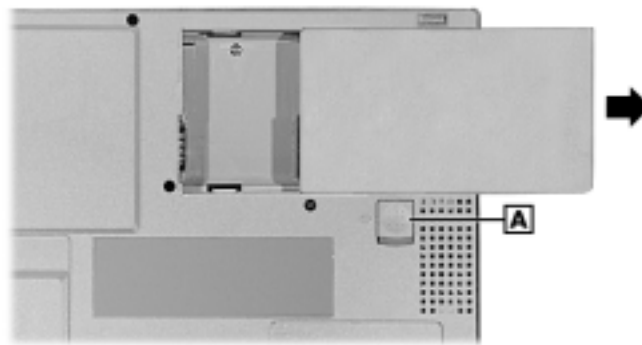
Replacing the Battery

Replace the battery installed in the system as follows.

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

1. Save all files, exit Windows, and turn off system power.
2. Close the LCD panel and turn over the system.
3. Remove the battery by sliding the release latch towards the back of the system, hold the latch in place, and slide the battery out of the system.

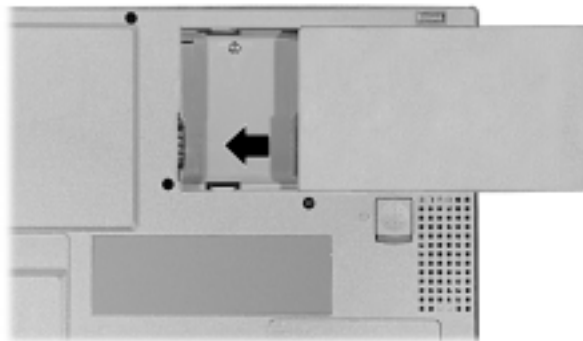
Removing the battery



A – Battery Release Latch

4. Install the new battery as follows:
 - Locate the alignment groove on the edge of the battery and inside the battery bay.
 - Align the grooves on the battery with the grooves in the bay.
 - Slide the battery into the bay until securely locked into place.

Installing the battery



5. Turn over the system.

Low Battery Power

When battery power gets low, connect the system to the AC adapter. If an AC adapter is not available, change the battery using the battery replacement procedure. See the section, “Replacing the Battery.”


Returning the Battery to its Normal State

To return the battery to its normal state, try the following:

- remove and then reinstall the battery
- reinstall the battery in the NEC Versa and fully recharge the battery (to 100%).

Battery Handling

Review the following before handling the system battery.

 **CAUTION** Only use the NiMH or Li-Ion batteries designed for use in the NEC Versa VXi computer. Mixing other NEC Versa VXi batteries, other manufacturers' 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.
- Clean the battery connectors with a dry cloth if they get dirty.
- When not in use, store the battery in a cool dry area.
- Keep the battery out of the reach of children.

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

- Shorter work times.
- Discoloration, warping.
- Hot to the touch.
- Strange odor.

Extending Battery Life

The NEC Versa VXi NiMH or Li-Ion battery life is affected by the following conditions:

- When it is new and fully charged.
- When no peripherals are connected to the NEC Versa VXi.
- When there are no options installed.

Enabling power management features increases battery life.

Extend the life of the system's main battery by turning down the screen brightness (**Fn + F9**).

Conserving Battery Power

In the Windows 2000 environment, the default setting for a critical low battery state is Standby. Standby does not power down the system to conserve battery power.

NEC Computers recommends changing the Windows 2000 Standby default setting for a critical low battery state to Hibernate to prevent data loss during battery-powered system operation.

The power management state, Hibernate or Save-To-File (STF), saves the system's current working environment to the system's hard drive, then powers down the system to conserve battery power. You can configure the power management settings to enter hibernation when the system reaches a critical low battery state.



CAUTION Change the Windows 2000 Standby default power management setting for a critical low battery state to Hibernate to prevent data loss during battery-powered system operation.

Follow these steps to modify the default setting for a critical low battery state:

1. From the Windows Start menu, select Settings and Control Panel.
2. Double click Power Options and select the Alarm tab.
3. Click the Alarm Action button in the Critical Battery Alarm section.
4. Use the dropdown box labeled, "When the alarm goes off, the computer will:" to change the default setting to Hibernate.
5. Click OK to exit Alarm Actions.
6. Click OK to exit Power Options.
7. Close the Control Panel.

Charging the Battery

Charge time depends on whether or not the system is being used. There are two ways to charge the battery while it is installed in the NEC Versa VXi.

- When the system is off or in Suspend mode and the AC adapter is connected, charge time is approximately 3 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 BIOS Setup and Windows power management), and turn on the system. Once the battery is fully discharged, plug in the AC adapter and recharge the battery.

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 data when you hear the beep and take proper steps to provide power to the 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.

To avoid personal injury and property damage, read these battery precautions on handling, charging, and disposing Li-Ion batteries.

- Keep the battery away from heat sources including direct sunlight, open fires, microwave ovens, and high-voltage containers. Temperatures over 140° F (60°C) 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 connectors. Metal objects in contact with the connectors can cause a short circuit and damage.
 - If the battery leaks onto skin or clothing, wash the area immediately with clean water. Battery fluid can cause a skin rash and damage fabric.
 - If battery fluid gets into eyes, DO NOT rub; rinse with clear water immediately and consult a doctor.
-

Precautions for Recharging the Battery

Adhere to the following precautions when recharging the battery.

- Use only the NEC battery charger designed for the NEC Versa battery type. Different NEC Versa models require different batteries and battery chargers.
- Charge the battery for the specified charge time only.
- During charging, keep the environmental temperature between 41°F and 95°F (5°C to 35°C).
- Read the instructions that came with the battery charger before charging the battery.

Disposing of the Battery

Before disposing of the battery, put adhesive tape on the connectors. Depending upon the NEC Versa VXi 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.

System Batteries

The Nickel Metal-Hydride or Lithium-Ion battery is the main power source in the NEC Versa VXi computer. Chapter 9 lists battery specifications. In addition to the main battery, the CMOS battery provides power to maintain system configuration settings.

The CMOS 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).

System Power Cord

This equipment uses an ungrounded power cable. Replace the cord if it becomes damaged.



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.

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 cover before the unit is restarted.

BIOS Setup

The NEC Versa VXi computer comes with a BIOS Setup hardware program that allows viewing and setting of system parameters. BIOS Setup also allows setting of password features that protect the system from unauthorized use.

Use BIOS Setup to:

- set the current time and date
- customize the operating system to reflect the computer hardware
- secure the system with a password
- balance performance needs with power conservation.

Access the BIOS utility at power-on. Press **F2** when the following prompt appears.

Press <F2> to Enter BIOS Setup.

When you press **F2** to enter BIOS 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 enters BIOS Setup automatically. If you want to fix the error, carefully read the error message that appears above the prompt (taking notes if you want), and press **F2**. You will see this message if the CMOS battery becomes fully discharged.

BIOS Setup Main Menu

After pressing **F2**, the system displays the BIOS Setup Main Menu screen, similar to the following.

BIOS Setup Main Menu

AMIBIOS HIFLEX SETUP UTILITY – VERSION X.XX (C)1999 American Megatrends, Inc. All Rights Reserved
BIOS Revision XXXXXXXX Standard CMOS Setup Advanced CMOS Setup System Security Setup Power Management Setup Boot Device Setup Peripheral Setup Change Language Setting Refresh Battery Auto Configuration with Defaults Save Settings and Exit Exit Without Saving
Advanced CMOS setup for configuring system options ESC: Exit ↑↓: Sel F3/F4: Color F10: Save & Exit

Use the up and down arrow keys (located on the lower right corner of the keyboard) to toggle through the BIOS Setup menu items.

Looking at Screens

BIOS setup screens have three areas as shown next.

Advanced CMOS Setup

AMIBIOS SETUP – ADVANCED CMOS SETUP (C)1999 American Megatrends, Inc. All Rights Reserved		
Video Out Type	NTSC	Item-specific help text appears here.
LCD Panel View Expansion	ON	
PS/2 Port Warm Swap	Enabled	
Internal Mouse	Enabled	
		ESC Exit ↑↓ Select PgUp/PgDn: Modify F3/F4: Color

- Parameters — The left side of the screen. This area lists parameters and their current settings.
- Available Options and Help — The right side of the screen. This area lists alternate settings and Help text for each parameter.

-
- **Key Legend** — The bottom right corner of the screen. These lines display the keys that move the cursor and select parameters.

Options that are grayed out are not available for the current selection.

Using Keys

The following table lists the BIOS Setup keys and their functions.

BIOS Setup Key Functions

Key	Function
↑ ↓	Moves the cursor between the displayed parameters.
PgUp/PgDn	Toggles through 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 screen. From the Main Menu screen, displays the prompt, "Quit without saving."
F3/F4	Changes the screen color.
F10	Saves and exits the BIOS Setup utility.

Checking/Setting System Parameters

The BIOS Setup utility consists of a number of screens, each representing a specific area of the BIOS. The following tables list the BIOS parameters, their factory default settings, alternate settings, and a description of each setting. See the item-specific help that appears on each Setup screen for more details.

The BIOS Setup utility is divided as follows:

- Standard CMOS Setup
- Advanced CMOS Setup
- System Security Setup
- Power Management Setup
- Boot Device Setup
- Peripheral Setup

Resetting System Parameters

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

Standard CMOS Setup

Use the Standard CMOS Setup screen to view the System Time, System Date and to modify drive parameters and related settings.

Standard CMOS Setup

Parameter	Default Setting	Alternate Setting(s)
Date	mm/dd/yyyy	
System Memory		(automatically detected)
Time	hh:mm:ss	
Diskette Drive A	1.44 MB, 3 1/2	Not installed, 1.44 MB 3 1/2
Internal	Auto	User Defined, CD/DVD, Not installed
Internal Slave	Auto	User Defined, CD/DVD, Not installed
Boot Sector Virus Protection	Disabled	Enabled

- **Date** — Sets the NEC Versa's calendar month, day, and year. These settings remain in memory even after you turn off system power.
To set the date, use the **Tab** or arrow keys to move from field to field. Use the **PgUp** or **PgDn** key to change the numbers within each field.
- **System Memory** — Displays the amount of system memory currently installed in the system.
- **Time** — Sets the time, enter the current hour, minute, and second in *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 the numbers within each field.
- **Diskette Drive** — Designates the drive type for the diskette drive.
- **Internal Drives** — Assigns devices to the internal drives in the system.
- **Boot Sector Virus Protection** — Write protects the boot sector of the hard disk drive to avoid infection by some virus types.

Advanced CMOS Setup

Use the Advanced CMOS Setup to set the following functions.

Advanced CMOS Setup

Parameter	Default Setting	Alternate Setting(s)
Video Out Type	NTSC	PAL
LCD Panel View Expansion	On	Off
PS/2 Port Warm Swap	Enabled	Disabled
Internal Mouse	Enabled	Disabled, Auto

- Video Out Type — Specifies the signal type used by the video device connected to the TV Out Port.
- LCD Panel View Expansion — Specifies whether the panel view is reduced/off or expanded/on.
- PS/2 Port Warm Swap — Specifies whether or not you can swap a PS/2 device during system operation.
- Internal Mouse — Specifies whether or not you can use both the internal and the external mouse.

System Security Setup

Use the System Security Setup to protect the system from unauthorized access.

System Security Setup

Parameter	Default Setting	Alternate Setting(s)
Security Mode	Password	SmartCard, FingerPrint
Assign Supervisor Password	Press Enter	
Assign User Password	Press Enter	
Boot Password Required ¹	No	Yes
Resume Password Required ²	No	Yes
Assign Supervisor SmartCard	Press Enter	
Assign User SmartCard	Press Enter	
Clear Supervisor SmartCard	Press Enter	
Clear User SmartCard	Press Enter	
Assign Supervisor FingerPrint	Press Enter	
Assign User FingerPrint	Press Enter	
Clear Supervisor FingerPrint	Press Enter	
Clear User FingerPrint	Press Enter	
Assign HDD Password	Press Enter	
Internal HDD password	Disabled	Enabled

¹ Option is not available until supervisor password is set up.

² Only active when Boot Password is set to Yes.

- Assign Supervisor Password — Establishes password protection for entering the BIOS Setup utility, booting the system, and resuming from Suspend.
- Assign User Password — Establishes a user password once a supervisor password is set. The user password allows the system to boot and resume from Suspend and Save-to-File.
- Boot Password Required — Indicates whether or not a password is required to boot the system.
- Resume Password Required — Indicates whether or not a password is required to resume the system. Boot Password must be defined to activate this parameter.
- Assign Supervisor SmartCard — Establishes access privileges for entering the BIOS Setup utility, booting the system, and resuming from Suspend.
- Assign User SmartCard — Establishes user access once supervisor access is set. The user privileges allows the system to boot and resume from Suspend and Save-to-File.
- Clear Supervisor SmartCard — Removes the security setting for Supervisor access.
- Clear User SmartCard — Removes the security setting for User access.
- Assign Supervisor FingerPrint — Establishes access protection for entering the BIOS Setup utility, booting the system, resuming from Suspend, and applications.

-
- Assign User FingerPrint — Establishes user access once supervisor access is set. The user privileges allows the system to boot and resume from Suspend, Save-to-File, and applications.
 - Clear Supervisor FingerPrint — Removes the security setting for Supervisor access.
 - Clear User FingerPrint — Removes the security setting for User access.
 - Assign HDD Password — Allows you to assign a password to allow or restrict access to the hard disk drive contents.
 - Internal HDD Password — Enables or disables the HDD password.

Password Protection

The NEC Versa supports a password for system security on several levels. Keep in mind that you must set the supervisor password before the BIOS Setup utility allows you to set a user password.

Once you set a supervisor password, you must enter it before you can enter BIOS Setup, access the system at startup, or resume from Suspend or Save-to-File, depending on your configuration selection.

Establishing Passwords

To establish password protection for entering the BIOS Setup Utility or accessing the system at startup, you must set the supervisor password before setting a user password.

- To enter a password, select Assign Supervisor Password, enter the password, re-enter the password to confirm, and press any key to continue. Repeat the procedure to set the user password.
- To initiate password protection while you step away from the system, press **Ctrl, Alt, Backspace** or Suspend/Save-to-File the system. The Caps lock and Scroll lock LEDs alternately flash indicating that you must enter a password to resume operation.

In Windows 98, the supervisor and user passwords are only valid when resuming from Save-to-File. To establish password protection for resuming from Standby or Hibernation modes you must do the following:

- Set a Windows password in Control Panel, Password Properties, Change Passwords.
- Enable the option “Prompt for password when the computer goes off standby,” in Control Panel, Power Management Properties, Advanced.

SmartCard Protection

The system also allows you to establish system protection using a SmartCard.

The NEC Versa supports a SmartCard protection for system security on several levels. Keep in mind that you must set up supervisor access before the BIOS Setup utility allows you to set up user access.

Once you setup supervisor access, you must enter it before you can enter BIOS Setup, access the system at startup, or resume from Suspend or Save-to-File, depending on the configuration selection.

FingerPrint Protection

The system also allows you to establish system protection using an external fingerprint reader.

The NEC Versa supports a FingerPrint protection for system security on several levels. Keep in mind that you must set up supervisor access before the BIOS Setup utility allows you to set up user access.

Once you setup supervisor access, you must enter it before you can enter BIOS Setup, access the system at startup, or resume from Suspend or Save-to-File, depending on the configuration selection.

Hard Disk Drive Passwords

The NEC Versa allows you to establish password protection for the internal hard disk drive. Hard disk drive (HDD) password protection restricts access to the drive, if the drive is removed from the NEC Versa and installed in another system. You are not required to enter your hard disk drive passwords while the drive remains in the current system.

The HDD passwords are written to the system BIOS and to the hard disk drive to ensure that the password protection travels with the drive when moved from system to system.

Establishing Hard Disk Drive Passwords

To establish password protection for the system's hard disk drive you must establish a master password, establish a user password, and enable the established passwords for the internal HDD. Follow these steps to establish HDD passwords and to enable HDD password protection.

1. Enter the BIOS setup, highlight and select the System Security Setup.

2. Highlight Assign HDD Password and press **Enter**.

The system prompts you to enter a master password.

3. Enter a master HDD password and press **Enter**.

The system prompts you to enter the password again to verify.

4. Enter the master password and press **Enter**.

The system confirms the creation of the master password and prompts you to enter a user password.

5. Enter a user password and press **Enter**.

The system prompts you to enter the password again to verify.

6. Enter the user password and press **Enter**.

The system prompts you to "Press any key to activate."

7. Highlight and select Internal HDD Password and use the **PgUp/PgDn** keys to enable the selection. (This enables password protection for the internal HDD.)

Changing Hard Disk Drive Passwords

To change hard disk drive passwords, enter the System Security Setup, highlight Internal HDD Password and enter the current password that you wish to change. If you enter the current master password, you are prompted to enter a new master password. If you enter the current user password, you are prompted to enter the new user password. If you do not wish to establish a new master or user password, press **Esc** instead of entering a new password.

Using Hard Disk Drive Password Protection

To facilitate the transfer of one or more HDDs between system, establish a single master password (and document the password in a secure place). Establish different user passwords to limit access to specific systems.

! WARNING If you set the master and user password on a hard drive, the passwords can never be removed. They can be changed. If the master password is forgotten and the drive is installed in another system, you cannot access the data on the hard drive.

If the hard drive is installed in another NEC Versa system with hard disk drive security enabled, the password must be entered to allow access to the hard drive. **If this NEC Versa system does not support hard disk drive security, you cannot access the data on the hard drive.**

With hard disk drive security enabled on the original NEC Versa system, the system boots normally.

If the hard drive is installed in another NEC Versa system with security enabled, you must enter the master password to access the hard disk drive. If the hard drive is installed in another NEC Versa system with security disabled, the system boots with no password required.

Moving the Hard Drive

When a password protected HDD is moved from its original system and installed in another system, error messages appear indicating that the drive is locked. Next, the Security Setup screen appears requiring the user to enter the master password to unlock the drive. Highlight the HDD password line and enter the master password, when prompted.

To take advantage of HDD password protection in another system, the system must be equipped with the same HDD password protection feature. To determine if the system has HDD password, check the System Security Setup in the BIOS setup to see if there are provisions for establishing HDD passwords.

Power Management Setup

If the Versa VXi system ships with the Windows 98/2000 operating system, the Advanced Configuration and Power Interface (ACPI) controls most power management functions through the Power Management Properties screen in Windows 98 (Power Options Properties screen in Windows 2000). For details about ACPI power management, see the section, "Managing System Power," later in this section.

The BIOS Power Management Setup screen is described next. Use SystemSoft's PowerProfiler to manage power in the Windows NT environment. Access the PowerProfiler icon on the Windows NT taskbar.

Use the Power Management Setup to balance high performance and energy conservation.

Power Management Setup

Parameter	Default Setting	Alternate Setting(s)
System Switch	Power Button	Sleep Button
Power Management using AC Power	Off	On
Power Savings Level	Longest Life	High Perform/Custom/Off
CPU Speed Control	100%	12.5, 25, 50%

Power Management Setup

Parameter	Default Setting	Alternate Setting(s)
Hard Disk Timeout ¹	2 minutes	5/30/45 sec; 1/4/6/8/10/15 min. Off
Video Timeout ¹	2 minutes	30/45 sec.; 1/4/6/8/10/15 min. Off
Peripheral Timeout ¹	On	Off
Audio Device Timeout ¹	On	Off
Standby Timeout ¹	4 minutes	Off/1/2/6/8/10/15 min.
Auto Suspend Timeout ¹	10 minutes	Off/5/15/20/25/30 min.
LCD Suspend	Disabled	Enabled
Suspend Option	Suspend	STF
Auto Save-to-File	Enabled	Disabled
Panel Brightness	Auto	User Defined
Suspend Warning Tone	Enabled	Disabled
Remote Power On	Disabled	Enabled
Wake Up Alarm	Disabled	Enabled
Resume Alarm Time ²	Off	Set time in 5 min. increments when Wake Up Alarm is set.
Intel® SpeedStep™ technology	Automatic	Disabled, Battery Optimized

¹ Available when power savings is set to Custom.

² Resume alarm time is selectable when wake up from suspend alarm is set.

- System Switch — Sets the Power button as a power switch or a sleep button.
- Power Management Using AC Power — Specifies whether to enable power management features when AC power is in use. When AC power is connected to the NEC Versa system, power management is usually disabled. If you enable this parameter, the system automatically activates the power management profile you set, even when AC power is used.
- Power Savings Level — Specifies one of four levels of power management.
 - High Performance — provides good battery life and best performance with only minimal power conservation Use while on the road or traveling short distances.
 - Longest Life — provides best battery life, the maximum amount of power savings, and good performance. Use while traveling long distances.
 - Off — disables power management and all device timeouts. Works well in an office environment while powering the NEC Versa with AC power.
 - Custom — lets you define power management levels and specific device timeouts according to your own needs and present environment. Custom lets you set the following timeouts.

Custom Timeout Options

Option	Definition
CPU Speed Control	Sets CPU performance at one of four levels.
Hard Disk Timeout	Sets the time delay before the hard disk powers down.
Video Timeout	Sets whether to timeout the video or not.
Peripheral Timeout	Sets whether to timeout the peripheral or not.
Audio Device Timeout	Sets the time delay before the audio device powers off.
Standby Timeout	Selects the system standby timeout period.
Auto Suspend Timeout	Defines how much time elapses before the Suspend Option occurs (Suspend or Save to File).

- LCD Suspend — Allows you to suspend the system when the LCD panel is closed.
- Suspend Option — Specifies either Suspend or Save to File (STF) as the default power management mode.
- Automatic STF — Enables the system, after 30 minutes in Suspend mode, to save the current working environment to a special file on the hard disk and to power down the system.

If Auto Save to File is set to Off and the save-to-file area is present on the hard drive, pressing the **Fn-Power/Sleep** key combination puts the system into Save to File mode.

- Panel Brightness — Selects the LCD screen brightness.
- Suspend Warning Tone — Specifies whether the system warning tone sounds when Suspend mode starts. It is best to keep this option enabled.
- Wake Up from Suspend Alarm/Resume Alarm Time — Allows the alarm to wake up the system from Suspend. Designates the time parameter in five minutes increments.(Not applicable in Windows 98/2000 with ACPI.)
- Intel SpeedStep Technology — Optimizes CPU performance when the system is powered by AC or by battery.

Boot Device Setup

Boot Device Setup allows you to define the following functions.

Boot Device Setup

Parameter	Default Setting	Alternate Setting(s)
Quick Boot	Enabled	Disabled
Silent Boot	Enabled	Disabled, Black
Boot Display Device	Simul. Mode	CRT only, LCD only
BootUp NumLock	Auto	On, Off
1 st Boot Device ¹	CD/DVD	Disabled, IDE HDD, Floppy CD/DVD ,SCSI, Network
2nd Boot Device ¹	Floppy	Disabled, IDE HDD, CD/DVD
3rd Boot Device ¹	IDE HDD	Disabled, Floppy, CD/DVD
Try Other Boot Devices	Yes	No

¹ Bootable device when set to IDE hard drive. Only one IDE device is bootable.

- Quick Boot — Specifies whether or not the system performs all tests during system boot.
- Silent Boot — Specifies whether or not to display the NEC logo during the system boot.
- Boot Display Device — Specifies the display device(s) for system boot messages.
- BootUp NumLock — Specifies whether NumLock is On or Off at system startup.
- Boot Devices — Specifies the sequence of boot devices and whether or not the system attempts to boot from a device other than those specified.
- Other Boot Devices — Allows you to specify IDE devices as bootable devices.

Peripheral Setup

The Peripheral Setup menu displays the connection locations between the system and the Input/Output (I/O) ports and lets you specify different port assignments as needed.

Peripheral Setup

Parameter	Default Setting	Alternate Setting(s)
USB Controller	Disabled	Enabled
Internal Hard Drive	Enabled	Disabled
Serial Port	Auto	Disabled/(PnP OS Setup ¹) COM1,IRQ4/COM2,IRQ3 COM3,IRQ4/COM4,IRQ3
Parallel Port	Auto	Disabled/LPT1/LPT2 (PnP OS Setup ¹)
Parallel Mode	Bi-Dir	Uni-Dir/ECP/EPP
IR Serial Port	Disabled	Auto/(PnP OS Setup ¹) COM2,IRQ3/COM3,IRQ4/ COM4,IRQ3

¹ Appears only when configured by the Windows 98 device manager.

Peripheral Setup allows you to define the following functions.

- USB Controller — Enables or disables the USB controller.
- Internal Hard Drive — Enables or disables the internal hard drive.
- Serial Port — Disables the port or changes its address assignment.
- Parallel Port/Parallel Mode — Disables or reassigns the parallel port and selects a parallel port mode.
- IR Serial Port — Enables, disables, or reassigns the IR serial port.

Other BIOS Setup Options

BIOS Setup offers other options, including the following:

- Change Language Setting — Controls the BIOS setup language display. English, French, and Japanese are the available options.
- Refresh Battery — Launches the Refresh Battery utility. Once launched, the utility fully discharges the battery to eliminate any residual memory effect. Once refreshed, the battery is conditioned to recharge to its full capacity. To recharge the battery, connect the NEC Versa to AC power. This process may take up to four hours to complete.
- Auto Configuration with Defaults — Loads default settings.
- Save Settings and Exit — Accepts changes made to current settings, saves to CMOS, and exits BIOS Setup.
- Exit Without Saving — Reverts to previously selected settings and exits Setup.

Updating the BIOS

Use the BIOS Setup utility to configure the system's software and hardware features. Use the BIOS Update Diskette, for the specific model only, to update the NEC Versa system BIOS.

Note You only need to update the BIOS if NEC Computers makes significant improvements or fixes to the current system BIOS. An authorized NEC Computers dealer or NEC Computers Support Services representative can help you determine this.

To update the system BIOS, you must:

- Obtain the BIOS Update
- Prepare the BIOS Update Diskette
- Perform the BIOS Update

Obtaining the BIOS Update

If you are informed that the default BIOS needs an update, contact NEC Computers Technical Support at (800) 632-4525, Fax (801) 579-1552, or access the NEC Computers web site (www.neccomp.com) to obtain a copy of the BIOS update.

Note If you are outside the U.S. or Canada, please contact a local NEC Computers office or dealer in your country.

Preparing the BIOS Update Diskette

Before using the BIOS update diskette you must make the diskette BIOS flash ready. Refer to the **readme.txt** file on the diskette before using the diskette.

Follow these instructions to prepare the BIOS Update Diskette.

1. Scan the hard drive for any computer viruses.
2. Enable the diskette for write access.
3. Insert the diskette into the diskette drive.
4. Type **a:install** at the DOS prompt and follow the on-screen instructions.

Install.bat copies the DOS system files from the hard drive onto the BIOS Update Diskette to make it BIOS flash ready.

The system prompts when the process is complete.

5. Scan the BIOS Update Diskette for computer viruses.

The diskette is ready for use.

Performing the BIOS Update

Follow these steps to perform the BIOS update.

1. Make sure the computer is operating under AC power and power is off. Insert the BIOS Update diskette into the diskette drive.
2. Power on the computer with the diskette in the drive. The computer boots and automatically loads the utility. A message similar to the following appears.

The NEC BIOS Update Utility should not be used to modify the BIOS in a Versa system which is docked. If the Versa is docked, please exit the BIOS Update Utility, power down, and undock the Versa before running the utility. Plug in the AC cable before restarting the flash utility.

3. Press **Enter** to continue.

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

4. 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.

5. Highlight the "Install New BIOS" option and press **Enter**.
6. Press **Y** and then press **Enter**. After about four minutes, a message appears telling you to remove the diskette from the drive and to power down.

Remove the diskette and power down by pressing and holding in the power button for four seconds to ensure proper shutdown.

The next time you power on the computer, the system will have the latest NEC Versa VXi computer BIOS revision level.

7. Enter Setup to restore the default parameter settings.
8. Be sure to modify any custom settings that you may have previously configured.

Managing System Power

In the Windows 98/2000 environment, the NEC Versa manages its power resources using the Advanced Configuration and Power Interface (ACPI) while the system is powered on using AC or battery (DC) power. ACPI enables the operating system to manage the power given to each attached device and to turn off a device when not in use.

In the Windows NT environment, the NEC Versa also uses SystemSoft's PowerProfiler to manage power resources and to balance performance with battery conservation. Access PowerProfiler via its taskbar icon or via the Programs menu.

Take advantage of the opportunity to manage power on the system to:

- Minimize battery drain.
- Preserve the life of the NEC Versa.
- Save time. For example, when returning from a urgent call or meeting, you don't have to reboot, just press the Power button to resume system operation.

Windows 98 Power Management Properties

In Windows 98, most ACPI power management settings are controlled through Windows Power Management Properties, not through the BIOS Setup utility, unless otherwise noted. To access Windows 98 Power Management Properties, go to Start, Settings, Control Panel, and double click Power Management.

The Power Management Properties features are as follows:

- Power Schemes
- Alarms
- Power Meter
- Advanced
- Hibernate
- SpeedStep (Pentium III systems only)

Windows 98 Power Schemes

Use the Power Schemes options to define the appropriate Power scheme for the system, and to set timeouts for standby, LCD panel, and hard disk. Define parameters for the system when running under AC (plugged in) or DC (running on batteries) power.

Power Schemes

Parameter	Default Setting	Setting Selections
Power Schemes	Portable/Laptop	Home/Office Desk, Always On
System Standby (Plugged In)	After 20 Minutes	1, 2, 3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never
System Standby (Running on batteries)	After 5 Minutes	1, 2, 3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never

Power Schemes

Parameter	Default Setting	Setting Selections
Turn off monitor (Plugged In)	After 15 Minutes	1, 2, 3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never
Turn off monitor (Running on batteries)	After 2 Minutes	1, 2, 3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never
Turn off hard disks (Plugged In)	After 30 Minutes	3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never
Turn off hard disks (Running on batteries)	After 3 Minutes	3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never

- Power Schemes — Defines the most appropriate power scheme for the computer.
- System standby — Selects the system standby timeout period for the system when running under AC or DC power.
- Turn off monitor — Selects the time delay before the LCD panel turns off.
- Turn off hard disks — Selects the time delay before the hard disk(s) power down.

Windows 98 Alarms

Use the Alarms screen to define the point at which the battery alarm activates. Define the alarm to either sound, display a warning message, or invoke Standby, Hibernate or Shutdown.

Alarms

Parameter	Default Setting	Setting Selections
Low battery alarm	10%	0-100%
Alarm Action Notification	Display message	Sound alarm
Alarm Action Power level	none	Standby, Hibernate, Shutdown
Critical battery alarm	3%	0-100%
Alarm Action Notification	Display message	Sound alarm
Alarm Action Power level	Hibernate	Hibernate, Shutdown, none

- Low battery alarm — Allows you to define a low battery alarm percentage, notification, and system action.
- Critical battery alarm — Allows you to define a critical battery alarm percentage, notification, and system action.

Windows 98 Power Meter

The Power Meter screen displays the remaining battery power and charging status for the primary battery. Choose to display either a percentage progress bar or a battery icon with percentage indicator for battery status information.

Windows 98 Advanced

The Advanced window allows you to select behaviors for the taskbar icon, standby password, LCD panel, when closed, and the Power button.

Advanced

Parameter	Default Setting	Setting Selections
Always show icon on taskbar	checked	unchecked
Prompt for password when computer goes off standby	unchecked	checked
When I close the lid on my computer	None	Hibernate, Shutdown, None ¹
When I press the Power button on my computer	Shutdown	Standby, Hibernate

¹ When None selected, LCD panel turns off when closed.

- Always show icon on the taskbar — Determines whether or not the Power Meter icon displays on the taskbar.
- Prompt for password when computer goes off standby — Determines whether or not the system prompts for the Windows password when resuming from Standby.
- When I close the lid of my computer — Defines the system action when the LCD panel is closed.
- When I press the Power button on my computer — Defines the system action when the Power button is used.

Windows 98 Hibernate

Use the Hibernate window to enable hibernate support. When the system hibernates, it performs a save-to-disk or save-to-file (STF). The current working environment is saved to the hard disk. Use the Power button to resume from hibernation and the system returns to its previous state.

Windows 2000 Power Options Properties

In Windows 2000, most ACPI power management settings are controlled through Windows Power Options Properties, not through the BIOS Setup utility. To access Windows 2000 Power Options Properties, go to Start, Settings, Control Panel, and double click Power Options.

The Power Options Properties features are as follows:

- Power Schemes
- Alarms
- Power Meter
- Advanced
- Hibernate
- SpeedStep (Pentium III systems only)

Windows 2000 Power Schemes

Use the Power Schemes options to define the appropriate Power scheme for the system, and to set timeouts for standby, LCD panel, and hard disk. Define parameters for the system when running under AC (plugged in) or DC (running on batteries) power.

Power Schemes

Parameter	Default Setting	Setting Selections
Power Schemes	Portable/Laptop	Home/Office Desk, Presentation, Always On, Minimal Power Management, Max Battery
Turn off monitor (Plugged In)	After 15 Minutes	1, 2, 3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never
Turn off monitor (Running on batteries)	After 5 Minutes	1, 2, 3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never
Turn off hard disks (Plugged In)	After 30 Minutes	3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never
Turn off hard disks (Running on batteries)	After 5 Minutes	3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never
System Standby (Plugged In)	After 20 Minutes	1, 2, 3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never
System Standby (Running on batteries)	After 5 Minutes	1, 2, 3, 5, 10, 15, 20, 25, 30, 45 minutes; 1, 2, 3, 4, 5 hours; Never

- Power Schemes — Defines the most appropriate power scheme for the computer.
- Turn off monitor — Selects the time delay before the LCD panel turns off.
- Turn off hard disks — Selects the time delay before the hard disk(s) power down.
- System standby — Selects the system standby timeout period for the system when running under AC or DC power.

Windows 2000 Alarms

Use the Alarms screen to define the point at which the battery alarm activates. Define the alarm to either sound, display a warning message, or invoke Standby, Hibernate or Shutdown.

Alarms

Parameter	Default Setting	Setting Selections
Low battery alarm	10%	0-100%
Alarm Action Notification	Display message	Sound alarm
Alarm Action Power level	None	Standby, Power Off, Hibernate

Alarms

Parameter	Default Setting	Setting Selections
Critical battery alarm	3%	0-100%
Alarm Action Notification	Display message	Sound alarm
Alarm Action Power level	Standby	Power Off, Hibernate, None
Run a program	none	When the alarm occurs, run this program.

- Low battery alarm — Allows you to define a low battery alarm percentage, notification, and system action.
- Critical battery alarm — Allows you to define a critical battery alarm percentage, notification, and system action.
- Run a program — Allows you to run a specific program when an alarm occurs.

Windows 2000 Power Meter

The Power Meter screen displays the remaining battery power and charging status for the primary and secondary batteries. Choose to display either a percentage progress bar or a battery icon with percentage indicator for the battery status information.

Windows 2000 Advanced

The Advanced window allows you to select behaviors for the taskbar icon, standby password, LCD panel, when closed, and the Power button.

Advanced

Parameter	Default Setting	Setting Selections
Always show icon on taskbar	unchecked	checked
Prompt for password when computer goes off standby	checked	unchecked
When I close the lid on my computer	None ¹	Standby, Power Off, Hibernate
When I press the Power button on my computer	Power Off	Standby, Hibernate

¹ When None is selected, LCD panel turns off when closed.

- Always show icon on the taskbar — Determines whether or not the Power Meter icon displays on the taskbar.
- Prompt for password when computer goes off standby — Determines whether or not the system prompts for a Windows password when resuming from Standby.
- When I close the lid of my computer — Defines the system action when the LCD panel is closed.
- When I press the Power button on my computer — Defines the system action when the Power button is used.

Windows 2000 Hibernate

Use the Hibernate window to enable hibernate support, see the amount of free disk space, and the amount of disk space required to hibernate. When the system hibernates, it performs a save-to-disk or save-to-file (STF). The current working environment is saved to the hard disk. Use the Power button to resume from hibernation and the system returns to its previous state.

Windows 98/2000 Power Management States

ACPI uses different levels or states of power management. The power management states occur automatically, based on the system's default settings, or manually, when invoked. Settings are configurable to occur while on battery power or AC power.

The Windows 98/2000 ACPI power management states include:

- LCD timeout — manages power at the lowest level by shutting down the LCD.
- Standby — also known as Save-to-RAM (STR), Standby manages power by saving the current working environment to memory and shutting down most system devices. Conserves more power than an LCD timeout.
- Hibernate — also known as save-to-disk, or save-to-file (STF) manages power by saving the current working environment to an area on the hard disk, then powering off the system. Conserves the most battery power.

Recognizing the Windows 98/2000 Power Management States

It is important to recognize the system's behavior when in each of these power management states. The following table describes the system behavior for each power management state.

Windows 98/2000 Power Management Behavior

Condition	LCD Timeout	Standby (STR)	Hibernate (STF)
Default Setting	2 Minutes (5 for Windows 2000), DC power 15 Minutes, AC power	5 Minutes, DC power 20 minutes, AC power	30 minutes after Standby. ^{1,2}
Manually Invoke	Close LCD panel.	Go to Start, Shutdown, Standby.	Close LCD panel. ³ Press Power button. ³
System behavior	LCD panel is blank. Status LED lights green.	LCD panel is blank. Status LED blinks green.	LCD panel is blank. Status LED turns off. Progress bar indicates that current working environment is saved to hard disk.
Resume	Press any key.	Press Power button.	Press Power button. Progress bar appears during process.

¹ Only when BIOS "Suspend Option" set to STF and BIOS "Auto Save to File" set to enabled.

² Also when 3% battery power remaining, if BIOS set as in number 1.

³ Only when set in Advanced Windows Power Management Properties.

Windows NT Power Management States

APM uses different levels or states of power management. These power management states occur automatically, based on the system's default settings, or manually, when invoked. Settings are configured to occur while on battery power or on AC power.

The Windows NT APM power management states include:

- Standby — manages power at the lowest level by shutting down the LCD, hard disk drive, and CPU.
- Suspend — also known as Save-to-RAM (STR), Suspend mode manages power by saving the current working environment to memory and shutting down most system devices. Conserves more power than Standby mode.
- Save-to-file (STF) — also known as save-to-disk, STF mode manages power by saving the current working environment to an area on the hard disk, then powering off the system. Conserves the most battery power.

Recognizing the Windows NT Power Management States

It is important to recognize the system's behavior when in each of these power management states. The following table describes the system behavior for each power management state.

Windows NT Power Management Behavior

Condition	Standby	Suspend (STR)	Save-to-File (STF)
Default Setting	4 Minutes	10 minutes after Standby	30 minutes after Suspend ^{1,3}
Manually invoke	Fn-F4	Press Power button for less than 4 seconds ² or Click Start, Suspend	Fn-Power^{1,2}
System behavior	LCD panel is blank. Status LED lights green.	LCD panel is blank. Status LED blinks green.	LCD panel is blank. Status LED turns off. Progress bar indicates that current working environment saved to hard disk.
Resume	Press any key	Press Power button.	Press Power button. Progress bar appears during process.

¹ Must configure Suspend Option in BIOS as STF.

² Must configure System Switch in BIOS as Sleep button.

³ Automatic STF when there is only 3% power remaining in the system.

NEC Utilities

NECC provides several programs and routines designed to make the NEC Versa run more efficiently.

The NEC utilities include:

- NEC Customize utility
- HDPREPEZ utility

NEC Customize Utility

In Windows 2000 systems, Windows 98 systems, and Windows NT systems, the NEC Customize utility installs or launches:

- NEC custom wallpaper (Windows 98 only) — Use this option to install wallpaper displaying the NEC logo.
- Application and Driver CD — Use this option to install software applications, drivers, etc.
- NEC-supplied mouse driver (Windows NT only) — Use this option to take advantage of the VersaGlide features.

The NEC Customize utility screen consists of the following.

- A window at the top half of the screen lists the available options.
- The window below the options list displays a description of each option when the option is highlighted.
- The Launch button initiates a selected option when clicked.
- The More Info button provides an overview of the NEC Customize utility.
- The Exit button closes the NEC Customize utility.

Using the NEC Customize Utility

Follow these steps to use the NEC Customize utility.

1. Double click the NEC Customize icon.
2. From the display window, select the desired option.
3. Click Launch or Install (Windows 2000/NT) to initiate the selected option.
4. Follow the on-screen instructions to process the selected option.

For some of the selected options you are prompted to reboot the system.

5. If necessary, click Exit to close the NEC Customize dialog box.

HDPREPEZ Utility

Using the HDPREPEZ utility automatically configures the NEC Versa's system's save-to-file (STF) area on the hard disk drive.

Note For more details about the HDPREPEZ utility, see the HDPREPEZ.TXT file in the NECUTILS/HDPREP directory.

Using the HDPREPEZ Utility

In Windows 98, run the HDPREPEZ utility if you increase the memory capacity in the NEC Versa beyond the factory installed base memory.

Follow these steps to run the HDPREPEZ utility.

1. Power off and restart the NEC Versa.
2. At the statement "Starting Windows 98" press **F8**.
3. From the Startup menu, select the "Safe Mode Command Prompt Only" option.

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4. Enter MS-DOS. At the c: prompt, type **cd \necutils\hdpredp** and press **Enter** to change to the \necutils\hdpredp directory.
 5. Type **HDPREPEZ** and press **Enter**. The utility automatically prepares the NEC Versa for the newly installed memory.
 6. Power off the system and then power on. A file large enough to accommodate the system's memory is created on the hard disk drive.

SpeedStep Applet

Some processors that ship with the NEC Versa VXi notebook computer include Intel's SpeedStep technology that allows you to customize high-performance computing on the NEC Versa to optimize processing speed and to conserve battery life.

If the processor has SpeedStep technology, an icon appears on the taskbar allowing you to adjust processing properties. However, the default settings are recommended for optimal performance and battery conservation.

SoftDVD Player

If the system comes with a DVD-ROM drive preinstalled, it has the SoftDVD Player CD. The SoftDVD Player software allows playing DVD videos on the computer, and lets you control the DVD-ROM drive with on screen controls.

The materials that come with the CD describe how to install and use the software, and onscreen prompts provide guidelines during the installation. Once the software is installed, access the onscreen SoftDVD help for information about using and configuring the DVD-ROM drive.

NEC CD-RW CD

If the NEC Versa system comes with a CD read/write drive preinstalled, it has the NEC CD-RW CD. The CD read/write drive allows the loading and starting of programs from a CD and writing information to a CD. The NEC CD-RW CD provides a driver, CDINIT, and two applications, Easy CD Creator and DirectCD.

The materials that come with the CD describe how to install and use the software, and onscreen prompts provide guidelines during the installation. Once the software is installed, access the onscreen help for more information about using and configuring the CD read/write drive.

Personal Code Setting Utility

Use the Personal Code Setting utility along with the personal code buttons on the NEC Versa VXi (available on some systems) to set a personal code and secure the system. Once the personal code is set, the system will not boot until you enter the personal code. Use the following procedures to install the utility and set up your personal code.

Installing the Personal Code Setting Utility

Use the following steps to install the Personal Code Setting utility.

1. Double click the Personal Code Setting utility icon on the desktop. The Personal Code Setting Utility Setup screen appears.
2. Click Next to start setup. The Target Folder dialog box appears.
3. Click Next to select the default target folder. A prompt to create the default target folder appears. Click Yes.
4. Click Finish to exit Setup.

Setting a Personal Code

Use the following procedure to set a personal code.

1. From the Windows Start menu, select Programs, Personal Code, and then Personal Code Setting Utility.

The Personal Code Setting utility screen appears. This screen allows setting of a personal code, up to 5 digits long.

2. Click on one number from each row for each digit of your personal code. Press **Enter** when done.
3. A dialog box appears asking if you want to enter the personal code. Click Yes.
4. A dialog box appears stating the new personal code has been entered. Click OK.
5. Click Exit to exit the Personal Code Setting utility.

To test the personal code, shut down the system (do not select Shutdown and Restart). Power on the system using the Power button. A green LED next to the personal code buttons lights and the screen remains black. Enter a personal code using the personal code buttons and press the personal code Enter key. The system boots when the correct code is entered.

The utility also lets you erase the current personal code and enter a new personal code. There is an Options button that allows setting system sounds, siren and beeps, to alert you that a correct or an incorrect personal code has been entered.

NEC Info Center

The Application and Driver CD contains the NEC Info Center, a fully navigational online document that provides information for the traveling professional and an online version of portions of the printed user's guide.

Installing the NEC Info Center

To install the NEC Info Center simply follow the instructions, presented earlier in this chapter, for launching the Application & Driver CD and installing the software. For the most current version of the *NEC Versa VXi User's Guide*, check NEC web site at <http://www.neccomp.com/>.

Uninstalling the NEC Info Center

Use one of the following methods to uninstall the NEC Info Center.

- Use the following to uninstall the NEC Info Center with the Windows Add/Remove Programs feature.
 1. Go to Start, Settings, Control Panel, and double click Add/Remove Programs.
 2. Use the scroll bar, if necessary, to display the NEC Info Center item.
 3. Highlight NEC Info Center and click the Add/Remove button.
 4. Select Automatic as the uninstall method and click Next.
 5. Click Finish to complete the uninstall.
 6. When the uninstall is complete, click OK and close the Control Panel window.


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- Use this method to uninstall the NEC Info Center with the Wise uninstall feature.
 1. Access the C:\NEC INFO directory on your hard disk drive.
 2. Double click the **unwise.exe** file or icon to remove all files and directories associated with the NEC Info Center.

Partition Magic

Dividing the hard disk drive into several partitions lets you efficiently organize operating systems, programs, and data. Partition Magic, included on the Application and Driver CD that ships with the system, allows you to optimize hard disk drive space with an easy click of the mouse. Visually create, format, shrink, expand, and move hard disk partitions in minutes.

The NEC Versa ships with an internal hard disk drive consisting of a single FAT 32 partition, drive C:. Use Partition Magic if you want to create multiple partitions and convert the hard disk drive to FAT 16 partitions.

For systems running the Windows NT operating system, use the Disk Administrator in the Administrative Tools menu to repartition the hard disk. To use Partition Magic, you must create and use the Emergency Disk.

 **CAUTION** Before using Partition Magic, refer to the associated cautionary notes on the Application and Driver CD. The cautionary notes contain important information about designating the partitions on the hard disk drive.

The partitions must be properly designated before using the Product Recovery CD to reinstall the operating system. If the partitions on the hard disk drive are not properly designated, it will appear as though data loss has occurred after using the Product Recovery CD.

Application and Driver CD

A variety of third-party software applications, drivers, utilities, Internet browsers, and the NEC Info Center are provided on the Application and Driver (A&D) CD that ships with the NEC Versa VXi system. Some of the drivers are already installed as part of the operating system environment. The additional software on the Application and Driver CD lets you take full advantage of the system resources.

Use the Application and Driver CD to install the software of your choice. Some software applications install their own desktop icon allowing quick access to the application. You can also access an application through the Start, Programs menu.

Launching the Application and Driver CD with Windows 98

Follow this procedure to launch the Application and Driver CD with Windows 98.

1. Insert the Application and Driver CD into the CD-ROM drive. If the CD does not auto-run, perform steps 2 through 4.
2. Double click the NEC Customize icon, if necessary.
3. Highlight Application and Driver CD, if necessary.
4. Click Install to launch the CD, if necessary.

The Application and Driver CD dialog box appears.

Note If the NEC Customize icon is not available, double click My Computer on the desktop and then click the CD icon. The Application and Driver CD dialog box appears.

Launching the Application and Driver CD with Windows 2000/NT

Follow this procedure to launch the Application and Driver CD with Windows 2000/NT.

1. Insert the Application and Driver CD into the CD-ROM drive.
2. Double click the NEC Customize icon.
3. Select Application and Driver CD.
4. Click Install to launch the CD.

The Application and Driver CD dialog box appears.

Note If the NEC Customize icon is not available, double click My Computer on the desktop and then click the CD icon. The Application and Driver CD dialog box appears.

Application and Driver CD Dialog Box

The Application and Driver CD dialog box consists of the following components.

- Selection Tabs — Located just below the title bar, each tab represents a software category. The selection tabs include applications, drivers, utilities, Internet browsers, and Online Documentation (the NEC Info Center).
- Description — Located in the bottom portion of the dialog box, the text describes the selected or highlighted software category or application, driver, etc.
- Install — Clicking the Install button installs the selected software.
- Exit — Clicking the Exit button closes the Application and Driver CD dialog box.

Installing the Application and Driver CD Software

Once the Application and Driver CD dialog box appears, follow these steps to install the desired software.

1. Click the selection tab of your choice.
2. Click the desired application, driver, or utility.
3. Click the Install button to install your selection.
Follow the on-screen instructions to install your selection.
4. Click Exit to close the Application and Driver CD dialog box.
5. Remove the CD from the CD-ROM drive when the installation is complete.

Product Recovery CD

The Product Recovery CD includes the NEC Product Recovery utility. If you determine that you need to restore the system to its initial installation state, follow the instructions given here.

Note Only use the Product Recovery utility to restore the system to its initial installation state as a last resort. Check the Quick Troubleshooting table in Chapter 7 for information about solving problems before using the CD. The Product Recovery utility provides options that either remove or replace existing files, a process that may result in data loss.



CAUTION Before using the Product Recovery CD, enter the BIOS Setup utility and restore the BIOS default settings. Save the default settings before exiting the BIOS Setup utility.

Guidelines for Using the Product Recovery CD

Follow these guidelines when using the Product Recovery CD.

- Use AC power.
- Remove all optional hardware such as PC cards, USB devices, printers, and monitors.

Product Recovery CD Options

The Product Recovery CD utility provides a number of choices. Move the cursor over each selection on the NEC Product Recovery utility screen to display a description of the selection in the window on the right side of the screen.

- Restore System — Select this option to restore the hard disk drive to its initial installation state. Restore System allows you to restore the system in one of the following ways.
 - Full Disk Drive — Completely rebuilds the hard disk drive, destroying all existing data in the process. Once you choose this option, you are prompted to confirm your choice. When your choice is confirmed, the recovery proceeds without requiring any intervention or responses on your part. Simply walk away and return in about half an hour.

Note Use the Full Disk Drive restore option if the hard disk consists of one partition (drive).

- Partition Only — Lets you preserve the existing hard disk drive partition structure and format only the primary partition without affecting the extended partition(s). Partition Only formats drive C: (of a multiple partitioned drive) and restores drive C: to its initial installation state. Additional partitions, e.g., drives D:, E:, etc., remain intact. For important information about partitioning the hard disk drive, see the section, “Partition Magic,” earlier in this chapter.

Note Use the Partition Only restore option if the hard disk is partitioned into two or more partitions (drives).


- Exit — Exits the NEC Product Recovery utility.



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

Full Disk Drive Restore

If the preinstalled software becomes unusable and you cannot boot from the hard disk, use the Product Recovery utility to restore the system to its initial shipping configuration. The Full Disk Drive restore option *erases* the hard disk *completely* before reinstalling the files.

 **CAUTION** The Full Disk Drive restore option deletes *all* files on the hard drive and replaces them with the original factory installed files.

Only use the Full Disk Drive restore option if the preinstalled software is unusable.

Use the Product Recovery utility to perform a Full Disk Drive restore as follows:

1. Check the Product Recovery CD title and make sure that it is the correct CD for the NEC Versa computer and operating system.
2. Put the CD into the CD-ROM drive tray, close the drive door, and reboot the system.
3. Read the License Agreement screen that appears. Use the VersaGlide touchpad to position the cursor on the Accept button. Left click to accept the agreement.

You have the option of accepting or declining the agreement. If you decline the agreement, the recovery utility exits.

4. In the NEC Product Recovery utility screen, use the VersaGlide touchpad to choose Full Disk Drive to restore the hard disk drive to its original factory installed state.


5. Read the Warning screen.

A warning displays indicating that the hard disk is about to be erased.

6. Select Continue to perform a Full Disk Drive restore.

If you select Back, the recovery utility returns to the prior screen which has an exit option.

If you select Continue, a screen with progress bars displays and lets you know the progress of the recovery.

 **CAUTION** Do not turn off or disturb the system during the recovery process.

7. When the recovery process is complete, you are prompted to remove the CD from the CD-ROM drive and reboot the system.


8. Press Enter, click Reboot, or press Alt-R to reboot the system.

A series of hardware detection screens display, the system reboots and the Windows Setup screen appears. Follow the on-screen instructions to set up Windows.

You are required to reenter the Microsoft license number.

Partition Only Restore

If the preinstalled software on drive C: on the multiple partitioned drive becomes unusable and you cannot boot from the hard disk, use the Product Recovery utility to restore the primary partition to its initial shipping configuration.

 **CAUTION** Use the Partition Only restore option only if the hard disk drive consists of multiple partitions *and* if drive C: contains the operating system and related drivers. Move all other data and applications to other partitions (drives) or the Partition Only restore process will erase them completely.

The Partition Only restore option deletes *all* files on drive C: and replaces them with the original factory installed files. Only use the Partition Only restore option if the preinstalled software on drive C: is unusable.


For important information about partitioning the hard disk drive, see the section, "Partition Magic," earlier in this chapter.

Use the Product Recovery utility to perform a Partition Only restore as follows:

1. Check the Product Recovery CD title and make sure that it is the correct CD for the NEC Versa computer and operating system.
2. Put the CD into the CD-ROM drive tray, close the drive door, and reboot the computer.
3. Read the License Agreement screen that appears. Use the VersaGlide touchpad to position the cursor on the Accept button. Left click to accept the agreement.

You have the option of accepting or declining the agreement. If you decline the agreement, the recovery utility exits.

4. In the NEC Product Recovery utility screen, use the VersaGlide touchpad to choose Partition Only to restore drive C: of a multiple partitioned drive to its original factory installed state.

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

If the hard disk is configured with multiple or extended partitions, you may have to reinstall some software to restore configuration settings and shared files.

5. Read the Warning screen.

A warning displays indicating that drive C: (the primary drive/partition) is about to be erased and formatted. It may be necessary to reinstall software to the other drives (partitions) to reestablish Start Menu links and other configuration requirements stored on drive C:.

6. Select Continue to proceed, to perform a Partition Only restore.

If you select Back, the recovery utility returns to the prior screen which has an exit option.

If you select Continue, a screen with progress bars displays and lets you know the progress of the recovery.

 **CAUTION** Do not turn off or disturb the system during the recovery process.

-
7. When the recovery process is complete, you are prompted to remove the CD from the CD-ROM drive and reboot the system.
 8. Press **Enter**, click **Reboot**, or press Alt-R to reboot the system.

A series of hardware detection screens display, the system reboots, and the Windows Setup screen appears. Follow the on-screen instructions to set up Windows.

You are required to reenter the Microsoft license number.

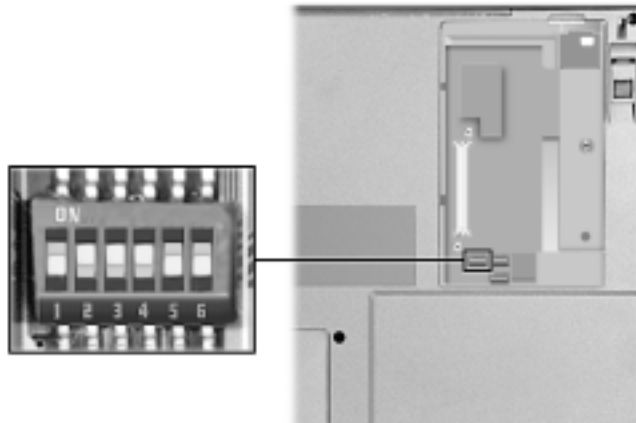
DIP Switch Settings

If the password is forgotten, you can erase the current password by setting switches on the six-position DIP switch (S2) located in the LAN/modem card bay on the bottom of the system. Access DIP switch S2 by removing the screw fastening the panel and removing the panel.

The following figure and list shows and identifies each switch setting on DIP switch S2 and the switch function. DIP switches S3 and S4 are for factory use only.

- Switch 1, Password override — The default setting is “OFF.” If you forget your password and cannot access the data on your NEC Versa, change the setting to “ON” and your current password is erased.
- Switch 2 — Keyboard select; Default is “ON” for U.S. 85 key keyboard.
- Switch 3 — Reserved for factory use; Default is “ON.”
- Switch 4 — Keyboard select; Default is “ON” for U.S. 85 key keyboard.
- Switch 5 — Password enable; Default is “OFF” (enabled).
- Switch 6 — Logo select; Default is “OFF” for U.S.

DIP switch (S2) settings



3

Disassembly and Reassembly

- Required Tools and Equipment
- Disassembly
- Reassembly

Required Tools and Equipment

All NEC Versa VXi disassembly/reassembly procedures are performed using the following tools:

- tweezers
- small flat-blade screwdriver
- small Phillips screwdrivers (# 1 and # 0)
- needle-nose pliers.

Disassembly

This chapter contains step-by-step disassembly procedures for the system. Reassembly is the reverse of disassembly. Each procedure is supported by a simplified disassembly illustration. The illustrated parts breakdown and parts lists for the system unit are included in Chapter 5.

For complete disassembly of the system, follow the disassembly order listed in the following table. For disassembly of a specific part, go to the section containing the part removal procedure.

NEC Versa VXi Notebook Disassembly Sequence

Sequence	Part Name
1	Battery Pack
2	Memory Module
3	Mini PCI Card
4	Hard Disk Drive
5	LED/Button Assembly
6	LCD Panel
7	Keyboard and Heat Plate
8	Top Cover
9	VersaGlide Assembly
10	CD-ROM Drive
11	Audio Board
12	DC/DC Board
13	I/O Board
14	CMOS Battery
15	Microphone
16	Diskette Drive
17	Speakers
18	Kensington Lock Latch
19	Main Board
20	CPU Removal
21	PC Card Assembly

When disassembling the system unit, follow these general rules.

- Turn off the system and disconnect all power and all options, including the AC adapter (if connected) and battery pack (see the procedures that follow).
- Do not disassemble the system into parts that are smaller than those specified in the procedure.
- Several different types of screws are used to fasten various parts of the system. As you disassemble the system, note the screw type and its position. Use care to ensure that all screws are returned to their correct positions.
- Label all removed connectors. Note where the connector goes and in what position it was installed.

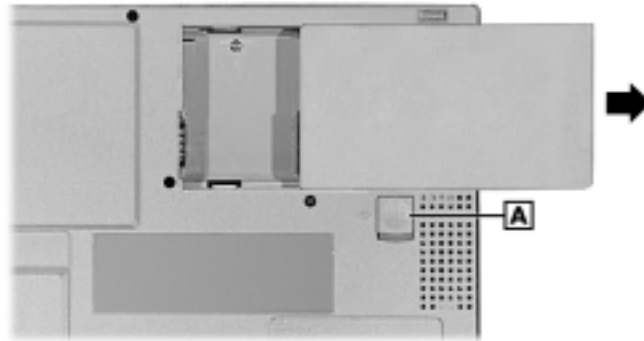
Battery Pack

Remove the battery pack from the NEC Versa system as follows.

Note Only use batteries that were specifically designed for use in the NEC Versa computer. Installing another manufacturer's battery, or using a combination of very old and new batteries can deteriorate battery and equipment performance.

1. Save any open data files, close all applications, exit Windows, and turn off system power.
2. Close the LCD panel and turn the system over.
3. Remove the battery pack as follows:
 - Locate the battery release latch.
 - Slide the battery release latch towards the back of the system and hold firmly.
 - Continue to hold the battery release latch as you slide the battery out of the system.

Removing the battery pack



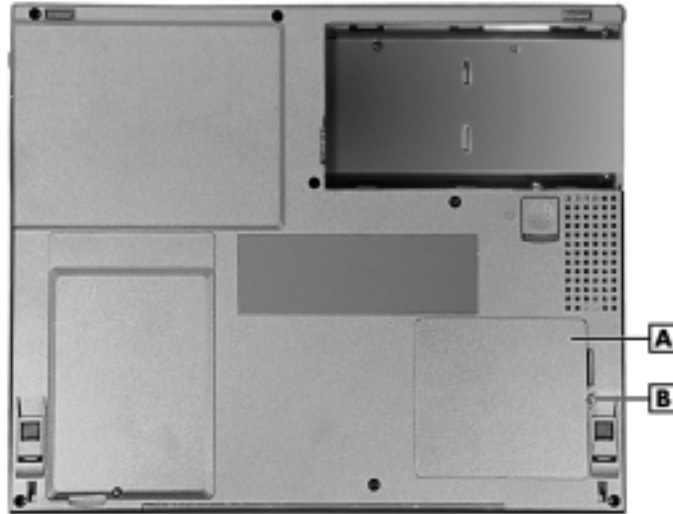
A – Battery Release Latch

Memory Module

Remove the memory module as follows.

1. Power off the system and disconnect any peripheral devices.
2. Turn the system over and locate the screw on the memory bay.

Memory bay cover and screw



A – Memory Bay Cover

B – Screw

3. Remove the screw and lift off the memory bay cover.
4. To remove a module, press the locking tabs away from the sides of the module until the module pops up. Remove the module.

Removing the SO-DIMM memory module



Mini PCI Card

Remove any installed Mini PCI board as follows.

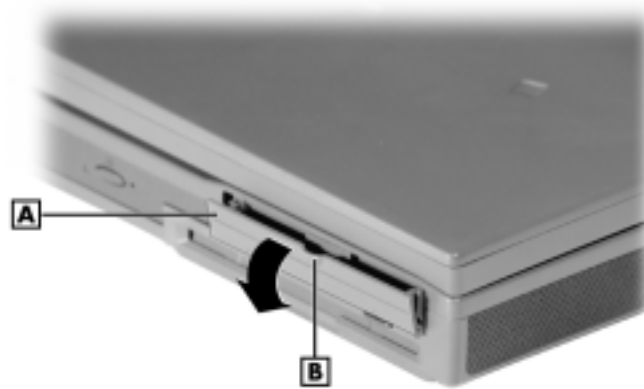
1. Power off the system and disconnect any peripheral devices.
2. Turn the system over and locate the screw on the PCI LAN/modem card bay cover (see the figure in “Around the Bottom of the System” in Chapter 1 for cover location).
3. Remove the screw and lift off the bay cover.
4. Locate and remove the three screws fastening the Mini PCI board to the main board.
5. Lift the board straight up to unplug it from P22 on the main board.
6. Turn the board over and unplug the cable from JP2.
7. Remove the board from the system.

Hard Disk Drive

Remove the hard disk drive as follows.

1. Locate the drive access panel on the left side of the system. Open the panel by pressing down on the release.

Opening the panel



A – Drive Access Panel

B – Release

2. Remove the screw that secures the hard disk in the system (see the following figure).

Removing the screw



A – Screw

3. Carefully pull the hard disk drive out of the system.

Removing the disk drive

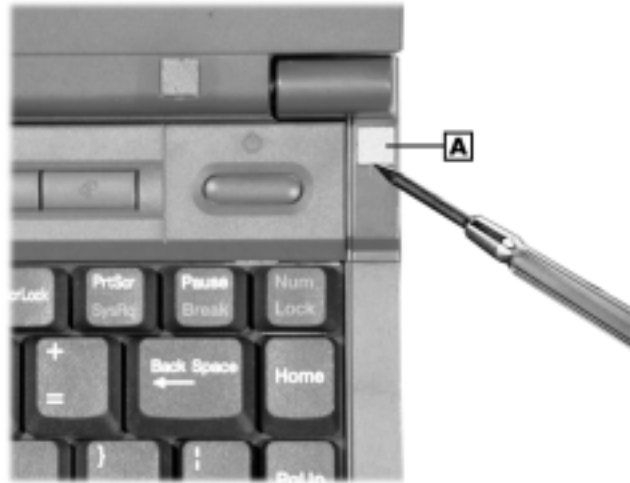


LED/Button Assembly

Remove the LED/Button assembly as follows.

1. Open the LCD panel and locate the LCD hinge covers.
2. Remove the screw caps and screws on the hinge covers. Use a small (1/32 inch wide) flat blade screwdriver to carefully lift up the screw cap (it's held in place by adhesive on the underside).

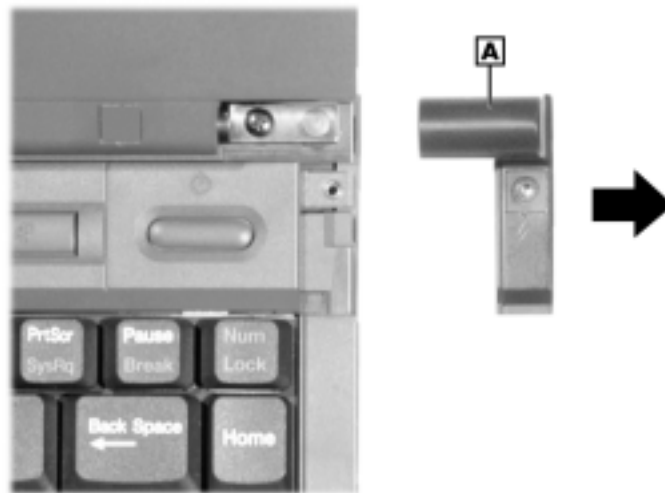
Removing the screw caps and screws



A – Screw Cap

3. Slide each hinge cover toward the outside edge of the system and remove. You might have to rotate the LCD panel up or down to release the covers.

Removing the hinge covers



A – Hinge Cover

-
- Slide the LED/button assembly slightly to the right and lift away from the system.

Removing the LED/button assembly



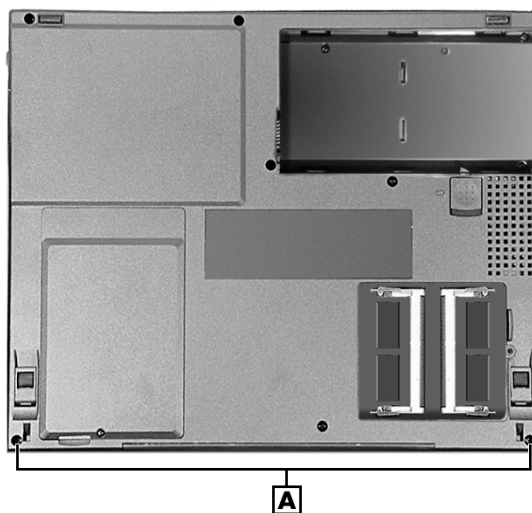
A – LED/Button Assembly

LCD Panel

Remove the LCD panel as follows.

- Remove the LED/button assembly from the system.
- Close the LCD panel and turn the system over.
- Locate and remove the two bottom screws securing the LCD panel to the system.

Removing the screws



A – Screws

- Turn the system over and open the LCD panel.

-
5. Locate and remove the left and right hinge screws.

Removing the hinge screws



A – Screw

6. Locate and remove the two screws securing the LCD panel connector to the main board.

Removing the LCD panel screws



A – Screws

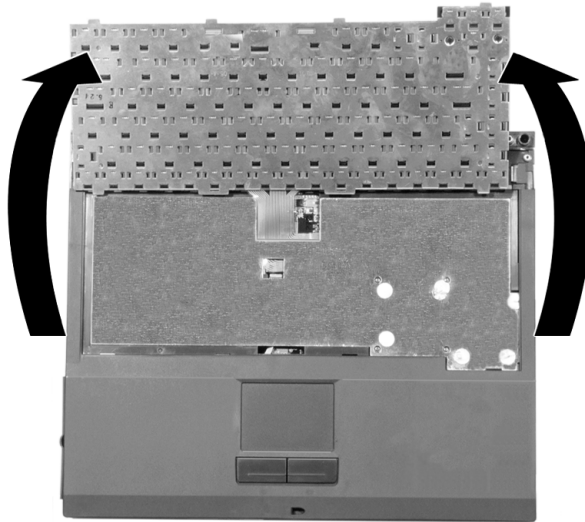
7. Pull the LCD panel up to unplug it from its connector (P15) on the main board. Remove the panel from the system.

Keyboard and Heat Plate

Remove the keyboard and heat plate as follows.

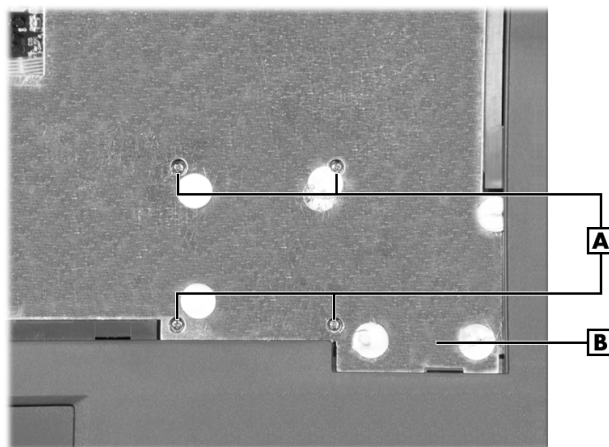
1. Remove the LCD panel from the system.
2. Partially lift the keyboard up and toward the back of the system to clear the tabs from under the top cover.

Lifting the keyboard



3. Lay the keyboard key side down over the back of the system.
4. Locate and completely loosen the four screws in order (1, 2, 3, and 4) securing the heat plate to the system. Do not attempt to remove the screws. When reassembling, tighten the screws in order (1, 2, 3, and 4).

Loosening the heat plate screws



A – Screws

B – Heat Plate

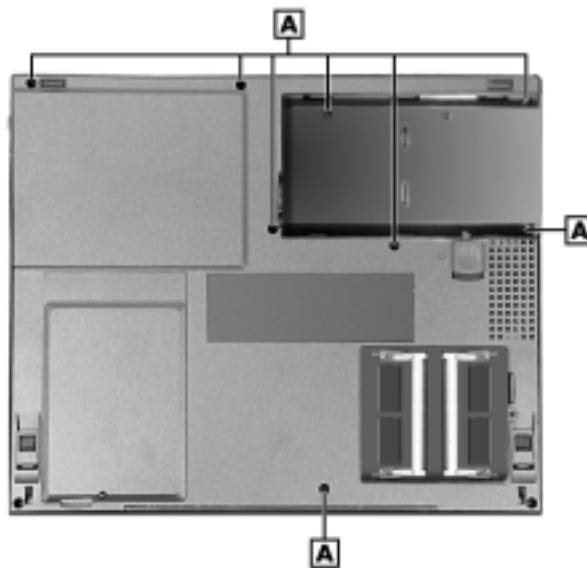
5. Partially lift the heat plate. Unplug the processor fan cable from connector P5 on the main board and remove the heat plate.
6. Release the keyboard cable from connector P5 on the I/O board by pushing the two lock tabs (one on each side) away from the connector. Remove the keyboard.

Top Cover

Remove the top cover as follows.

1. Remove the battery pack, hard disk drive, LCD panel, keyboard, and heat plate from the system.
2. Remove the eight screws on the bottom that partially secure the top cover to the system. Note that the three screws in the battery compartment are shorter than the other five screws.

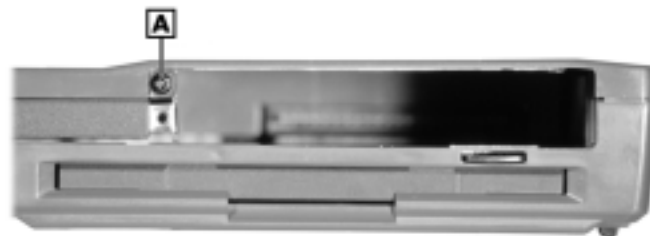
Removing the bottom screws



A – Screws (8)

3. Turn the system over.
4. Locate and remove the screw inside the hard disk drive bay that secures the top cover.

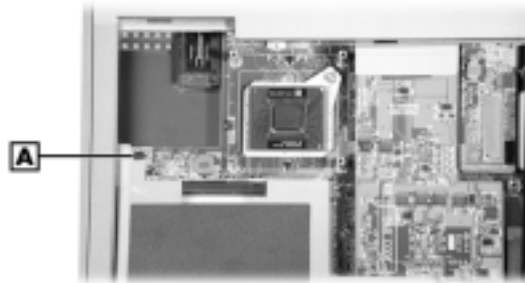
Removing the drive bay screw



A – Screw

-
5. Locate and remove the screw on the top that secures the top cover.

Removing the top screw



A – Screw

6. Locate and remove the screw securing the LED board. Carefully remove the board from the system by lifting it up and out of its connector.

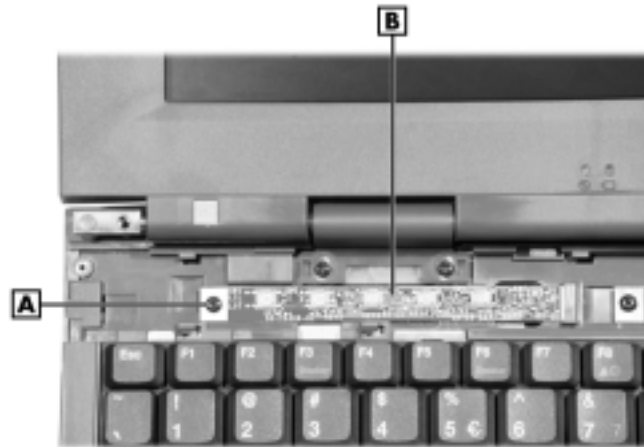
Removing the LED board



A – Screw

7. Locate and remove the screw securing the CD control board (if installed). Carefully remove the board from the system by lifting it up and out of its connector.

Removing the CD control board

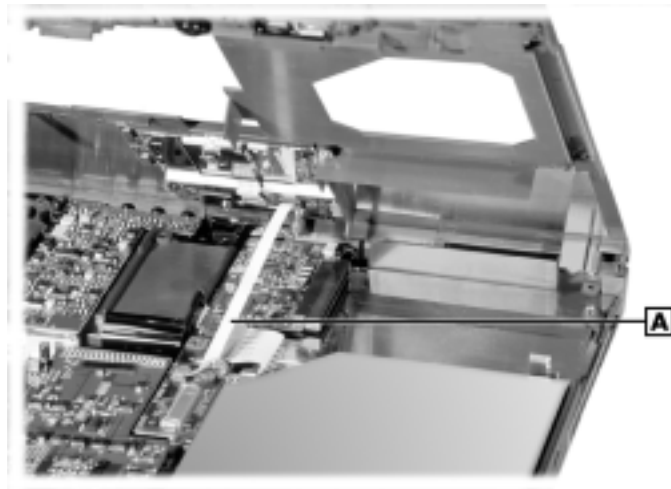


A – Screw

B – CD Control Board

8. Release the VersaGlide cable from connector P8 on the I/O board by pushing the two lock tabs (one on each side) on the connector away from the connector. Remove the top cover.

Removing the top cover



A – VersaGlide Cable

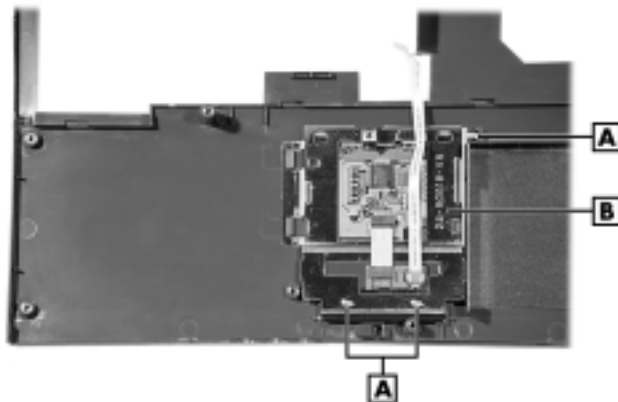
9. Lift the top cover off the system.

VersaGlide Assembly

Remove the VersaGlide assembly as follows.

1. Remove the LCD panel, keyboard, heat plate, and top cover from the system.
2. Turn the top cover over and remove the three screws securing the VersaGlide.

Removing the VersaGlide screws



A – Screws **B** – VersaGlide Assembly

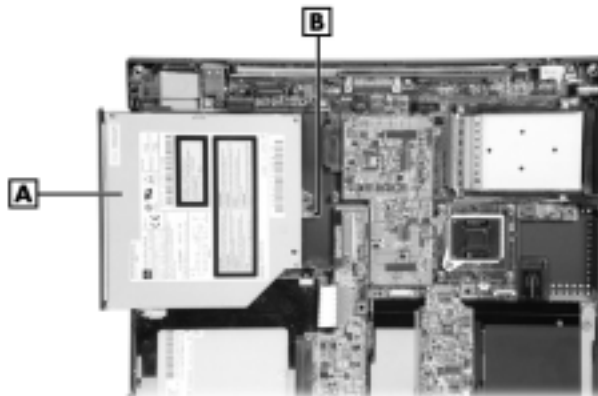
3. Slide the VersaGlide assembly away from the top cover tabs and remove the VersaGlide from the top cover.

CD-ROM Drive

Remove the CD-ROM drive as follows.

1. Remove the LCD panel, keyboard, heat plate, and top cover from the system.
2. Remove the screw securing the CD-ROM drive.
3. Slide the CD-ROM drive out of connector P13 on the main board and remove the drive from the system.

Removing the CD-ROM drive



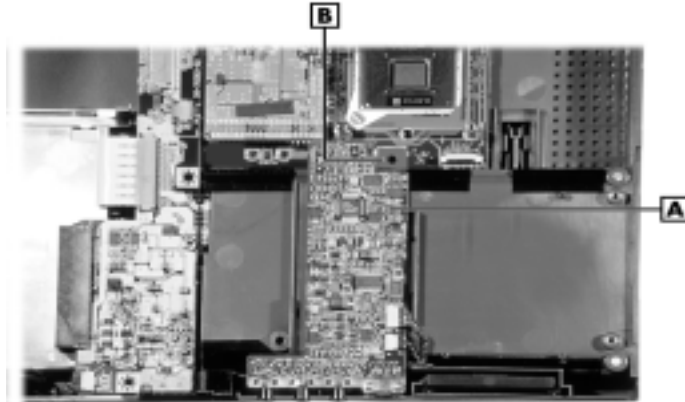
A – CD-ROM Drive **B** – Screw Bracket (screw shown removed)

Audio Board

Remove the audio board as follows.

1. Remove the LCD panel, keyboard, heat plate, and top cover from the system.
2. Locate and remove the screw securing the audio board.
3. Carefully unplug the audio board from connector P7 on the main board by lifting up the audio board.

Removing the audio board



A – Audio Board **B** – Screw Bracket (screw not shown)

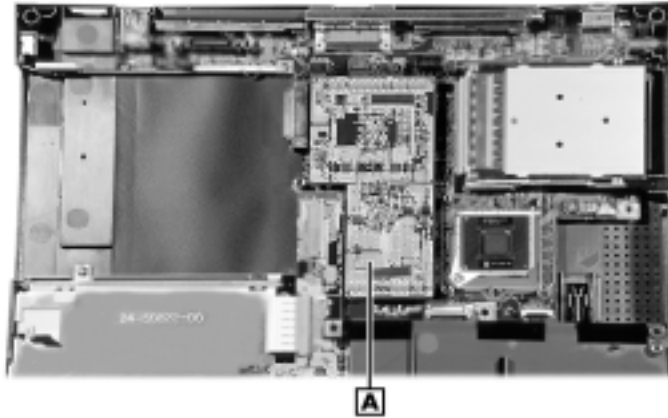
4. Unplug the cables from connectors P1 and P2 on the audio board and remove the audio board.

DC/DC Board

Remove the DC/DC board as follows.

1. Remove the LCD panel, keyboard, heat plate, and top cover from the system.
2. Lift the DC/DC board straight up to unplug it from connectors P9 and P10 on the main board.

Removing the DC/DC board



A – DC/DC Board

I/O Board

Remove the I/O board as follows.

1. Remove the LCD panel, keyboard, heat plate, and top cover from the system.
2. Release the diskette drive cable from connector P6 on the I/O board by pushing the two lock tabs (one on each side) away from the connector.
3. Unplug the CMOS battery cable from connector P1 on the I/O board.
4. Carefully lift up the I/O board to unplug it from P12 on the main board.
5. Remove the I/O board from the main board.

Removing the I/O board



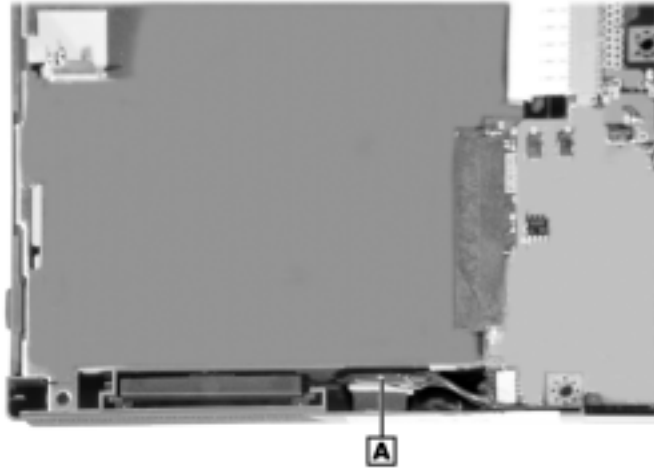
A – I/O Board

CMOS Battery

Remove the CMOS battery as follows.

1. Remove the LCD panel, keyboard, heat plate, top cover, audio board, and I/O board from the system.
2. Remove the CMOS battery from the front of the base assembly. It is secured with two-sided tape.

Removing the CMOS battery



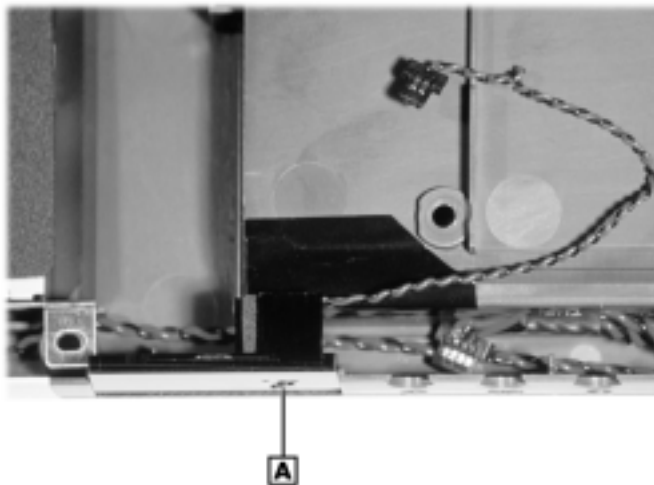
A – CMOS Battery

Microphone

Remove the microphone as follows.

1. Remove the LCD panel, keyboard, heat plate, top cover, audio board, and I/O board from the system.
2. Lift up and remove the microphone assembly from the front of the base assembly.

Removing the microphone assembly



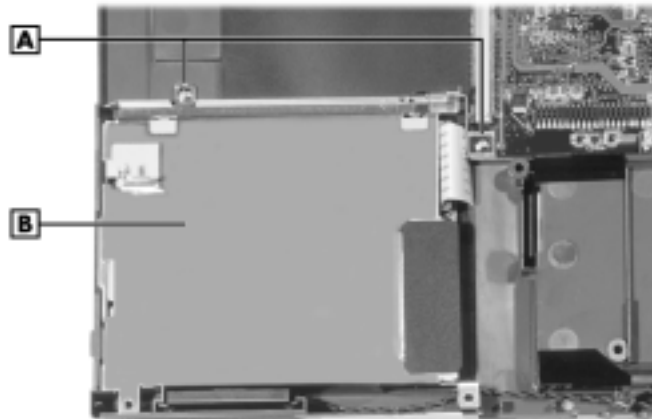
A – Microphone Assembly

Diskette Drive

Remove the diskette drive as follows.

1. Remove the LCD panel, keyboard, heat plate, top cover, CD-ROM drive, and I/O board from the system.
2. Locate and remove the two screws securing the diskette drive to the base assembly.

Removing the diskette drive screws



A – Screws **B** – Diskette Drive

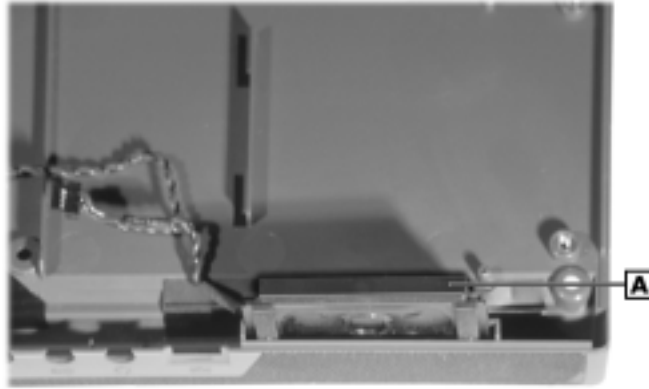
3. Lift the diskette drive out of the base assembly. Slightly tilt the drive front side down to slide the drive release button out of the base assembly.

Speakers

Remove the two speakers as follows.

1. Remove the LCD panel, keyboard, heat plate, top cover, audio board, and I/O board from the system.
2. Slide each speaker up and out of the front of the base assembly.

Removing the speaker



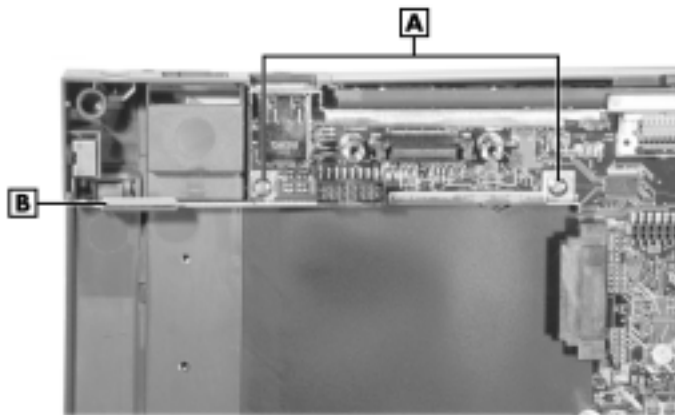
A – Speaker

Kensington Lock Latch

Remove the Kensington lock latch as follows.

1. Remove the LCD panel, keyboard, heat plate, and top cover from the system.
2. Locate and remove the two screws securing the lock latch to the main board.

Removing the lock latch screws



A – Screws

B – Lock Latch

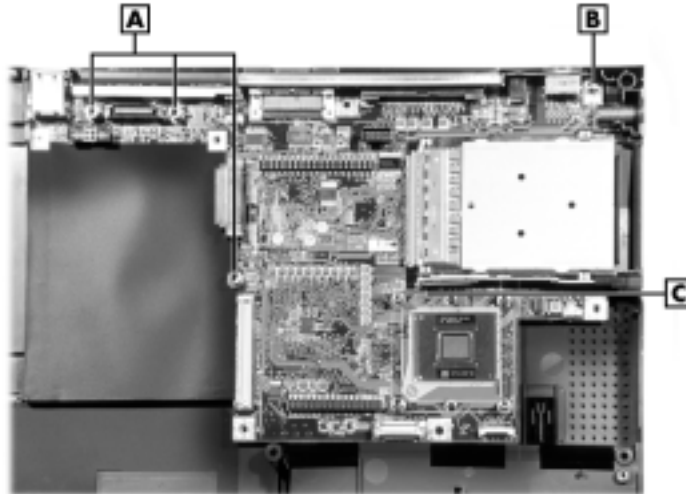
3. Lift the Kensington lock latch out of the base assembly.

Main Board

Remove the main board as follows.

1. Remove any installed Mini PCI card option and PC card.
2. Remove the LCD panel, keyboard, heat plate, top cover, audio board, I/O board, CD-ROM drive, diskette drive, and Kensington lock latch from the system.
3. Locate and remove the three hex screws and one Phillips head screw that secure the main board to the base assembly.

Removing the main board screws



A – Hex Screws
B – Screw

C – Main Board

4. Lift the main board out of the base assembly.

CPU Removal

Remove the Pentium III or Celeron CPU as follows.

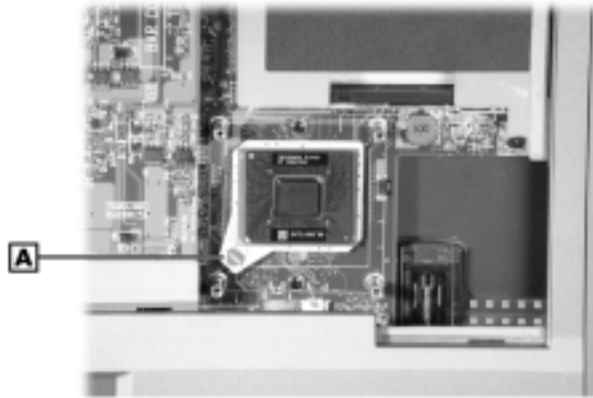
1. Remove the LED/button assembly, keyboard, and heat plate.
2. Locate the CPU and the locking screw next to it.
3. Using a flat-head screwdriver, turn the locking screw 3/4-turn counterclockwise to unlock the CPU. Do not attempt to remove the screw.



CAUTION Only touch the CPU on the sides. Do not touch the top of the CPU.

4. Lift the CPU out of the socket and store it in a static-free bag.

Releasing the CPU



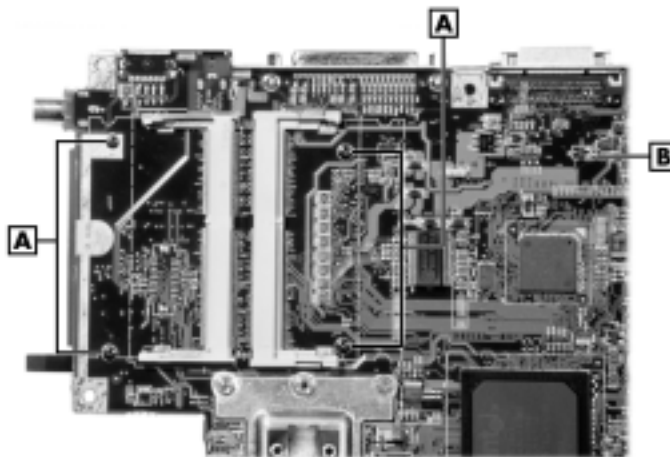
A – Locking Screw

PC Card Assembly

Remove the PC card assembly as follows.

1. Remove any PC cards that might be in the PC card assembly.
2. Remove the LCD panel, keyboard, heat plate, top cover, audio board, I/O board, diskette drive, Kensington lock latch, and main board from the system.
3. Turn the main board over.
4. Remove both memory modules, if installed.
5. Locate and remove the four screws that secure the PC card assembly to the main board.

Removing the PC card assembly screws



A – Screws

B – Main Board (back)

6. Unplug the PC card assembly from connector P2 on the main board and remove the assembly.

Reassembly

Reassembly is the reverse of the disassembly process. Use care to ensure that all cables and screws are returned to their proper positions.

4

System Board Layout

- Audio Board
- DC/DC Board
- I/O Board
- Main Board

This following figures show the system boards and connector locations.

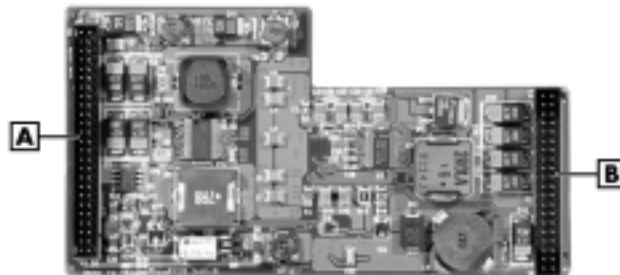
Audio Board Connectors



A – Main Board Connector P3

Speaker cable connector P1 and microphone cable connector P2 are on the back of the audio board.

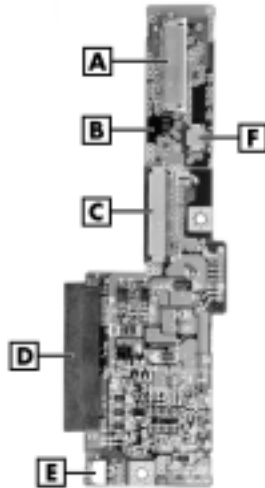
DC/DC Board Connectors



A – Main Board Connector P1

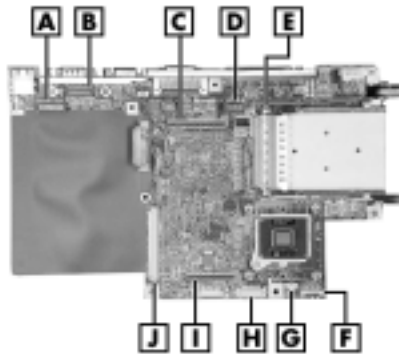
B – Main Board Connector P2

I/O Board Connectors



- | | |
|--|--|
| A – Keyboard Cable Connector P5 | D – Hard Disc Drive Connector P2 |
| B – Main Board Connector P3 (back side) | E – CMOS Battery Cable Connector P1 |
| C – Diskette Drive Cable Connector P6 | F – VersaGlide Cable Connector P8 |

Main Board Connectors



- | | |
|---|---------------------------------------|
| A – CD Control Board Connector P18 | F – Connector P4 (not used) |
| B – LCD Panel Connector P15 | G – CPU Fan Cable Connector P5 |
| C – DC/DC Board Connector P10 | H – Audio Board Connector P7 |
| D – LED Board Connector P8 | I – DC/DC Board Connector P9 |
| E – PC Card Assembly Connector P2 | J – I/O Board Connector P12 |

On the back side of the main board are connectors P22, P26, and P27 and DIP switches S2, S3, and S4. (See “DIP Switch Settings” in Chapter 2 for a description of the DIP switches.)

Connector P22 is for connecting an optional LAN, modem, or combination LAN/modem Mini-PCI board. Connectors P26 and P27 are for connecting a Mini-PCI board that is used in conjunction with the LAN or modem board.

These connectors and DIP switches are accessible by removing the PCI LAN/modem card bay cover from the bottom of the system.

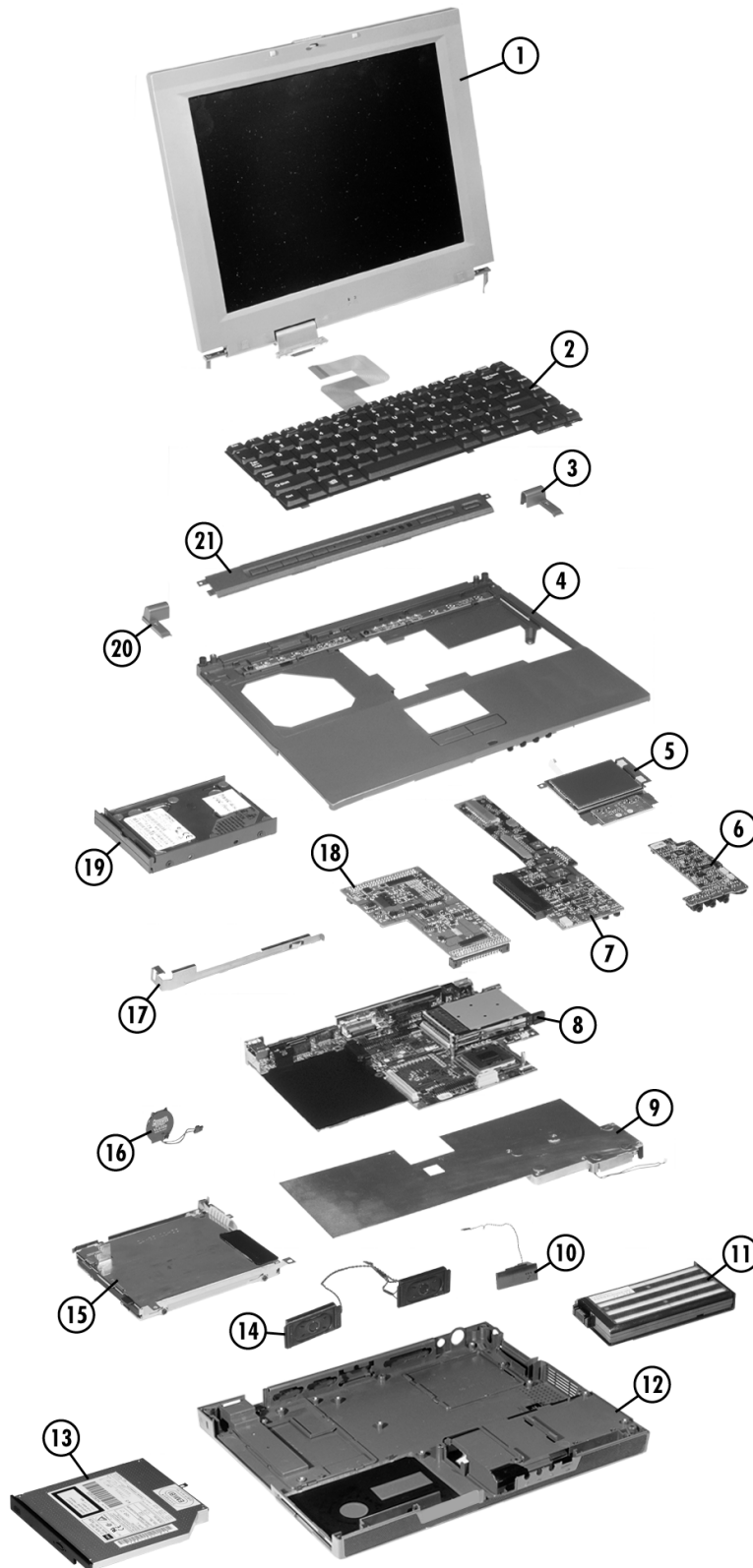
5

Illustrated Parts Breakdown

- Illustrated Parts Breakdown
- Parts List

Illustrated Parts Breakdown

The NEC Versa VXi notebook illustrated parts breakdown (IPB) is shown in the following figure. See the table “Field-Replaceable Parts List” for a list of the field-replaceable unit (FRU) parts.



Parts List

The following table lists the NEC Versa VXi notebook FRU parts.

Field-Replaceable Parts List

Item	Description
1	LCD Unit Assembly 12.1-inch 13.3-inch 14.1-inch
2	Keyboard Keyboard (French)
3	Hinge Cover (right)
4	Top Cover Sub Assembly
5	VersaGlide Sub Assembly
6	Audio Board Sub Assembly
7	I/O Board Sub Assembly
8	Main Board Sub Assembly
9	Keyboard Heat Plate Assembly
10	Microphone with attached Cable
11	Li-Ion Battery NiMH Battery
12	Bottom Base Sub Assembly
13	CD-ROM Drive
14	Speaker and Cable Assembly
15	Diskette Drive
16	CMOS RTC Battery Sub Assembly
17	CD-ROM Rail Bracket
18	DC/DC Board Sub Assembly
19	Hard Disk Drive 6-GB 10-GB 12-GB 18-GB 20-GB
20	Hinge Cover (left)
21	LED/Button Assembly (w/o buttons)
*	PC Card Assembly (with main board)
*	Memory Module 64-MB 128-MB
*	Memory Bay Cover (without plating)

Field-Replaceable Parts List

Item	Description
*	CPU 600-MHz Celeron 650-MHz Celeron 700-MHz Celeron 750-MHz Celeron 700-MHz Pentium III (w/SpeedStep) 750-MHz Pentium III (w/SpeedStep) 800-MHz Pentium III (w/SpeedStep) 850-MHz Pentium III (w/SpeedStep) 900-MHz Pentium III (w/SpeedStep) 1-GHz Pentium III (w/SpeedStep)
*	LED/Button Assembly (CD/password controls)
*	LED Assembly (status LEDs)
*	Diskette Drive Cable
*	VersaGlide Cable
*	Screw Cap (hinge screw cap)
*	Rubber Foot, Bottom Base Assembly
*	AC Adapter
*	Mini PCI Modem Board
*	Mini PCI LAN/Modem
*	Mini PCI LAN Board
*	CD Read/Write Drive
*	DVD-ROM Drive


* Item not shown on IPB.

6

Preventive Maintenance

- Cleaning the Exterior
- Cleaning the Interior
- Protecting the Hard Disk Drive
- Handling the Battery Pack


This section contains general preventive maintenance information for cleaning the system, LCD, and keyboard.

 **WARNING** Unplug the AC adapter and remove the battery pack before performing maintenance. Voltage is present inside the system unit and LCD even after the system is turned off.

Cleaning the Exterior

Clean the exterior of the system as follows.

1. Power off the system, unplug all cables and peripherals connected to the system, and remove the battery pack.

 **CAUTION** Never use harsh solutions, household cleaners, or spray cleaners that contain caustic materials. These cleaners are usually high in alkalinity which can cause the plastic surface to crack or discolor.

2. Wipe the outside of the system with a slightly damp, almost dry soft, clean cloth. Never use solvents or strong, abrasive cleaners on any part of the system.
3. Clean the LCD screen with a soft lint-free cloth or a screen wipe designed for that purpose.
4. Clean the keyboard with a slightly damp, almost dry soft, clean cloth. If necessary, use a small, soft-bristle brush to clean between the keys.
5. Periodically use a head-cleaning diskette in the diskette drive to prolong the life of the drive and to help maintain data integrity. Do not use abrasive head cleaning kits (kits without cleaning solution).

Cleaning the Interior

Clean the interior of the system as follows.

1. Remove the top cover and keyboard (see Chapter 3, “Disassembly and Reassembly” for procedures).
2. Dust or use a vacuum specifically designed for computer use (with a rubber-tipped nozzle) to clean inside the system, particularly the main board surface. Use care to avoid damaging or dislodging any components or cables.
3. Inspect all cables connectors for damage. Ensure that connectors are seated properly before replacing the cover.

Protecting the Hard Disk Drive

To protect the hard drive and data, back up the drive periodically on diskettes, Zip discs, CD-RW discs, or a network drive.

Here are some maintenance procedures to use when servicing a hard drive:

- Always back up the data files on the hard drive.
- Run a virus detecting program to check for possible virus infected areas on the hard drive.
- Use the preinstalled ScanDisk program to correct any errors found in the directory and File Allocation Table (FAT). This also frees up space from any unused sectors.

-
- Never turn the system off when the hard drive is being accessed.
 - Use a hard drive maintenance program like DEFRAG to eliminate fragmentation and improve the hard drive access time.

Handling the Battery Pack

Periodically inspect the battery terminals and the batteries for evidence of corrosion and oxide build-up.

Observe the following precautions when handling the battery pack:

- Do not drop the battery pack or subject it to excessive shock and vibration.
- Do not expose the battery pack to direct sunlight, moisture, chemical compounds, or extreme heat.
- Do not disassemble the battery pack.
- Do not use the battery pack to power other devices.
- Do not short the battery leads or connect the battery with reversed polarity.
- Never attempt to charge the battery pack in any way other than as described in this manual and the user's guide.
- Always charge the battery pack as soon as possible after a low battery indication.

7

Troubleshooting

- Quick Troubleshooting
- Helpful Questions

Quick Troubleshooting

This section summarizes problems that may develop during system operation and lists suggested corrective actions.

Quick Troubleshooting

Problem or Symptoms	Corrective Actions
No power	<p>Check that the AC adapter is plugged into the power port of the notebook. Also, check that the AC adapter is plugged into a properly grounded AC power outlet.</p> <p>If using the battery as the main power source, check if the battery pack is the correct type, charged properly, and is inserted correctly.</p> <p>Check if the internal DC/DC board of the notebook is correctly inserted into the main board. Otherwise, replace the DC/DC board.</p>
Power LED is on but no display and system does not turn on	<p>Check if the memory module is inserted properly. Also insert the module into the other slot.</p> <p>Check that the CPU is inserted properly.</p> <p>Replace the memory module, CPU, or DC/DC board.</p>
Display on the LCD is unreadable	<p>Adjust the brightness.</p> <p>Check if the installed VGA driver is correct and resolution is set according to the LCD size and type.</p> <p>Check if the LCD panel is connected properly.</p> <p>Replace the main board.</p>
LCD screen does not show display	<p>Check if the power saving mode is activated. Press any key or press the Power button to resume operation and display.</p> <p>Check if the display output is switched to the external monitor.</p> <p>Check if there is power.</p> <p>Check if the LCD panel is disconnected or loose.</p> <p>Replace the LCD inverter board found inside the LCD panel.</p>
Battery power does not last long	<p>Make sure that the power management options under BIOS Setup are enabled and set properly.</p> <p>Recharge the battery pack for at 3 least hours before using.</p> <p>Discharge and recharge the battery twice.</p> <p>Replace the battery pack.</p>
System halts during boot sequence	<p>Check condition of the selected bootload device (diskette or hard disk) for bad boot track or incorrect O/S files.</p> <p>Try booting from a new boot diskette and recopy or repartition the hard disk.</p> <p>Check for any BIOS error messages on the display.</p> <p>Replace the main board.</p>
I/O processing malfunctions	<p>Check the connections of all internal devices.</p> <p>Replace the main board.</p>

Quick Troubleshooting

Problem or Symptoms	Corrective Actions
Diskette drive does not work	<p>Check if the diskette drive option is not installed in BIOS Setup.</p> <p>Check if the diskette drive cable is connected properly.</p> <p>Check that the diskette is not faulty.</p> <p>Replace the diskette drive.</p> <p>Replace the main board.</p>
Hard disk drive malfunction	<p>Check if the hard disk drive is set properly in BIOS Setup.</p> <p>Check the connection.</p> <p>Check if the disk drive is working properly. If not, replace the drive.</p> <p>Replace the main board.</p>
CD-ROM drive malfunction	<p>Check if the drive is set properly in BIOS Setup.</p> <p>Check if the device driver is installed properly. Do not use any other CD-ROM driver.</p> <p>Check the connection.</p> <p>Replace the drive or main board.</p>
Memory malfunction	<p>Check if the memory module is inserted properly. Try to insert it into the other slot.</p> <p>Replace the memory module.</p> <p>Replace the main board.</p>
External keyboard or PS/2 mouse does not work	<p>Check if the keyboard or mouse is connected properly. Check if the PS/2 Y-cable is being used. Power off the system first before plugging in the device.</p> <p>Check if the PS/2 mouse driver is installed properly.</p> <p>Replace the keyboard or mouse.</p> <p>Replace the main board.</p>
PC card does not work	<p>Check if the PC card is inserted properly and check the connection.</p> <p>Check the PC card driver installation for an IRQ conflict. Try to disable the COM2 port in BIOS Setup menu to free up an unused IRQ.</p> <p>If the PC card is not detected, insert it to the other PC slot. Otherwise, replace the PC card.</p> <p>Contact the PC card manufacturer for support.</p> <p>Replace the main board.</p>
VersaGlide does not work	<p>Check if PS/2 or Alps mouse driver is properly installed.</p> <p>Check if the VersaGlide cable inside the system is inserted properly.</p> <p>Check BIOS to see if VersaGlide is enabled.</p> <p>Replace the VersaGlide module.</p> <p>Check the keyboard controller chip for any cold or loose soldering.</p> <p>Replace the main board.</p>

Quick Troubleshooting

Problem or Symptoms	Corrective Actions
Serial device does not work	<ul style="list-style-type: none">Check if the serial port is set to "Auto" in BIOS Setup.Check if the serial device is connected properly.Check if the mouse driver is installed properly.Replace the serial device.Check the I/O controller chip for any cold or loose soldering.Replace the main board.
Parallel device does not work	<ul style="list-style-type: none">Check if the parallel port is set to "Auto" in BIOS Setup.Check if all connections are properly set.Check if the external device is turned on.Check if the printer mode is set properly.Check the I/O controller chip for any cold or loose soldering.Replace the main board.
IR Port does not work.	<ul style="list-style-type: none">Check if the IR port (COM2) is enabled in BIOS Setup.Check if File Sharing and the Computer name are both set properly.Check if the Infrared Monitor is activated.Check if the IR ports on both systems are blocked or obstructed.Check the I/O controller chip for any cold or loose soldering.Replace the main board.
USB Port does not work	<ul style="list-style-type: none">Check if the USB controller in BIOS Setup is enabled.Check the USB device connection. Unplug and re-plug the device.Check if the USB port driver and the USB device driver are installed.Replace the USB device or contact the USB device manufacturer for support.Replace the main board.
Audio components do not work	<ul style="list-style-type: none">Check that the external connections and that the volume mixer are set properly.Check if the audio source (CD, tape, etc.) is faulty.Check if the audio driver is installed.Check if the internal connections for speaker and microphone are working.Check the audio board, cables, and connections.Replace the main board.

Helpful Questions

Here are some helpful questions to ask when troubleshooting the notebook:

- Is there any external power source connected to the computer?
- Is the battery fully charged?
- Is the computer turned on and the Power LED activated?
- Is the LCD display switched to the external monitor?
- Are all cables and devices connected properly and securely?
- Are all needed device drivers installed properly?
- Is the Suspend Mode activated? Press any key or press the Power/Sleep button to power on the system.

8

Getting Services and Support

- Services and Support Contact Information
- NEC Computers Web Site
- NEC Computers FTP Site
- Email/Fax to Support Services
- NEC Computers Support Services

This section contains the following NEC Computers service and support information:

- Service and support telephone numbers and web addresses
- Technical support.

Services and Support Contact Information

NEC Computers Services and Support

Service and Support	Contact Information
NEC Computers Web and FTP Sites	Web site: www.neccomp.com FTP site: ftp.neccsdeast.com/pub/
Email to NEC Computers Technical Support Center through a commercial online service or the Internet.	Internet email address: tech-support@nec-computers.com
Fax Service to NEC Computers Technical Support Center	In the U.S., fax 801-579-1552
NEC Computers Technical Support Center	U.S. and Canada: 800-632-4525

If you have access to a telephone, modem, and/or fax machine, you can use these services to obtain information about the system at any time, day or night, seven days a week.

Not only do these services provide information about the NEC system, they can also be used to answer your questions and help solve any problems you may have with the system, should that ever be necessary.

NEC Computers Web Site

If you have access to the Internet (via a LAN board or a modem), you can access the NEC Computers web site. You can do this through a commercial online service or through your Internet account. The web site contains general information about NEC Computers and its products. The web site also contains press releases, reviews, and service and support information.

Look in the Service and Support area for the following:

- technical documentation, including Frequently Asked Questions, reference manuals, and warranty information
- BIOS updates and drivers to download
- contact information, including telephone numbers for Technical Support and links to vendor web sites
- automated email form for technical support questions
- a Reseller's area (password accessible).

To access the NEC Computers web site, enter the following Internet Uniform Resource Locator (URL) in your browser:

<http://www.neccomp.com>

NEC Computers FTP Site

You can use the Internet to access the NEC Computers FTP (file transfer protocol) site to download various files (video drivers, printer drivers, BIOS updates, and Setup Disk files). The files are essentially the same files as on the NEC Computers web site.

To access the NEC Computers FTP site, enter the following Internet ftp address through your Internet Provider:

ftp.neccsdeast.com/pub/

Once in the /pub directory, click on a product line or service until you find the file you want to download. Click on the selected file and follow the prompts to download the file to the system.

Email/Fax to Support Services

The NEC Computers Technical Support Center offers technical support by email over the Internet network if you have access. The Internet email address is:

tech-support@nec-computers.com/

You can also fax technical questions to the NEC Computers Technical Support Center if you have access to a fax machine or fax/modem. The fax number is:

(801)-579-1552

When using the email or fax support service, please include the following words in the subject field for prompt response from the appropriate technical person:

- Desktop
- Monitor
- Notebook.

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.

NEC Computers Technical Support Services

NEC Computers also offers direct technical support through its Technical Support Center. (NEC Computers technical support is for U.S. and Canadian customers only; international customers should check with their sales provider.)

Direct assistance is available 24 hours a day, 7 days a week. Call the NEC Computers Technical Support Center, toll free, at **1-800-632-4525** (U.S. and Canada only) 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 NEC Computers Technical Support Center.

Please have available the system's name, model number, serial number, and as much information as possible about the system's problem before calling.

For outside the U.S. or Canada, please contact the local NEC Computers office or dealer for the support and service available in your country.

9

Specifications

- System Components
- Memory Map
- Interrupt Controllers

System Components

The following system component specifications are standard except where noted.

System Processor

Depending on the model:

- Intel Celeron — 600 MHz, 650 MHz, 700 MHz, and 750 MHz
- Intel Pentium III — 700 MHz, 750 MHz, 800 MHz, 850 MHz, 900 MHz, and 1 GHz (all with SpeedStep)

Random Access Memory (RAM)

- Standard Main Memory — 64 MB high-speed interleaved access
- Optional Expansion — 1 SO-DIMM slot
 - Expandable in 32-MB, 64-MB, or 128-MB increments
 - Maximum 256 MB total
- Video RAM — 8.0 MB
- Cache RAM — 128-KB L2 cache (Celeron) or 256-KB L2 cache (Pentium III)

Read-Only Memory (ROM)

512-KB flash ROM with boot block

Calendar Clock

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

Input/Output (I/O) Facilities

Integrated industry-standard interfaces

- Modem Port — 1 port, RJ-11 jack or LAN Port on some models
- TV Out — 1 port, 2-pin RCA jack, NTSC/PAL support
- DC In — 1 port for AC adapter cable
- PS/2 Port — 1 port, PS/2, 6-pin MiniDin
- Parallel — 1 port, 25-pin D-sub
- USB Ports — 2 ports, base connector
- Expansion — 1 port, 80-pin for optional Port Replicator
- Serial — 1 port, 9-pin D-sub
- VGA — 1 port, 15-pin high-density D-sub
- Infrared — 1 port
- Microphone — 1 port, 3-pin, Mini-Pin jack
- Line-In — 1 port, 3-pin, Mini-Pin jack
- Headphones — 1 port, 3-pin, Mini-Pin jack

Main Battery

- Types:
 - Nickel-Metal-Hydride, (NiMH), eight cell
 - Output Voltage – 9.6v
 - Capacity – 3,800 mAh
 - Lithium-Ion (Li-Ion), eight cell
 - Output Voltage – 14.4v
 - Capacity – 3,600 mAh
- Recharging Time
 - Nickel-Metal-Hydride, (NiMH):

Approximately 3 hours when system is not in use; approximately 3.5 hours when system is in use.
 - Lithium-Ion (Li-Ion):

Approximately 3.5 hours when system is not in use; approximately 4 hours when system is in use.

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

- Thin Film Transistor (TFT) cold-cathode fluorescent tube (CCFT) backlit panel:
 - 12.1-inch Super VGA color; or
 - 13.3/14.1-inch Extended Graphics Array (XGA) color
- Resolution
 - 800 x 600 pixels for SVGA
 - 1024 x 768 pixels for XGA

Keyboard

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

- Function keys — 12 keys
- CD Control keys or Personal Code keys
- Internet and Email keys
- Cursor Control keys — 4 keys; arrow keys arranged in inverted T layout
- Numeric keypad — embedded
- Special Windows 95 keyset
- Fn key — function key for ROM-based key functions

Diskette Drive

Standard 1.44 MB

- Size — 3.5 inch
- Capacity — 1.44 MB (formatted), 2 MB (unformatted)

Hard Disk Drive

- Internal, 2.5 inch, IDE
- Capacity (depending on the model) 6.0-GB, 10-GB, 12-GB, 20-GB, or larger hard disk drive

CD-ROM Drive

- Thin-type CD-ROM Pack
- Access Time — 24X
- 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

8X DVD-ROM Drive

- Burst Transfer Rate — 16.67 MB/sec, PIO/Multiword DMA
- Spin Up Time, 2.5s (DVD), 2.0s (CD)
- Read Rate
 - CD, 10.3X – 24X, approximately 5,100 rpm
 - DVD, 4X – 7.5X, approximately 1,200 – 2,000 rpm
- Access Time
 - Average random access, 100 ms (DVD), 95 ms (CD 24X)
 - Average random seek, 95 ms (DVD), 90 ms (CD 24X)
 - Full stroke, 160 ms (DVD), 160 ms (CD 24X)
- Data Buffer — 128 KB
- Interface — IDE (ATAPI)
- CD Compatibility — CD-DA, CD+G, CD MIDI, CD-TEXT, CD-ROM, CD-ROM XA, CD-I Bridge (Photo-CD, Video CD), CD-I, Multisession CD (Photo-CD, CD-Extra, CD-RW, CD-R), CD-R (read), CD-RW (read)
- DVD Compatibility — DVD-5, DVD-9, DVD-10, DVD-18, DVD-R (read, single border)

CD Read/Write Drive

- Speed
 - Read, max 20X
 - CDRW, max 14X
- Read Transfer Rate
 - 150 KB/s, normal speed
 - 3000 KB/s, 20X, maximum speed
 - 16.6 MB/s, Mode 4 PIO
 - 16.6 MB/s, Multi Mode 2 DMA mode (not Ultra DMA)
- Write Transfer Rate
 - 150 KB/s, normal speed
 - 300 KB/s, 2X speed
 - 600 KB/s, 4X speed
- Audio Out — 0.8 +/-0.25 Vrms
- Operating Conditions
 - Shock, 1G (11ms)/read, 0.5G (11ms)/write
 - Vibration, 0.2G/read, 0.1G/write

DVD-ROM and CD Read/Write Combination Drive

- Data capacity
 - DVD, 2,048 bytes/block
 - CD, 2048 bytes/block (mode 1), 2,336 bytes/block (mode 2)
- Rotational speed
 - DVD, 3,792 rpm (2.5 – 6X CAV)
 - DVD-Video, 1,377-2,222 rpm (1.6X – 2.4X PCAV)
 - CD, 5,100 rpm (10.3 – 24X CAV)
 - CD-RW, 1,200 – 2000 rpm (4 – 5.7X PCAV)
 - Video-CD, 1,200 – 2000 rpm (4 – 5.7X PCAV)
 - CD-R/CD-RW (Write), 850 – 1,980 rpm (4X CLV)
420 – 990 rpm (2X CLV)

-
- Sustained data transfer rate
 - DVD, 3,357 – 8,112 kbytes/sec (2.5 – 6X CAV)
 - DVD-Video, 2,163 – 3,245 kbytes/sec (1.6X – 2.4X PCAV)
 - CD, 1,552 – 3,600 kbytes/sec, mode 1 (10.3X – 24X CAV)
1,769 – 4,104 kbytes/sec, mode 2 (10.3X – 24X CAV)
 - Access time (typical)
 - Average random access, 120 ms (DVD), 110 ms (CD)
 - Average random seek, 115 ms (DVD), 105 ms (CD)
 - Average full stroke, 180 ms (DVD), 170 ms (CD)
 - Spin up, 2.5s (DVD), 2.0s (CD)
 - Data buffer, 2 MB
 - Power Supply, +5V
 - Dimensions (W x H x D)
 - 5.04 x .5 x 4.96 in.
 - 128 x 12.7 x 126.1 mm
 - Weight .54 lbs. (0.246kg)

Mini PCI Modem

- K56 Flex compatible
- V.34 extended rate protocol
- V.90 compliant
- Enhanced AT command set
- Class 1 and 2 fax protocols
- Built-in speaker with software controllable volume

Mini PCI LAN

- 10Base-T and 100Base-TX
- Resume-on-LAN support
- Full duplex support
- Auto-sensing
- Software support for management server

Mini PCI Modem/LAN

Modem

- K56 Flex compatible
- V.34 protocol
- V.90 compliant
- Class 1 Fax protocol

LAN

- 10/100 Ethernet
- Full duplex support
- Wake-on-LAN support
- Auto-sensing
- Low power features

AC Adapter

- Input Voltage — 100 to 240 volts (V) AC, 50 watt (max.)
- Output Voltage — 19 volts DC, 2.6A

Dimensions

System

- Width — 12 in. (307 mm)
- Depth — 9.9 in. (252 mm)
- Height — 1.6 in. (40 mm) (max 44 mm)

Weight

- 6.2 lbs. (2.8 kg) 12.1-inch LCD
- 6.4 lbs. (2.9 kg) 13.3-inch LCD
- 6.4 lbs. (2.9 kg) 14.1-inch LCD

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.

System Memory Map

Memory Space	Size	Function
00000000h-0009FFFFh	640 KB	System Memory
000A0000h-000BFFFFh	128 KB	Video Memory
000C0000h-000DFFFFh	128 KB	
000E0000h-000FFFFFFh	128 KB	System and Video BIOS
01000000h-01FFFFFFh	32 MB	Extended Memory
02000000h-03FFFFFFh	32 MB	Extended Memory
04000000h-0FFFFFFFh	Up to 256 MB	Extended Memory

Interrupt Controllers

The following table shows default interrupt level assignments 0 through 15.

Interrupts

IRQ#	Device
IRQ00	Internal Timer
IRQ01	Keyboard
IRQ02	PIC
IRQ03	IR
IRQ04	Serial Port
IRQ05	CardBus/Mini-PCI/AC Link/Firewire
IRQ06	Diskette Drive
IRQ07	Parallel Port
IRQ08	Real-time Clock
IRQ09	USB (2) / SCI (only ACPI)
IRQ10	CardBus/Mini-PCI/AC Link/Video/Firewire
IRQ11	Available
IRQ12	Mouse
IRQ13	Coprocessor
IRQ14	Hard Disk Controller
IRQ15	Available

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.

applications programs

Software designed to perform specific functions, like solving business or mathematical problems.

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

CD read/write drive

The CD read/write drive loads and starts programs from a compact disc (CD) or plays your audio CDs. It also writes information to a CD.

CD-ROM drive

Compact Disc Read-Only Memory. A computer-controlled device that reads high-capacity optical discs 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 NEC 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 desktop 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

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.

DSTN

Double-Scan Super-Twisted Nematic. A type of technology used in some NEC Versa LCD screen displays.

E

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.

F

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-Del**) that you press simultaneously for a particular function.

I

IDE

Intelligent Drive Electronics. A hard disk drive type that has controller electronics built into the drive and delivers high throughput.

input/output

(I/O) The process of transferring data between the computer and external devices.

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. The NEC 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.

Mini PCI

A communications standard that offers smaller size, greater design flexibility, and reduced cost for mobile platforms.

mode

A method of operation; for example, the NEC Versa operates in either normal or power-saving modes.

modem

MOdulator-DEModulator. A device that links computers over a telephone line.

N**nonvolatile memory**

Storage media that retains its data when system power is turned off. Nonvolatile memory in the NEC 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.

PCMCIA

A credit card sized peripheral interface standard for portable devices. Types of PCMCIA cards currently offered by major vendors include fax/modems, LAN, storage cards, and wireless communications devices.

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.

Q

QWERTY

The QWERTY keyboard, designed in the 1800s for mechanical typewriters, refers to the first six keys (QWERTY) on the top row of letters on the standard keyboard.

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.

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.

ROM

Read-Only Memory. Memory in which stored data cannot be modified by the user except under special conditions.

RS-232C

Standard interface for serial devices.

S**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.

SpeedStep technology

Intel's SpeedStep technology provided with some Pentium III processors lets you customize high-performance computing on your notebook computer. When powered by a battery, the processor drops its computing speed to lower power consumption and conserve battery life.

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.

T**TFT**

Thin Film Transistor. A type of NEC Versa LCD color screen that supports 256 colors and provides exceptional screen display.

V

VersaGlide

A small, touch-sensitive pad used as a pointing device on your NEC Versa notebook computer. With the VersaGlide, you can move your finger along the pad to move the cursor or simulate a mouse click by tapping the pad.

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 NEC 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.

write

To record or store information to a storage device.

Index

A

- AC adapter
 - connecting, 2-2
 - specifications, 9-7
 - using, 2-2
 - ACPI, 2-16, 2-23, 2-25
 - advanced power settings, 2-25, 2-27
 - alarms, 2-24, 2-26
 - hibernation, 2-25, 2-28
 - power meter, 2-24, 2-27
 - power schemes, 2-23, 2-26
 - Advanced CMOS Setup
 - BIOS Setup, 2-9, 2-12
 - Advanced Configuration and Power Interface, 2-16, 2-23, 2-25
 - Advanced power settings, 2-25, 2-27
 - Alarm
 - critical battery, 2-24, 2-27
 - low battery, 2-24, 2-27
 - Windows 2000, 2-26
 - Windows 98, 2-24
 - Application and Driver CD
 - installing, 2-34
 - launching with Windows 2000/NT, 2-34
 - launching with Windows 98, 2-33
 - using, 2-33
 - Audio board
 - ports, 1-8
 - removing, 3-15
- ## B
- Backup
 - hard disk, 6-2
 - Battery, 1-12
 - charging, 2-6
 - CMOS, 2-8
 - CMOS, removing, 3-18
 - conserving power, 2-6
 - disposal, 2-7
 - extending life, 2-5
 - low power, 2-5
 - precautions, 2-7
 - recharging precautions, 2-7
 - refresh, 2-20
 - replacing, 2-4
 - specifications, 9-3
 - using, 2-3
 - when to change, 2-5
 - Battery pack
 - handling, 6-3
 - removal, 3-3
 - BIOS
 - language setting, 2-20

- obtaining update, 2-21
- performing the update, 2-22
- preparing to update, 2-22
- setup, 2-8
- update, 2-21

- BIOS Setup
 - Advanced CMOS Setup, 2-9, 2-12
 - Main Menu, 2-9
 - other options, 2-20
 - System Security Setup, 2-13
- Boot device
 - setup, 2-19

C

- Calendar clock, 9-2
- CD control board
 - removing, 3-13
- CD-ROM drive, 1-12
 - removing, 3-14
 - specifications, 9-4
- CD-RW drive, 1-12
- Celeron microprocessor, 1-2
- Chipsets, 1-13
- Cleaning
 - system exterior, 6-2
 - system interior, 6-2
- CMOS battery, 1-13, 2-8
 - removing, 3-18
- Connectors
 - DC/DC board, 4-2
 - I/O board, 4-3
 - main board, 4-3
- Control keys, 1-8
- Control panel, 1-4
- Critical battery alarm, 2-24, 2-27
- Cursor control keys, 1-8

D

- DC/DC board
 - removing, 3-16
- DIP switch settings, 2-38
- Disassembly
 - sequence, 3-2
- Diskette drive, 1-12, 2-11
 - removing, 3-19
 - specifications, 9-4
- DVD-ROM drive, 1-12

E

- Email/fax
 - support, 8-3

F

Features

- LCD panel, 1-3
- Port Replicator, 1-11
 - system, 1-2
 - system back, 1-9
 - system bottom, 1-11
 - system front, 1-3
 - system left side, 1-10
 - system right side, 1-10
- FingerPrint protection, 2-15
- FRU parts list, 5-3
- FTP site
 - NEC Computers, 8-3
- Function key combinations, 1-7
- Function keys, 1-7

H

Hard disk

- moving, 2-16
- protection, 6-2
- setting passwords, 2-15
- turning off, 2-24, 2-26
- Hard disk drive, 1-12
 - removing, 3-5
 - specifications, 9-4
- HDD password, 2-14
- HDPREPEZ utility
 - using in Windows 98, 2-30
- Hibernation, 2-25, 2-28

I

I/O board

- removing, 3-17
- Illustrated parts breakdown, 5-2
- Input/output facilities, 9-2
- Internal components, 1-12
- Internal hard disk drive
 - boot sector virus protection, 2-11
- Internal HDD password, 2-14
- IPB, 5-2
- IR port, 2-20

K

Kensington lock latch

- removing, 3-20
- Keyboard, 1-6
 - control keys, 1-6
 - cursor control keys, 1-6
 - function keys, 1-6
 - numeric keypad, 1-6
 - specifications, 9-3
 - typewriter keys, 1-6
- Keyboard and heat plate
 - removing, 3-10
- Keyboard panel and base unit, 1-6

L

LCD panel, 1-3

- closing, 2-25, 2-27
- removing, 3-8
- specifications, 9-3
- suspend system, 2-18
- view expansion, 2-12
- LED board
 - removing, 3-12
- LED/button assembly
 - removing, 3-7
- Low battery
 - alarm, 2-24, 2-27
 - power, 2-3

M

Main board

- removing, 3-21
- Main Menu
 - BIOS Setup, 2-9
- Managing system power, 2-23
- Memory Map, 9-8
- Memory module
 - removing, 3-4
- Microphone
 - removing, 3-18
- Mini PCI card
 - removing, 3-5
- Mini-PCI LAN
 - specifications, 9-6
- Mini-PCI Modem/LAN
 - specifications, 9-6
- Modem
 - specifications, 9-6
- Monitor
 - turning off, 2-24, 2-26

N

NEC Computers

- email/fax, 8-3
- FTP site, 8-3
- Technical support services, 8-3
- web site, 8-2
- NEC Customize utility, 2-30
 - using, 2-30
- NEC Info Center, 2-32
 - installing, 2-32
 - uninstalling, 2-32
- NEC utilities, 2-29
- Numeric keys, 1-8

O

Operating environment, 9-7

P

Panel

- brightness, 2-18
- LCD, 1-3
- Parallel port, 2-20

-
- Partition Magic, 2-33
 - Partition restore, 2-37
 - Parts list, 5-3
 - Password
 - establishing, 2-14
 - hard disk drive, 2-14
 - protection, 2-14
 - Standby, 2-25, 2-27
 - supervisor, 2-13
 - user, 2-13, 2-14
 - PC card assembly
 - removing, 3-22
 - slots, 9-3
 - Pentium III microprocessor
 - features, 1-2
 - removing, 3-21
 - Peripheral Component Interconnect (PCI), 1-2
 - Peripheral device
 - setup, 2-20
 - Personal Code Setting Utility, 2-31
 - Port Replicator
 - features, 1-11
 - port descriptions, 1-12
 - Ports
 - audio board, 1-8
 - Power
 - button, 2-17
 - management using AC power, 2-17
 - meter, 2-24, 2-27
 - schemes, 2-24, 2-26
 - Power button, 1-4
 - pressing, 2-25, 2-27
 - Power cord
 - replacing, 2-8
 - Power management, 2-23
 - setup, 2-16
 - Windows 98, 2-23
 - Power options
 - Windows 2000, 2-25
 - Power schemes, 2-23, 2-26
 - Power-on self test (POST), 2-8
 - Product Recovery CD, 2-34
 - full restore, 2-35
 - guidelines, 2-35
 - options, 2-35
 - partition restore, 2-37
 - PS/2 Warm Swap, 2-12
- Q**
- Quick troubleshooting, 7-2
- R**
- Removal
 - audio board, 3-15
 - CD control board, 3-13
 - CD-ROM drive, 3-14
 - CMOS battery, 3-18
 - DC/DC board, 3-16
 - diskette drive, 3-19
 - hard disk drive, 3-5
 - I/O board, 3-17
 - Kensington lock latch, 3-20
 - keyboard and heat plate, 3-10
 - LCD panel, 3-8
 - LED board, 3-12
 - LED/Button assembly, 3-7
 - main board, 3-21
 - memory module, 3-4
 - microphone, 3-18
 - Mini PCI card, 3-5
 - PC card assembly, 3-22
 - Pentium III CPU, 3-21
 - speakers, 3-20
 - top cover, 3-11
 - VersaGlide assembly, 3-14
 - Restore disk drive
 - full, 2-35
- S**
- Serial port, 2-20
 - Services and Support
 - contact information, 8-2
 - Setting
 - boot devices, 2-19
 - SmartCard protection, 2-14
 - SoftDVD Player, 2-31
 - Speakers
 - removing, 3-20
 - SpeedStep technology, 2-18, 2-31
 - Standard CMOS Setup
 - BIOS Setup, 2-11
 - Standby password, 2-25, 2-27
 - Status icons, 1-5
 - Supervisor password, 2-13
 - Suspend
 - mode, 2-18
 - warning tone, 2-18
 - Switch
 - settings, 2-38
 - System
 - date, 2-11
 - dimensions, 9-7
 - parameters
 - checking/setting parameters, 2-10
 - powering on, 2-3
 - processor, 9-2
 - RAM, 9-2
 - ROM, 9-2
 - Standby, 2-24, 2-26
 - switch, 2-17
 - System Security Setup
 - BIOS Setup, 2-13
- T**
- Taskbar icon, 2-25, 2-27
 - Tools
 - servicing, 3-2
 - Top cover

removing, 3-11

Troubleshooting

helpful questions, 7-5

quick, 7-2

Typewriter keys, 1-8

U

USB controller, 2-20

User password, 2-13, 2-14

Using the AC adapter, 2-2

Utilities

personal code setting, 2-31

V

VersaGlide, 1-8

removing, 3-14

Video out type, 2-12

W

Web site

NEC Computers, 8-2

Weight

specifications, 9-7

Windows


2000 power options, 2-25


keys, 1-8

power management, 2-23

Battery Replacement

A lithium battery in some computers maintains system configuration information. In the event that the battery fails to maintain system configuration information, NEC Computers recommends that you replace the battery. For battery replacement information, call your NEC Computers dealer.

 **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.

 **AVERTISSEMENT** 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 is made of Lithium-Ion (Li-Ion) or nickel-metal hydride (NiMH) and the CMOS clock battery is made of Lithium.

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

(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 is a Class B Digital Device. 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.

To meet FCC standards, shielded cables and power cords are required to connect this device to a personal computer or other Class B certified device.

Canadian Department of Communications Compliance Statement

This equipment does not exceed Class B limits per radio noise emissions or digital apparatus, set out in the Radio interference Regulation of the Canadian Department of Communications.

Avis de conformité aux normes du ministère des communications du Canada

Cet équipement ne dépasse pas les limites de Classe B d'émission de bruits radioélectriques pour les appareils numériques, telles que prescrites par le Règlement sur le brouillage radioélectrique émis par le ministère des Communications du Canada.

European Community Directive Conformance Statement

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of laws of the Member States relating to electro-magnetic compatibility. This product satisfied the Class B limits of EN 55022.

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