June 1999

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Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

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 into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- All external cables connecting to this basic unit must be shielded. For cables connecting to PCMCIA cards, see the option manual or installation instructions.

Federal Communications Commission (FCC)

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FCC Part 68 Registration Number: 6CTTAI – 25876 – FB – E

REN: 0.8B

The REN is useful to determine the quantity of devices you may connect to your telephone and still have all of those devices ring when your number is called. In most, but not all areas, the sum of the REN's of all devices should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should call your local telephone company to determine the maximum REN for your calling area.

If your MODEM causes harm to the telephone network, the local Telephone Company may discontinue your service temporarily. If possible, they will notify you in advance. However, if advanced notice isn't practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

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Abbreviations

Abbreviation	Meaning
ACPI	*Advanced Configuration and Power Interface*
APM	*Advanced Power Management (This Notebook supports APM 1.2)*
BIOS	*Basic Input/Output System*
CMOS	*Complementary Metal Oxide Semi-conductor*
DIMM	*Dual In-line Memory Module*
DMA	*Direct Memory Access*
DRAM	*Dynamic Random Access Memory*
DVD	*Digital Versatile Disc*
EDO RAM	*Extended Data Out Random Access Memory*
IDE	*Integrated Drive Electronics (internal hard disk drive interface)*
FIR	*Fast Infrared*
GB	*Gigabyte (1GB = 1,073,741,824 bytes or 1,024MB)*
ISA	*Industry Standard Architecture*
KB	*Kilobyte (1KB = 1,024 bytes)*
LCD	*Liquid Crystal Display*
MB	*Megabyte (1MB = 1,048,576 bytes or 1,024KB)*
MIDI	*Musical Instrument Digital Interface*
MPEG	*Motion Picture Experts Group*
MS-DOS	*Microsoft Disk Operating System*
PCI	*Peripheral Component Interconnect*
PCMCIA	*Personal Computer Memory Card International Association*
POST	*Power On Self-Test*
PnP	*Plug and Play*
RAM	*Random Access Memory*
RAMDAC	*Random Access Memory Digital to Analog Converter*
ROM	*Read Only Memory*
VGA	*Video Graphics Array*
SVGA	*Super Video Graphics Array*
UART	*Universal Asynchronous Receiver Transmitter*
XGA	*Extended Graphics Array*
YUV	*The video native signal format*

ABOUT THIS GUIDE

This guide describes how to operate, configure, and troubleshoot the Notebook computer. With this easy to use guide, you will be able to quickly familiarize yourself with all aspects of the Notebook computer.

Organization

This guide contains the following:

Chapter 1: *Introducing the Notebook* - This chapter identifies the external components of the Notebook and provides a quick reference to the Notebook functions. It also shows you how to get the Notebook up and running for the first time and covers creating a comfortable working environment.

Chapter 2: *The BIOS Setup Program* - This section introduces the Setup program, discusses how to move around in the Setup program, as well as how to specify and save your new settings. A detailed list of the optional settings among the different menus is also provided.

Chapter 3: *Operation* - This chapter provides information pertaining to the Video Display Controls used to adjust the LCD screen's appearance. Also included in this chapter is a brief overview of the keyboard, the System Status Indicator Panel, the touch pad, the FIR module, and a description of the audio features of the Notebook.

Chapter 4: *Peripheral Devices* - This chapter overviews the peripherals that can be connected to the Notebook, the necessary requirements for using these peripherals with your Notebook and instructions on how to connect these devices to your Notebook.

Chapter 5: *Power System* - This chapter contains information on the Notebook's power system, including the AC Adapter, the battery system, recharging the battery, and tips for conserving battery power. Also included is a detailed description of power management.

Chapter 6: *Expansion Options* - This chapter describes the optional equipment that can be added to the basic Notebook system. Also covered in this chapter is step-by-step information on installing and removing the optional modules that can be inserted in the Notebook.

Chapter 7: *Software* - This chapter provides step-by-step instructions for installing Windows 98 device drivers.

Chapter 8: *Caring for Your Notebook* - This chapter covers some of the basic maintenance procedures you may want to familiarize yourself with. It introduces proper methods of cleaning the case, the screen, the FDD drive, as well as some helpful tips on handling diskettes.

Appendix A: *Troubleshooting* - In a question and answer format, this section provides you with solutions to possible problems that may arise.

Appendix B: *Technical Specifications* - This appendix lists your Notebook computer's operating specifications.

Special Notices

Three kinds of special notices are used in this guide to emphasize specific information.

Provides additional information.

Indicates the presence of a hazard that can cause damage to the Notebook or other equipment.

Alerts you to a condition that may hamper the performance of the Notebook.

CHAPTER 1

INTRODUCING THE NOTEBOOK

Your new Notebook features the most innovative advances in portable computing technology. It combines state-of-the-art ergonomics with sophisticated architecture to provide you with a personal computer that is compact, powerful, and easy to use.

The modular design of the Notebook provides maximum expandability without compromising portability. The high-performance Pentium II, Pentium III CPU and PCI hard drive provide you with the extra processing power needed to handle complex graphics and large sound files. Two PCMCIA slots give you the ability to use standard PCMCIA cards, such as a LAN adapter or memory cards. The Notebook's CD-ROM located on the front panel of the Notebook for easy access provides access to a greater variety of graphics and multimedia software.

This User's Guide describes all the features of the Notebook in an easy-to-read yet thorough manner. The primary goals of this chapter are to identify the Notebook's external components and to provide a quick reference of the Notebook functions for experienced computer users.

Features and Controls

This section provides an overview of the Notebook's features. For more detailed information see the Specifications section in Appendix B. Your Notebook includes the following features:

CPU

The microprocessor (CPU) is the heart and brain of the computer. It performs all the computing functions and orchestrates the actions of the system. Your Notebook features the state-of-the-art Pentium II, Pentium III with the Intel 440BX system controller chip set .

CPU upgrades are possible. Changing a CPU requires much skill and knowledge. If you are not absolutely sure that you have the capability to change a CPU by yourself, let your Notebook dealer do it for you. Removing the CPU in an improper way may damage the Notebook's main board, resulting in costly repairs.

FDD Module

The FDD can use either 720KB double density or 1.44MB high-density 3.5-inch floppy diskettes. Floppy diskettes are useful for making backups of your program diskettes and data files. The FDD can be replaced with an optional LS120 module.

CD-ROM Module

The Notebook is equipped with a 24X (or faster) CD-ROM drive. The CD-ROM can be replaced with an optional DVD or ZIP module.

Hard Drive

The Notebook comes with a 2.5"/9.5mm, or 12.7mm high hard disk (up to 16GB) installed. Features include an HDD interface with PCI Bus Master IDE and support for Ultra 33 synchronous DMA (ATA-33) and PIO Mode 4 timing. Consult your dealer to find out the capacity of the hard drive installed in your Notebook.

LCD VGA Display

Your Notebook's VGA display is one of three models:

- Color TFT-14.1" LCD panel supporting 1024 x 768 XGA resolution
- Color TFT-15.0" LCD panel supporting 1024 x 768 XGA resolution
- Color TFT-15.0" LCD panel supporting 1400 x 1050 SXGA resolution

VGA Graphics Accelerator and Video Subsystem

This Notebook is equipped with an ATI 3D RAGE Mobility-P VGA AGP controller chip offering the following features:

- AGP 2X Bus Architecture (133MHz)
- Integrated 230MHz DAC
- Integrated ImpacTV2-quality TV output
- Integrated dual-channel 112MHz LVDS transmitter
- Supports Tri-View architecture allowing for simultaneous video output to LCD/CRT/TV displays
- Superior 2D performance with 125MHz SGRAM
- Superior 3D acceleration achieved through a hardware setup engine and a 4KB on-chip texture cache
- Supports 8 MB of SGRAM Display Memory
- ACPI compliant Dynamic Power Management features
- Full motion soft DVD using motion compensation circuitry
- Capture and MPEG support with Zoom Video (ZV) port video input
- Plug and play monitor support
- Fully compliant with PC98 and PC99

87/88-key Enhanced Keyboard

The Notebook's keyboard has a standard QWERTY layout with the addition of special function keys. It is available in either 87 or 88-key layouts that emulate a full-size desktop 101/102-key keyboard. The keyboard features an embedded numeric keypad for number-intensive data entry, with independent [Page Down], [Page Up], [Home], and [End] keys.

Windows 95/98 Enhanced Keyboard

The keyboard supports Windows 95/98 by incorporating two Windows specific keys. With these keys you will be able to access and take advantage of many of the time-saving features offered by Windows 95/98.

The Touch Pad

The Notebook features a touch pad pointing device with two buttons. This pressure-sensitive pointing device allows you to move the cursor around the screen and make selections just as one would with a conventional mouse. A unique function called double tapping allows you to make selections within a software program or execute software applications without having to remove your hands from the touch-type position. Please see the *Touch Pad* section in Chapter 3 for more information on the operation of the Notebook's pointing device.

Connectors

The Notebook has a number of connector (Input/Output) ports for attaching peripherals to the computer, including the following:

- A 6-pin connector for a full-size keyboard or a PS/2 mouse
- Three audio jacks: External Mic (Mic-in), Headphone-out and Line-in
- A 15-pin CRT (monitor) port
- A standard 9-pin serial port (16550 compatible) supports a variety of serial devices such as a mouse or MODEM.
- A 25-pin parallel port that is most commonly used to connect a printer or Pocket LAN to the computer. The parallel port supports both EPP and ECP capabilities.
- A 240-pin docking connector with 32-bit PCI bus and hot docking support
- Two ACPI-compliant PCMCIA expansion sockets provide an interface for two Type II cards, or one Type III card. PC cards accommodate a number of expansion options, including memory cards, MODEMs, hard disks, and network adapters.
- One 2-pin connector for an AC Adapter power jack
- Built-in IrDA FIR (Fast Infrared) transmitter/receivers for wireless communications
- One built-in microphone
- Two built-in speakers
- One 4-pin Universal Serial Bus (USB) connector
- One TV-Out (S-type) port
- RJ-11 MODEM port

PCMCIA Sockets

An ACPI-compliant PCMCIA R2.0 host adapter supports one type III PCMCIA card or two type II PCMCIA cards. The PCMCIA sockets support hot insertion and removal and can accommodate SRAM, OTPROM, FLASHROM and Mask ROM memory cards of up to 64MB, MODEM/LAN cards and 10.5mm removable HDD. The host adapter also supports Zoom Video mode.

Battery and AC Power System

To power the Notebook, you can use an AC Adapter or the rechargeable battery pack module. The system will automatically recharge the battery pack in the Notebook by using the AC Adapter. For information on recharging the battery while simultaneously using the Notebook, see the section in this chapter on installation and initial setup. By using the power management features described in Chapter 5, the Notebook can operate on battery power for approximately 3 hours. The battery pack takes approximately 2 hours to recharge when the computer is turned off. It takes 2.5 hours to recharge when the computer is in use. For extended battery-powered operation, additional battery modules may be purchased.

Upgradable Memory

The Notebook is equipped with two SODIMM connectors, allowing for a maximum of 256MB of system memory to be installed. This memory configuration is achieved by installing two 32MB, 64MB or 128MB 3.3V SDRAM 144-pin SO-DIMM memory module. Refer to the *System Memory Expansion* and *Installing Memory Cards* sections in Chapter 6 for detailed information on upgrading system memory. After reviewing the appropriate sections, if you are not completely confident that you have the skill to install memory modules by yourself, please consult your Notebook dealer or technician.

Keyboard Controls

The Notebook provides a host of hot key features that are a permanent part of the computer's operation. Some affect the LCD video display, while others control the sound volume. A complete list of the Notebook's hot key functions is provided in Chapter 3.

Power Management

The Notebook features sophisticated power management built into the BIOS Setup program. These features are designed to conserve power and extend the life of the battery between charges.

FIR Port

For convenience, the Notebook features an FIR Port (on the rear panel) that allows wireless, serial communication between the Notebook and other FIR equipped devices such as a printer or another computer. The FIR Port allows both the sending and receiving of data.

Audio Features

The Notebook's audio features include:

- ESS Maestro-2E digital audio controller (Sound Pro™ and Windows Sound System™ compatible)
- 64-channel wavetable synthesizer
- Proprietary WaveCache technology
- HRTF 3-D positional audio under DirectX™ 5.0
- A sophisticated on-board 16-bit stereo FM sound generator featuring enhanced stereo and full-duplex playback and record with internal playback and record buffer
- Sample rate conversion from 8Khz to 48Khz
- Secondary CODEC Interface
- DVD AC-3 Speaker Virtualization
- Two integrated speakers and an internal microphone
- Stereo inputs for Line-in and Line-out and a mono input for the microphone
- Software/Hardware Master Volume Control
- Programmable Power Management
- MIDI serial port compatible with MPU401 UART mode
- I^2S interface to internal stereo D/A for external ZV port or MPEG audio
- PC98 compliant with full PnP support
- Complies with Microsoft ACPI 1.0 and PPMI 1.0 (DO-D3) and APM 1.2
- Legacy DOS Game support

Optional Devices

There are several optional products you can purchase to further enhance the utility and versatility of your Notebook computer.

- HDD Module (factory option)
- CD-ROM Module
- DVD Module
- LS120 Module (factory option)
- Zip Module
- Mini PCI 56K Data/Fax/Modem (factory option)
- TV-out Adapter
- S-Type TV Video and Audio cable
- Docking Station
  (Port Replicator / Enhanced Port Replicator / Docking Station TBD)
- Extra memory modules (32, 64, 128MB 144-pin 3.3V SODIMM)
- Li-Ion Main Battery Pack
- Li-Ion Secondary Battery Pack

Unpacking & Checking the Equipment

Before unpacking the Notebook, prepare a clean, stable surface on which to place the contents of your Notebook's shipping container. Altogether, you should find the following items in the Notebook package:

- The Notebook Computer (with one battery pack already installed)
- FDD Module
- CD-ROM Module
- An AC Adapter
- A Power Cord
- A Carrying Bag (optional)
- Support Diskettes/CD
- This User's Manual

Remove all the items from the container. If anything is missing or broken, inform your dealer immediately. You should save the packaging; if you ever need to ship your Notebook or send it in for service, the shipping container will definitely be useful.

Identifying Parts of the Notebook

The illustrations that follow identify the various features and external components of the Notebook computer. Familiarizing yourself with these terms will help you as you read the rest of the manual.

Right Front View (Panel Closed)

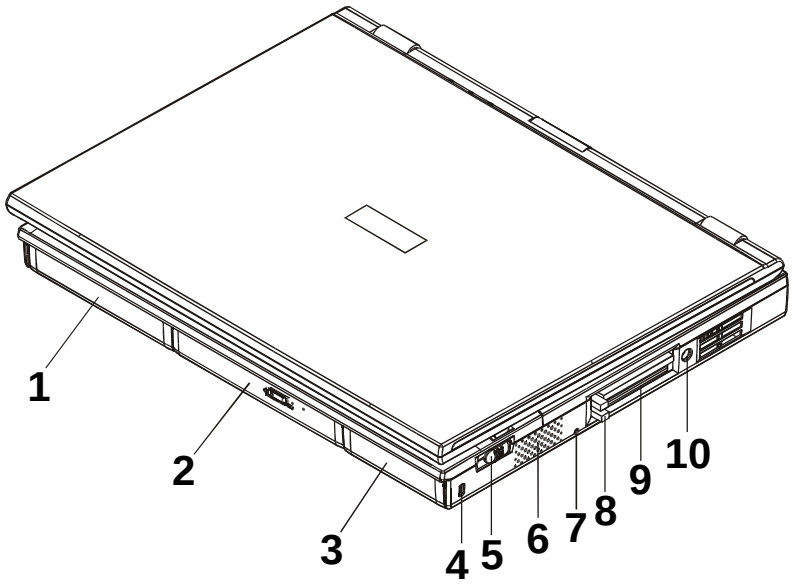


Figure 1-1: Right Front View with Display Panel Closed

1. Removable Battery Module

Your Notebook comes equipped with a factory-installed battery pack module. After the battery runs down, the module can be removed and replaced with a charged battery. Additional battery packs can also be purchased as optional equipment.

2. CD-ROM Module

Your Notebook comes equipped with a factory-installed CD-ROM module.

The CD-ROM module can be removed and replaced with an optional DVD, ZIP, CD-RW or secondary battery module. Contact your Notebook PC dealer for more information.

3. Removable HDD Module

Your Notebook comes equipped with a factory-installed HDD module. If you find that your Notebook is running low on disk space, the HDD can be removed an replaced with a higher capacity HDD (up to 16GB).

4. Kensington Lock

This port is for locking the Notebook PC to a desk for security.

5. LCD Panel Release Button

The Notebook has two LCD panel release buttons located on the left and right side panels. To open the Notebook, slide these release buttons forward. This will release the LCD panel latches. Now raise the panel to its open position as shown in ***Figure 1-4***. Note that the Notebook's LCD panel can be adjusted to an angle ranging from 0° to 180°. Adjust the LCD panel for a comfortable viewing angle.

6. Internal Stereo Speaker

The Notebook provides three audio-output choices: wearing headphones connected to the audio Headphone-out jack for private listening; connecting external stereo speakers to the audio Headphone-out jack for high quality sound; or for convenience, using the internal stereo speakers.

7. Power Kill Button

Pressing this button will shut down the system. All unsaved data will be lost.

8. PCMCIA Socket Eject Buttons

Push the upper button to release a PCMCIA Type I or Type II card from the upper slot. Push the lower button to release a PCMCIA Type I, Type II, or a Type III card from the lower socket.

9. PCMCIA sockets

Insert PCMCIA Type I, Type II, or Type III cards into these sockets.

10. AC Power Jack

Connect the AC Adapter power cord to this jack.

Left Front View (Panel Closed)

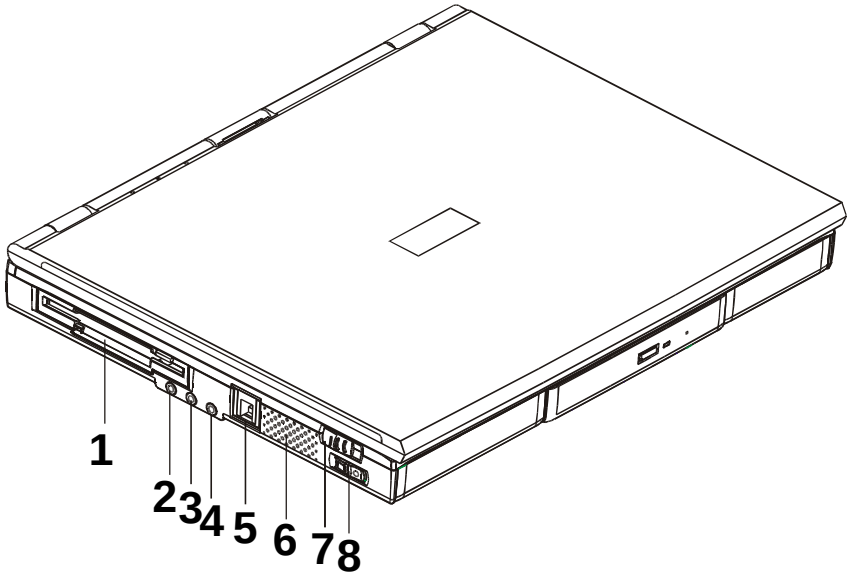


Figure 1-2: Left Front View with Display Panel Closed

1. FDD Module or LS120 Module

Your Notebook comes equipped with a factory-installed FDD module or LS120 Module. Insert 3.5-inch floppy diskettes into the floppy disk drive. Press the eject button eject a diskette from the floppy disk drive. This button only pops out when a diskette is inserted into the drive.

Note! *The FDD module can be removed and replaced with an optional LS120 module. Contact your Notebook PC dealer for more information.*

2. Audio Line-in Connector

This stereo jack is used to connect an external audio source to the Notebook.

3. External Mic Connector

This stereo jack is used to connect an external microphone.

4. Audio Headphone-out Connector

This stereo jack is used to connect external speakers or headphones. Please refer to Chapter 3 for information on using Audio control hot keys.

The Audio jacks are three-terminal stereo jacks but are used as two terminal mono jacks. They are not compatible with two-terminal mono plugs.

5. RJ-11 MODEM Port

Connect a phone line to this port to make use of the Notebook's optional Fax/MODEM MiniPCI card. Refer to Chapter 4, *Peripherals* for more information.

An optional MiniPCI MODEM module must be installed in order for the MODEM to function. The RJ-11 MODEM Port will be disabled if the optional MiniPCI MODEM module is not installed.

6. Internal Stereo Speaker

The Notebook provides three audio-output choices: wearing headphones connected to the audio Headphone-out jack for private listening; connecting external stereo speakers to the audio Headphone-out jack for high quality sound; or for convenience, using the internal stereo speakers.

7. LCD Panel Release Button

The Notebook has two LCD panel release buttons located on the left and right side panels. To open the Notebook, slide these release buttons forward. This will release the LCD panel latches.

8. Hardware Master Volume Control

This control regulates the audio volume output. Press the right side of the control to increase the volume by increments. Press the left side of the control to decrease the volume by increments.

Rear View

Several I/O ports are located on the rear side of the Notebook. Starting from left to right, the rear-side ports are introduced below. Please refer to ***Figure 1-3*** for assistance in locating these ports.

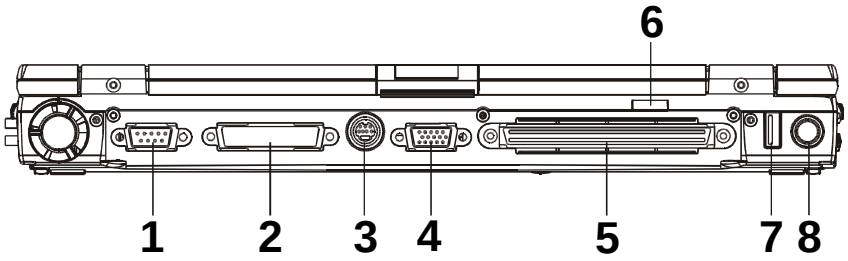


Figure 1-3: Rear View of Notebook

1. Serial (COM) Port

This port is used to connect RS-232 serial devices to the Notebook. Three types of serial devices are mice, serial printers, and MODEMs.

2. Parallel (LPT1) Port

This port is normally used to connect a printer to the Notebook.

3. TV-out Port

Connect a Television set to this port to view the Notebook's display output on your TV.

4. VGA Display Port

This port is used to connect an external monitor (CRT) to the Notebook.

5. I/O Port Replicator Connector

This port is for connecting the Notebook to its proprietary I/O Port Replicator.

6. FIR Port

The FIR Module allows wireless communication (transmission and receiving) between the Notebook and another FIR-equipped computer or between the Notebook and another FIR-equipped device, such as a printer.

7. Universal Serial Bus (USB) Port

Connect any USB compliant device to this port.

8. External Keyboard or PS/2 Mouse Port

This port is for connecting either an external keyboard or a PS/2 mouse.

Right Front View (Panel Open)

The Notebook has two LCD panel release buttons located on the left and right side panels. To open the Notebook, slide these release buttons forward. This will release the LCD panel latches. Please refer to ***Figure 1-1*** and ***Figure 1-2*** to locate the LCD panel release button. Raise the cover to its open position. ***Figure 1-4*** shows the Notebook in the open position with the external parts labeled. As mentioned earlier, the cover can be adjusted to an angle of 0° to 180°. Adjust the LCD cover for a comfortable viewing angle.

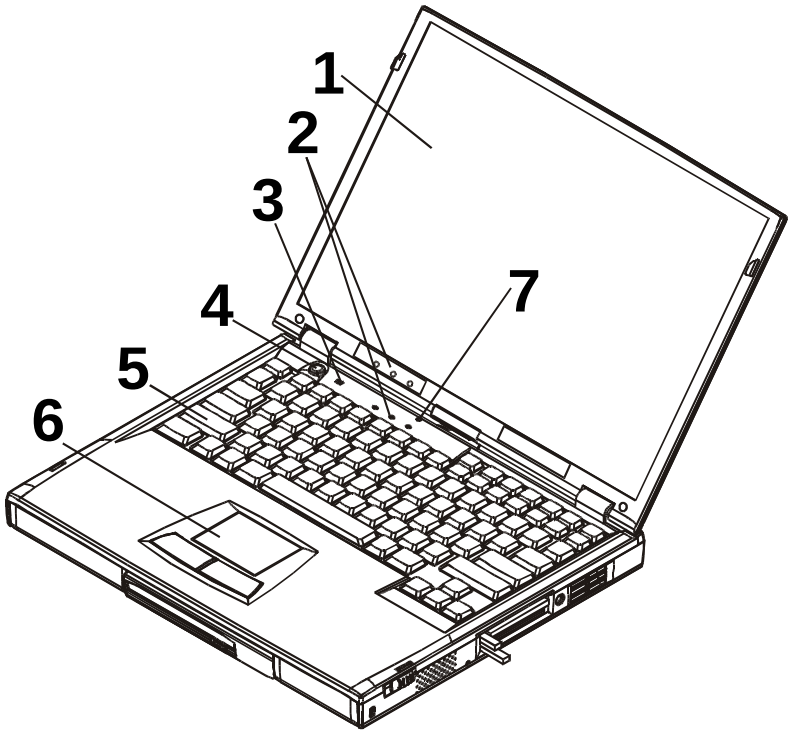


Figure 1-4: Right Front View with Display Panel Open

1. LCD Screen

The screen is a color TFT or DSTN LCD.

2. System Status Indicators

The System Status indicators inform you of the Notebook's current operating status at a glance. The different LED indicators are from left to right: AC Power, Battery Power, Activity, Numlock, Caps Lock, and Scroll Lock. Refer to chapter 3 for a detailed description of these indicators.

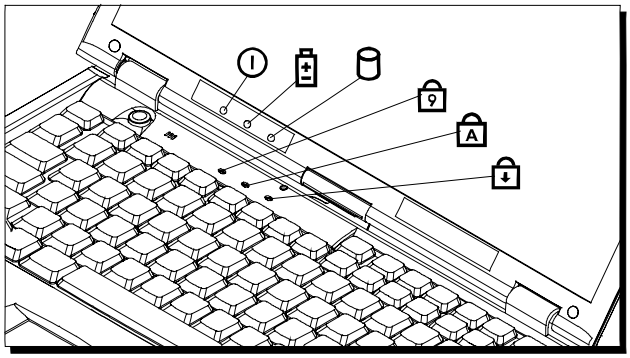


Figure 1-5: System Status Indicator Panel

The AC Power, Battery Power, and Activity LED indicators can be viewed near the panel hinge when the panel cover is closed.

3. Built-in Microphone

The microphone can be used to record music, voice, and sound files.

4. Power Button ⏻

Press this button to turn the computer on or off.

5. Keyboard

Your keyboard is either an 87-key US version or an 88-key international version depending on the Notebook you purchased.

6. Touch Pad

The touch pad is a pressure sensitive pointing device that provides all the features of a mouse. Although its operation differs from a mouse, its function is quite the same: to move the cursor around the screen. Please refer to *Using the Touch Pad,* in Chapter 3 for more information.

7. Suspend/Resume Lid Switch

There are three ways to enter the system into Suspend mode. One is to automatically enter Suspend mode. The system will enter Suspend mode based upon the settings made in the Basic Input Output System (BIOS) Setup program. Although it sounds intimidating, Setup is a simple program to use. It is covered in detail in Chapter 2.

In the second method, the Suspend/Resume is activated by using the cover switch. Assuming an external monitor is not connected to the Notebook and the Notebook is powered on, closing the lid will cause the system to automatically enter the Suspend mode.

In the third method, the user can activate suspend or resume by pressing a hot key. Pressing [Fn] + [Esc] suspends to RAM, and pressing [Fn] + [A] or [Fn] + [Q] suspends to disk. The user can press the power button to resume full power operation.

For more information on Suspend modes, please see Chapter 5, *Power Management Modes.*

Installation and Initial Setup

If you are unfamiliar with computers, this section guides you through turning on your Notebook for the first time. This section also explains what you need to do after turning on your Notebook. Experienced computer users may need only read this section while using the rest of the manual merely as a reference.

Connecting the AC Power Adapter

There are two possible ways of powering the Notebook. One is by an internal battery module and the second is by connecting the Notebook's AC Adapter. This chapter will focus on the AC connection. ***Figure 1-6*** illustrates this connection. For information on using battery power, please refer to Chapter 5

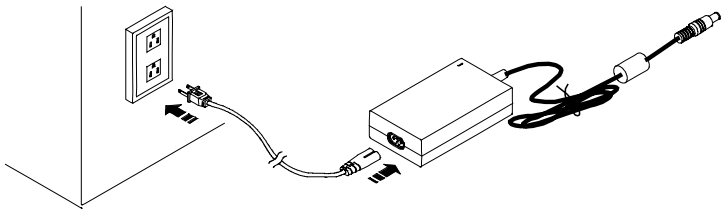


Figure 1-6: Connecting the Power Cord and the AC Adapter

An AC Connection

To power the Notebook by using the external AC Adapter, please refer to ***Figure 1-6*** and the following instructions:

1. Insert the end of the AC Adapter output cable into the Notebook's AC port. ***Figure 1-6*** illustrates this connection. Do not force a connection.
2. The port on the AC Adapter module is shaped like a figure eight with two pins protruding from it. Connect the power cable to this port.
3. The best power source that you can connect any computer device to is a UPS (uninterruptable power supply). Your Notebook dealer will be able to provide you specifics as far as the price and performance of different brands of UPS devices. If you do not own a UPS and have no desire to purchase one, your next best power source is an extension cord that has its own built-in electrical surge protector. If you don't have an extension cord with a built-in electrical surge protector, you can plug the AC Adapter directly into a grounded electrical outlet.

4. Plug the Notebook into its power source and press the power button. If the Notebook does not power up, check the connections between the wall outlet, the AC Adapter, and the Notebook. If the Notebook still does not power up, please refer to Appendix A, *Troubleshooting*.
5. To turn the Notebook off, save your work and close all open applications, click on **Start**, then **Shut Down**. In the **Shut Down Windows** dialog box select **Shut down the computer** and click *Yes*.

If you travel to an area with a different electric power standard, check to make sure whether that voltage system is compatible with your Notebook's power requirements before plugging it into an AC power source. You can use an adapter plug that interfaces between your system cables and the electrical wall outlet of the foreign country you are visiting. If you are unsure about this, please consult your Notebook dealer or support technician.

Your Notebook is equipped with one rechargeable battery pack, which has already been installed. Please refer to the Power Management section of Chapter 5 for further coverage of the rechargeable battery and how to optimize you Notebook PC for battery operation.

The Power On Self Test (POST)

When you turn on the computer, it will first run through a series of software-controlled diagnostic tests called the Power On Self Test (POST). The software that controls the POST is installed as a permanent part of the computer's architecture. The POST includes a record of the computer's hardware that is used to make a diagnostic check of the system. This record is created by using the BIOS Setup program. If the POST discovers a difference between the record and the existing hardware, it will display a message on the screen prompting you to correct the conflict by running the BIOS Setup program. Refer to Chapter 2, for instructions on how to run the BIOS Setup program.

In most cases, the record should be correct when you receive the computer. If so, the POST will finish and the computer will look for an Operating System to load into memory. The self test will run every time you turn on the computer. When the test is finished, you should get a message indicating that there is a non-system disk or disk error. This indicates that the hard disk is ready to be prepared for use with the operating system you intend to use. After you prepare the hard disk for use, you should not see this message again unless you try to start the computer with a non-system floppy disk inserted in the floppy drive.

Installing an Operating System

When starting the computer for the first time, please be aware that you must have an Operating System (OS) program installed on the hard drive. You probably have an OS program already installed on your Notebook. If your dealer did not install an OS for you, please consult your OS Software manuals for instructions on how to install an OS onto your hard disk drive.

Preparing the Notebook for Transport

To prepare the computer for transport, you should first disconnect all peripherals. Make sure the computer is turned off before you do this. Make sure the floppy drive does not contain a diskette. When a diskette is inserted in the floppy drive, the eject button pops out. If you attempt to transport the Notebook with a diskette in the drive, you risk damaging the eject button.

The computer has an optional soft carrying case. It will keep out dirt and dust and protect the casing of your Notebook from becoming scratched or cracked.

If you intend to use battery power, be sure to fully charge the battery pack and any spares. Remember the Adapter charges the battery pack as long as it is plugged into the computer and an AC power source.

A Word about Ergonomics

Ergonomics is the study of how people with their different physical characteristics and ways of functioning relate to their working environment (the furnishings and machines they use). The goal of Ergonomics is to incorporate comfort, efficiency, and safety into the design of keyboards, computer desks, chairs, and other items in an effort to prevent physical discomfort and health problems in the working environment. Because more and more people are spending large amounts of time in front of computer monitors, scientists from many fields including anatomy, psychology, and occupational safety are involved in the study of ergonomically sound work environments.

If your budget permits, buy ergonomically designed furniture such as chairs, shelves, and desks that fit your physical characteristics and work methods. Most furniture manufacturers have not considered the particular shape of your body when designing workstations. If you are going to be sitting for extended periods, an ergonomically designed chair may well be worth the extra expense. You can, however, create an ergonomically improved workstation without spending much money. Following are a few tips to help you work effectively without a lot of physical discomfort:

- Place the monitor so that it is a little *above* eye level to prevent neck strain.
- Try to place the monitor so that there is little glare from the sun on the monitor.
- Use a thick book as a footrest.
- Walk around the room every hour.
- Every half-hour, look away from the computer screen for a few minutes.
- Place everything that you need to work within easy reach.

Hot Keys for System Control

The following table lists the hot key functions for the Notebook computer.

Key Combinations	Definitions
[Fn] + ☼↑	Increases display brightness
[Fn] + ☼↓	Decreases display brightness
[Fn] + [PageUp]	Increases audio volume output
[Fn] + [PageDn]	Decreases audio volume output
[Fn] + [F8]	Switches among LCD, external monitor, and simultaneous displays
[Fn] + [End]	Toggles the mute function on and off. (no beep)
[Fn] + [number]	Pressing [Fn] plus any number on the keypad enables the embedded numeric keypad.
[Fn] + [Esc]	Pressing this hot key combination will cause the system to enter Suspend to RAM. The function of this hot key is configured by the Windows 98 operating system. Press the power button to resume.
[Fn] + [A] or [Fn] + [Q]	Pressing these hot key combinations will cause the system to enter Save to Disk mode (Hibernate mode).

When ACPI mode is enabled, all power management hot keys, i.e., [Fn] + [A] *or* [Fn] + [Q]*, are inactive.*

When using an external keyboard, the Fn key can be simulated by pressing the left-Ctrl + left-Alt keys.

This concludes Chapter 1. The next chapter covers the BIOS Setup program.

CHAPTER 2

THE BIOS SETUP PROGRAM

Introduction

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor the operation of your Notebook to your individual work needs. A ROM-based configuration utility displays the system's configuration status and provides you with a tool to set system parameters. These parameters are stored in non-volatile battery backed-up CMOS RAM, which saves this information even when the power is turned off. When the computer is turned back on, the system is configured with the values found in CMOS. Using easy-to-use menus, you can configure such items as:

- Hard drives, diskette drives and peripherals
- Video display options
- Password protection from unauthorized use
- Power Management Features

The settings made in the Setup program intimately affect how the Notebook performs. It is important, therefore, first to try to understand all the available options, and second, to make settings appropriate for the way you use the Notebook. This chapter will guide you through the Setup program by providing clear explanations for all Setup options.

A standard configuration has already been set in the Setup program by the factory technicians, so you will very likely have little to worry about for now. However, eventually you may want to customize your system to suit your own performance needs. It is recommended that you read this chapter and become familiar with the adjustments that can be made in the BIOS.

The next section explains how to move around in the Setup program, as well as how to specify and save your new settings. A brief discussion of the optional settings among the different submenus follows.

Navigating through the BIOS Setup Program

The Setup program has been designed to make it as easy to use as possible. It is a menu driven program, which means you can scroll through the various directories and make your selections among the various predetermined choices. If you accidentally make a setting and do not know which one to switch back to, use the BIOS hot keys to return to the previous value. The hot keys are discussed in more detail later in this chapter.

When turning on the Notebook for the first time you may get a message prompting you to run the BIOS Setup program. A warning message may appear on the screen if the hardware configuration is changed or the POST fails. This message will inform you of any errors or invalid settings and prompt you to run the Setup program to correct the problem.

Even if you are not prompted by a message instructing you to use the Setup program, at some time in the future you may want to change the configuration of your computer. For example, you may want to make changes to the power management settings or enable the Notebook's password function for security purposes. It will then be necessary to reconfigure your system using the Setup program so that the computer can recognize these changes.

The list below gives a few examples of reasons why you may want or need to run the BIOS Setup program.

- You have set up the computer for the first time and you got a message stating that you should run the BIOS Setup program.
- You want to redefine the communication ports to prevent any conflicts.
- You want to make changes to the Power Management configuration.
- You want to change the password or make other changes to the security setup.

The few examples listed above are by no means a complete list.

Accessing the BIOS Setup Program

To access the BIOS Setup program, press the F2 key after the Notebook has run through its POST.

The Menu Bar

The top of the Setup screen has a menu bar with the following selections:

Main	Use this menu to make changes to the basic system configuration.
System Devices	Use this menu to enable and make changes to the advanced features available on your system.
Security	Use this menu to set System and Boot passwords.
Power	Use this menu to configure and enable Power Management features.
Boot	Use this menu to specify the order in which the Notebook is to check for a device to boot the system.
Exit	Use this menu to specify how to exit the Setup program.

To move between menu bar items, use the [◂] [▸] arrow keys until the desired item is highlighted. For example, if you want to move from the Main menu to the System Devices menu, press the right arrow key [▸] once. The System Devices menu item should now be highlighted.

The Legend Bar

At the bottom of the Setup screen, you will notice a legend bar. The keys in the legend bar allow you to navigate through the various individual setup menus. The following table lists the keys found in the legend bar with their corresponding functions:

Legend Key	Function
[F1] or [Alt] + [H]	*Displays the General Help window.*
[Esc]	*Exits the current menu and moves you to the Exit menu.*
[◀] or [▶]	*Selects a different menu bar item.*
[▲] or [▼]	*Moves the cursor up and down between fields.*
[Tab]	*Cycles the cursor forward through the particular highlighted field. If the field has only one value, the Tab key will move the selection cell down to the next field.*
[Shift]+[Tab]	*Cycles the cursor backward through the particular highlighted field. If the field has only one value, the [Shift]+[Tab] key combination will move the selection cell up to the previous field.*
[F5]	*Scrolls backwards through the values for the highlighted field.*
[F6]	*Scrolls forward through the values for the highlighted field.*
[F9]	*Sets the parameters to their default values.*
[F10]	*Saves any changes and exits Setup*
[Enter]	*Executes commands or selects a submenu.*

Launching Submenus

A submenu contains additional options for a field parameter. To call up a submenu, simply move the highlight to the desired field and press the [Enter] key. The submenu will then immediately appear. Use the legend keys to enter values and move from field to field within a submenu just as you would within a menu.

If you are a first time user or are not familiar with BIOS Setup programs, it is highly recommended that you take a few minutes to familiarize yourself with each of the legend keys and their corresponding functions. Practice navigating through the various menus and submenus. If you accidentally make unwanted changes to the current configuration, pressing the function key [F9] will return the activated menu to its factory set values.

Note that on the right side of each of the BIOS screens there is a section labeled *Item Specific Help*. While moving around through the Setup program, explanations for the currently highlighted field appear in the *Item Specific Help* window.

General Help

In addition to the Item Specific Help window, the BIOS Setup program also provides a General Help screen. This screen can be called up from any menu by simply pressing the function key [F1], or the [Alt] + [H] combination. The General Help screen lists the legend keys with their corresponding alternates and functions.

When a scroll bar appears to the right of a help window, this indicates that there is more information to be displayed that will not fit in the window. Use the [Page Up] and [Page Down] keys or the up and down arrow keys [▲] [▼] to scroll through the entire help document. Press [Home] to display the first page. Press [End] to go to the last page. To exit the help window, press the [Enter] or the [Esc] key.

Saving Changes and Exiting the Setup Program

Refer to the Exit Menu section of this chapter for detailed information on saving changes and exiting the Setup program.

The Main Menu

When the Setup program is accessed, the following screen appears:

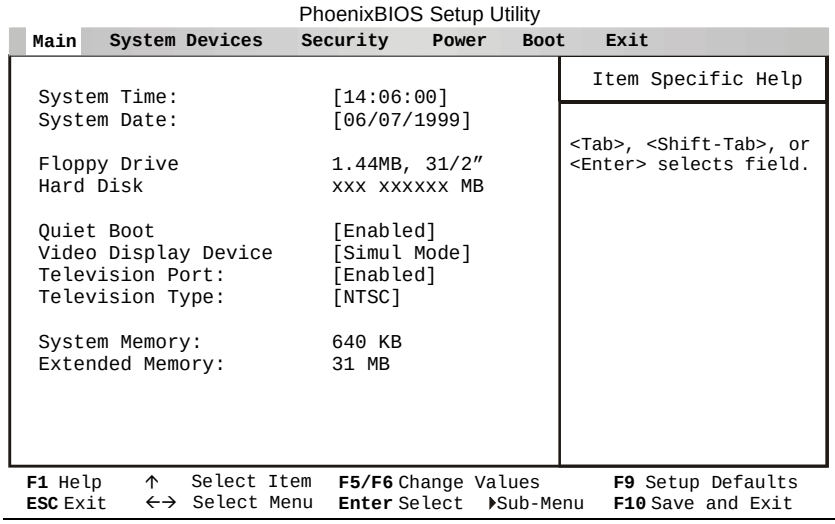


Figure 2-1: The Setup Main Menu

Enter the Main Menu of the BIOS setup program to make changes to the Notebook's basic system configuration. Each of the fields displayed in this menu is covered below in detail.

System Time

Sets your system to the time that you specify (usually the current time). The format is hour, minute, and second. Insert the appropriate information. Use the tab key to move between the hour, minute, and second fields.

System Date

Sets your system to the date that you specify (usually the current date). The format is month, day, year. Type in the appropriate information. Use the tab key to move between the month, day, and year fields.

Floppy Drive

Specifies a drive type for diskette drive A. The system will automatically detect the existence of an FDD module. You do not need to make changes to this field. This is a display only field.

Hard Disk

The manufacturer and model name of your Notebook's hard drive will be displayed in this field. You do not need to make changes to this field. This is a display only field.

Quiet Boot

This field allows you to display the diagnostic screen during bootup. There are two possible settings:

- Enabled
- Disabled

The default value for this field is: Enabled

When set to *Enabled*, Diagnostic POST and the Summary Screen are disabled. When set to *Disabled*, Diagnostic POST and the Summary Screen are enabled.

Video Display Device

This field allows you to specify the display type options. They are:

- CRT Mode
- LCD Mode
- Simul Mode

CRT Mode allows you to view the Notebook's display on an external CRT monitor.

LCD Mode allows you to view the Notebook's LCD display only.

Simul Mode (Simultaneous Viewing Mode) allows you to simultaneously view the Notebook's LCD display and an external CRT monitor display.

The default value for this field is: Simul Mode

Television Port

This field allows you to enable the Notebook's TV port. There are two possible settings:

- Enabled
- Disabled

The default value for this field is: Enabled

Television Type

This field allows you to define the protocol for the Notebook's TV port. There are two possible settings:

- NTSC
- PAL

The default value for this field is: NTSC

System Memory

This field displays the amount of conventional memory detected by the system during bootup. You do not need to make changes to this field. This is a display only field.

Extended Memory

This field displays the amount of extended memory detected by the system during bootup. You do not need to make changes to this field. This is a display only field.

The System Devices Menu

Selecting *System Devices* from the menu bar displays the System Devices Menu. Please see ***Figure 2-2***.

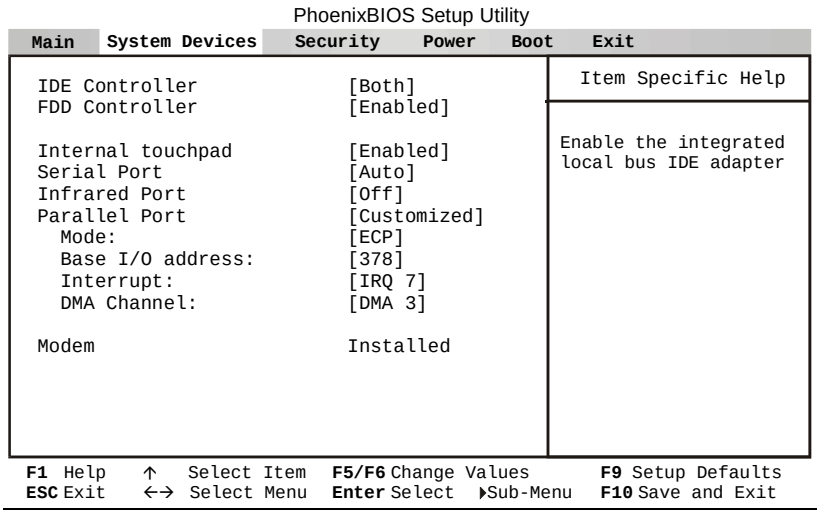


Figure 2-2: The System Devices Menu

This menu allows you to configure the Notebook's IDE and FDD controllers, serial and parallel ports, as well as, IR (infrared) modes and the modem port. Each field on this menu is covered below.

IDE Controller

This field allows you to configure the IDE Controller for the Notebook's installed hard drives. Available options for this field are:

- Disabled
- Primary
- Both

When *Both* is selected for this field, the IDE Controller will recognize both a primary and a secondary IDE channel. Select *Disabled* if no hard drives are installed. It is recommended that you use the default value for this field.

The default value for this field is: Both

FDD Controller

This field allows you to configure the FDD Controller for the Notebook's floppy disk drive. Available options for this field are:

- Disabled
- Enabled

Select *Disabled* if an FDD is not installed.

The default value for this field is: Enabled

Internal Touchpad

This field allows you to configure the Internal Touchpad. The following options are available:

- Auto Disabled
- Enabled

The default value for this field is: Enabled

Serial Port

This field allows you to configure the Notebook's Serial Port. The following options are available:

- Off
- Customized
- Auto

The default value for this field is: Auto

Base I/O Address / IRQ

When the Serial Port field is set to *Customized*, the "Base I/O Address" field becomes available and you can set the serial port's IRQ and I/O address. The following options are available:

- 3F8, IRQ4
- 2F8, IRQ3
- 3E8, IRQ4
- 2E8, IRQ3

The default value for this field is: 3F8, IRQ4

Infrared Port

This field allows you to configure the Notebook's Fast Infrared (FIR) communication module. The following configuration options are available:

- Off
- Customized
- Auto

The default value for this field is: Off

Base I/O address / IRQ

Use this option to choose the I/O (port) address for the Infrared Port. The available options are:

- 3F8, IRQ4
- 2F8, IRQ3
- 3E8, IRQ4
- 2E8, IRQ3

This field is only available when the Infrared Port is set to *Customized*.

The default value is: 2F8, IRQ3

Mode

This field allows you to select the Infrared protocol when the Infrared port is enabled. The following configuration options are available:

- SIR
- FIR

This field is only available when the Infrared Port is set to *Customized* or *Auto*.

The default value for this field is: SIR

DMA Channel (Only Available for Fast IR Mode)

This field allows you to configure the Infrared port's DMA Channel. The following options are available:

- DMA 0
- DMA 1
- DMA 2
- DMA 3

This field is only available when the Infrared Port Mode field is set to *FIR*.

The default setting is: DMA 0

Parallel Port

This field allows you to configure the Notebook's Parallel Port. The following options are available:

- Off
- Customized
- Auto

The default value for this field is: Customized

Changing the default address and IRQ settings for the Serial, the Infrared Port and the Parallel Port can cause conflicts with other system devices or installed peripherals.

Mode

This field allows you to configure the Notebook's Parallel Port transmission mode. The following options are available:

- Bi-directional
- ECP
- EPP

EPP and ECP are Bi-directional modes, allowing both data input and output. The EPP and ECP modes are only supported with EPP and ECP aware peripherals.

The default value for this field is: ECP Mode

Base I/O address

Use this option to choose the I/O (port) address for the Parallel Port. The available options are:

- 378
- 278
- 3BC

This field is only available when the Parallel Port is set to *Customized*.

The default setting is: 378

Interrupt

Use this option to choose the IRQ for the Parallel Port. The available options are:

- IRQ 5
- IRQ 7

This field is only available when the Parallel Port is set to *Customized*.

The default setting is: IRQ 7

DMA Channel (Only Available for ECP Mode)

This field allows you to configure the Parallel Port's DMA Channel for ECP mode. The following options are available:

- DMA 0
- DMA 1
- DMA 2
- DMA 3

This field is only available when the Parallel Port Mode field is set to *ECP*. The default value for this field is: DMA 3

Modem

This field indicates if a modem is installed or not. This is a display only field.

- Installed
- Not Installed

The Security Menu

The Notebook's advanced system of security allows you to set a password to prevent unauthorized access to system resources, data, and the BIOS Setup program. This section covers each parameter of the Security Menu. Selecting *Security* from the menu bar displays the following menu:

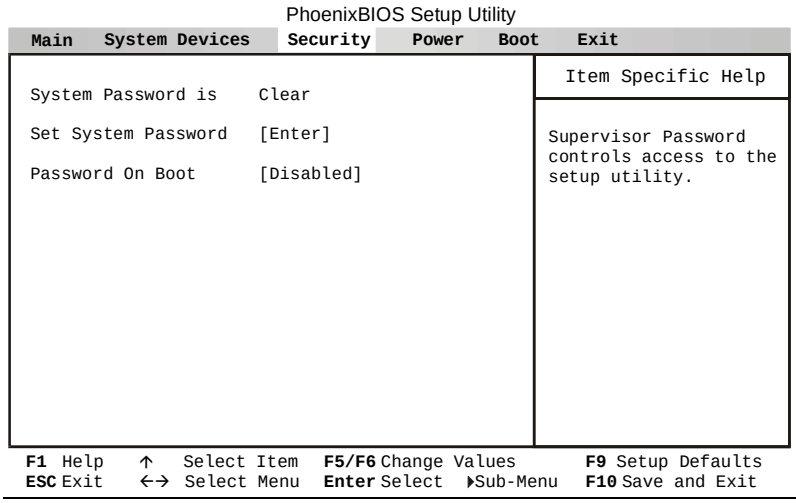


Figure 2-3: The Security Menu

Each field of the Security Menu is covered in detail below.

A Note about Passwords

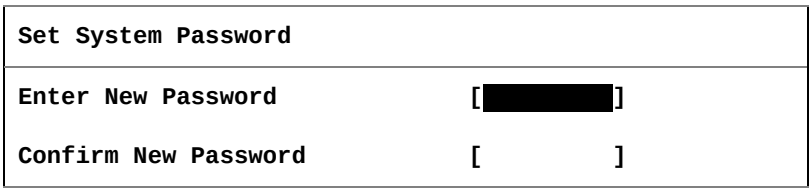
The BIOS Setup program allows you to specify passwords in the Security menu. The passwords control access to the BIOS and certain Security menu options during system startup. The passwords are not case sensitive. In other words, a password can be entered using either upper or lower case letters; it makes no difference.

System Password is

This field will show *Set* when you have set a System Password as described below. If you have not set the System Password, the field will show *Clear*. This is a display only field.

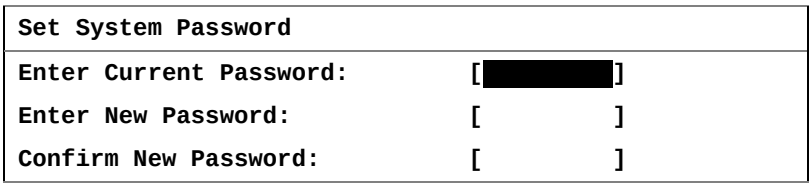
Set System Password

This field allows you to set the System Password. The System Password allows full access to the BIOS Setup menus. To set the password, highlight this field and press the [Enter] key. The following dialog box appears:



Type the password and press the [Enter] key. You can type up to eight alphanumeric characters. Symbols and other keys are ignored. To confirm the password, type the password again and press the [Enter] key. The System password is now set. Note that the "System Password is" field automatically changes to *Set*.

To change or clear a password, highlight this field and press the [Enter] key. The following dialog box appears:



Enter the current password, then enter the new password, and finally confirm the new password. To clear the password, enter the current password, then press the [Enter] key twice. The password is now cleared and the "System Password is" field is automatically set to *Clear*.

When changing or clearing the password a "Setup Notice" will inform you that changes have been saved. Press the [Enter] key to register your changes.

Password On Boot

When enabled, the system will then require the password before the system can bootup. The options for this field are:

- Disabled
- Enabled

The default value for this field is: Disabled

The Power Menu

The Power Menu of the Setup program allows you to enable and adjust the advanced features of the Notebook designed to conserve power. Enabling

these features will extend the life of the battery pack between charges. To make changes to power management settings, select *Power* from the menu bar. The following menu appears:

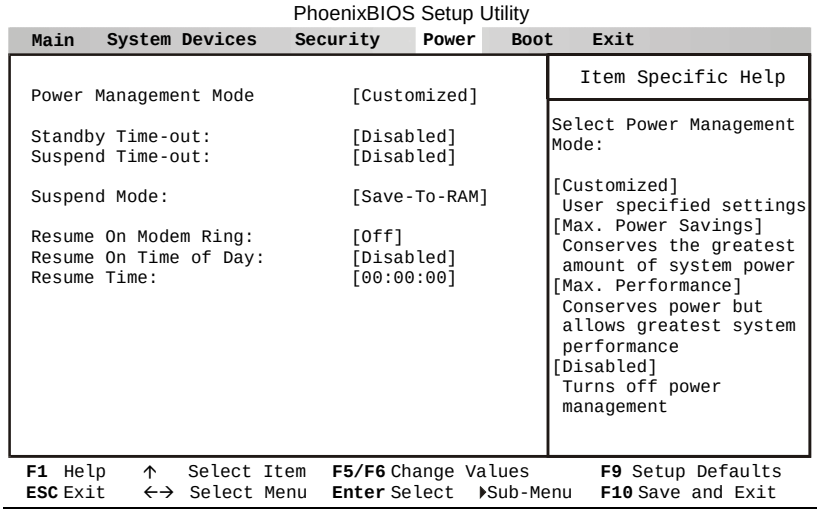


Figure 2-4: The Power Menu

Power Management Mode

This menu item allows you to set power management features with pre-defined values. The available options for this field are:

- Disabled
- Customized
- Max. Power Savings
- Max. Performance

If this menu item is set to *Disabled*, power management features will not function regardless of other field settings on this menu.

The *Customized* option allows you to make your own selections from the following fields within the Power Menu.

When this field is specified as *Max. Performance*, optimal system performance is achieved with some power conservation. The remaining fields within the Power Menu will be set to pre-defined values that ensure maximum performance.

When set to *Max. Power Savings*, system power will be conserved to its greatest amount. The remaining fields within the Power Menu will be set to pre-defined values that ensure maximum power savings.

The default value for this field is: Customized

Standby Time-out

This menu item allows you to specify how much time of inactivity must elapse before the system automatically transits to Standby mode. In Standby mode, all devices are powered off and the system enters a low power CPU state. Available options for this field are:

- Disabled
- 1 Minutes
- 2 Minutes
- 4 Minutes
- 6 Minutes
- 8 Minutes
- 12 Minutes
- 16 Minutes

This field can only be set when the "Power Management Mode" field is set to *Customized*. The default value for this field is: Disabled

Suspend Time-out

This field determines the amount of time the system needs to be in Standby mode before entering the Suspend to RAM mode. In this mode, all system states are saved to RAM before entering Suspend mode. When set to *Disabled*, the system cannot suspend operations. The possible settings for this field are as follows:

- Disabled
- 5 Minutes
- 10 Minutes
- 15 Minutes
- 20 Minutes
- 30 Minutes
- 40 Minutes
- 60 Minutes

This field can only be set when the "Power Management Mode" field is set to *Customized*. The default value for this field is: Disabled

Suspend Mode

This field determines if the system suspends to RAM or suspends to Disk.

The available options for this field are:

- Save-To-RAM
- Save-To-Disk

This field can only be set when the "Power Management Mode" field is set to *Customized*. The default value for this field is: Save To RAM

Resume On MODEM Ring

When this field is set Off, a MODEM ring will cause the system to resume from Suspend to RAM mode.

- Off
- On

The default value for this field is: Off

Resume On Time of Day

This option allows you to enable the system to resume at a specific time. The possible options are:

- Disabled
- Enabled

If you set this field to *Enabled*, you must set the *Resume Time* field as well.

The default value for this field is: Disabled

Resume Time

This option allows you to specify the time the system will resume. Enter the time in hours, minutes and seconds in a 24-hour format. For example, indicate that the system should resume normal operation at 1:00 p.m. by setting this field with a value of 13:00:00 hours.

The Boot Menu

The Boot Menu allows the user to specify the order in which the Notebook is to check for a device to boot the system. To make changes, select *Boot* from the menu bar. The following screen appears:

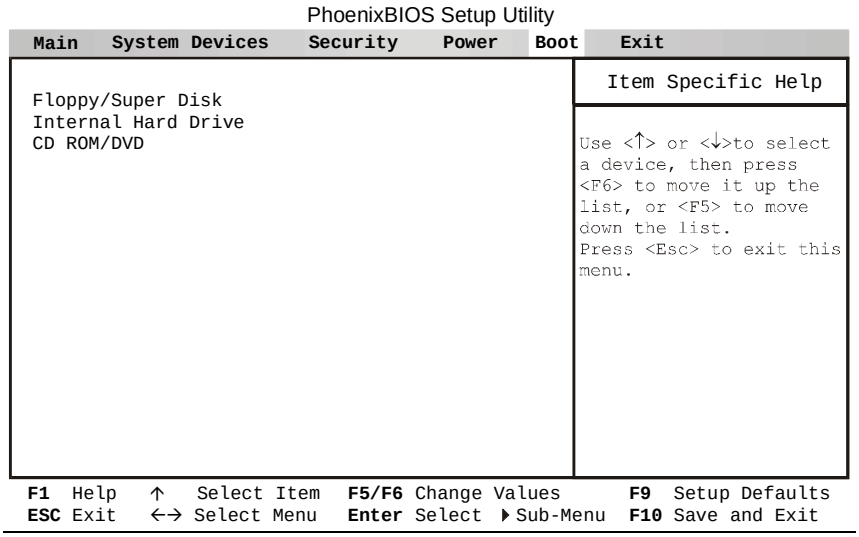


Figure 2-5: The Boot Menu

Boot Sequence

The Boot Menu allows you to use the up and down arrow keys to select among the four possible boot devices listed. By using the [F6] and [F5] keys, it is possible to alter the priority the system uses to search for the boot device on system power up according to numerical order.

The Exit Menu

Once you have made all of your selections from the various menus in the Setup program, you should save your changes and exit Setup. Select *Exit* from the menu bar to display the following menu:

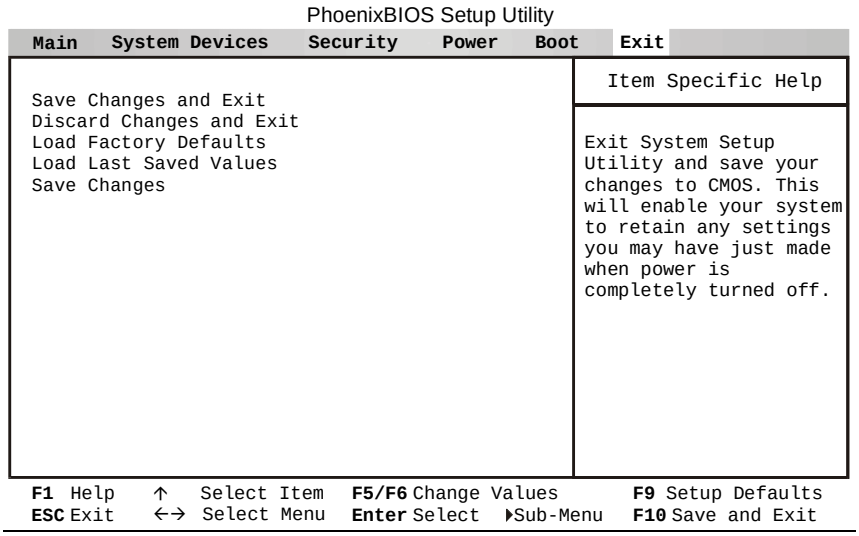


Figure 2-6: The Exit Menu

Pressing the [Esc] key does not exit this menu. You must select one of the options from this menu or a menu bar item to exit this menu.

Each of the options on this menu is described below.

Save Changes and Exit

Once you are finished making your selections, choose this option from the Exit Menu to ensure the values you selected are saved to Non-Volatile RAM. Changes you made to the Setup program must be changed to Non-Volatile RAM in order to make them operative. Non-Volatile RAM differs from standard RAM memory in that it is sustained by an on-board battery and stays on even when the Notebook is turned off.

Once your selections have been saved, the Setup program displays the following message:

Setup Confirmation
Save configuration changes and exit now? **[Yes] [No]**

The next time you bootup the Notebook, the BIOS will attempt to load the values you saved in Non-Volatile memory. If these values cause the system boot to fail, reboot and press [F2] to enter the Setup program. Once in Setup, you can try to change the values that caused the system boot to fail. If the problem persists, load the default values (see *Get Default Values* below).

If you attempt to exit the Setup program without saving your changes, the program will prompt you with a message asking if you want to save your changes before exiting.

Discard Changes and Exit

This option should only be used if you do not want to save the changes you have made to the Setup program. The default is set to No. If you have made changes to the fields other than system date, system time and password, the system will ask for confirmation when choosing *Discard Changes and Exit*.

Load Factory Defaults

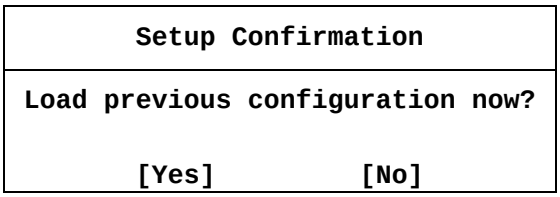
This option allows you to load the default values for each of the parameters on the Setup Menus. When this option is selected, the following message is displayed:

Setup Confirmation
Load default configuration now? **[Yes] [No]**

You can now select *Save Changes and Exit* or make other changes before saving the values to Non-Volatile RAM.

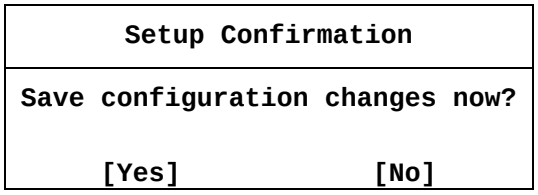
Load Last Saved Values

This option allows you to discard the selections you have made and restore the values you previously saved. After selecting this option, all selections are updated, and the following message is displayed:



Save Changes

This option saves your selections without exiting the Setup program. You can then return to other menus and make changes. After selecting this option, all selections are saved, and the following message is displayed:



This concludes this chapter on the BIOS Setup program. The next chapter covers operation of the Notebook computer.


Notes

CHAPTER 3

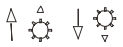
OPERATION

Introduction

This chapter provides information pertaining to the Video Display Controls of the Notebook used to adjust the appearance of the LCD screen. Also included in this chapter is a brief overview of the keyboard, a description of the status indicators, as well as descriptions of the touch pad, FIR module, and the Notebook's audio features.

Video Display Controls

The computer uses special key combinations to control the LCD display's Brightness. The key combinations are called hot keys.



Brightness adjustment:

1. Press [Fn] +  to increase brightness.

2. Press [Fn] +  to decrease brightness.

Some Important Keys on the Keyboard

Your Notebook computer features a low-profile keyboard that emulates all the functions of a full-size 101/102 key keyboard including an embedded keypad and a full array of special function keys. This section covers the Notebook's keyboard, and identifies several keys that are commonly used when working with either the Disk Operating System or other software.

The alphanumeric keys located on the keyboard are in the same position as those found on a standard typewriter. The usage of these keys is straightforward. There are some keys such as Scroll Lock, Print Screen, etc., whose functions may be unfamiliar to you. This chapter identifies some of these keys and discusses their functions when used with either the Operating System Software or other application software, such as word processors, spread sheet applications, or database management programs.

In addition, the twelve function keys and how they relate to application software are covered. Try locating these keys on the Notebook. ***Figure 3-1*** shows the keyboard layout.

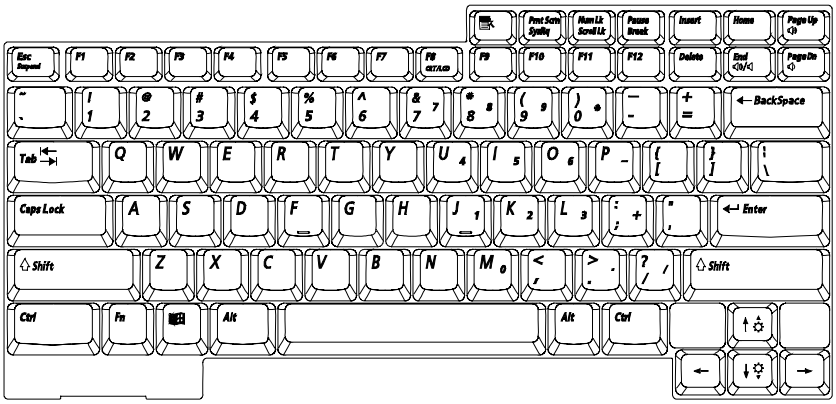


Figure 3-1: The Keyboard Layout

1. **[Esc]:** The Escape key allows you to cancel any specific command you may have just keyed in. For example, if you mistakenly hit the function key, [F1], in your word processor or spread sheet program, but want to "cancel" the command so that the computer will ignore the function key, just press [Esc].
2. **[Enter]:** While using application software, the purpose of this key is similar to a typewriter's return key, pressing this key will position the blinking cursor to the beginning of the next line on the display screen.

3. **[Fn]:** This key is located in the lower left corner of the keyboard, next to the [Ctrl] key. Pressing this key engages the alternate function (labeled in blue) on selected keys. For example, simultaneously pressing the [Fn] + [F1] keys decreases the display brightness.
4. **[PrtSc/SysRq]:** Pressing this key will cause whatever is on the screen at the time to be printed. Note that in some software programs this key may be used in conjunction with other keys for other specific functions. Consult your software user's manual for more information.
5. **[Scr Lk/Nm Lk]:** When Scroll Lock is engaged, pressing the cursor control keys moves the cursor by fields of text. Strike the [Fn] + [Scr Lk/Nm Lk] keys to engage this mode. Striking these keys again will disengage the Scroll Lock function.
6. **[Pause/Break]:** The Break key is used in conjunction with the Control key ([Ctrl] + [Pause/Break]) to cancel a command.
7. **[Caps Lock]:** The [Caps Lock] key corresponds to a typewriter's Shift Lock key, but it only affects letter keys. The number keys and function keys are not affected. Even with the [Caps Lock] key engaged, if you want to generate the symbols and punctuation marks above the number keys, you must still use the [Shift] key. Note that when the [Caps Lock] key is engaged, the Caps Lock indicator comes on.
8. **[Shift]:** Similar to the typewriter's Shift key, this key allows you to type letters in "UPPER CASE."
9. **[Ctrl]:** Used by itself, the Control key has no effect in carrying out any commands. Like the [Alt] key, it is always used in combination with other keys. Its function depends mainly upon the type of software you are currently using. Refer to the user's manual of the software you are using for details on how to use this key.
10. **[Alt]:** Used by itself, the Alternate Key has no effect in carrying out any commands, but functions with the [Ctrl] + [Del] key to reboot or restart your operating system program. Refer to the user's guide of the software you are using for more details on how to use this key.
11. **[Windows 95 Keys]** There are two special Windows 95 keys on the keyboard. The key with the Windows Logo (located between the Fn key and the Alt key) activates the Start menu button on the bottom left of the screen. The other key, which looks like a menu with a small arrow, is located in the top row of keys. It activates the Properties menu and is equivalent to pressing the right mouse button while pointing at any object on the Windows desktop.

Cursor Control Keys and Editing Keys

The keys listed in this section are specifically used to move the cursor on the LCD Display. When used in combination with other keys, these cursor control keys provide some very powerful editing functions.

The cursor's location indicates where you can type text on the screen. Having the ability to quickly move the cursor around the screen while editing text will significantly improve your efficiency.

The importance of these Cursor Control keys is more apparent when using application software such as word processors, spread sheet applications, and databases. In addition, while using your operating system software (OS), several of these keys play an important role in moving the cursor or editing. Refer to your software manuals for details on how to use these keys.

Figure 3-2 highlights both the Keyboard's Cursor Control and Text Editing keys. A brief discussion of each key follows.

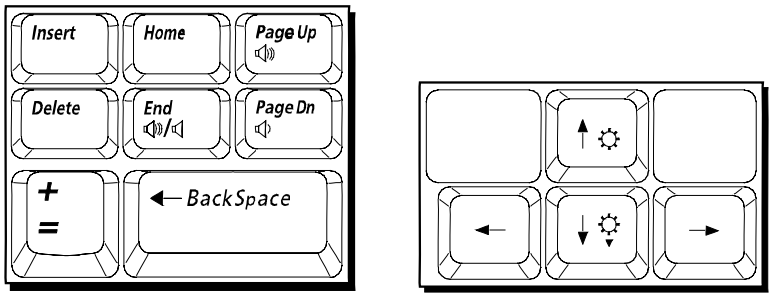


Figure 3-2: Cursor Control and Text Editing Keys

1. **[←] and [→] Keys:** Pressing either of these keys will move the cursor one character at a time in the direction shown on the arrow key.
2. **[↑] and [↓] Keys:** Pressing either of these keys will move the cursor one line at a time in the direction shown on the arrow key.
3. **[Page Up] or [Page Dn]:** These keys allow you to quickly move the cursor on the screen page by page, or window by window, depending on the software you are using.
4. **[Home]:** Refer to your application software manual to find out how your software specifically uses the [Home] key to quickly move the cursor to either the beginning of a document or the beginning of a line.

5. **[End]:** Refer to your application software manual to find out how to use the End key to quickly move the cursor to the end of a line or to the end of a document.
6. **[Insert]:** The Insert key is used mainly for editing. It enables you to insert characters within the text while using DOS. Some applications, however, automatically insert text while within a document, so depending upon the software you are using you may or may not need to use this key.
7. **[Delete]:** This key is used for editing text at either the DOS command prompt or the text within a document. Pressing the Delete key will remove any characters to the right of the cursor and then pull from the right the remaining typed characters.
8. **[Back Space]:** While within a document, the Back Space Key allows you to move the cursor to the left and simultaneously erase characters in its path. Note that this is different from the left arrow key, which will not erase any typed characters.

The Function Keys

Notice the twelve function keys at the top of the keyboard. These keys appear in sequence ([F1], [F2], [F3], . . . [F11], [F12]) from left to right. The functions these keys perform vary with respect to the operating system and software in use. Refer to the appropriate software user's guides for more detailed information on function key definitions.

Embedded Numeric Keypad

An embedded numeric keypad consists of 15 keys that make number intensive input more convenient. These keys have both numeric and cursor movement functions, which are labeled in blue on the keycaps. When the numeric keypad is engaged, the Num Lock indicator comes on. The keypad is activated in one of two ways:

While press the NumLk key to toggle the numeric keypad on and off.

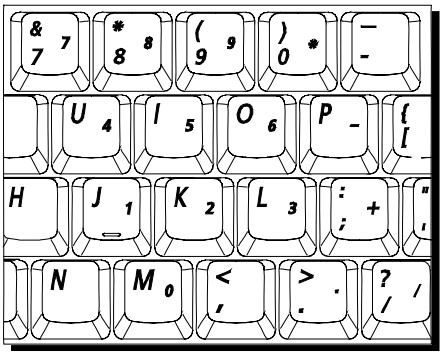


Figure 3-3: The Embedded Numeric Keypad

After rebooting, the pad lock is set to OFF and the Num Lock is set to ON. In this state, the Notebook's embedded numeric keypad is disabled.

Hot Keys for System Control

The following table lists the hot key functions for the Notebook computer.

Key Combinations	Definitions
[Fn] + ☼↑	Increases display brightness
[Fn] + ☼↓	Decreases display brightness
[Fn] + [PageUp]	Increases audio volume output
[Fn] + [PageDn]	Decreases audio volume output
[Fn] + [F8]	Switches among LCD, external monitor, and simultaneous displays
[Fn] + [End]	Toggles the mute function on and off. (no beep)
[Fn] + [Esc]	Pressing this hot key combination will cause the system to enter Suspend to RAM. The function of this hot key is configured by the Windows 98 operating system. Press the power button to resume.
[Fn] + [A] or [Fn] + [Q]	Pressing these hot key combinations will cause the system to enter Save to Disk mode (Hibernate mode).

When ACPI mode is enabled, all power management hot keys, i.e., [Fn] + [A] *or* [Fn] + [Q]*, are inactive.*

When using an external keyboard, the Fn key can be simulated by pressing the left-Ctrl + left-Alt keys.

The System Status Indicator Panel

Located above the keyboard, the System Status LED Indicators inform you of the Notebook's current operating status at a glance. Please see ***Figure 1-4*** to locate this panel. Upon activating a certain function, the LED corresponding to that function will light until you deactivate that feature. The symbol will remain lit, indicating that the feature is engaged.

Figure 3-4 shows the System Status Indicator Panel with all of the indicator icons. A description of each of the icons is listed below.

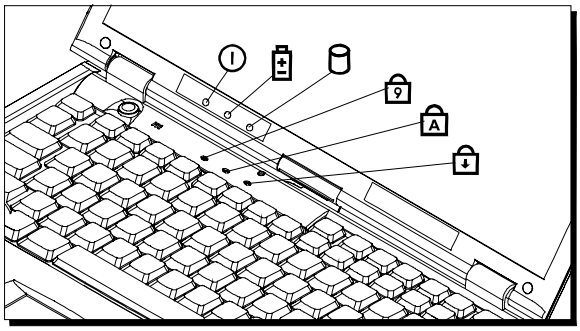


Figure 3-4: The System Status Indicators

The icons are explained in detail in the order in which they appear.

SYSTEM ON Power

This indicator lights when the Notebook is being powered by press power botton. If the LED is OFF, the system is off. If the icon is ON, the system is on. When the SYSTEM ON Power indicator is blinking, the system is in Sleep or Suspend to RAM mode.

HDD/FDD/CD-ROM/PCMCIA Activity

When this indicator lights, it indicates that the CD-ROM/FDD/PCMCIA or the hard disk is being accessed.

Battery Status Indicator

This indicator is a single dual-color LED: green and amber. Green indicates the battery is charging from the AC source. Amber indicates the battery discharging state.

Num Lock

Upon pressing the [Scr Lk/Nm Lk] key, this indicator lights indicating the embedded keypad's numeric feature is activated. Press the [Scr Lk/Nm Lk] key again to deactivate this feature and turn off the indicator.

Caps Lock

Upon pressing the [Caps Lock] key, indicator lights indicating that the Caps Lock feature is engaged. Press the [Caps Lock] key again to deactivate this feature and turn off the indicator.

Scroll Lock

Upon pressing the [Fn] + [Scr Lk/Nm Lk] key, this indicator lights indicating the scroll lock is engaged. Press the [Fn] + [Scr Lk/Nm Lk] key again to deactivate this feature and turn off the indicator.

Definition Tables for the LED Status Indicators

The Notebook has six LED indicators. The following tables summarize each of these indicators.

Power Indicator 

The following table describes this status indicator.

Color	State	Meaning
Green	On	The Notebook's power is on and the battery is being charged.
Orange	Blinking	The system is in Sleep or Suspend to RAM mode.

HDD/FDD/CD-ROM Access Indicator 

The following table describes this status indicator.

Color	State	Meaning
Green	On	The HDD/FDD/CD-ROM is being accessed.
Green	Off	The HDD/FDD/CD-ROM is not being accessed.

Battery Status Indicator 

The following table describes this status indicator.

Color	State	Meaning
Green	Blinking	Battery is charging from the AC source.
Green	On	The battery is fully charged.
Green	Off	Battery discharging or an abnormal stop charge due to bad cell or over temperature state.
Amber	Blinking	When the indicator is blinking (at a rate of once every second), it indicates that the battery is in the critical low state with approximately 3 minutes of battery power remaining. System beeps when the critical low state is first reached.
Amber	On	Indicates the battery is in the low state with approximately 12 minutes of battery power remaining.
Amber	Off	Battery is charging from the AC source.

Num Lock Indicator 

The following table describes this status indicator.

Color	State	Meaning
Green	On	Num Lock is activated.
Green	Off	Num Lock is off.

Caps Lock Indicator 

The following table describes this status indicator.

Color	State	Meaning
Green	On	Caps Lock is activated.
Green	Off	Caps Lock is off.

Scroll Lock Indicator

The following table describes this status indicator.

Color	State	Meaning
Green	On	Scroll Lock is activated.
Green	Off	Scroll Lock is off.

Battery Charging Control

When the AC Adapter is plugged in, the system automatically begins charging the battery. If an over 60°C temperature condition occurs while charging the battery, the process will be stopped. If the battery temperature falls below 50°C, the system will resume the battery charging process.

Using the Touch Pad

The touch pad is a touch-sensitive pointing device that provides all the features of a mouse. Please refer to ***Figure 3-5*** and the following explanation for the touch pad's operating instructions.

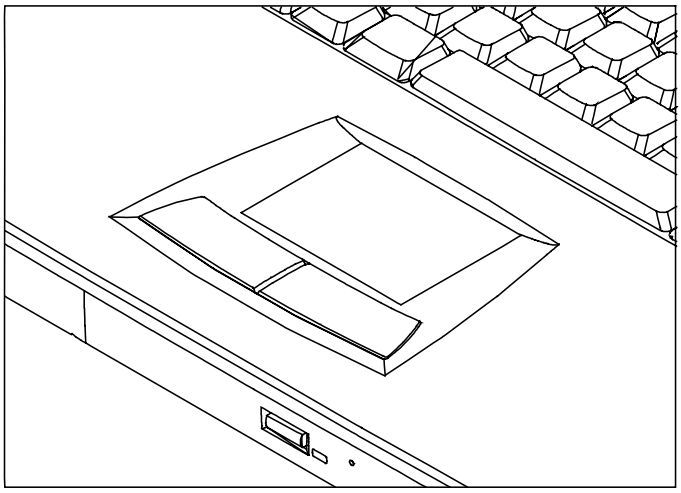


Figure 3-5: The Touch Pad

Please refer to the following for instructions on how to operate the touch pad.

1. Place your fingers on the keyboard in the normal typing position.
2. The touch pad is easily accessible by moving either your left or right thumb off the space bar and on to the touch pad.
3. Gently move your thumb across the touch pad in the direction you want the cursor to move. The pad detects the change in pressure and moves the cursor in the corresponding direction.
4. With a conventional mouse, selections are usually made by double-clicking the mouse's left button. The touch pad also supports this feature. It is described in detail below. If you are familiar with the operations of a mouse you may only need to scan the information below as a review.

The touch pad buttons have essentially the same function as mouse buttons. Clicking these buttons makes selections, drags objects, or performs a variety of other functions depending on the software. To select an object, first move the pointer over the object you want to select, and then press the lower button one time and release it. The functionality of these buttons depends on your software. Refer to your software user's manuals for specific information on the touch pad (mouse) functions.

Double-clicking is a common technique for selecting objects or launching programs from icons. Move the pointer over the object you wish to select, then rapidly press the left button two times. This action is commonly referred to as "double-clicking on an object."

Double-tapping is another technique for selecting objects or executing applications from icons. For the most part *double-tapping* is very similar to the *double-clicking* technique of a mouse. The difference is that instead of *double-clicking* on a mouse button, you *double-tap* on the pressure sensitive touch pad to make the selection. Once the cursor has been moved to the object you want to select, lightly double-tap the pressure sensitive touch pad itself. This double-tapping will select the desired item and prompt the software to perform the related operation.

Many of the functions within Windows 95 can also be launched by using *Single-tapping.* Once the cursor has been moved to the object you want to select, lightly single-tap on the pressure sensitive touch pad. This single-tapping will select the desired item and prompt the software to perform the related operation.

When working with programs that employ a graphical user interface (GUI), such as Windows, *dragging* objects from one point on the screen to another is a technique you will have to master. To drag an object, first move the pointer over the object, then press and hold down the left button. Now without releasing the button, move the object to a new location on the screen by moving your finger across the touch pad. Once the object is in the desired position, release the button to drop the object in place.

The FIR Module

The Notebook is equipped with one FIR module located on the rear panel of the Notebook. Please see ***Figure 3-6*** if you are having trouble finding this module. The FIR (Serial Infrared) module consists of one Light Emitting Diode (LED) and one photo sensor. The operation of the FIR module is similar to the operation of a television remote control device. The LED functions as a transmitter and the photo sensor acts as a receiver. The transmitter emits a signal stream consisting of data as pulses of infrared light. The receiver picks up pulses of infrared light transmitted by other FIR modules.

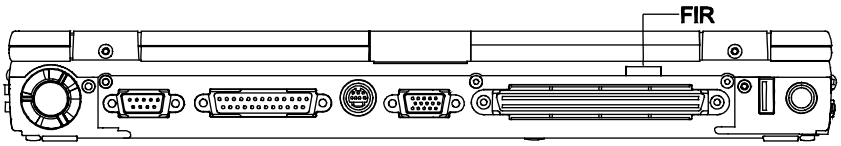


Figure 3-6: The FIR (Fast Infrared Module)

The FIR module allows wireless, serial communication between the Notebook and other FIR equipped devices such as a printer or another computer. Use an IR-specified application to transmit or receive data via the Notebook's FIR module.

Follow the guidelines listed below when using the FIR module to transmit or receive data.

- Make sure the "Infrared Port" field under the System Devices menu in the BIOS Setup program is enabled and set to an available address. The "MODE" field should be set to *FIR* and the "FIR DMA Channel" should be configured for *DMA 3*. Refer to Chapter 2 for information on the BIOS Setup program.

As the factory default, the Infrared Port is disabled in system BIOS. In order to use the FIR module the "Infrared Port" field under the System Devices menu in the BIOS Setup program must be enabled and set to an available address. The "MODE" field should be set to FIR *and the "FIR DMA Channel" should be configured for* DMA 3*.*

- Ensure that the Notebook's FIR module is properly lined up with the other device's FIR module. The FIR baud rate can reach 115,200 at a distance of 1 meter and a bias angle of 15°. The transmission distance can be further lengthened by reducing the baud rate or by perfectly aligning the two devices.
- There should be a clear, unobstructed path between the two FIR modules; otherwise, the optical signal will be blocked. Likewise, do not place anything between the two FIR modules during data transmission.
- Do not move either the Notebook or the other device during transmission of data. Moving either the Notebook or the other device during transmission distorts the optical signal resulting in loss of data or a system crash.
- An error can occur in FIR transmission if subjected to an environment with high levels of noise. To avoid transmission errors, do not transmit FIR signals near equipment with compressors, such as refrigerators or air conditioners.

Multimedia Sound System

The Notebook Computer's built-in audio capabilities allow you to take advantage of a wide range of education and entertainment multimedia software available on today's growing market without the additional costs of add-on cards and peripheral hardware. The multimedia sound system features a sophisticated on-board FM sound generator that produces realistic music and human voice sounds in 16-bit stereo. The integrated speakers are located on the front sides of the Notebook. The internal microphone is located in the middle of the System Status Indicator Panel as shown in ***Figure 1-4***. The Notebook is also equipped with both input and output audio ports for external audio units. They are located on the left-hand side of the Notebook next to the AC Adapter port. Please see the illustrations in Chapter 1 if you are having trouble locating any of these components. An external microphone can be connected to the microphone jack. External speakers or headphones can be connected to the Notebook's Headphone-out jack.

All audio features are software controlled. The Master volume is both hardware and software controlled. The audio utility diskette bundled with the Notebook contains several AudioDrive application programs that run under the Windows environment. These applications are compatible with Sound Blaster Pro, and the Microsoft Windows Sound System. With these programs, you can record, store, compress, edit, and playback a variety of sounds and music.

The Notebook's audio features include:

- ESS Maestro-2E digital audio controller (Sound Pro™ and Windows Sound System™ compatible)
- 64-channel wavetable synthesizer
- Proprietary WaveCache technology
- HRTF 3-D positional audio under DirectX™ 5.0
- A sophisticated on-board 16-bit stereo FM sound generator featuring enhanced stereo and full-duplex playback and record with internal playback and record buffer
- Sample rate conversion from 8Khz to 48Khz
- Secondary CODEC Interface
- DVD AC-3 Speaker Virtualization
- Two integrated speakers and an internal microphone
- Stereo inputs for Line-in and Line-out and a mono input for the microphone
- Software/Hardware Master Volume Control
- Programmable Power Management
- I^2S interface to internal stereo D/A for external ZV port or MPEG audio
- PC98 compliant with full PnP support
- Complies with Microsoft ACPI 1.0 and PPMI 1.0 (DO-D3) and APM 1.2
- Legacy DOS Game support

The CD-ROM Module

The CD-ROM provides you with the hardware basics to turn your Notebook computer into a fully functioning multimedia computer. Beyond its audio capabilities, since many software packages are coming out solely on CD-ROM, the addition of this module gives the user more choices in the purchase of software applications.

In recent years, CD-ROMs have become increasingly popular as a mass storage media. One reason is clearly their large storage capacity; CD-ROM disks can hold up to 640 MB of data. And because they are randomly accessible, data can be easily organized for quick retrieval during a search. CD-ROMs can also store a large variety of information, including audio and video data, as well as text files and programs.

Precautions to Follow when Handling CD-ROM Discs

- Always hold the disc by the edges. Avoid touching the surface of the disc.
- Use a clean, dry, cloth to remove dust, smudges, or fingerprints. Wipe from the center outward.
- Do not write on the surface of the disc
- Extremes in temperature may damage discs. Store discs in a cool dry place.
- Do not use benzene, thinners, or cleaners
- Do not bend or drop the discs
- Do not place objects on top of discs

Loading a Disc

To play a CD disc, follow the instructions listed below.

1. Press the eject button. The tray ejects from the drive.
2. Place the disc into the tray with the disc's label facing up.
3. Push the tray back into the drive.

Do not insert any foreign objects into the disc tray. Do not force the tray to open or close manually. When not in use, keep the tray closed to prevent dust or dirt from entering the drive unit. Some CD-ROM drives are equipped with an Audio CD play button. Press this button to play music CDs.

Before using your CD-ROM for the first time, you must install the CD-ROM device driver found on the diskette that came in your CD-ROM optional module package.

Installing Device Drivers

Windows 98 automatically installs and configures plug and play hardware devices including your CD-ROM drive. You do not have to install the driver. If you need to reinstall the driver for some reason, please refer to Chapter 7 of this manual for the driver installation procedure. The device drivers are located on the Utility CD that came bundled with your Notebook.

Audio Volume Control

The Notebook supports the following hot key combinations to control the audio output volume:

[Fn] + [PgUp]	Increases audio output volume
[Fn] + [PgDn]	Decreases audio output volume
[Fn] + [End]	Mutes stereo speaker output

Hardware Master Volume Control

In addition to the above hot key combinations, the Notebook is also equipped with a hardware master volume control. This control regulates the audio volume output. Press the right side of the control to increase the volume by increments. Press the left side of the control to decrease the volume by increments.

This concludes Chapter 3. The next chapter covers attaching peripherals such as a printer or an external monitor.


Notes

CHAPTER 4

PERIPHERALS

Your Notebook computer is equipped with several ports for connecting a number of peripheral devices such as a printer, a MODEM, or an external monitor. There are also two PCMCIA Card Bus sockets for connecting industry standard PCMCIA Card Bus cards and stereo jacks for connecting external audio equipment. For added expansion and versatility, you can connect your Notebook to a proprietary I/O Replicator (optional) via the 240-pin connector located on the rear of the Notebook.

This chapter covers the following topics:

- An overview of the peripherals that can be connected to the Notebook
- The necessary requirements for using these peripherals with your Notebook
- Instructions on how to connect these devices to your Notebook

The peripheral devices covered in this chapter are listed below:

- Serial device
- Parallel device
- External monitor
- External keyboard or PS/2 mouse
- PCMCIA interface
- Microphone, stereo equipment, headphones and external speakers
- USB devices
- Phone line to RJ-11 MODEM port
- Television to TV-out port

Additional Equipment

Before attempting to connect a peripheral device to the computer, make sure you are familiar with the Notebook's various I/O ports. Refer to the

illustrations in Chapter 1 to identify the following I/O ports. The first seven ports in the following list are located on the rear panel of the Notebook.

- One serial port
- One parallel port
- TV-out port
- An external monitor connector
- 240-pin docking connector
- A USB connector
- An external keyboard or PS/2 mouse connector
- Two PCMCIA ports
- An audio Line-in connector
- An external microphone connector
- An audio Headphone-out connector
- RJ-11 MODEM port (optional)

External Monitor

The Notebook has a port for connecting an external VGA monitor. The port is a standard 15-pin analog connector commonly used with these monitors. The display output of the computer supports standard VGA color and resolution on a color monitor.

Parallel Device

This parallel port uses a 25-pin connector, allowing you to attach any equipment that is compatible with this connector standard. This port is most commonly used for connecting a printer. Most printers have a parallel interface. These include dot matrix, ink-jet, and laser printers. The parallel port supports both EPP and ECP capabilities.

Your application must be EPP aware to take advantage of the enhanced parallel port's greater throughput. Likewise, your application must be ECP aware to make use of the parallel port's ECP capabilities.

2. Serial Device

This is a standard 9-pin serial port. Any device that uses this standard can be connected to the Notebook. For example, most pointing devices such as a serial mouse or graphics tablet, can be directly connected to the computer. External MODEMs or fax/MODEMs will usually employ a standard cable. If you have any doubts about the cables required for equipment you plan to

purchase, you should consult technical support to ensure you have the correct cables.

240-pin Docking Port

This port is for the connection of a replicator. A replicator extends the capabilities of the Notebook. The replicator is discussed in Chapter 6 of this manual under the section *Optional Equipment*.

External Keyboard or PS/2 Mouse

This 6-pinned port allows you to attach a full size enhanced keyboard to the Notebook. You can use any standard desktop computer 101/102-key enhanced keyboard. If you attach an external keyboard and reboot, the computer will automatically detect it. This port also allows you to attach a PS/2 compatible mouse. The PS/2 mouse and the external keyboard share the same auxiliary port. **When using the external keyboard, you will need to make the connection before powering on the Notebook**. This will prevent recognition failure.

The external keyboard needs to be equipped with a PS/2 connector. You should be able to obtain a keyboard adapter from your dealer if your external keyboard is not equipped with a PS/2 connector.

Line-in, External Mic, and Audio Headphone-out

There is a built in microphone located just below the LCD screen. You can use it to record voice, sound, and music. There are also three audio jacks, an Line-in, External Mic, and Headphone-out, located under the PCMCIA sockets on the left side of the Notebook. The external microphone jack is used for connecting an external microphone. You can connect external stereo speakers or headphones to the stereo Headphone-out jack. The Line-in jack allows you to connect an output line from stereo equipment such as a tape player to the Notebook.

The Audio jacks are three-terminal stereo jacks. They are not compatible with two-terminal mono plugs. Connecting a mono plug into the Speaker Out jack, may damage the Notebook.

The interrupt used is IRQ 11.

USB Devices

The Notebook is equipped with a Universal Serial Bus (USB) connector. USB devices are PnP compliant as defined by the Universal Serial Bus Specification 1.0. Any device that complies with this standard can be connected to this port.

TV Display

The Notebook's video signal can be converted to a standard video signal and displayed on a TV for viewing or recording to video tape.

RJ-11 MODEM port

To use the Notebooks **MODEM** you must first connect a phone line to the RJ-11 connector.

An optional MiniPCI MODEM module must be installed in order for the MODEM to function. The RJ-11 MODEM Port will be disabled if the optional MiniPCI MODEM module is not installed.

Connecting Peripheral Devices

Connecting an External Monitor

Please refer to ***Figure 4-1*** and the following instructions for an external monitor connection:

1. Make sure the Notebook and the monitor are powered off.
2. Ensure that the monitor is the correct type. Do not use a monitor that does not match the VGA standard.
3. Connect the monitor cable to the monitor before connecting the cable to the Notebook's VGA port.
4. Connect the monitor to a power source.
5. Turn on the computer. Turn on the monitor.

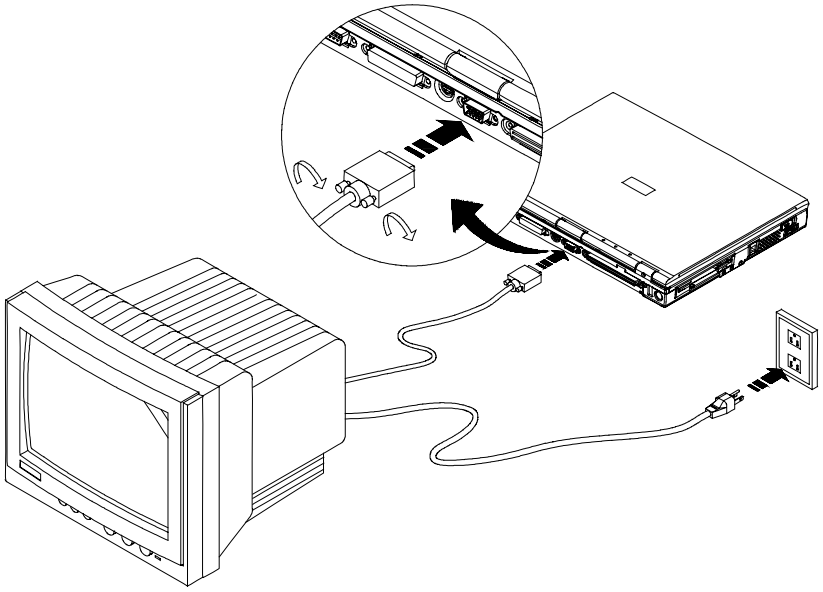


Figure 4-1: Connecting an External Monitor to the Notebook's VGA Port

To activate the external monitor you will need to press the hot key combination. Press [Fn] + [F5] on the Notebook's keyboard to toggle between the Notebook's LCD display, simul-scan (simultaneously viewing the Notebook's LCD and external monitor screen) and an external monitor. The Notebook's display panel will be turned off and the external monitor will become the active display.

Connecting Parallel Devices

To connect a parallel device to the computer you will need the standard parallel 25-pinned connector cable mentioned earlier. Before you connect any device, check the documentation that came with the equipment to see if you need to make any settings or adjustments to the equipment before using it. This might include setting switches to configure the equipment so that it will operate properly with the Notebook and the software you plan to use. Once the equipment is ready, all you will probably need to do is attach the connecting cable. Please refer to ***Figure 4-2.***

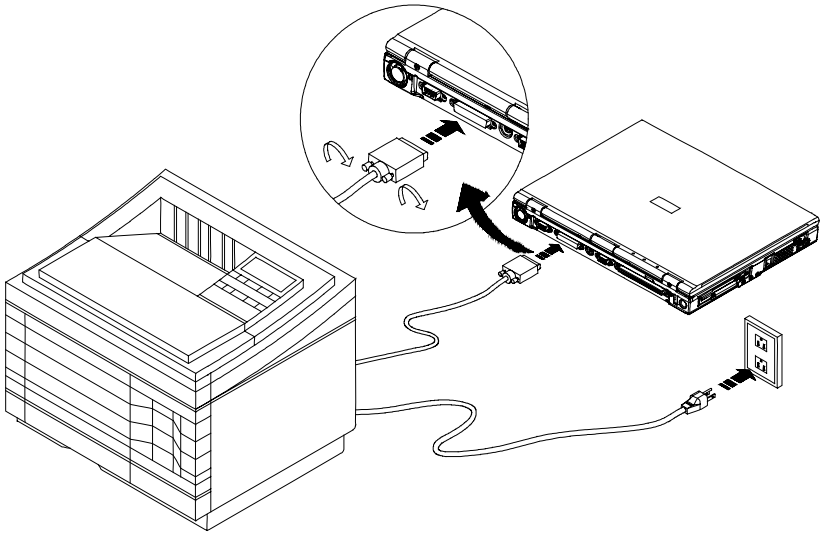


Figure 4-2: Connecting a Printer to the Notebook's Parallel Port

When using a printer device, it is recommended that you turn on the Notebook first before turning on the printer.

Connecting Serial Devices

The Notebook has one Serial Port. Please refer to ***Figure 4-3.*** Its address can be set via the BIOS Setup program. Refer to Chapter 2 for information on BIOS Setup.

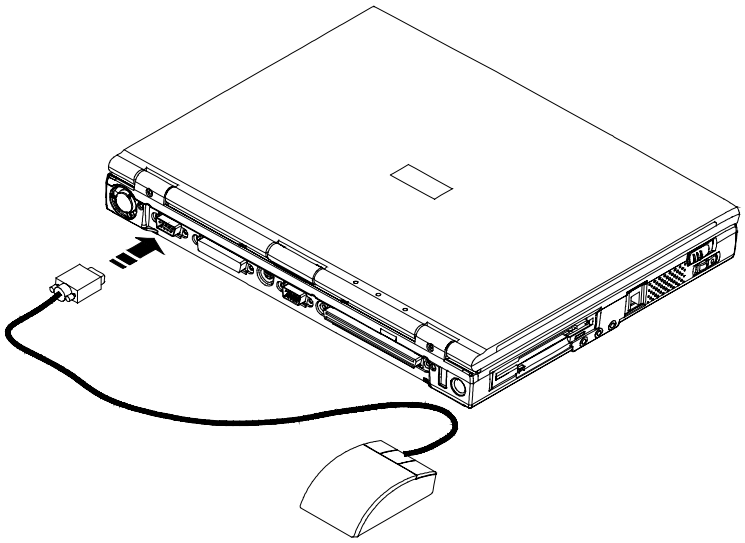


Figure 4-3: Connecting a Mouse to the Notebook's Serial Port

Connecting an External Keyboard

The Notebook has a connection for a full-size enhanced 101/102-key keyboard commonly used with desktop computers. A PS/2 mouse can also be connected to the same port. The external keyboard needs to be equipped with a PS/2 connector. You should be able to obtain a keyboard adapter from your dealer if your external keyboard is not equipped with a PS/2 connector.

To connect a keyboard, perform the following steps:

1. Make sure the computer is turned off.
2. If the keyboard has a PS/2 type connector, plug it into the Notebook's keyboard connector port. If the keyboard has a PC-type jack, connect it to the adapter cable and then plug the other end of the adapter cable into the computer.

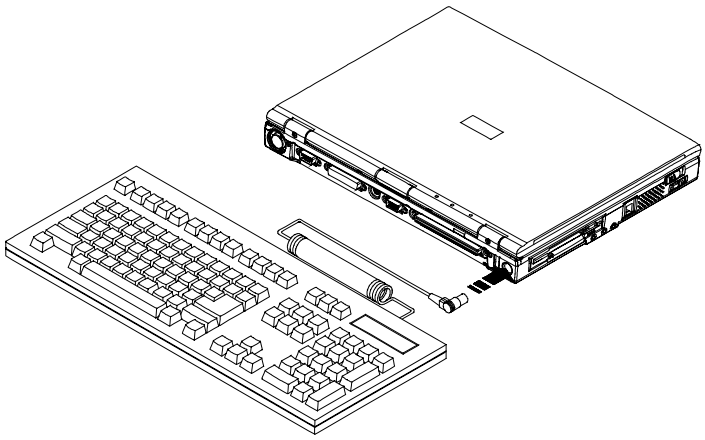


Figure 4-4: Connecting an External Keyboard to the Notebook's PS/2 Port

PCMCIA Card Bus Cards and Expansion Sockets

Your Notebook computer features two PCMCIA expansion sockets designed to interface with two Type II cards or one Type III card. This sophisticated innovation allows you to expand and customize your Notebook computer to meet a wide range of computing needs without sacrificing portability. PC cards accommodate a number of expansion options. Memory cards, MODEMs, hard disks, and network (LAN) adapters are just a small sample of the PC card products available on today's market.

Inserting and Ejecting PCMCIA Cards

The PCMCIA (Personal Computer Memory Card International Association) Card Bus is a widely accepted industry standard that defines the design and operation of PC Card Bus cards. PC cards that conform to the PCMCIA standard are plug-and-play devices, i.e., they can be inserted into the PCMCIA expansion sockets while the computer is powered on. This type of hot insertion does not apply to all PC cards. Refer to the documentation that came with your PC card for detailed information on insertion and operation of PC cards.

Please refer to ***Figure 4-5*** and the following instructions for inserting and ejecting a PCMCIA card:

1. Some PCMCIA cards do not support hot-plugging. Refer to your PCMCIA card's manual for verification. If hot-plugging is not supported, save your data and turn off the Notebook before inserting the PCMCIA card.
2. Hold the PCMCIA card with the arrow side up and the connector side toward the socket.
3. Align the card connectors with the appropriate socket and carefully slide the card into the socket until it locks into place.
4. Locate the two PCMCIA eject buttons. Note that there are two eject buttons, one per slot.
5. To remove a PC card simply push the respective eject button once; the eject button pops out. Push the button again to eject the PC card. The upper switch will eject a Type I or Type II PCMCIA card from the upper socket. The lower switch will eject a Type I, Type II, or Type III card from the lower socket.
6. Remove the card and store it properly.

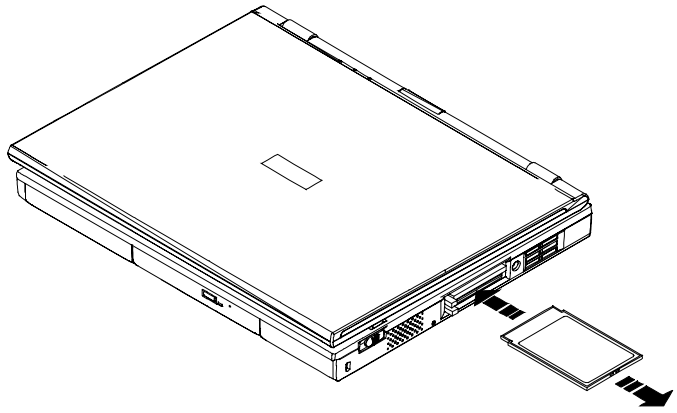


Figure 4-5: Inserting and Ejecting a PCMCIA Card

When inserting a Type III PC card, make sure the connector is inserted in the lower socket. Before

ejecting a PC card, ensure that it is not being accessed by the system. Memory card users must never change a card's write protect switch while the card is inserted into a PCMCIA socket. For example, if the DOS message "Write protect error writing Drive x" is displayed, the user has to change the write protect switch setting on the memory card. To change the switch setting, (a) eject the card, (b) change the switch setting, and (c) re-insert the card.

Zoomed Video Port

As part of the Notebook's advanced architecture, the Zoomed Video port (ZV port) feature provides you with hardware MPEG support. This feature allows you to insert a ZV Port-compliant MPEG PC Card into one of the Notebook's PCMCIA expansion sockets. The ZV port is an extension to the PC Card (PCMCIA) standard that provides a high transfer rate for your computer's video applications. The ZV port achieves this performance enhancement by routing video data directly to the display controller, bypassing the CPU and system bus. This allows for full-screen, full-motion playback of digital video.

To take advantage of this feature, your MPEG PC Card must be ZV Port-compliant. For installation instructions and details on how to use a ZV Port-compliant MPEG PC Card, refer to the user's manual that comes with the PC Card. ***The ZV port feature is supported in the lower socket only.***

Connecting a USB Device

The Notebook is equipped with a Universal Serial Bus (USB) connector. The USB connector and its supporting circuitry were designed in full compliance with the Universal Serial Bus Specification 1.0. Any device that uses this standard can be connected to this port. These devices are PnP compliant.

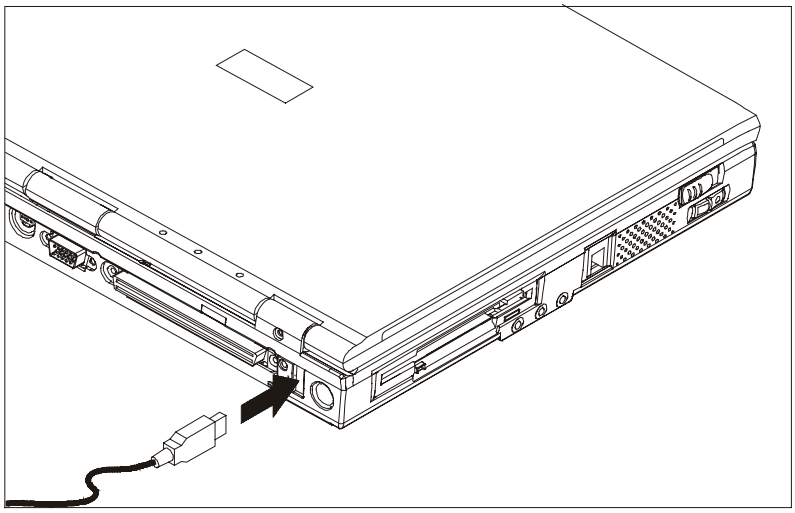


Figure 4-6: Connecting a USB Device

Connecting a Phone Line to the RJ-11 MODEM Port

To use the Notebook's MODEM you must first connect a phone line to the RJ-11 connector. The Fax/MODEM port is located on the left side of the Notebook (see ***Figure 1-2***). To connect a phone line to the Fax/MODEM Line connector, follow the instructions listed below:

1. Connect the phone line to the Fax/MODEM Line connector. You should test the line first with a telephone to make sure you hear a dial tone.
2. Now install the Fax/MODEM device driver to activate the Fax/MODEM Module. The Fax/MODEM device driver is located on the support disk (CD).

Connecting a TV Display to the TV-out Port

The Composite TV-out port is located on the rear side of the Notebook (see ***Figure 1-3***). To connect a television set to the TV-out port, follow the instructions listed below:

1. Turn off the computer.
2. Connect the video in/out cable to the Notebook TV-out port; then connect the other end to the video input of your television.
3. Now power on both the Notebook and the television.

This concludes Chapter 4. The next chapter covers matters related to the Notebook's power system.

CHAPTER 5

THE POWER SYSTEM

This chapter contains information on the Notebook's power system, including the AC Adapter, the battery system, recharging the battery, and tips for conserving battery power. Also included is a detailed description of power management and each of the power modes.

The power system is comprised of two parts, the AC Adapter and the battery system. The AC Adapter converts AC power from a wall outlet to the DC power required by the computer. There are two packs inserted in the battery housing located at the left side of the computer's front panel. Refer to ***Figure 1-1***.

This section covers AC Adapter and battery power operation and also explains the software power saving features that are built into the computer.

The AC Adapter

The AC Adapter's primary function is to provide power to the computer. Refer to Chapter 1 for instructions on how to connect the AC Adapter to the computer. When the Adapter is connected to the computer, it provides power as long as it is plugged into an electrical outlet.

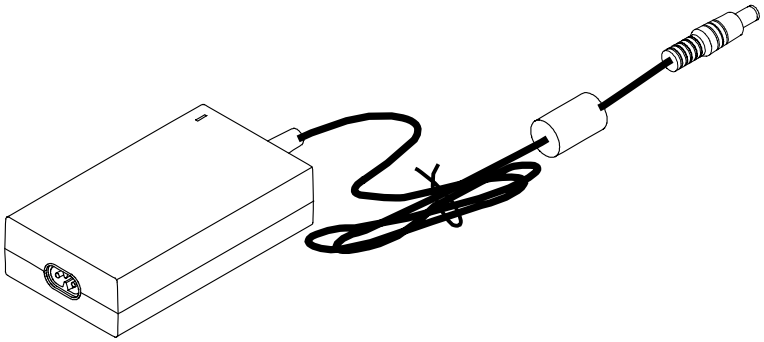


Figure 5-1: The Notebook's AC Power Adapter

The Adapter has a built-in indicator light that turns on when you plug the Adapter into a power source. If this light does not come on, the Adapter may not be properly connected, or may not be functioning properly. If the Adapter is not functioning properly, please consult your dealer immediately for support.

Power Cord Set

The German Power Set is not a basic accessory for this product; it must be purchased at an additional cost from you dealer. Compatible items are:

1. *Power Cord, manufactured by I Sheng, type SP12N/IS033 SPT-2*
2. *Power Plug, manufactured by I Sheng, type SP-021A, 2.5A, 250Vac.*

The Battery Power System

The Notebook's removable battery pack is found in the battery compartment bay. Please see ***Figure 1-1*** if you are having trouble locating this bay.

A new battery pack should be fully discharged and re-charged one time before being used.

A fully charged pack will provide approximately 3 hours of battery life for an Li-Ion battery before you have to recharge or replace the battery. Additional battery packs are optional pieces of equipment and can be purchased separately.

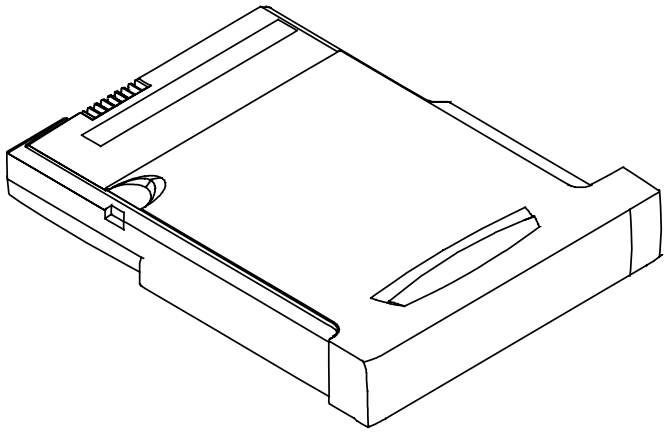


Figure 5-2: The Notebook's Battery System

Charging the battery takes about 2 hours when the system is off or suspended, or 3 hours when the system is on at room temperature. If possible, always charge the battery completely.

A safety feature automatically stops the charging process after the battery has reached its full charging capacity. This prevents dangerous conditions from occurring if there is a fault somewhere in the charging circuitry.

There is another built-in protector preventing the battery from over charging by using a temperature parameter. When the temperature of the battery exceeds 60° Celsius the system will automatically cease charging the battery. When the battery temperature falls below 50° Celsius the system will resume charging the battery.

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions.

Removing the Battery Pack

To remove the battery pack from its housing, refer to ***Figure 5-3*** and the following instructions:

1. Turn off the Notebook's power. Never remove a battery module while the Notebook is on.
2. Close the Notebook's cover, ensuring that it snaps into place. Turn the Notebook so the bottom is facing you.
3. Slide the latch lock in the direction of the arrow, as shown in ***Figure 5-3***.
4. Now, gently pull the module out of its housing. The release latch is spring-loaded and will snap back into place when you release it.

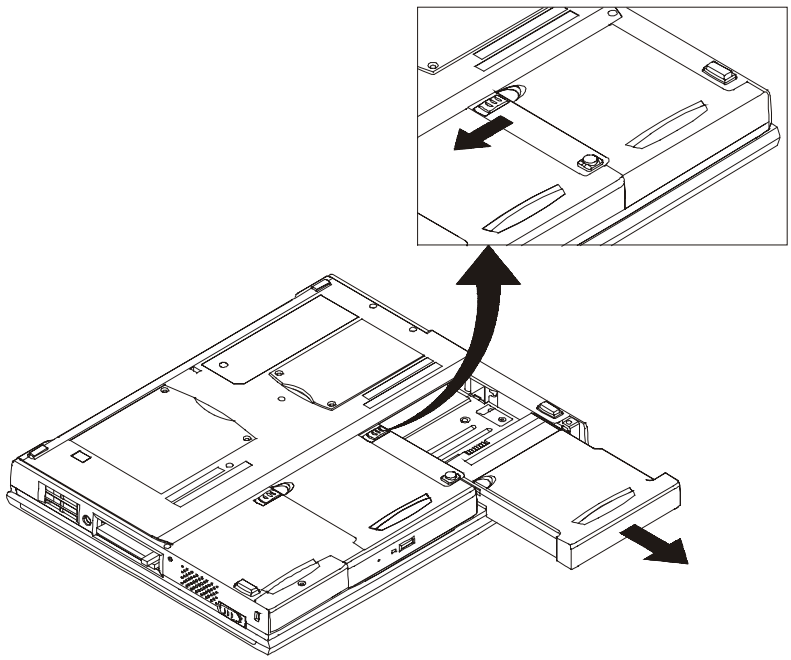


Figure 5-3: Removing the Battery Pack

Inserting the Battery Pack

To insert the battery pack into the Notebook, refer to ***Figure 5-4*** and the following instructions:

1. Slide the battery into the battery bay as shown in ***Figure 5-4***.
2. When the battery has been properly seated, you should hear it click into place. The release latch is spring-loaded and will snap back into place.

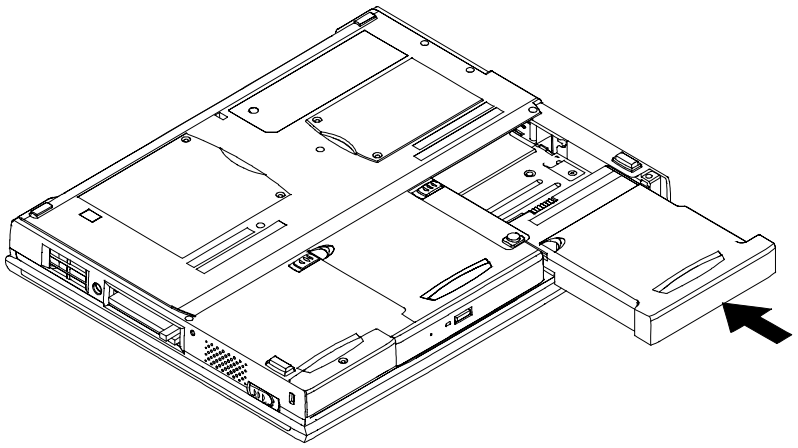


Figure 5-4: Inserting the Battery Pack

Automatic Battery Pack Charging Function

When running the Notebook on AC power, the inserted battery pack will automatically be recharged while you are working on your Notebook. There are two charge speeds. When the computer is turned off or in Suspend mode, the charge time is about 2 hours. Otherwise, the charge time is approximately 3 hours at room temperature.

When the AC Adapter is plugged in, the main battery will always be the first to receive a charge. After being charged to full capacity, the secondary battery, assuming it is installed, will then be charged.

If the Notebook is not being charged by AC power, the secondary battery, assuming one is installed, will be the first battery to be discharged. After the secondary battery runs down, the system will begin using the main battery.

If an over 60°C temperature condition occurs while charging the battery, the process will be stopped. If the battery temperature falls below 50°C, the system will resume the battery charging process.

AC Power Connection

The Notebook can be powered by AC current by connecting the AC Adapter to the external AC port on the Notebook. When the Notebook is operating on AC power, the battery or batteries installed in the Notebook will be charged simultaneously. Please refer to the previous section for information about automatic battery charging. To make an external AC connection, please refer to the following instructions:

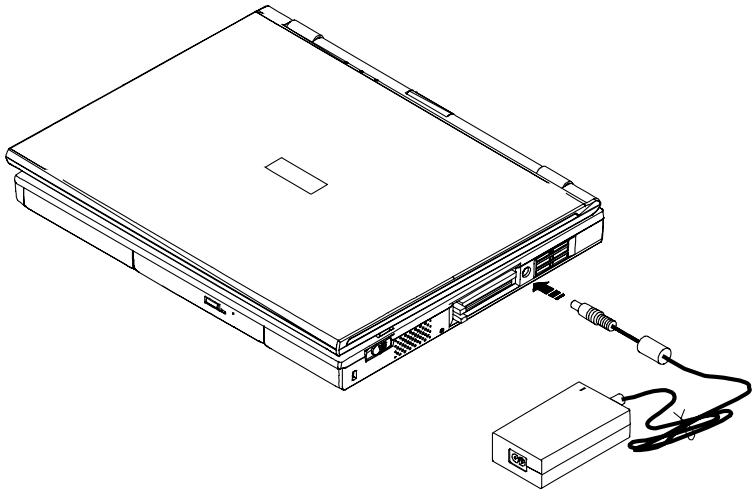


Figure 5-5: Connecting the AC Adapter to the Notebook's AC port

1. Insert the end of the AC Adapter output cable into the Notebook's AC port. Please refer to ***Figure 5-5.***
2. Connect the power cable to the port on the AC Adapter module. Please refer to ***Figure 5-5.***
3. Plug the Notebook into its power source and press the power On/Off button. If the Notebook does not power up, check the connections between the wall outlet, the AC Adapter and the Notebook. If the Notebook still does not power up, please refer to Appendix A, *Troubleshooting*.
4. To turn the Notebook off, save your work and close all open applications, click on **Start**, then **Shut Down**. In the **Shut Down Windows** dialog box select **Shut down the computer** and click *Yes*.

The best power source that you can connect any computer device to is a UPS (uninterruptable power supply). A UPS protects your system against electrical surges as well as protecting your data during a sudden loss of power. Your Notebook dealer will be able to provide you with specifics as far as the price and performance of different UPS brands.

Using Battery Power

The battery system will provide approximately 3 hours of power to the Notebook when Power Management is disabled. This figure will vary depending on how you use the power saving features, your general work habits, and the type of CPU and LCD that your Notebook has. We recommend you use the AC Adapter as often as possible to conserve battery power.

The Battery Status indicator will indicate the status of the battery pack when you are using battery power.

Battery Status Indicator

The following table describes this status Battery Status indicator.

Color	State	Meaning
Green	Blinking	Battery is charging from the AC source.
Green	On	The battery is fully charged.
Green	Off	Battery discharging or an abnormal stop charge due to bad cell or over temperature state.
Amber	Blinking	When the indicator is blinking (at a rate of once every second), it indicates that the battery is in the critical low state with approximately 3 minutes of battery power remaining. System beeps when the critical low state is first reached.
Amber	On	Indicates the battery is in the low state with approximately 12 minutes of battery power remaining.
Amber	Off	Battery is charging from the AC source.

Low Battery Activity

When the battery has entered the critical battery state, the system will begin to beep, prompting you to save your data. Failure to save at this time may result in data loss.

To extend battery power, we recommend you make full use of the Notebook's built-in power saving features discussed later in this chapter.

Use the [Fn] + [End] hot key combination to turn off the system beep.

Small Battery for Real Time Clock

There is a small, built-in battery pack that supplies power to the system in order to maintain certain system information while the power is off.

Never remove the battery pack while the power is on as this may result in data loss when the system loses power.

Power Management Habits

While operating the Notebook on battery power, it is important to develop good power saving habits to maximize battery life. Although the Notebook provides automatic power saving features that can be enabled, you can still improve on them by keeping power conservation in mind.

The AC Adapter

The most obvious way to conserve battery power is to avoid using the battery when there is an available AC power source. The AC Adapter is lightweight and compact, so it is very convenient to bring while traveling. By using the AC Adapter as much as possible, you can ensure you will have a charged battery whenever you really need it.

The Suspend/Resume Feature

The Suspend/Resume is one of the Notebook's most useful non-automatic features. If you need to temporarily step away from the computer, simply press one of the two hot key combinations to put the computer into its maximum power saving mode while maintaining your work.

[Fn] + [Esc]	Pressing this hot key will cause the system to enter the Power mode determined by ACPI and the Windows 98 operating system.

When you return, just press the Power On button to restore the system to the point where you stopped.

Screen Brightness

The brighter the LCD display screen is, the more electricity it requires. Avoid setting the screen brightness level higher than necessary to extend the duration of battery power.

The Serial Ports

The computer has one serial port that draws some power if *Enabled*, even though no serial device is being used with the computer. If you are not using a serial device, you can turn the COM port off to conserve battery power by using the BIOS program. Please see Chapter 2 for information on enabling and disabling the Notebook's ports.

The Floppy Disk Drive

The floppy disk drive consumes a substantial amount of battery power. Use the FDD as little as possible when you are operating the computer on battery power.

Power Management Modes

The computer has a number of automatic or adjustable power conservation features, which you can use to maximize the duration of the battery's life. You can control many of these features through the Power Menu in the Setup (BIOS) program. Refer to Chapter 2 for a detailed description of the BIOS Setup program.

The computer is made up of electronic components, all of which consume electricity to operate. Yet, some components consume much more than others. The power management features are designed to conserve as much electricity as possible by putting these components into a low power consumption mode as often as possible. These low power modes are referred to as Standby time-out and Suspend time-out.

Standby Time-out Mode

In this mode, the peripheral components are put in their lowest active states in addition to reducing the CPU speed. These include the hard disk and the screen back light. The Notebook enters Standby time-out mode when the system remains idle for a specified amount of time. This time value can be set from the Power Menu in the BIOS Setup program.

After the system has entered the Standby time-out mode, to resume normal operation press any key.

Suspend Time-out Mode

This mode saves power by cutting off the power of the CPU and DMA clocks, suspending the math co-processor, turning the video off, and turning off all controllable peripheral devices. The Notebook enters Suspend time-out mode when the system remains Standby mode for a specified amount of time. This time value can be set from the Power Menu in the BIOS Setup program.

To resume normal operation, press the Power On button.

The Notebook will Save to RAM or Save to Disk; depending on the settings in the BIOS Setup.

The PHDISK Utility

In order to use the Save to Disk function you must first create a Save to Disk (STD) partition or file on the Notebook's hard disk. The PHDISK utility is used to create this partition. During the Save to Disk operation, the system's state is written to this STD partition. The PHDISK utility can be found on the utility CD-ROM disc that came with your Notebook.

The PHDISK utility automatically allocates a sufficient amount of disk space required for the STD partition based on the current system requirements. If you should later decide to upgrade the Notebook's system memory, you may have to run the PHDISK utility again if the additional memory requires a larger STD partition than the one currently in use. Note that the following procedure is for Windows 98 Second Edition.

Follow the instructions listed below to create an STD partition using the PHDISK utility:

1. Insert the utility CD-ROM disc into the CD-ROM drive. Click My Computer and the CD-ROM drive: Now go to the following folder on the CD-ROM disc:

   ```
   E:\NUTILITIES\S2d-tool
   ```

2. Use the copy and paste tools to copy the Phdisk41 file to C:\.
3. Now restart the computer in MS-DOS mode.
4. From the WINDOWS directory go to the root directory of drive c by typing:

   ```
   C:\WINDOWS>cd c:\
   ```

5. Now enter the following command line:

   ```
   phdisk /c /f [Enter]
   ```

6. This command will create the save to disk partition. Press any key to reset the system and load Windows.
7. Right click the power icon located on the taskbar at the lower right hand corner of the screen, and select **Adjust Power Properties**.

The power icon appears as an AC plug if the Notebook is running on AC power or a battery if the system is running on battery power.

8. Select the Hibernate tab and click the Hibernate option box to enable hibernate support. The default is disabled. Now click the Apply button at the bottom right of the window.

9. Select the **Advanced** tab to change the Power buttons settings.

Available options are:

Lid switch settings:

❑None

❑Standby

❑Hibernate

❑Shutdown

Power button settings:

❑Standby

❑Hibernate

❑Shutdown

Sleep button [Fn] + [Esc] settings:

❑Standby

❑Hibernate

❑Shutdown

The Power buttons settings are controlled by ACPI. ACPI Overrides the Power settings in BIOS. The BIOS Power settings will only be available in MS-DOS mode.

A Suspend Example

The time-out settings for Standby and Suspend time-out specify the amount of time the system must be inactive before the next power management level is enabled. The example below demonstrates this functionality. If the Standby

time-out is set to 2 minutes, and the Suspend time-out is set to 5 minutes, then the following power management events take place:

1. After 2 minutes of inactivity, the system enters Standby.
2. After 5 additional minutes in Standby (a total of 7 minutes of inactivity), the system Suspends to RAM or Saves to Disk, depending upon the settings made in the Power Menu of the BIOS Setup program.

After the system has suspended, operation can be returned (resumed) to the point in your application where it was suspended. See "How to Resume" for a complete list of resume conditions.

How to Suspend

The system can be suspended in the following ways:

- System enters Auto Suspend. This is enabled by setting a time-out period for the Suspend time-out field in the Power menu. This time-out period is the amount of idle time that the system allows before a Suspend is initiated.
- Press the hot key combination [Fn] + [Esc] to enter Suspend mode.
- Automatically activating the Suspend function by closing the lid of the Notebook when an external CRT monitor is not connected to the Notebook.
- The battery reaches a critically low power level.

The Chain of Suspend Events

If the system enters Suspend mode from any of the above options, it enters the best power-saving Suspend mode that is supported by the system. When the system suspends, the following events take place:

- The Suspend indicator on the System Status Indicator Panel is turned on
- The video screen is turned off
- CPU, DMA clocks, and the math co-processor are powered down
- All controllable peripheral devices are turned off
- All system logic (except for the system wake-up circuitry and battery charger) is turned off
- The DRAM and video memory are saved to the hard disk (Save to Disk only)

If the system is left in Suspend to memory (RAM) mode long enough to consume all battery power, then the Suspend indicator goes out and the current contents of the computer's memory are lost. The system cannot resume until the battery is recharged or the Notebook is connected to AC power.

How to Resume

Pressing the Power On/Off button causes the system to resume operation after entering Suspend mode. Resuming returns the system's operation to the point in your application where the suspend was initiated. This does not mean, however, that all devices are powered up. When the system resumes, the following events occur:

- DRAM refresh memory returns the system to the application that was running before the Suspend operation
- The video is turned on
- The COM ports are enabled
- Then, each device is powered on when it is requested for use by the system

Controllable Features

The Power menu in the BIOS Setup program allows you to specify the amount of inactivity time that must elapse before power saving features are activated. The interval is set using the BIOS Setup program controls as described in Chapter 2. The available ranges are as follows:

Power Mode	Time-out Values
Standby Time-out	*1,2, 4, 6, 8, 12, 16, minutes*
Suspend Time-out	*5, 10, 15, 20, 30, 40, 60 minutes*

Cover Lid Switch

The Notebook's LCD Cover Lid Switch is located above the keyboard. See ***Figure 1-4***. If the Notebook is powered on and the lid is closed, the LCD panel will power off and the display will be switched to the CRT monitor connected to the VGA port. If a CRT monitor is not connected to the Notebook, the system will enter suspend mode. Opening the cover will resume the system to full power operation.

If the LCD Lid Switch is depressed for less than two seconds, it will be ignored by the system.

Reactivating From Power Saving Modes

After entering one of the power saving modes, the system will return to normal operation in various ways depending on current system status. All of this is transparent to the user. From the user's point of view, the computer reactivates almost as soon as you start to use it again.

Power Management Summary

The following table summarizes the power-saving features of the Notebook:

Power Mode	How to Enter M de	How to Reactivate
Standby	*Transits auto atically after specified time out*	*Press any key* *MODEM ring, if the S tup program field for this feature is et to Enabled* *Touch pad entry or a P S/2 mouse activity if one is conne ted* *USB is accessed*
Suspend to RAM	*Transits auto atically after specified time out* *Cover is close d* *Click on the S spend icon in the Windo s Start menu*	*Press the On/Off Powe button* *MODEM ring, if the S tup program field for this feature is et to Enabled* *Resume Time, if the va ue for the Resume On Time field n the Setup program is set to On*
Save to Disk	*Transits auto atically after specified time out* *Critical batte y condition*	*Press the On/Off Powe button*

*The Power button, the LCD Lid switch and the [Fn] + [Esc] Sleep button settings are configured in the **Power Management Properties** window and controlled by ACPI. ACPI Overrides the Power settings in BIOS. The BIOS Power settings will only be available in MS-DOS mode.*

The APM Interface

In addition to the power saving features built into the resident BIOS System Configuration Utility, your Notebook also supports the Intel-Microsoft Advanced Power Management (APM) version 1.2 (or higher) specification. APM is a cooperative interface that enhances the Notebook's built-in power management features by providing one of the most accurate schemes for detecting true idle. This allows APM implementation to put the CPU in a lower power state with no loss in user performance. If APM is installed and properly configured, and power management is enabled in the Setup program, APM functions in the following manner:

- Takes over power management from the system Setup program
- Constantly monitors all system activity to provide one of the most accurate detection schemes for determining true idle under DOS, Windows, Windows 95/98 and OS/2
- Accounts for operating system inactivity and power demands
- Accounts for application inactivity and power demands
- Allows application programs, DOS and the Setup program to share power management features to ensure more efficient use of power
- Determines when power-saving features should be activated
- Operates transparent to the user (behind the scenes)

While you are running an APM aware application, APM will detect any system inactivity. If APM detects that either the operating system or the application is waiting for input (or is in some other idle state), APM will reduce the CPU to minimum speed. Once high speed is required again, APM will increase the CPU to maximum speed. With APM constantly monitoring all system activity, accounting for the Notebook's power consumption, and controlling all power-saving features, you will realize significant additional power savings.

If power management is disabled in the BIOS Setup program, APM will also be disabled regardless of its settings. Once you have enabled the APM interface, some settings made in the BIOS Setup program may be overridden by APM.

Refer to your DOS or Windows manual for a more thorough explanation of the APM interface and its features.

The Advanced Configuration and Power Interface (ACPI)

In addition to APM 1.2 the Notebook also supports ACPI power management modes. ACPI is a configuration and power management mechanism that has evolved from, and is therefore inclusive of, the existing collection of power management codes such as APM and PnP BIOS. When an ACPI compliant operating system, such as Windows 98, is loaded, the system dynamically switches to ACPI mode for configuration and power management. This switching occurs behind the scenes, meaning it is transparent to the computer user.

ACPI also controls thermal management to prevent the system from overheating. Thermal management is achieved by turning the CPU cooling fan on and off as well as executing CPU throttling speed (reducing the CPU clock speed).

When ACPI is not loaded and enabled, power management is relegated to the settings in BIOS setup.

This concludes this chapter on the Notebook's power system. Chapter 6 provides instructions for inserting memory expansion modules and connecting the Notebook to a proprietary I/O Replicator.

CHAPTER 6

EXPANSION OPTIONS

This chapter describes the optional equipment that can be added to the basic Notebook system. We use the term expansion here to signify items that are installed inside the computer rather than standard equipment such as a printer that can be connected to the computer's I/O ports. For example:

- You can add more system memory to improve performance.
- Connecting the Notebook to a Port Replicator will expand its versatility, making it a suitable replacement for your Desktop PC.

System Memory Expansion

The Notebook is equipped with two SODIMM connectors allowing for a total of 256MB (two 128MB expansion memory cards) of system memory to be installed. These expansion memory cards can be purchased from your dealer.

Expansion Memory Card Types

Expansion memory cards are 3.3 volt SDRAM and available in three sizes: 32MB, 64MB and 128MB cards.

Installing Memory Cards

Your Notebook's computer chips, especially RAM (random access memory), are extremely static-sensitive. Static electricity can permanently damage computer chips. It is therefore important to discharge the static electricity from your body before installing the memory module. Discharge your body's electricity by touching the metal shielding around the connectors on the rear of the Notebook computer. Typical grounds are a radiator or a printer case when your unit is plugged in. If you regularly work on your Notebook, it may be beneficial to purchase an anti-static mat or wrist band. Contact your authorized dealer for details on where anti-static devices can be purchased.

You may find it helpful to refer to ***Figure 6-1*** while reading the following directions.

1. The memory door is located on the underside of the Notebook. Remove the two screws securing the door and lift it clear to reveal the two memory DIMM (Dual Inline Memory Module) slots.

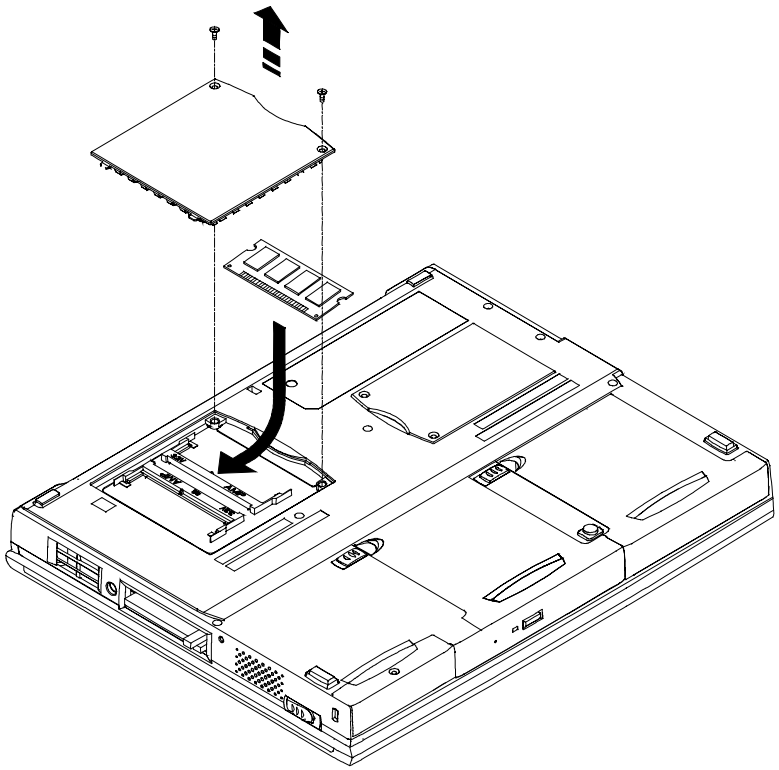


Figure 6-1: Removing the Memory Door and Installing the Memory Card

2. After the memory door has been removed, the memory card can be installed. Insert the DIMM at a 45º angle into its slot. Gently, but firmly push the DIMM until it locks in place and lies horizontally in its slot.
3. Now replace the memory door in the reverse order in which it was removed.

Removing and Installing Modules

Your Notebook has the added feature of being capable of supporting optional hardware modules. The addition of these modules increases your Notebook's versatility and performance.

All modules are installed in the Notebook's middle bay. The battery pack is in bay on the left. Before you install any of the optional modules, you must remove the CD-ROM Module from the bay. The procedure for removing the CD-ROM Module or removing any of the modules from the bay is essentially the same.

Removing the CD-ROM and Optional Modules

For step-by-step information on removing any one of the modules from the Notebook's middle bay, please refer to the following set of instructions.

1. Ensure that the Notebook is in the power-off mode before removing the CD-ROM module. Failure to do so may cause damage to the electronics of your Notebook or to the module.
2. Disconnect any peripherals from the Notebook and close its lid.

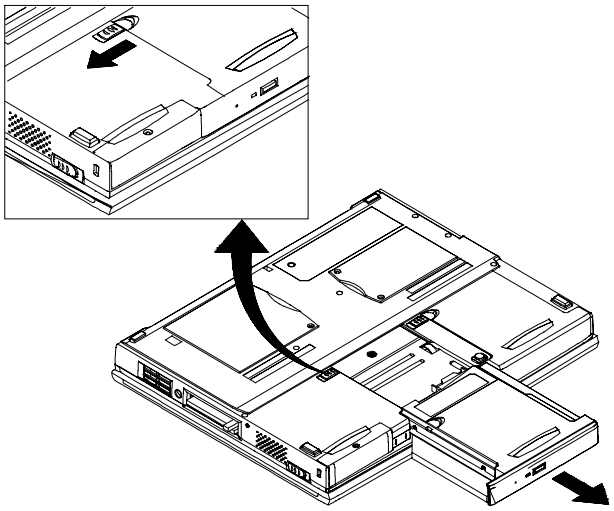


Figure 6-2: Removing the CD-ROM Module

3. Locate the Module Lock/Release latch on the bottom of the Notebook. Please refer to ***Figure 6-2***.
4. Slide the Module Lock/Release latch in the direction of the arrow (1) as shown in ***Figure 6-2***. This will unlock the module from the its original position.
5. Slide the module out of its housing (2).

6. Install the desired module by inserting it back into the bay. Please refer to ***Figure 6-3***. When the module has been properly seated, you should hear it click into place. The release latch is spring-loaded and will snap back into place.
7. Turn the Notebook on. The Notebook will automatically recognize the presence of the module that was just inserted.

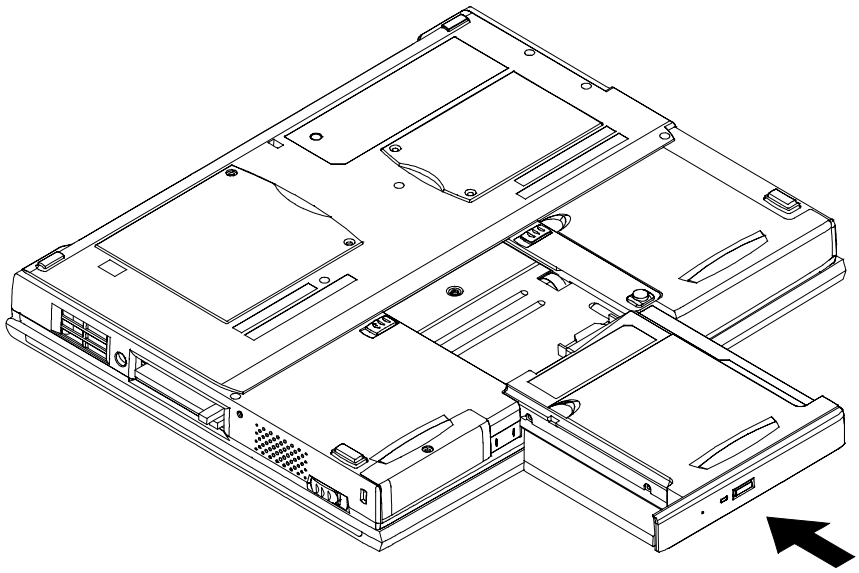


Figure 6-3: Installing the CD-ROM Module

The CD-ROM module can be removed and replaced with an optional DVD, ZIP, CD-RW or secondary battery module. Contact your Notebook PC dealer for more information.

Replacing the Battery Module

The optional battery module allows for extended battery power when you are on the road. The Notebook's battery module will run out of power after approximately 2-3 hours of use. An extra battery module allows you more flexibility when you're away from the office, adding an additional 2-3 hours to the computer's operational time.

For information on how to remove the battery from the Notebook in order to replace it with the charged optional module, please see ***Figure 5-3*** of Chapter 5**.**

Removing and Installing HDD Modules

Eventually you may find that your Notebook is running out of HDD space. A new HDD module can provide you with additional hard disk space. The installation of additional HDD modules is relatively simple.

To remove and install HDD modules, please refer to ***Figure 6-4, Figure 6-5*** and the following directions.

1. Turn off the Notebook and disconnect the AC power cord and any connected peripherals.

2. The HDD retaining screw is located on the underside of the Notebook. Remove the screw and slide the HDD out of the bay as shown in the illustration. Store your HDD module in a safe, dry place away from direct sunlight or heat.

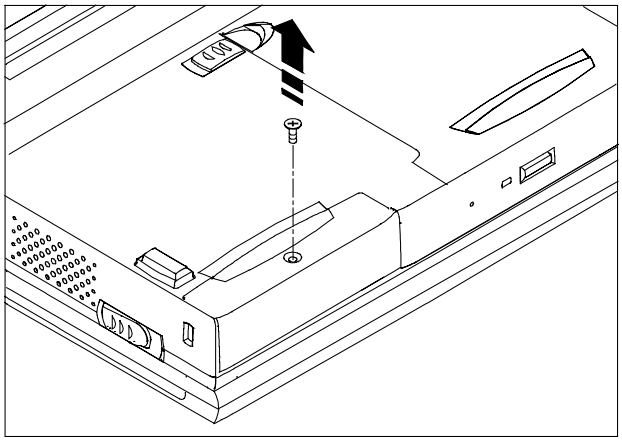


Figure 6-4: Removing the HDD Module (A)

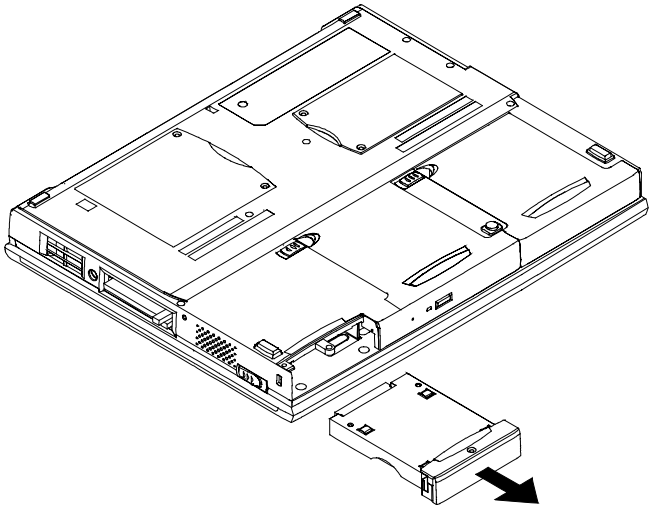


Figure 6-5: Removing the HDD Module (B)

To install a new HDD module, follow the above instructions in the reverse order and refer to ***Figure 6-6***.

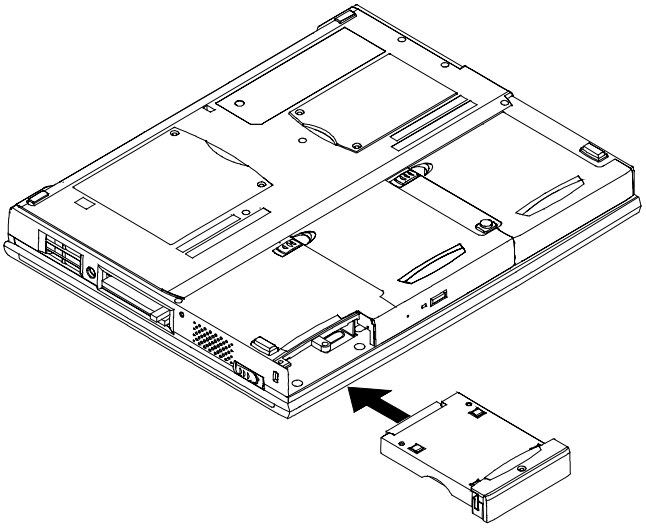


Figure 6-6: Replacing the HDD Module

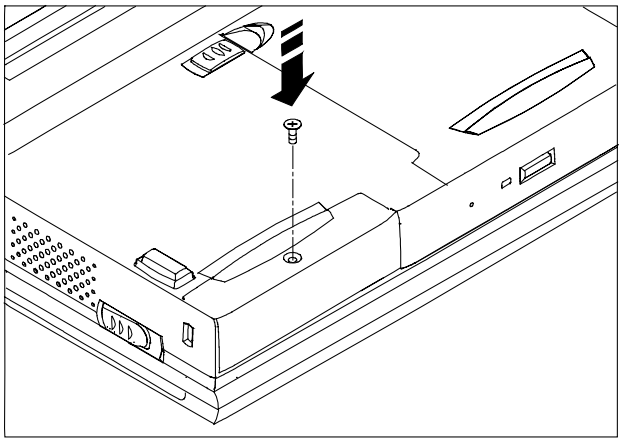


Figure 6-7: : Replacing the HDD Module

Removing and Installing the FDD Module

To remove and install the FDD module, please refer to ***Figure 6-7***, ***Figure 6-8,*** and the following directions.

Important! *Installation or removal of the FDD module should only be performed by a qualified service technician.*

1. Turn off the Notebook and disconnect the AC power cord and any connected peripherals.
2. The FDD retaining screws are located on the underside of the Notebook. Remove the screws and set them aside for later.
3. Remove the two screw screws securing the System Status Indicator Panel to the cover hinge. Now remove the System Status Indicator Panel as shown in ***Figure 6-7***. The System Status Indicator Panel is designed to snap-fit into place. Do not use excessive force to remove it.

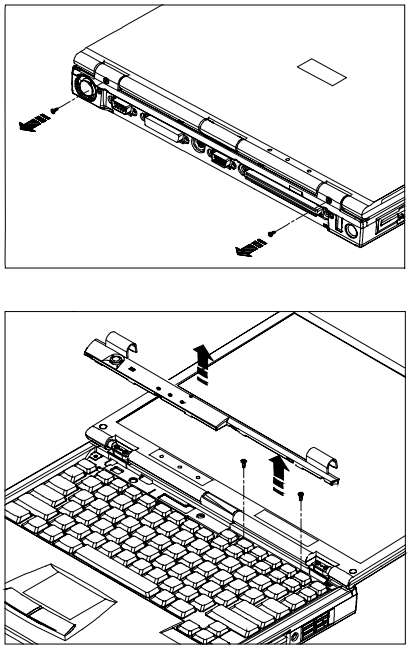


Figure 6-7: Removing the FDD Module (A)

4. Remove the two screws holding the keyboard in place. Now gently lift the keyboard, placing it down on the touch pad as shown in ***Figure 6-8***. Take care that you don't damage the ribbon cable attached to the keyboard.
5. With firm even pressure, slide the FDD in the direction indicated by the arrow as shown in the illustration; you will feel it disconnect.

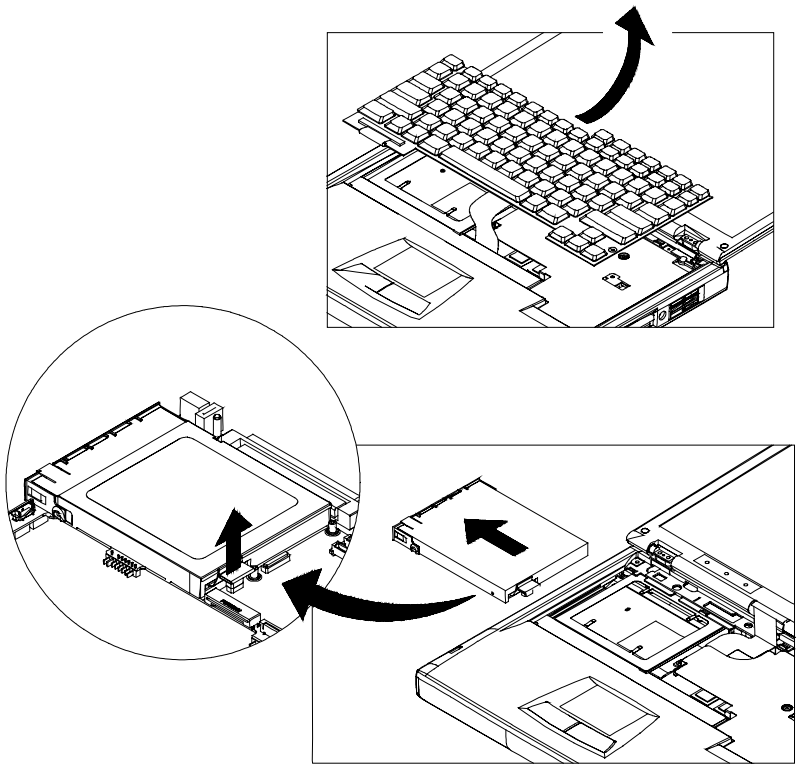


Figure 6-8: Removing the FDD Module (B)

To install a new FDD module, follow the above instructions in the reverse order. Remember that the System Status Indicator Panel is designed to snap-fit into place. Do not use excessive force when replacing it.

Removing and Installing a Mini PCI Card

You may find it helpful to refer to ***Figure 6-9*** while reading the following directions.

1. Turn off the Notebook and disconnect the AC power cord, any connected peripherals and the telephone wire.
2. The Mini PCI Card cover plate is located on the bottom of the Notebook. Remove the two screws securing the plate and lift it clear to reveal the Mini PCI slot.
3. Insert the Mini PCI Card at a 45º angle into its slot. Gently, but firmly push the Card until it locks in place and lies horizontally in its slot.
4. Attach the cable connector to the Mini PCI Card as shown in the illustration below.
5. Now replace the cover plate in the reverse order in which it was removed.
6. Turn the Notebook on. The system will automatically recognize the presence of the Mini PCI Card that was just inserted.

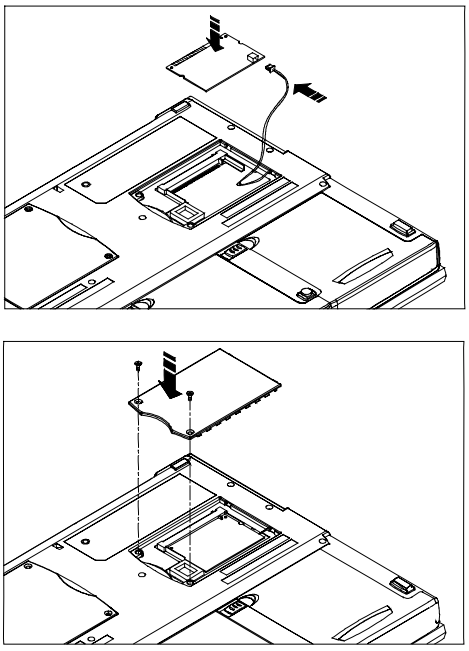


Figure 6-9: Installing a Mini PCI Cards

The I/O Port Replicator

The I/O Port Replicator features the most innovative advances in Notebook personal computing technology. Much consideration has gone into the design of the I/O Port Replicator in order to meet your requirements for versatility as well as quality.

Identifying the Ports and Connectors

Before attempting to connect your Notebook to any peripheral devices, make sure you are familiar with the I/O Port Replicator's various I/O ports. Please refer to the following diagrams:

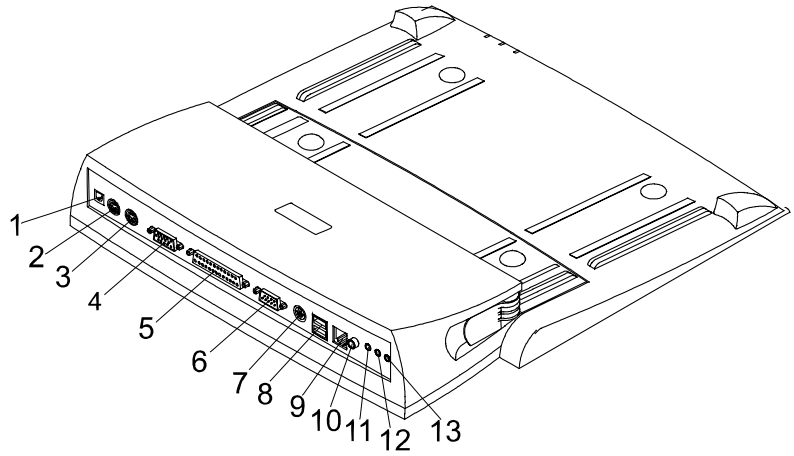


Figure 6-10: The I/O Replicator's Ports

1. AC Adapter port
2. PS/2 Mouse port
3. PS/2 Keyboard port
4. Serial Device port
5. Parallel Device port
6. Exernal Monitor port
7. TV out connector
8. USB ports
9. LAN port
10. SPDIF RCA jack
11. Line-in jack
12. Mic-in jack
13. Headphone-out port

The AC Adapter and Peripherals Connection

The AC Adapter port and all peripheral ports are located on the rear side of the I/O Replicator. Please see ***Figure 6-10*** for a complete port layout. You will want to place the I/O Port Replicator flat on a desk near a wall outlet or an extension cord with a built-in circuit breaker.

Please see the I/O Port Replicator's user manual for information on making peripheral connections.

The Notebook to I/O Port Replicator Connection

By inserting your Notebook into the I/O Port Replicator, and by connecting peripheral devices (a keyboard, mouse, monitor, printer, etc.) to the Replicator's rear side, the I/O Port Replicator turns your Notebook computer into a fully functional desk-top PC. Your Notebook can be warm-plugged into the I/O Port Replicator. This means that you must turn on the Notebook before connecting it to the I/O Port Replicator.

Even though you may be able to fit other Notebook computers into the I/O Port Replicator, it is strongly recommended you do not use the Replicator with any other notebooks before checking with an authorized service technician. This could result in severe electrical damage to the Replicator and your Notebook.

To connect your Notebook to the Port Replicator observe the following steps:

1. Prepare the Port Replicator by connecting the desired peripheral devices and connecting the Port Replicator to an AC power source.
2. If no peripheral devices are connected to the Notebook, there is no need to turn off the system since it can be warm-plugged into the Port Replicator. However, it is recommended that you save your data and enter the system into the suspend mode and close the LCD lid.
3. Locate the two grooves on the bottom side of the Notebook. Place the Notebook on the Port Replicator's docking platform, aligning the grooves with the Replicator's docking rails (see ***Figure 6-11***).

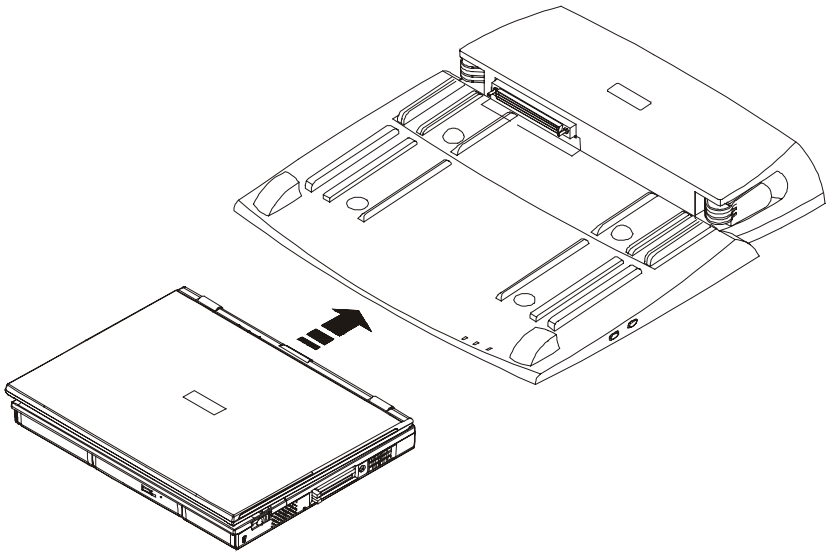


Figure 6-11: Connecting the Notebook to the I/O Port Replicator

4. Gently slide the Notebook along the rails of the docking platform until the Notebook's 240-pinned connector makes a connection with the 240-pinned port on the Replicator. If the Notebook does not slide in easily, remove it from the docking platform, realign the grooves to the rails and try again.
5. Open the Notebook's LCD cover and assuming you entered the system into suspend mode in step 2, resume normal operation.

Removing the Notebook from the I/O Port Replicator

Refer to the following illustration and instructions to remove the Notebook from the Port Replicator.

1. Save your data and enter your Notebook into the Suspend mode.
2. Pull both release levers in the direction of the arrows as illustrated in ***Figure 6-12***.
3. It is now safe to remove the Notebook.
4. Push the Release levers back down to their original position.

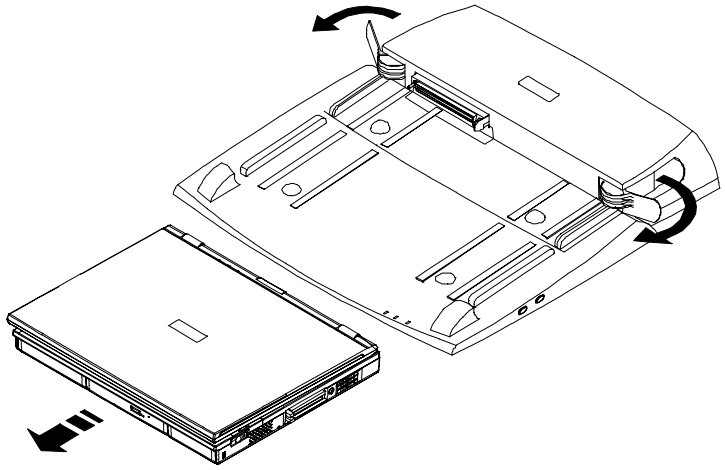


Figure 6-12: Removing the Notebook from the I/O Replicator

I/O Replicator Specifications

External Interfaces

- One PC/AT compatible parallel port
- One PC/AT compatible RS232C serial ports
- One external VGA monitor connector
- One external keyboard connector for PC/AT compatible keyboard
- One external PS2 mouse connector
- Three audio connectors (Microphone, Headphone-out, Line-in)
- One USB connector (two slots)
- TV out connector
- LAN port
- SPDIF RCA jack

This concludes Chapter 6. Chapter 7 provides software information for your Notebook.


Notes

CHAPTER 7

SOFTWARE

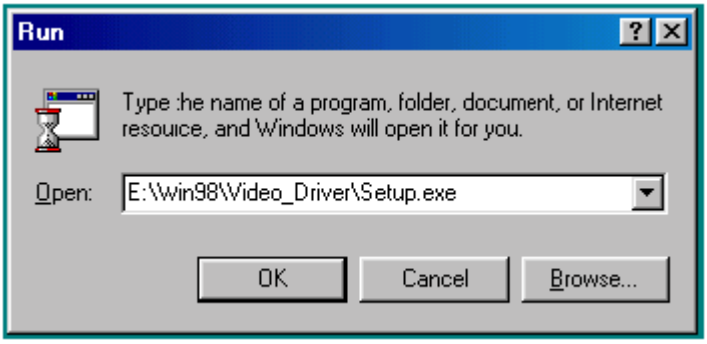
Driver Installation

This chapter covers the installation of device drivers in the Windows 98 Second Edition environment. The step-by-step instructions provided in this chapter will help you install and configure the drivers for your VGA adapter, audio chip, the modem and the touch pad.

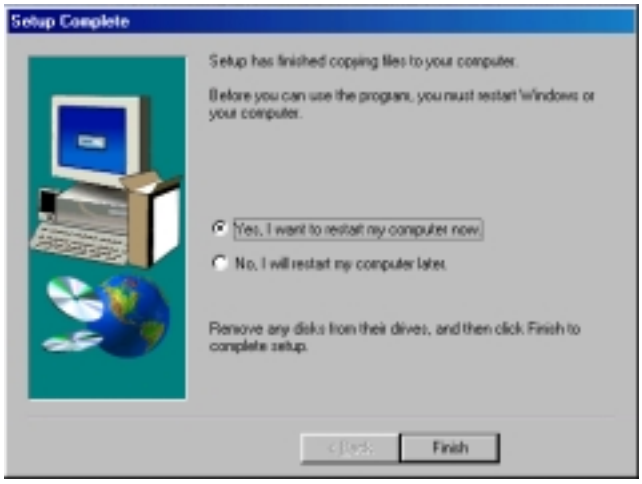
VGA Driver Installation

1. Insert the Support Disc (CD) into the CD-ROM drive.
2. Click the **Start** button; then select run.
3. Use **Browse** to locate:

   `E:\Win98\Video_Driver\Setup.exe`



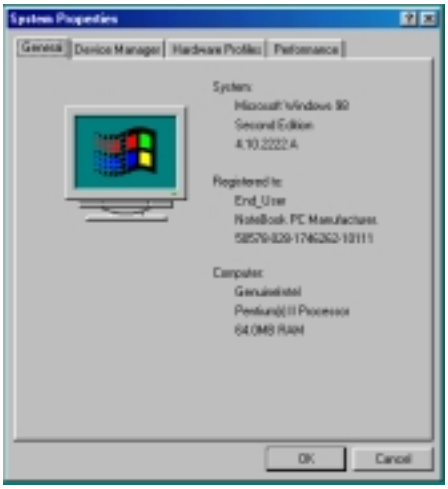
4. Now click **OK**. The ATI device driver will be automatically installed by the system and the following screen should appear.



5. Make sure that the "Yes, I want to restart my computer now." radial button is selected and click **Finish**. Your computer will restart with the new video driver properly installed.

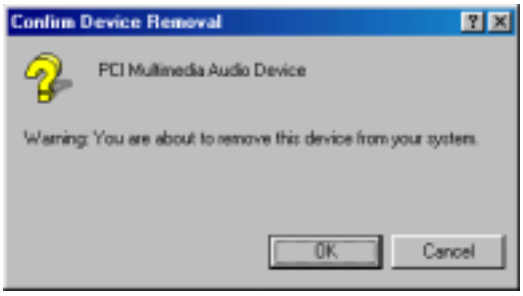
Audio Driver Installation

1. Insert the Support Disc (CD) into the CD-ROM drive.
2. Hold down the Windows key and press [Pause] to open the **System Properties** window.

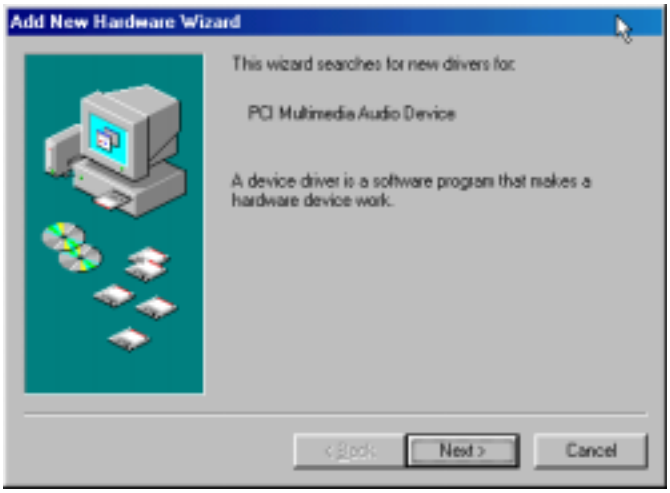


3. Select the **Device Manager** tab.

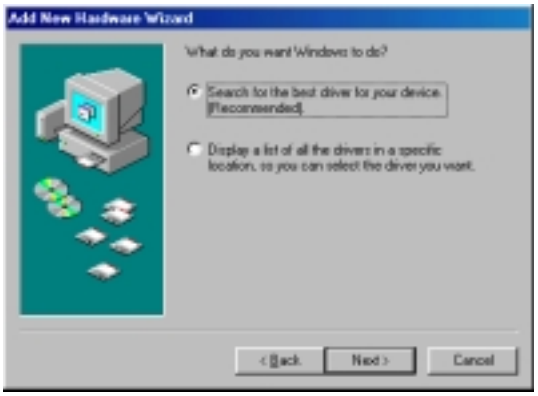
4. Remove **PCI Multimedia Audio Device** in **Other Devices**.



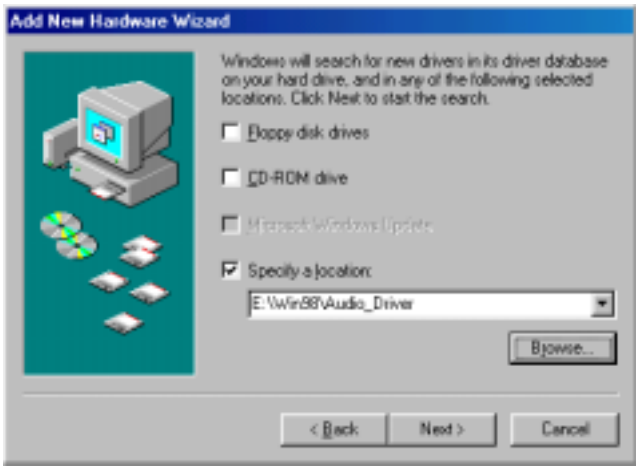
5. Click **Refresh**. The following screen will appear:



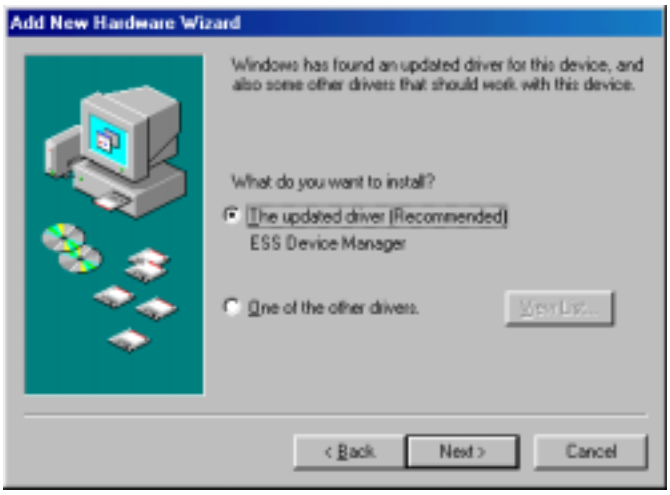
6. Now click **Next>**. The following screen will appear:



7. Make sure that the "Search for the best driver for your device." radial button is selected and click **Next>**.

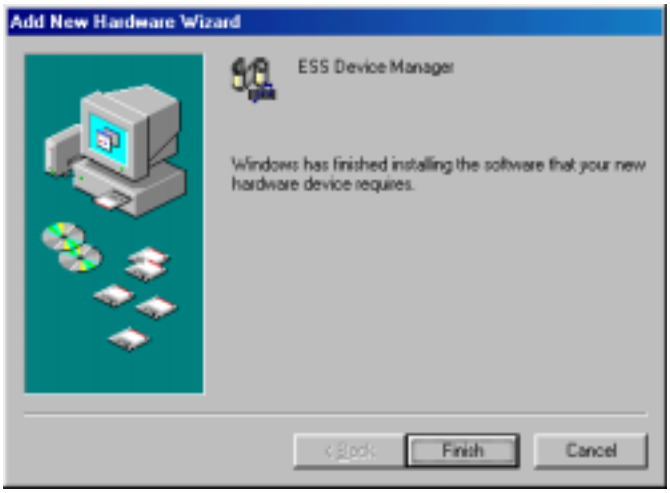


8. Select **Specify a location:** and use **Browse** to select the Audio Driver on the Support Disc CD as indicated in the illustration above. Click **Next>**.



9. Make sure that the "The updated driver [Recommended] ESS Device Manager" radial button is selected as shown in the illustration above and click **Next>**.

10. Now click **Next>**. The Audio Driver will be installed.



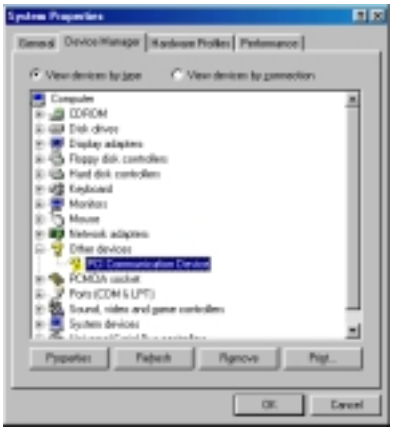
11. Click **Finish** to complete the Audio Driver installation.

Mini PCI Modem Driver Installation

The Mini PCI Modem Card must be installed before installing the modem device driver.

1. Insert the Support Disc (CD) into the CD-ROM drive.
2. Hold down the Windows key and press [Pause] to open the **System Properties** window.

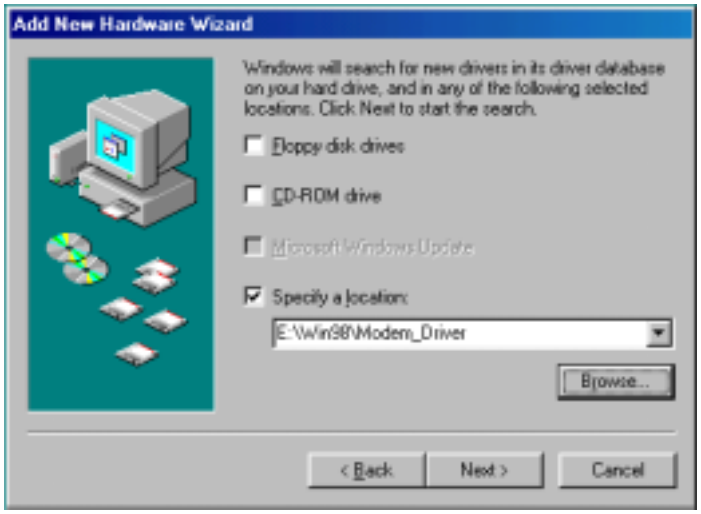
3. Select the **Device Manager** tab.



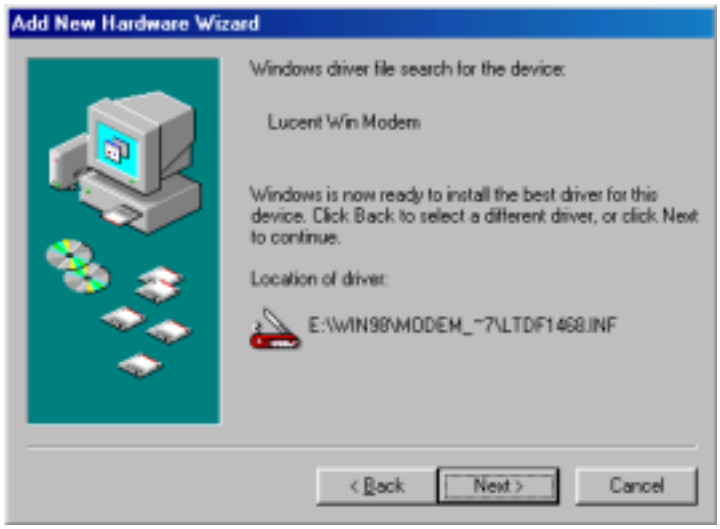
4. Remove **PCI Communication Device** in **Other Devices**.
5. Click **Refresh**. The following screen will appear:

6. Click **Next>**. The following screen will appear:

7. Make sure that the "Search for the best driver for your device." radial button is selected and click **Next>**.



8. Select **Specify a location:** and use **Browse** to select the Mini PC Modem Driver on the Support Disc CD as indicated in the illustration above. Click **Next>**.

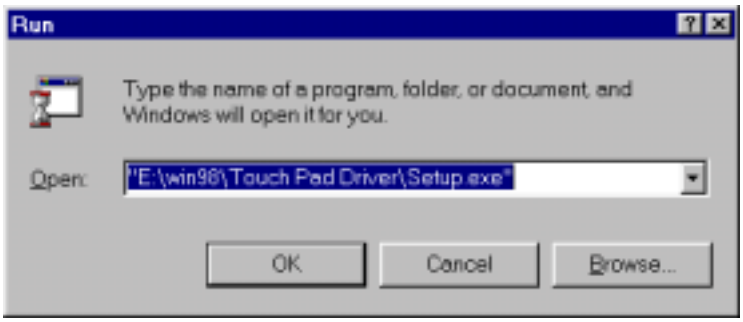


9. Now click **Next>**. The Mini PCI Modem Driver will be installed.

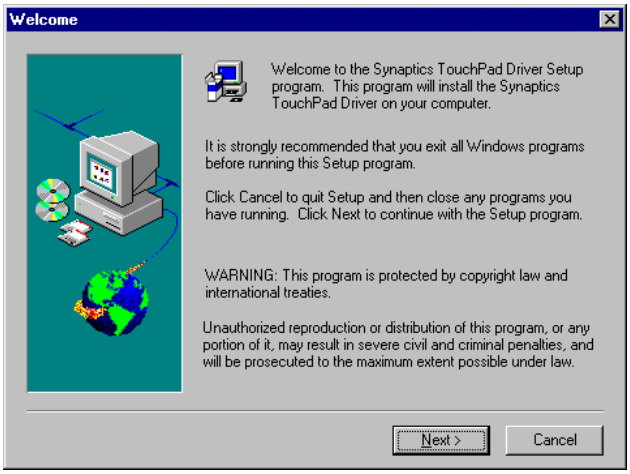
10. Click **Finish** to complete the Mini PCI Modem Driver installation.

Touch Pad Driver Installation

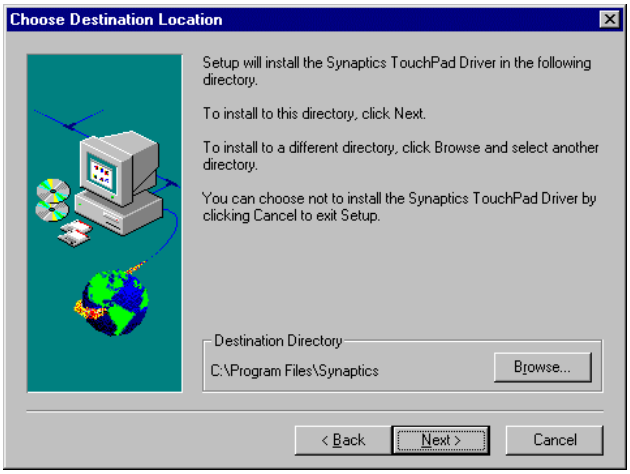
1. Click **Start**, then **Run**.
2. Insert the Support Disk (CD) into the CD-ROM drive. Click the **Browse** button to find the touch pad driver and click **OK**.



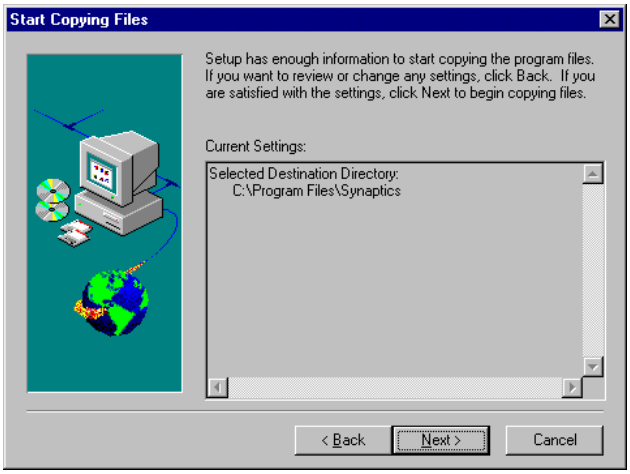
3. Files will be extracted and the **Welcome** screen will appear. Click **Next >**.



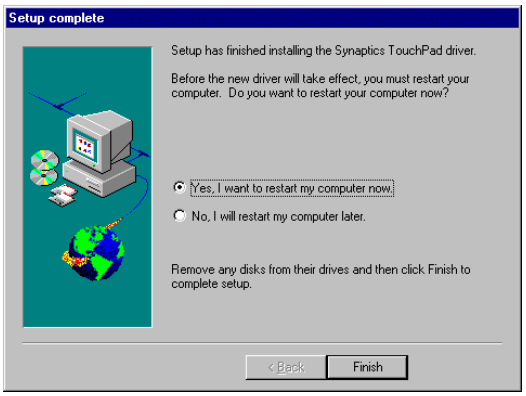
4. Click **Next >**.



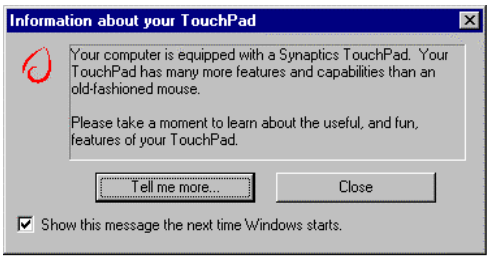
5. Click **Next >**. Files will be copied to your hard drive.



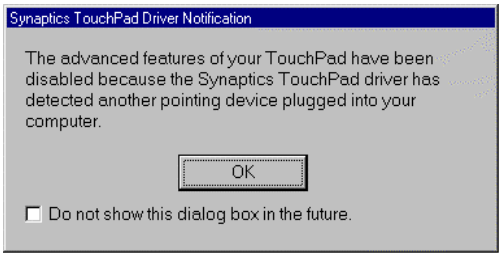
6. Select the radio button next to **Yes, I want to restart my computer now**. and click **Finish** to complete the installation.



7. When your computer reboots, you will see the following screen. The installation procedure is complete. For more information on the Synaptics touch pad, click the **Tell me more** button.



If you have an external pointing device, such as a PS/2 mouse, connected to your notebook, you will see the following screen.



This is not a cause for concern. The advanced features of the Synaptics touch pad will be restored after the external pointing device has been disconnected.

This concludes Chapter 7. Chapter 8 provides tips on general maintenance and caring for your Notebook.

Creating the Save-To-Disk Suspend Partition or File

In order to use the save-to-disk function you must first create a save to disk partition or file on the Notebook's hard disk. The PHDISK utility is used to create this partition or file. During the save to disk operation, the system's state is written to this save-to-disk partition or file.

CAUTION: If you want to create a save to disk partition, you must run the PHDISK utility before partitioning and formatting the hard disk. As this procedure destroys any data on the hard disk, the save to disk partition should be created before installing any Operating System, applications, programs or other software on the hard disk. If you should later decide to upgrade the Notebook's system memory, you may have to run the PHDISK utility again if the additional memory requires a larger save to disk partition than the one currently in use.

To create the save-to-disk suspend partition, perform the following steps:

1. Insert the Microsoft Windows98 Boot Disk into the diskette drive.
2. When the **Microsoft Windows 98 Startup Menu** appears, press the down-arrow key to select

   2. Start computer with CD-ROM support and press <Enter>.
3. When the **A:\>** prompt appears on the screen, insert the Notebook's Drivers CD into your CD-ROM or DVD-ROM drive.
4. At the **A:\>** prompt, type **D:**, where **D:** is the drive letter for your CD-ROM or DVD-ROM drive, and press <Enter>.
5. Type ***CD\Utility\S2D-Tool*** and press <Enter>.
6. Type ***PHDISK /create /partition*** and press <Enter>.

   NOTE: The utility calculates the size of the file in kilobytes (KB), based on the amount of system memory in your computer, and adds 2 megabytes (MB) to handle video memory and additional system requirements.
7. Remove the Microsoft Windows98 Boot Disk, and press any key to restart the system.

If you have installed a new Operating System on the hard drive without the save to disk partition, use the **PHDISK** utility to create a save-to-disk suspend file. When save-to-disk suspend mode is activated, all system data is stored in this file.

To create the save-to-disk suspend file, perform the following steps:

1 Insert the Microsoft Windows98 Boot Diskette into the diskette drive.

2.When the **Microsoft Windows 98 Startup Menu** appears, press the down-arrow key to select

2. Start computer with CD-ROM support and press <Enter>.

3. When the **A:\>** prompt appears on the screen, insert the Notebook's Drivers CD into your CD-ROM or DVD-ROM drive.

4. At the **A:\>** prompt, type **D:**, where **D:** is the drive letter for your CD-ROM or DVD-ROM drive, and press <Enter>.

6. Type ***CD\Utility\S2D-Tool*** and press <Enter>.

7. Type ***PHDISK /create /file*** and press <Enter>.

NOTE: The utility calculates the size of the file in kilobytes (KB), based on the amount of system memory in your computer, and adds 2 egabytes (MB) to handle video memory and additional system requirements.

8. Remove the Microsoft Windows98 Boot Disk, and press any key to restart the system.

More information for save-to-disk partition and file

Follow the instructions on your screen to check the size of the save-to-disk suspend file, type **PHDISK /info** at the MS-DOS ® prompt and press Enter>.

To delete the save-to-disk suspend file

1. Type **PHDISK /delete /file** and press <Enter>.

2. Press any key to restart the system


Notes

CHAPTER 8

CARING FOR YOUR NOTEBOOK

General Maintenance

The best maintenance you can perform yourself is preventive. Try to keep the computer as clean as possible. Avoid transporting or using it in dirty or dusty environments if possible. Use the carrying bag provided or some other clean container when you transport the computer. Be careful to avoid getting dirt and dust in the floppy disk drive.

Try to keep the keyboard as clean as possible. Avoid spilling liquids on it. You can clean the keyboard with a small computer vacuum to remove dust buildup that can impede key motion. You can occasionally use a vacuum to clean the ports.

Make sure the computer is turned off before unplugging it. When you disconnect cords, remember to pull them by the plugs and not by the cords themselves. This will prevent damage to the cords, plugs, ports, and jacks.

Use a high-quality electrical surge protector, if possible, when your computer is powered by the AC adapter. It is also a good idea to unplug your computer when it is not in use.

Cleaning the Computer

Cleaning the Case

If the computer case becomes soiled, you can clean it. Always make sure that the computer is turned off and the AC adapter is disconnected before cleaning the computer. You can clean the case with a soft, preferably lint-free, cloth. If necessary, you can use a mild detergent.

Avoid any cleaner that has abrasives in it and DO NOT use cleaning solvents such as thinner, benzene, or isopropyl alcohol-based products. Never spray anything directly onto the computer. Always spray onto a cloth and then wipe the computer with that. After cleaning, allow 30 minutes drying time.

Caring for and Cleaning the LCD Display

LCD screens are delicate devices that need careful handling. Please pay attention to the following advice:

- When you are not using the computer, keep the LCD screen closed to prevent dust from gathering on the display and on the keyboard.
- Do not put your fingers or sharp objects directly on the surface and never spray cleaner directly onto the display.
- Do not press on, or store any object on the cover when it is closed. It may cause the LCD to break.
- The LCD display panel is covered with glass. You can clean the glass if it gets dirty the same way you would clean a computer monitor screen. Wipe the LCD surface gently with a clean, soft tissue or a lint free cloth and if necessary some commercially available screen or glass cleaner. It is better to avoid ammonia-based cleaners, however. Always spray the cleaner directly onto the cloth; never spray cleaner directly onto the display.

Caring for the Touch Pad

Please pay attention to the following advice when using the touch pad:

- Use your finger instead of a pen or other sharp object.
- Ensure that your hands are clean and dry when using the touch pad to prevent oil and dirt build-up, which can impair the touch pad operation.
- Use one finger only. Touching more than one point on the pad at a time can cause erratic results.
- Finger movement on the touch pad should be soft and light. The touch pad is not pressure-sensitive and requires very little force.

Cleaning the Diskette Drive

In order to avoid causing damage to the sensitive read/write heads and diskette surface, it is important to prevent dust particles and dirt from entering the disk drive slot. If you suspect that the floppy disk drive needs cleaning, you can purchase a disk drive cleaning kit from your computer dealer. These kits usually consist of cleaning fluid and a diskette case that contains a disk-shaped piece of absorbent material or fabric. Apply a few drops of cleaning fluid to dampen the fabric and then insert the cleaning diskette into the drive. When the drive reads the cleaning diskette, the fabric rotates under the read/write head, removing any dirt or dust particles.

Occasional usage of these cleaning diskettes is a good way to remove dirt from the floppy drive's read/write head. However when used too often, the fabric can over-abrade the drive head, causing more harm than good. Normal operation of the floppy drive in a dry, dust-free environment is actually an efficient self-cleaning process. Do not use disk drive cleaning kits unless you suspect a problem with the drive. If you have trouble reading a diskette, make sure the problem is not with the diskette itself.

Caring for CD-ROM Discs

Compact discs are composed of high-density media that must be handled with care and kept clean to ensure that they remain readable. Keep in mind the following to ensure their reliability.

- Always keep your CD enclosed to prevent dust.
- Hold CDs by their edges. Do not touch the surface of the CD.
- Keep the CD surfaces from touching or scraping anything. Do not flex or bend the CD.
- Do not use benzene, thinners, or other cleaners to clean the CD. Use a CD-ROM cleaner kit designed specifically for CDs.
- Do not store or place CDs in direct sunlight.

Caring for Diskettes

Under normal conditions, a diskette's rigid plastic case will protect it from damage. However, data stored on floppy diskettes are easily corrupted. Follow the protective measures listed below to preserve the integrity of data stored on floppy diskettes.

Never touch the magnetic surface of the disk.
When handling diskettes, take care that you do not drop them.

Never turn off, reboot, or reset the computer when a diskette is in the drive and the drive activity light is on. Do not transport the computer with diskettes inserted in the drive.

Do not expose diskettes to extreme temperatures.

Keep diskettes away from magnetic fields generated by power supplies, monitors, magnets, etc.

Do not smoke in the same room where diskettes are used or stored. Particles from cigarette smoke are large enough to scratch the surface of the disk. Store diskettes in a dry, dust-free environment.

Aside from diskette cleaning fluids, keep all liquids away from diskettes. Never insert a wet diskette into the FDD.

Safety Precautions

Follow these steps and you will increase the working lifetime of your Notebook. You will also reduce the chance of damage to your computer and personal injury to yourself.

- Follow all cautions and instructions that may be marked on the Notebook.
- Except as described elsewhere in this manual, refer all servicing to qualified personnel. Immediately shut off the Notebook and refer for servicing under the following conditions:
    - when the power cord or plug is damaged or frayed
    - if liquid has been spilled on the Notebook
    - if the Notebook has been dropped or the cabinet has been damaged
- Never push any objects of any kind into cabinet openings. They may touch dangerous voltage points or short parts that could result in fire or electrical shock.
- Turn off the Notebook before installing or removing a peripheral device.
- Turn off the Notebook and disconnect the AC adapter before cleaning.
- Do not expose the Notebook to direct sunlight.
- Keep the Notebook away from any magnetic devices or TVs.
- Do not use the computer in a dusty or dirty work area. Dust can cause contamination of the unit that can result in malfunction or damage.
- Do not use your computer on an unstable working surface. This will prevent your computer from falling or being knocked over and damaged.
- Keep all liquids away from the Notebook and its accessories.


Notes

APPENDIX A

TROUBLESHOOTING

Your Notebook has passed through a series of rigorous quality assurance tests to guarantee reliable performance. However, a computer is a sophisticated piece of equipment and as such may malfunction if used incorrectly or if one of its components fails.

This chapter will try to anticipate potential problems that you may encounter in the day-to-day use of your computer. Included are important tips and information you will need to help locate and solve some of the problems you may encounter.

An Approach to Troubleshooting

In general, troubleshooting involves an organized system of approach to problem solving. Try to isolate the problem and identify the defective device (hardware) or improper setting (software). When you have a problem, you should do a thorough visual inspection of the Notebook. If none of the indicators are lit and you cannot hear the HDD spinning, then the Notebook is probably not receiving power. Make sure the power cord is plugged in, and the AC adapter is securely connected. If you are using a power strip or surge protector, ensure that these devices are turned on.

Often problems are caused by improperly connected cables. If you are using peripherals such as the mouse or keyboard, make sure they are properly connected to their respective ports. Ensure that none of the connectors' pins are bent or broken. Check all cables connected to the Notebook. If any are cut, frayed, or damaged in any way, replace them right away. Never use a damaged cable. A damaged cable is not only a fire hazard, it may also cause a short circuit, resulting in irreparable damage to the Notebook.

This section is organized into categories based on the hardware.

The Power System

Question: *When I turn on the computer, nothing happens. What's the matter?*

Answer: *If your system is running off battery power, the batteries are probably completely drained. Attach the AC adapter and recharge the batteries. If you are running off the adapter, check to make sure that it is plugged into a live power source. If the power indicator light is lit, it indicates that the power source is good and that the adapter is functioning properly. If there is a battery in the computer, turn the power switch off, remove the battery, and then turn on the computer. If there is still no response, consult your dealer for an appraisal of the problem.*

Question: *The computer keeps beeping at me. Have I done something wrong?*

Answer: *No, but you may be about to. The computer is most likely trying to tell you that battery power is low. Save your work, quit immediately, and replace the batteries or use the AC adapter as a power source.*

Booting Up

Question: *When I turn the Notebook on, I can't get an operating system prompt to appear on the screen. The Notebook does seem to be running, though.*

Answer: *Make sure that you have properly installed an operating system on the hard disk. Check that the brightness and contrast controls are properly adjusted. Try using a system floppy diskette to make sure the operating system will load properly. If it doesn't, contact your support representative.*

The LCD Display

Question: *I know the Notebook is on, but the LCD screen is blank. Is it broken?*

Answer: *Probably not. More than likely, the screen contrast or brightness controls are improperly adjusted or you've accidentally put the computer into Suspend Mode by pressing the Suspend/Resume switch. Press the button again to reactivate the screen. Another possibility is that you've turned off the LCD display by pressing [Fn]+[F8] and set the display for an external monitor. Press the space bar first to see if the computer is in Standby Mode. If the screen image doesn't come back, check the contrast and brightness adjustments. If the problem persists, press the [Fn] + [F8] combination to toggle back to LCD mode. If the screen remains blank, consult your dealer for technical support.*

Keyboard

Question: *I can't get the embedded numeric keypad to work.*

Answer: *Make sure that the [Num Lk] key is pressed if you want to access the numeric keypad.*

Note: Numeric keypad will inactive in internal keyboard.When you plugged a external keyboard.

Question: *When I type, I get numbers when I should get letters. What's wrong?*

Answer: *The numeric keypad is enabled. Disable it by pressing the [Nm Lk] key. The Num Lock light should go out.*

I/O Connections

External Monitor

Question: *Is it possible to use both an external and the LCD screen at the same time?*

Answer: *Yes, the Notebook provides three display configurations: LCD, monitor, and Simul Scan (LCD & MONITOR active at the same time). The three modes are toggled on and off by pressing [Fn] + [F8].*

Mouse or Other Pointing Device

Question: *I connected a Serial mouse to the computer but it doesn't work. Why is this?*

Answer: *First, make certain you followed the manufacturer's installation instructions completely to install the mouse properly. If you installed the mouse correctly and it doesn't work, check the following:*

Make sure the serial port option of the Setup program is set to the same port that is selected for the mouse driver.

Set the mouse device driver to the corresponding COM port that is selected for the serial port option.