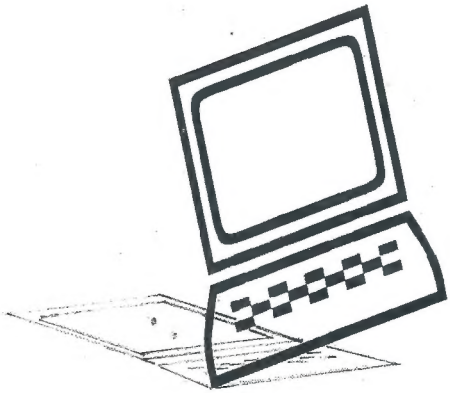
User's Manual

CTX Notebook



CTX

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FEDERAL COMMUNICATIONS COMMISSION STATEMENT

This Equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the Federal Communications Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into and outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING

A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

Use only shielded cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

HINWEISE DES TÜV

1. Bitte lesen sie diese wichtigen Sicherheitshinweise sehr aufmerksam durch und bewahren Sie diese auf.
2. Bitte beachten Sie all auf dem Gerät angebrachten Warnhinweise und Anweisungen.
3. Die Versorgung des Notebook PC kann durch den beigefügten Akkumulator erfolgen. Das Laden des Akkumulators erfolgt im Notebook PC, der einen entsprechenden Batterie-Ladekreis enthält
4. Der Notebook PC kann nur in Verbindung mit dem mitgelieferten AC Adapter an das öffentliche Versorgungsnetz angeschlossen werden.
5. Bei Verwendung des beigefügten Adapters muß vor dem Öffnen des Notebook PC der Netzstecker gezogen werden, um eine Gefährdung zu vermeiden.
6. Der AC Adapter darf nur von geschultem Wartungspersonal geöffnet werden. Es befinden sich keine vom Benutzer einzustellenden oder auszuwechselnden Komponenten im AC Adapter.
7. Versuchen Sie nie, den Notebook PV oder den mitgelieferten AC Adapter selbständig zu warten. Reparatur - und Wartungsarbeiten dürfen nur von geschultem Wartungspersonal durchgeführt werden.

8. Ziehen Sie den Netzstecker aus der Steckdose und benachrichtigen Sie den Wartungsdienst in folgenden Fällen.
    - wenn das Versorgungskabel oder der Netzstecker des AC Adapters beschädigt sind
    - wenn eine Flüssigkeit in den AC Adapter oder den Notebook PC eingedrungen ist
    - wenn der Notebook PC nicht normal arbeitet, obwohl alle Bedienungsanweisungen befolgt wurden. Achtung: Nehmen Sie nur Einstellungen an den Ihnen offensichtlich zugänglichen Versteileinrichtungen (Kontrast Helligkeit) vor
    - wenn das Gehäuse des Notebook PC oder des AC Adapters Beschädigungen aufweist.
9. Ersetzen Sie den Akkumulator nur durch solche vom Hersteller zugelassenen Akkumulatovrianten. Im Falle der Verwendung eines nicht zugelassenen Akkumulatortyps besteht Feuer-bzw. Explosionsgefahr des Akkumulators Vor Erneuerung des Akkumulators wenden Sie sich daher an Ihren Wartungsdienst. Dieser nennt Ihnen die möglichen Akkumulatorvarianten.
10. Achtung: Der mitgelieferte Akkumulator bzw. die alternativ zugelassenen Akkumulatorvarianten können nur bei unsachgemäßen Betrieb explodieren. Versuchen Sie nicht, das Akkumulatorgehäuse zu öffnen. Werfen Die den Akkumulator nicht ins Feuer und halten Sie diesen von Kindern fern.
11. Sorgen sie für eine umweltgerechte Entsorgung des Akkumulators, sobald dieser verbraucht ist. Geben Sie den verbrauchten Akkumulator daher bei einer Batterie-Sammelstelle ab.
12. Es durfen nur die für den AC Adapter zugelassenen Versorgungskabel mit entsprechendem Leitungsquerschnitt von 0,75mm und Stecker verwendet werden.
13. Stellen Sie den Notebook PC vor Inbetriebnahme stets in einer ebenen und waagrechten Position auf. Bei Schließen des eingeschalteten Notebook PC (Einklappen des LCD), ertönt ein Warnsignal. Schließen Sie den Notebook PC erst dann, wenn das Gerät ausgeschaltet wurde.

14. Trennen sie den AC Adapter nicht während des Betriebs vom Notebook PC. Der AC Adapter sollte wenigstens 30 cm vom Notebook PC und von Disketten aufgestellt werden.
15. Schlitze und Öffnungen im Gehäuse des Notebook PC und des AC Adapters dienen zur Belüftung. Um eine zuverlässige Funktion zu gewährleisten und eine Überhitzung zu vermeiden, dürfen diese Öffnungen nicht abgedeckt werden. Die Geräte sollten daher nie auf einem Bett, Sofa, Teppich oder einer ähnlichen Unterlage aufgestellt werden. Der einbau in eine Möbelzeile ist nur im Falle ausreichender Belüftungerlaubt.
16. Bitte beachten Sie zusätzlich noch die erläuternden Hinweise im beigefügten Handbuch, um stets einen fehlerfreien Betrieb Ihres Notebook PC zu gewährleisten.
17. Eine eventuell im Gerät verwendete nicht wieder aufladbare Lithium Batterie darf nur von entsprechend qualifizierten Service-Personal ausgetauscht werden. Vorsicht: Explosionsgefahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einen vom Hersteller empfhlenen Typ. Entsorgung der verbrauchten Batterie nach Angaben des Herstellers.
18. Weitere Informationen bezüglich der Inbetriebnahme und des Gebrauchs Ihres Notebook PC sowie des AC Adapters entnehmen Sie bitte dem Handbuch.

BZT NOTICE

Der vorachriftsmäßige Betrieb mancher Geräte (z.B. Meßsender) kann allerdings gewissen Einschränkungen unterliegen. Beachten Sie deshalb die Hinweise in der Bedienungsanleitung.

Dem Bundesamt für Zulassungen in der Telekommunikation wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigungzur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

The marketing and sale of this equipment was reported to the German Postal Service.

The right to retest this equipment to verify compliance with the regulation was given to the German Postal Service.

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TABLE OF FIGURES

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CHAPTER 1

INTRODUCING THE NOTEBOOK

Congratulations on your purchase of the Notebook computer. 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. Designed for a wide range of general business and personal productivity applications, the Notebook is an ideal choice for use in the office, at home, and on the road.

The Notebook's modular design provides maximum expandability without compromising portability. The high performance Pentium® MMX™ CPU and PCI Bus Enhanced-IDE hard drive provide you with the extra processing power you need to handle complex graphics and large sound files. Two Type-II PCMCIA slots (stacked to form one Type-III slot) give you the ability to use standard PCMCIA cards, such as a LAN adapter or memory cards.

The Notebook's unique MultiBay™ design features an upgradeable CD-ROM module and a 3.5" Floppy Disk Drive module. Both modules can be used at the same time. The FDD module can be replaced with a secondary battery pack.

This User Guide contains all the information you need to setup and use your new Notebook. It describes all the features of the Notebook in an easy-to-read yet thorough manner. One of the primary goals of this chapter is to identify the Notebook external components. This chapter also describes the steps you should follow to get the Notebook up and running for the first time. Your Notebook is designed and pre-configured for easy setup and use. A quick reference of the Notebook features and functions is also provided for experienced computer users. You should read this chapter first.

Package Contents

After opening the package, carefully inspect the contents. If any of the items are missing or appear damaged, contact your dealer. In addition to the User Manuals, the shipping carton should contain at least the following:

- Notebook computer
- AC Power Adapter and AC power cord
- NiMH or Li-ion battery pack
- Utility Floppy Diskettes or Utility CD
- Carrying Bag

Features Overview

The Notebook includes a variety of innovative features designed to meet the most demanding computing requirements. This section provides an overview of the Notebook features. For more detailed information see Appendix B. Your Notebook includes the following features:

CPU

Your Notebook was designed for use with the state-of-the-art Intel MMX CPU. The MMX media enhancement technology was designed specifically for faster processing of multimedia and communications tasks. Please ask your Notebook dealer for more information. Refer to *Appendix B* for detailed specifications.

1.44 MB Floppy Drive

The removable FDD (Floppy Disk Drive) accepts either 720KB double density or 1.44MB high density 3.5-inch floppy diskettes for data or program storage. The FDD module can be replaced with a DR-36 standard compatible battery pack. Using the FDD external connection cable, the FDD module can be removed and attached to the external FDD connector at the rear of the Notebook.

Hard Drive

The Notebook comes with a 2.5", 12.7mm thick Enhanced-IDE hard disk installed. Consult your dealer about the capacity of your Notebook's hard disk drive.

CD ROM

The Notebook features a removable 5.25" ATAPI IDE removable CD-ROM drive. The CD-ROM module can be replaced with a DR-36 compatible battery pack.

LCD SVGA Display

Your Notebook's SVGA display is one of the following types of LCD displays:

- 800x600 SVGA 12.1" D-STN color LCD
- 800x600 SVGA or 1024x768 XGA 12.1" TFT color LCD
- 1024x768 XGA 13.3" TFT color LCD

VGA Graphics Accelerator

This Notebook is equipped with a NeoMagic NM2160 VGA controller chip featuring:

- PCI Bus architecture
- 128 bit GUI Acceleration
- Support for simultaneous display
- Support for Advanced Power Management
- 2.2 MB embedded DRAM
- Graphics Accelerator for Windows Applications
- Video interface for Z-V port
- Video out port for CVBS conversion

87/88-key Enhanced Keyboard

The Notebook's keyboard uses a standard QWERTY 87/88-key layout with the addition of Windows 95™ and special function keys. The keyboard features an embedded numeric keypad for number intensive data entry.

Touchpad

The Notebook is equipped with an easy to use, maintenance-free touchpad system. The touchpad provides all the functions of a two-button mouse.

Connectors

The Notebook has a number of connector ports for attaching peripherals to the computer, including the following:

- A PS/2 connector for a full-size keyboard or mouse.
- Three audio jacks used for an external microphone, a Line Out for stereo headphones, and a stereo Line In.
- A connector for a standard VGA or multi-frequency color monitor.
- A standard 9-pin serial port to which you can attach a variety of serial devices, such as an external mouse or modem.
- A 25-pin parallel port which is most commonly used to connect a printer to the computer.
- A 204-pin connector for the Notebook's optional proprietary docking station.
- ϕ2.50mm coaxial male DC connector (DC input port for AC adapter or car adapter).
- PCMCIA port (including Zoom Video port) accommodating a number of expansion options, including memory cards, modems, hard disks, and network cards.
- Two USB connectors.
- MIDI/Game port.
- One TV Input RCA Jack
- One TV Output RCA Jack
- A 26-pin connector for the external FDD
- Voice/Fax/Modem RJ-11 jack (optional).

Battery and AC Power System

To power the Notebook, use the AC adapter or the rechargeable DR-36 Nickel-Metal Hydride (NiMH) or the DR-202 Lithium-Ion (Li-Ion) battery module pack. When the Notebook is off and the AC Adapter is connected to the Notebook and a proper power source, the system automatically recharges the battery pack. The battery packs provide 2-3 hours of battery life with a single pack and are interchangeable with the FDD and CD-ROM modules. Please refer to Chapter Five for more information about the Battery and AC Power System.

Upgradeable Memory

The Notebook can be upgraded to a total of 128 MB by using standard 8 MB, 16 MB, 32MB or 64 MB 144-pin EDO DIMM modules. The Notebook can, also, be upgraded to a total of 32 MB SDRAM by using standard 8 MB, 16 MB 144-pin SDRAM DIMM modules.

Keyboard Controls

The Notebook provides a host of hot key features that are a permanent part of the computer operation. Some affect the LCD video display, while others control the sound volume. Please refer to Chapter Three for a complete listing of [Fn] hot key functions.

Power Management

The Notebook features an APM-supported, intelligent power management system that is built into the BIOS Setup program. The Power Management System is designed to conserve power and extend the life of the battery between charges.

Wireless Link

The Notebook features an IrDA compatible Fast Infrared (FIR) communication module. It enables you to make serial communication between the Notebook and other IR equipped devices such as a printer or another Notebook computer.

Right Front View (Panel Open)

Open the Notebook by first pulling back the latches located on each side of the Notebook's LCD cover; then raise the cover. Note that the Notebook's LCD panel can be adjusted for your viewing comfort. Experiment to achieve an angle whereby there is no glare reflecting off the display.

1. **LCD Screen**
   The LCD screen is one of three models described in the specifications in Appendix B.
2. **LCD Cover Release Latches**
   To open the Notebook, first pull back the latches; then raise the cover.

3. **PS/2 Mouse or Keyboard Port**
   This port is for connecting an external PS/2 mouse or a keyboard to the Notebook.
4. **PCMCIA Slots**
   Two PCMCIA Type II cards or a single Type III card can be inserted into these sockets.
5. **PCMCIA Slot Buttons**
   There are two eject buttons, one per slot. To remove a PC card simply push the respective eject button. The upper button will eject a Type II PCMCIA card from the upper socket. The lower button will eject a Type II or Type III PCMCIA card from the lower socket.
6. **Battery Pack Module and MultiBay™**
   Remove the MultiBay™ cover to access the Notebook's battery module. Refer to Chapter 6 for instructions on how to remove the Notebook's battery module. This bay is also designed to house the CD-ROM module.

7. **Built-in Microphone**
   Use the unidirectional Microphone to record music, voice, and sound files.

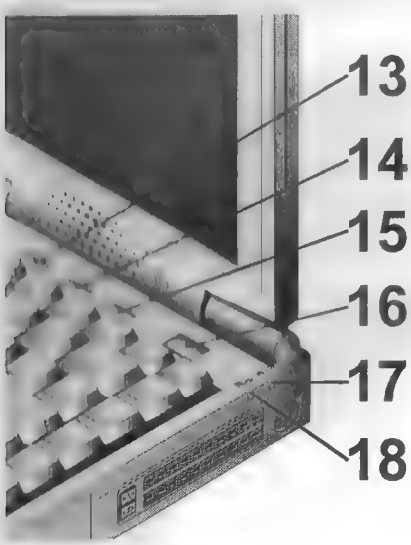
8. **Touchpad Buttons**
The two Touchpad buttons correspond to the left and right buttons of a mouse. Refer to chapter three for a detailed description of the Touchpad.

9. **Touchpad**
The Touchpad provides all the functions of a two-button mouse.

10. **Keyboard**
The low-profile keyboard emulates all the functions of a full-size 104/105 key keyboard including an embedded keypad and a full array of special function keys.

11. **System Status Display Panel**
The System Status Display Panel informs you of the Notebook's current operating status at a glance.

12. **Internal Speakers**
The Notebook provides three audio-output choices: wearing a headphone connected to the audio-out port for private listening; connecting external stereo speakers to the line-out port for high quality sound; or using the internal stereo speakers.



13. **Increase Volume Control** △
Press the ▲ left button to increase the volume.

14. **Decrease Volume Control** ▽
Press the ▼ right button to decrease the volume.

15. **Mute Button**
Press this button to mute the speaker output. When mute is activated the mute icon appears in the right hand corner of the Windows 95 status bar.

Figure 1-2: Control Buttons and LED Indicators

16. **On/Off Button**
    Press this button to turn the computer on or off.

17. **Battery Status Indicator**
    Indicates the Notebook's battery charge status.

18. **Power On Indicator**
    Indicates the Notebook is on when lit. Indicates the Notebook is in Suspend mode when flashing.

Bass Leakage Cavities

The following illustration shows the Notebook's bass leakage cavities. These holes prevent the bass end of your music from being absorbed by Notebook's case. Make sure these are not covered up when using the Notebook's sound system to play music.

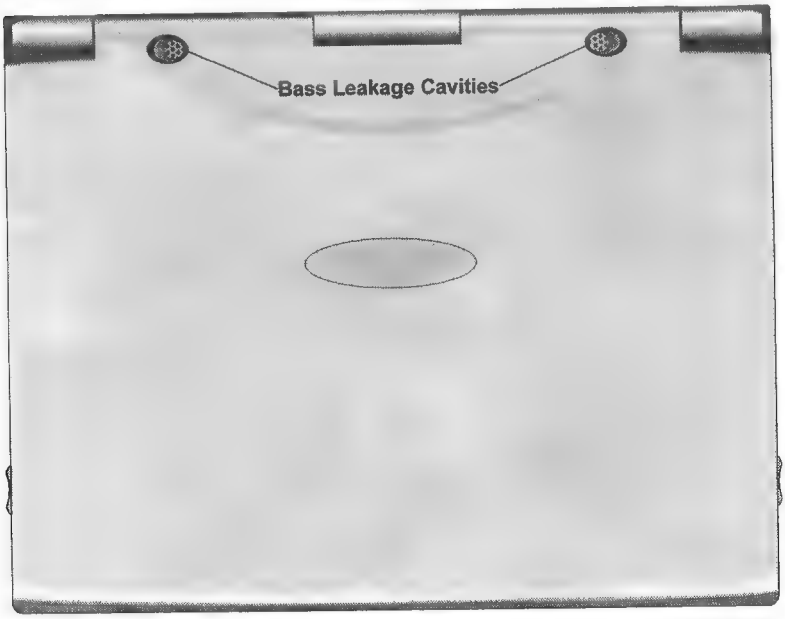


Figure 1-3: Bass Speaker Holes

Left Side View

Please refer to ***Figure 1-4, Figure 1-5*** and the descriptions that follow to identify the components on the left side of the Notebook.

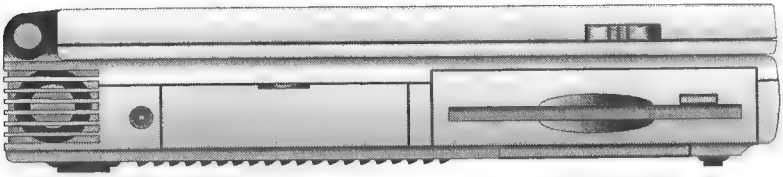


Figure 1-4: Left Side View of Notebook (Port Cover Closed)

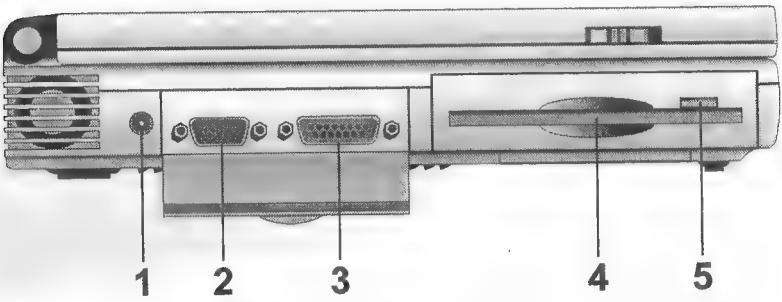


Figure 1-5: Left Side View of Notebook (Port Cover Open)

1. **AC Power jack**
   Connect the AC Adapter power lead to this jack.

2. **VGA Display Port**
   This port is used to connect an external monitor (CRT).

3. **MIDI/Game Port**
   Connect a MIDI device or a Joystick to this port.

4. **Removable FDD Module**
   Your Notebook comes equipped with a 3.5" Floppy Disk Drive module. The FDD module can be replaced with a secondary battery pack. If you have the optional external FDD cable, you

can remove the FDD module and attach it to the external FDD connector at the rear of the Notebook.

5. **FDD Eject Button**
   Press this button to remove the diskette from the drive slot. The eject button only pops out when a diskette is inserted in the drive.

Rear View

Please refer to ***Figure 1-6, Figure 1-7*** and the descriptions that follow to identify the components on the rear side of the Notebook.

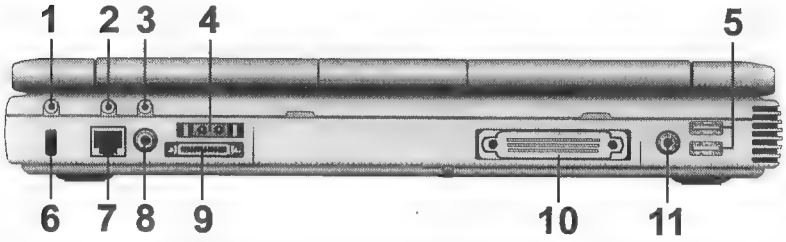


Figure 1-6: Rear View of Notebook (Protective Port Cover Closed)

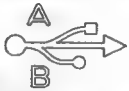
Note that the docking port slide panel is located to the left of the Composite TV Output Port. When using an external docking station, slide the panel to its open position to reveal the 204-pin docking station interface connector.

1. **External Mic Connector**
   This mono microphone jack is used to connect an external microphone.

2. **Audio Line In Connector**
   This stereo jack is used to connect external audio sources.

3. **Audio Line Out Connector**
   This stereo jack is used to connect external speakers or headphones.

4. **Fast Infrared Communication (FIR)**
   The FIR allows wireless communication between the Notebook and another IrDA compliant computer or device.



5. **USB Ports A & B**
   These ports were designed in full compliance with the Universal Serial Bus specification 1.0.

6. **Kensington Security Lock**
   You can use the Kensington Security Lock to lock your Notebook to a desk or other large stationary object to protect against theft.

7. **Voice/Fax/Modem Port**
   Connect a telephone cable to the Notebook's internal Voice/Fax/ Modem port. This feature is optional.

8. **Composite Video Input Port**
   This port allows you to connect the Notebook to a TV video signal source to view a TV video signal on the computer's screen.

9. **External FDD Connector**
   This connector allows you to use the Notebook's FDD module when the DR-36 compatible Battery Pack module is inserted in the FDD module bay.

10. **Optional Docking Station Connector**
    This port is only used for connecting the Notebook to a Docking Station.

11. **Composite Video Output Port**
    This port allows you to connect the Notebook to a television to view the computer's video signal on a TV screen.

To access the Notebook's serial port and parallel port, open the protective port cover located on the rear of the Notebook as shown in the following illustration.

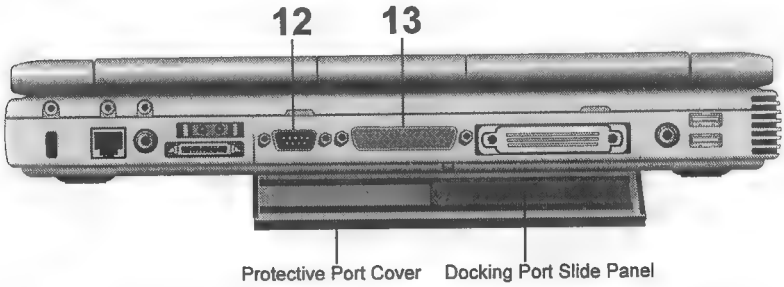


Figure 1-7: Rear View of Notebook (Protective Port Cover Open)

12. **Serial (COM1) Port** 
    This port is used to connect RS-232 serial devices to the Notebook. Three types of serial devices are external mice, serial printers, and fax/modems.

13. **Parallel (LPT1) Port**
    This port is normally used to connect a printer to the Notebook.

Bottom View

Please refer to ***Figure 1-7*** and the descriptions that follow to identify the components on the bottom of the Notebook.

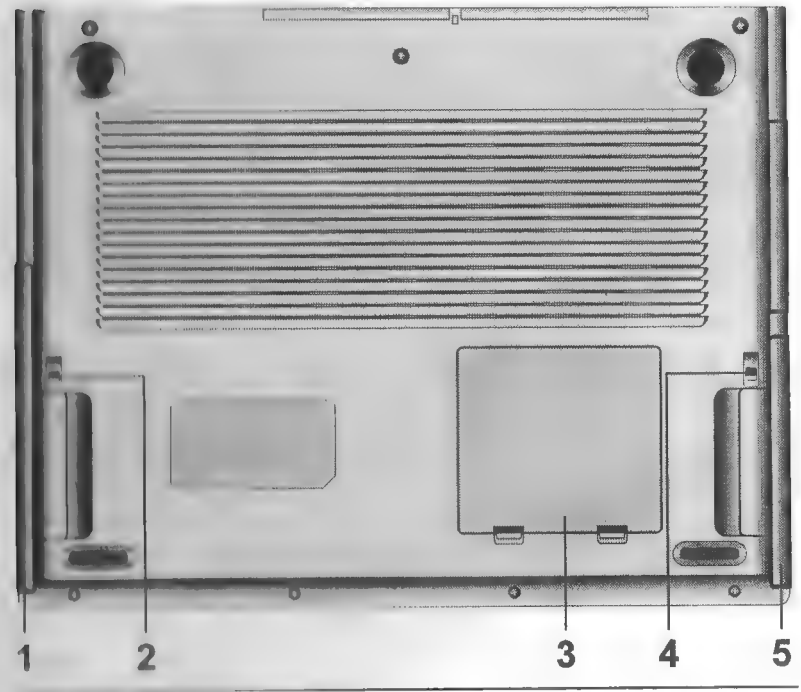


Figure 1-8: Bottom View of Notebook

1. **CD ROM Module and MultiBay™**
   In addition to the CD-ROM Module, this MultiBay can also accommodate a battery pack. Please refer to the section in Chapter Five labeled *The Battery Power System* for more information on removing and installing the battery pack.

2. **CD-ROM Module Release Latch**
   Push the slide latch downward to unlock the CD-ROM or other module and remove it from the MultiBay.

3. **Memory Module Access Panel**
   Remove this panel to access the Notebook's Memory Modules.

4. **FDD Release Latch** 
   Push the slide latch downward to unlock the FDD or other module and remove it from the MultiBay.
5. **FDD Module and MultiBay™**
   In addition to the FDD Module, this MultiBay can also accommodate an optional battery pack.

Installation and Initial Setup

This chapter explains what you need to do after turning on your Notebook. Experienced computer users may need only read through this section while using the rest of the manual merely as a reference.

Connecting the AC Power Adapter

To power the Notebook by using the external AC jack, please refer to *Figure 1-9* and the following directions:

1. Two cables come with the AC Adapter. One is the power cord. It connects the AC Adapter to an electrical outlet. The other cord connects the Notebook to the AC Adapter module. Plug the power cable into the receptacle on the AC Adapter module.
2. Locate the AC Adapter port on the Notebook and connect the AC adapter to it.
3. Turn on the Notebook. If the Notebook does not power up, check the AC Adapter connections.
4. Push and hold down the Power button for more than 1 second to turn off the computer.

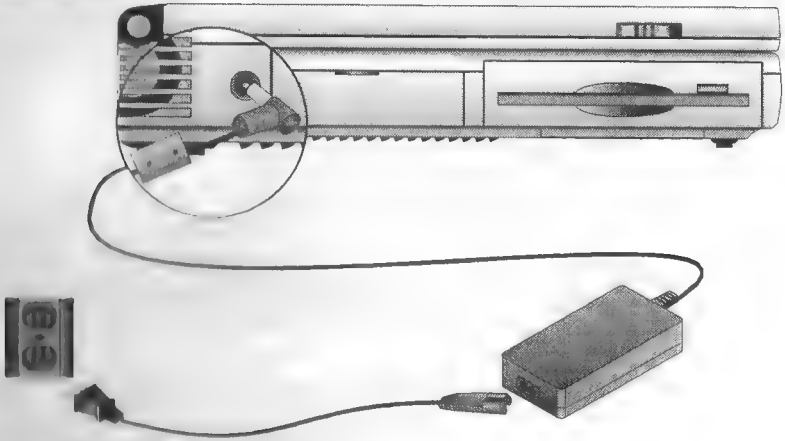


Figure 1-9: Connecting the Power Cord to the AC Adapter

> ***Warning!*** *Never turn off or reset your Notebook while the hard disk or floppy disk is in use and the FDD and/or HDD status icon is lit; doing so can result in loss or destruction of your data. Always wait at least 5 seconds after turning off your Notebook before turning it back on; turning the power on and off in rapid succession can damage the Notebook's electrical circuitry.*

The Power On Self Test (POST)

When you turn on the Notebook, 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 Notebook's architecture. The POST includes a record of the Notebook's hardware which 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 Two for instructions on how to run the BIOS Setup program.

In most cases the record should be correct when you receive the Notebook. If so, the POST will finish and the Notebook will look for a Disk 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 only get a message saying that there is a non-system disk or disk error if the hard disk was not pre-loaded with an operating system. 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 Notebook with a non-system floppy disk inserted in the floppy drive.

Installing a Disk Operating System

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

This concludes Chapter One. The next chapter covers the Notebook's 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 your system to reflect installed hardware or alter system performance. It is a ROM-based configuration utility that 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 retains this information even when the power is turned off. When the Notebook is turned back on, the system is configured with the values stored in CMOS. With easy-to use menus, you can configure such items as:

- Hard drives and peripherals
- Bootup Drive Sequence
- Password protection
- Power Management Features

The settings made in the BIOS Setup program intimately affect how the Notebook performs. It is important, therefore, to first try to understand all the Setup 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, so you will very likely have little to worry about for now. However, we recommend that you read this chapter just in case you need to make any changes in the future.

The next section discusses how to move around in the BIOS 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 sub-menus and make your selections among the various predetermined choices. If you accidentally make a setting and don't know which one to switch back to, the Setup program has a hot key that allows you 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 enable the Security Password Feature or make changes to the power management settings. It will then be necessary to reconfigure your system using the Setup program so that the computer can recognize these changes.

You should run the Setup program under the following conditions:

- You have set up the computer for the first time and you get a message prompting you to run the BIOS Setup program
- You want to configure the Notebook to use a different booting device
- You want to reset the system clock
- 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

> *Note* ***The above items are only a few examples and 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 screen has a menu bar with the following selections:

Main	Use this menu to make changes to the basic system configuration.
Advanced	Use this menu to enable and make changes to the advanced features available on your system, such as enabling the FIR module.
Security	Use this menu to set a password. The password allows bootup and controls access to the BIOS setup menu.
Power Savings	Use this menu to configure and enable Power Management features.
Boot	Use this menu to configure the default system device used to locate and load the Operating System and for booting up the Notebook.
Exit	Use this menu to exit the current menu or specify how to exit the Setup program.

To access the menu bar items, press the right or left arrow key on the keyboard until the desired item is 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 setup menus. The following table lists the keys found in the legend bar with their corresponding alternates and functions.

Legend Key	Alternate Key	Function
F1	Alt + H	Displays the General Help window. It can be enabled from anywhere in the BIOS.
Esc	Alt + X	Jumps to the Exit menu or returns to the main menu from a submenu.
←		Selects the menu item to the left.
→		Selects the menu item to the right.
↑ or ↓	keypad arrow keys	Moves the cursor up and down between fields.
Tab	Enter	Moves the cursor to the next position available in the field. If there is only one field, the Tab key will move the highlight down to the next field.
Shift + Tab		Moves the cursor to previous position available in the field. If there is only one field, the Tab + Shift keys will move the highlight up to the previous field.
The subtraction key (-)	F5	Scrolls backward through the values for the highlighted field.

Legend Key	Alternate Key	Function
+	F6, Space	Scrolls forward through the values for the highlighted field.
Home	PgUp	Moves the cursor to the field at the top of window.
End	PgDn	Moves the cursor to the field at the bottom of window.
F9		Sets the parameters for the current menu to their *default* values.
F10		Sets the parameters for the current menu to their *previous* values.

Launching Submenus

Note that a right pointer symbol appears to the left of certain fields. This pointer indicates that a submenu can be launched from this field. A submenu contains additional options for a field parameter. To call up a submenu, simply move the cursor to highlight the 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. Use the [Esc] key to return to the main menu.

Take some time 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 any of the fields, use the set default hot key. While moving around through the Setup program, note that explanations appear in the *Item Specific Help* window located to the right of each menu. This window displays the help text for the currently highlighted field.

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 [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 won't fit in the window. Use the [PgUp] and [PgDn] keys or the up and down arrow keys (↑ ↓) to scroll through the entire help document. Press the [Home] key 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:

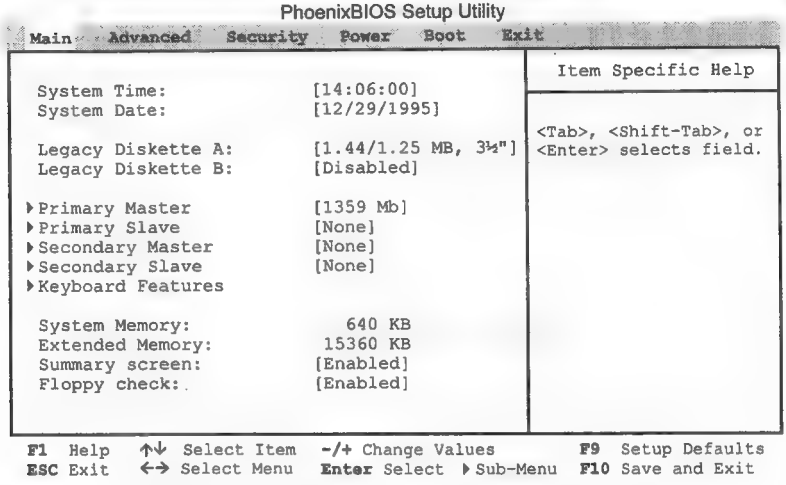


Figure 2-1: The Main Menu

This is the Main menu of the BIOS Setup program. Changes to the Notebook's basic system configuration can be made from this menu. Each of the fields displayed in this menu are covered below in detail.

System Time

Sets your system to the time that you specify (usually the current time). The format is hour, minute, second. Insert the appropriate information. Use the [Tab] or [Shift] + [Tab] keys 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] or [Shift] + [Tab] keys to move between the month, day, and year fields.

Legacy Diskette A

Specifies a drive type for diskette drive A. Drive A is the factory-included Floppy disk drive. Valid configurations are:

- Disabled
- 720 KB, 3½"
- 1.44/1.25 MB, 3½" (default value)
- 2.88 MB, 3½"

Legacy Diskette B

Specifies a drive type for diskette drive B. Available configurations are:

- Disabled (default value)
- 720 KB, 3½"
- 1.44/1.25 MB, 3½"
- 2.88 MB, 3½"

FDD Drive Assignment Table

Please refer to the following table for FDD drive assignments automatically configured by the system BIOS. If a Docking FDD unit is in use, Diskette B must be enabled in the system BIOS.

FDD Location	Internal FDD Assignment	Docking FDD Assignment
Internal Only	Drive A:	N/A
Docking Only	N/A	Drive A:
Internal & Docking	Drive A:	Drive B:

▶ Primary Master

This field is used to configure the IDE Hard Disk installed in the system. To configure a hard disk drive, move the cursor to highlight the Primary Master field:

▶ Primary Master [1359MB]

Pressing the [Enter] key at this point will reveal the Primary Master submenu:

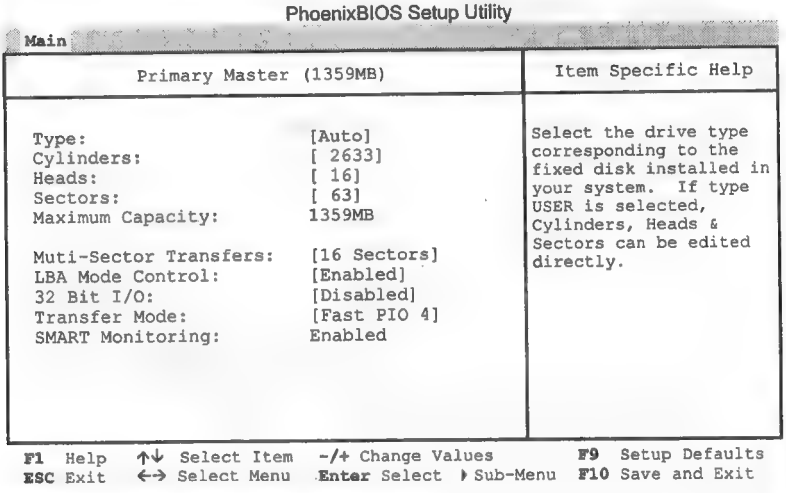


Figure 2-2: Primary Master submenu

> ***Note:*** ***Before attempting to configure a hard disk drive, make sure you have the configuration information supplied by the manufacturer of your hard drive. Incorrect settings can cause your system to not recognize the installed hard disk.***

Type

To configure a drive select *User*. Manually enter the number of cylinders, heads and sectors per track for your drive. Refer to your drive's documentation or look on the drive if you need to obtain this information.

Select *Auto* to automatically configure an IDE type drive. This option only works with standard IDE drives. If your drive is an IDE type, it will be automatically recognized and properly configured. If automatic detection is successful, the correct values will be filled in for the remaining fields on this submenu.

If no drive is installed or if you are removing a drive and not replacing it, select *None*.

Cylinders

This field configures the drive's number of cylinders. Refer to your drive's documentation or look on the drive to determine the correct value to enter for this field. If the system has successfully detected the drive automatically, there is no need to adjust this field. In order to make changes to this field, the Type field must be set to *User*.

Heads

This field configures the drive's number of read/write heads. Refer to your drive's documentation or look on the drive to determine the correct value to enter for this field. If the system has successfully detected the drive automatically, there is no need to adjust this field. In order to make changes to this field, the Type field must be set to *User*.

Sectors/Track

This field configures the drive's number of sectors per track. Refer to your drive's documentation or look on the drive to determine the correct value to enter for this field. If the system has successfully detected the drive automatically, there is no need to adjust this field. In order to make changes to this field, the Type field must be set to *User*.

Multi-Sector Transfers

This option automatically sets the number of sectors per block to the highest number supported by the drive. This field can also be configured manually. Note that when this field is automatically configured, the set value may not always be the fastest value for the drive. Refer to the documentation that came with your hard drive to determine the optimal value and set it manually. In order to make changes to this field, the Type field must be set to *User*.

Configuration options are:

- Disabled
- 2 Sectors
- 4 Sectors
- 8 Sectors
- 16 Sectors

LBA (Logical Block Access) Mode Control

When enabled, this option uses 28-bit addressing of the hard drive without regard for cylinders, heads, and sectors. Note that Logical Block Access may decrease the access speed of the hard disk. However, LBA Mode is necessary to use drives with greater than 528MB in storage capacity. In order to make changes to this field, the Type field must be set to *User*.

Configuration options are:

- Disabled
- Enabled

32 Bit I/O

When enabled, this option speeds up communication between the CPU and the IDE controller. This option supports PCI local bus only. ISA bus is not supported. In order to make changes to this field, the Type field must be set to *User*.

Configuration options are:

- Disabled
- Enabled

Transfer Mode

When enabled, this option speeds up communication between the system and the IDE controller by using enhanced I/O transfer modes (PIO Modes). In order to make changes to this field, the Type field must be set to *User*.

Configuration options are:

- Standard
- Fast PIO 1
- Fast PIO 2
- Fast PIO 3
- Fast PIO 4

SMART Monitoring

This field allows you to enable the Self-Monitoring Analysis-Reporting Technology feature. This feature informs the system when a catastrophic IDE failure is imminent. During POST, the BIOS enables SMART Monitoring and checks for error conditions using the advanced technology employed by the Notebook's hard disk drive. Each time the hard drive is power managed, the BIOS checks SMART Monitoring. If it detects a failure prediction, BIOS saves the error and displays it during the next boot-up.

If BIOS detects an imminent failure, it issues the following message:

```
IDE Failure Prediction.
```

After using the legend keys to make your selections to this submenu, press the [Esc] key to exit back to the Main menu. When the Main menu appears, you will notice that the drive letter and the drive size appear in the Primary Master field for the hard drive you just configured.

▶ Primary Slave

The number value in this field indicates the size of your Notebook's primary slave Hard Drive. The arrow head icon ▶ indicates that this field contains a submenu. The submenu is used to configure an IDE Hard Disk installed in the system. To configure a hard disk drive, move the cursor to highlight the *Primary Slave* field, and press the [Enter] key. The *Primary Slave* submenu screen will appear. The fields and options on this submenu are the same as the *Primary Master* submenu described above.

After using the legend keys to make your selections to this submenu, press the [Esc] key to exit back to the Main menu.

▶ Secondary Master

The number value in this field indicates the size of your Notebook's secondary master Hard Drive. The arrow head icon ▶ indicates that this field contains a submenu. The submenu is used to configure an IDE Hard Disk installed in the system. To configure a hard disk drive, move the cursor to highlight the *Secondary Master* field, and press the [Enter] key. The *Secondary Master* submenu screen will appear. The fields and options on this submenu are the same as the *Primary Master* submenu described above.

After using the legend keys to make your selections to this submenu, press the [Esc] key to exit back to the Main menu.

▶ Secondary Slave

The number value in this field indicates the size of your Notebook's secondary slave Hard Drive. The arrow head icon ▶ indicates that this field contains a submenu. The submenu is used to configure an IDE Hard Disk installed in the system. To configure a hard disk drive, move the cursor to highlight the *Secondary Slave* field, and press the [Enter] key. The *Secondary Slave* submenu screen will appear. The fields and options on this submenu are the same as the *Primary Master* submenu described above.

After using the legend keys to make your selections to this submenu, press the [Esc] key to exit back to the Main menu.

▸ Keyboard Features

To configure the Notebook's keyboard features, move the cursor to highlight the Keyboard Features field. Pressing the [Enter] key at this point will reveal the following submenu:

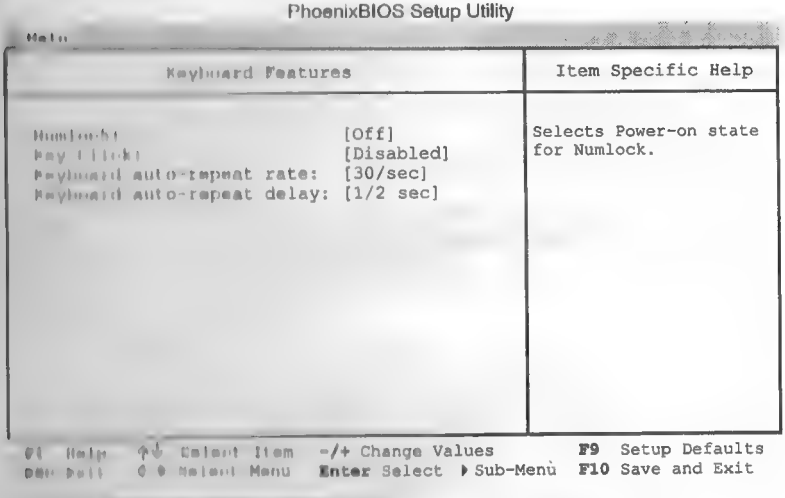


Figure 2-4. Keyboard Features submenu

NumLock

This field is used to configure the NumLock status on system power up. The default condition is *Disabled* so that the numeric keypad on the keyboard is turned off. Disabling the Numlock allows for normal keyboard usage. The keypad may still be accessed by pressing the [Fn] Keypad keys.

Configuration options are:

- Off (default value)
- On

Key Click

This field configures the key click feature. The default is "Disabled". If enabled, an audible clicking noise is produced by the system speakers each time a key is pressed.

Configuration options are:

- Disabled (default value)
- Enabled

Keyboard Auto Repeat Rate

This field configures the number of characters per second repeated when a key is pressed and held on the keyboard.

Configuration options are:

- 2/sec
- 6/sec
- 10/sec
- 13.3/sec
- 18.5/sec
- 21.8/sec
- 26.7/sec
- 30/sec (default value)

Keyboard Auto Repeat Delay

This field configures the minimum amount of time a key on the keyboard must be pressed and held to start repeating. Configuration options are:

- 1/4 sec
- 1/2 sec (default value)
- 3/4 sec
- 1 sec

After using the legend keys to make your selections for the Keyboard Features submenu, press the [Esc] key to exit back to the Main menu.

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 boot-up. You do not need to make changes to this field. This is a display only field.

Summary Screen

This field allows you to display the system configuration screen during boot-up. There are two possible settings:

- Disabled
- Enabled (default value)

Floppy Check

When enabled, this system seeks diskette drives during boot-up. This field can be set to *Disabled* to provide a fast boot and to reduce the possibility of damage to the heads. The options for this field are:

- Disabled
- Enabled (default value)

The Advanced Menu

Selecting *Advanced* from the menu bar displays the Advanced menu. Please see ***Figure 2-4***.

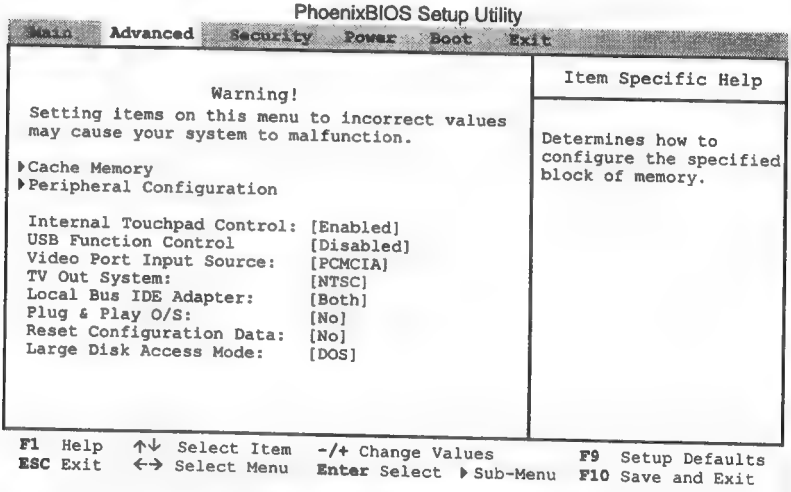


Figure 2-4: Advanced Menu

▸ Cache Memory

This field is used to configure the external 512K pipeline-burst memory cache located inside the Notebook. The CPU uses the external memory cache to store often used instructions and data for faster access thus improving overall system performance. To configure the Notebook's cache memory features, move the cursor to highlight the Cache Memory field and press [Enter] to reveal the following submenu:

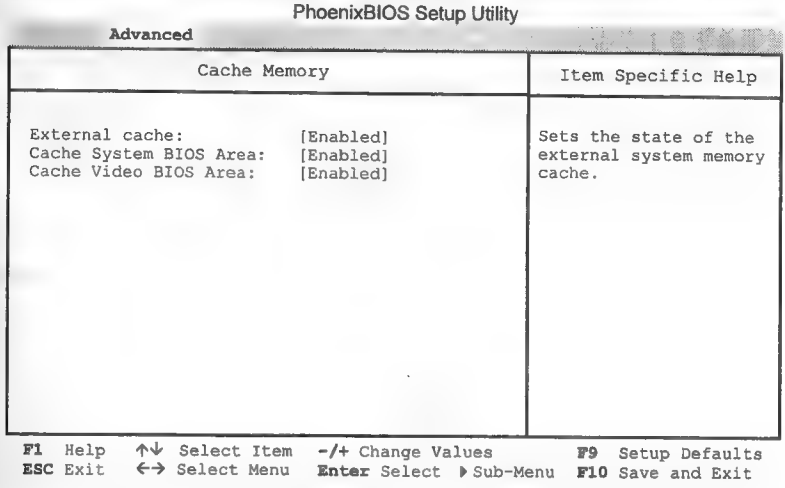


Figure 2-5: Cache Memory submenu

External Cache

This field is used to configure the status of the external cache.

Configuration options are:

- Disabled
- Enabled (default value)

Note: Disabling the external cache will cause overall system performance to decrease substantially.

After using the legend keys to make your selections for the Memory Cache submenu, press the [Esc] key to exit back to the Main menu.

Cache System BIOS area

This field is used to control the caching of the System BIOS area.

Configuration options are:

- Disabled
- Enabled (default value)

Cache Video BIOS area

This field is used to control the caching of the Video BIOS area.

Configuration options are:

- Disabled
- Enabled (default value)

After using the legend keys to make your selections for the Cache Memory submenu, press the [Esc] key to exit back to the Advanced menu.

▸ Peripheral Configuration

Pressing the [Enter] key when this field is highlighted calls up the following submenu:

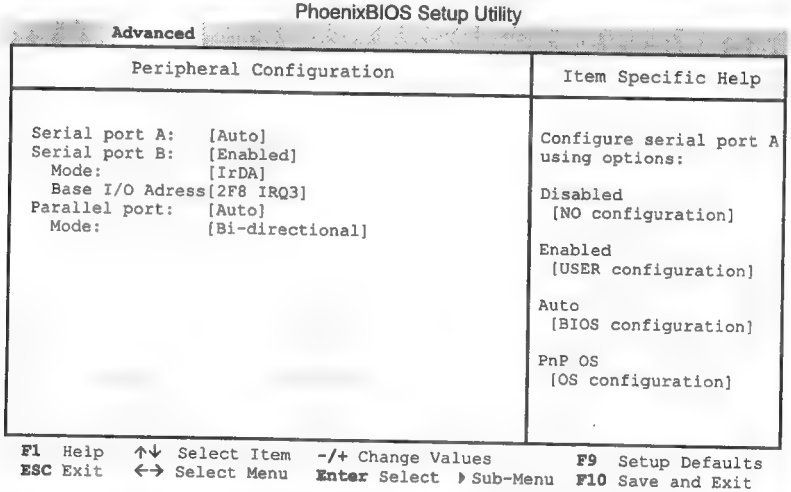


Figure 2-7: Peripheral Configuration submenu

This menu allows you to configure the Notebook's serial and parallel ports. Each field on this submenu is covered below.

Serial Port A

This field allows you to configure the Notebook's serial COM1 port. The following options are available:

- Auto (default value)
- PnP OS
- Disabled
- Enabled

When *Enabled* is selected, the Base I/O Address menu item appears.

Base I/O Address

When the Serial Port A field is set to *Enabled,* 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, IRQ 4 (default value)
- 2F8, IRQ 3
- 3E8, IRQ 4
- 2E8, IRQ 3

Serial Port B

This field allows you to configure the Notebook's serial COM2 port. The following options are available:

- Auto
- PnP OS
- Disabled
- Enabled (default value)

When *Enabled* is selected, the Base I/O Address menu item appears.

Mode

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

- Normal
- IrDA (default value)
- ASK-IR
- FIR

When *FIR* is selected, the DMA channel menu item appears.

The COM2 serial port is available for system use only if the serial IR is Disabled. FIR enables standard IrDA IR support on COM2.

Base I/O address

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

- 3F8, IRQ 4
- 2F8, IRQ 3 (default value)
- 3E8, IRQ 4
- 2E8, IRQ 3

This field is only available when the Infrared port is set to *Enabled.*

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 (default value)
- DMA 2
- DMA 3

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

Parallel Port

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

- Auto (default value)
- PnP OS
- Disabled
- Enabled

> *Note: Changing the default address and IRQ settings for COM1, COM2 and the LPT 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:

- Output Only
- Bi-directional (default value)
- EPP
- ECP

Output only mode allows data output only. However, 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.

EPP Mode: When the EPP mode is selected the standard and bi-directional modes are also available. The EPP operates on a two phase cycle. First the host selects the register within a device for subsequent operations. Second, the host performs a series of read and/or write byte operations to the selected register. There are four operations supported by EPP: Address Write, Data Write, Address Read and Data Read. All operations are performed asynchronously.

ECP Mode: The port is software and hardware compatible with existing parallel ports so that it may be used as a standard printer mode if ECP is not required. ECP mode provides an automatic high burst-bandwidth channel that supports DMA for ECP in both the forward (host to peripheral) and reverse (peripheral to host) direction.

Base I/O address

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

- 378h (default)
- 278h
- 3BCh

This field is only available when the Parallel port is set to *Enabled.*

Interrupt

Use this field to set the interrupt (IRQ) for the Parallel port. Available options are:

- IRQ5
- IRQ7 (default)

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 (default value)
- DMA 3

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

After using the legend keys to make your selections for the Peripheral Configuration submenu, press the [Esc] key to exit back to the Advanced menu.

Internal Touchpad Control

Enables or disables the Notebook's internal Touchpad.

Configuration options are:

- Enabled (default value)
- Disabled

USB Function Control

Enables or disables the Notebook's USB function.

Configuration options are:

- Enabled
- Disabled (default value)

Video Port Input Source

This function allows you to select the Video source. You can use the hot key combination [Fn] + [F10] to switch to *TV-Video*. Use the hot key combination [Fn] + [F9] to switch to *PCMCIA*. Both hot key combinations are disabled when you set this field to *Docking*.

Configuration options are:

- PCMCIA (default value)
- TV-Video
- Docking

TV Out System

This field allows you to choose either the NTSC or PAL TV standard.

Configuration options are:

- NTSC (default value)
- PAL

Local Bus IDE Adapter

Enables or disables the Notebook's integrated local bus IDE adapter.

Configuration options are:

- Disabled
- Primary
- Both (default value)

Plug & Play O/S

Specifies whether a Plug & Play capable operating system such as Windows 95™ is in use. Only enable this option if the system is using a Plug & Play capable operating system. Available configurations are:

- No (default value)
- Yes

Reset Configuration Data

Use this option to reset the configuration data after flashing the Notebook's BIOS. This option can also be used in the event that Windows 95 cannot resolve resource conflicts. Available configurations are:

- No (default value)
- Yes

Large Disk Access Mode

Specifies the type of operating system in use on the Notebook. The default, DOS, should be always used unless UNIX or Novell Netware is being used. Available configurations are:

- DOS (default value)
- Other

*Note: **Large Disk Access mode controls how the disk controller accesses the disk volume. Setting the option to Other may cause the hardware not to recognize DOS, Windows or other DOS based operating system disk formats.***

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 Setup. Selecting *Security* from the menu bar displays the following menu:

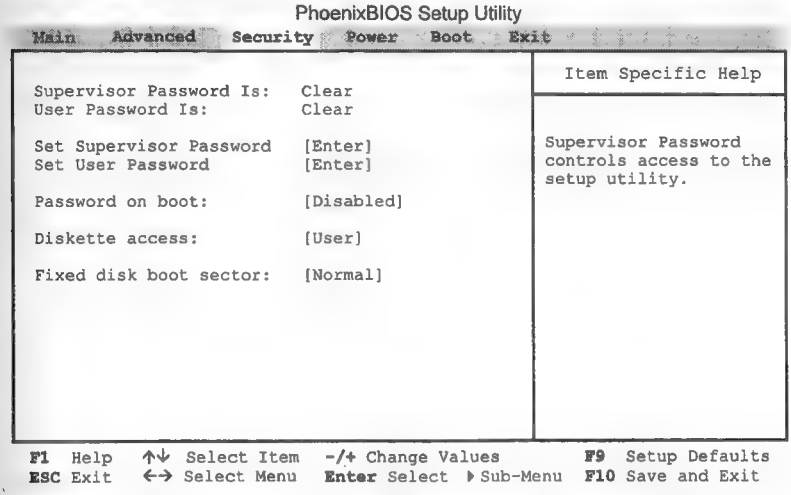


Figure 2-8: Security Menu

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. If a password is set, this field will read "Enabled". 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.

Supervisor Password Is

The BIOS Setup program allows you to specify two separate passwords: a *Supervisor* password and a *User* password. When disabled, anyone may access all BIOS Setup program functions. When enabled, the *Supervisor* password is required for entering the BIOS Setup program and having full access to all Security menu options.

This field indicates whether or not a Supervisor Password is set. If a Supervisor Password is set, this field indicates *Set*. If a Supervisor Password is not set, this field indicates *Clear*. This is a read only field.

User Password Is

When disabled, only the *Supervisor* password will allow access to the BIOS Setup program. When enabled, the *User* password allows access to the BIOS setup program but restricts access to the following Security menu options:

- Set Supervisor Password
- Diskette access
- Fixed disk boot sector

Set Supervisor Password

This field allows you to set the *Supervisor* password. To set the *Supervisor* password, highlight this field and press the [Enter] key. The following dialog box appears:

Set Supervisor Password		
Enter New Password :	[	]
Confirm New Password:	[	]

Type the password and press the [Enter] key. You can type up to seven alphanumeric characters. Symbols and other keys are ignored. To confirm the password, type the password again and press the [Enter] key. The *Supervisor* password is now set. This password allows full access to the BIOS Setup menus.

To clear a password, highlight this field and press the [Enter] key. The same dialog box as above will appear. Press the [Enter] key twice. The password is now cleared.

Set User Password

This field allows you to set the *User* password. To set the *User* password, follow the same instructions for setting the *Supervisor* password. The *User* password allows restricted access to the Setup menus. This password also requires that the *Supervisor* password be set prior to setting the *User* password.

Password on Boot

This option requires prior setting of the *Supervisor* password to function. When enabled, the system will then require either the *Supervisor* or *User* password before the system can bootup. The options for this field are:

- Disabled (default value)
- Enabled

Power Management Security

This option requires prior setting of the *Supervisor* password to function. When enabled, the system will then require either the *Supervisor* or *User* password before allowing access to the system when resuming from Save to Disk. Furthermore, boot from diskette or CD-ROM will be disabled. The options for this field are:

- Disabled (default value)
- Enabled

Diskette Access

This option requires prior setting of the *Supervisor* password to function. When set to User, the system will then require either the *Supervisor* or *User* password before allowing access to the Floppy Disk Drive (FDD). When set to Supervisor, only the *Supervisor* password will allow access to the FDD. The options for this field are:

- User (default value)
- Supervisor

Fixed Disk Boot Sector

This option requires prior setting of the *Supervisor* password to function. When set to Normal, the system will allow normal access to the HDD boot sector. When set to Write protect, the BIOS blocks all accesses to the boot sector.

The options for this field are:

- Normal (default value)
- Write Protect

> *Note: Write protecting the HDD boot sector will protect the HDD against boot sector viruses. However, this option may interfere with the normal operation of certain operating systems or anti-virus programs which would normally need access to the boot sector area.*

The Power Savings Menu

The Power Savings 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 Savings* from the menu bar. The following menu appears:

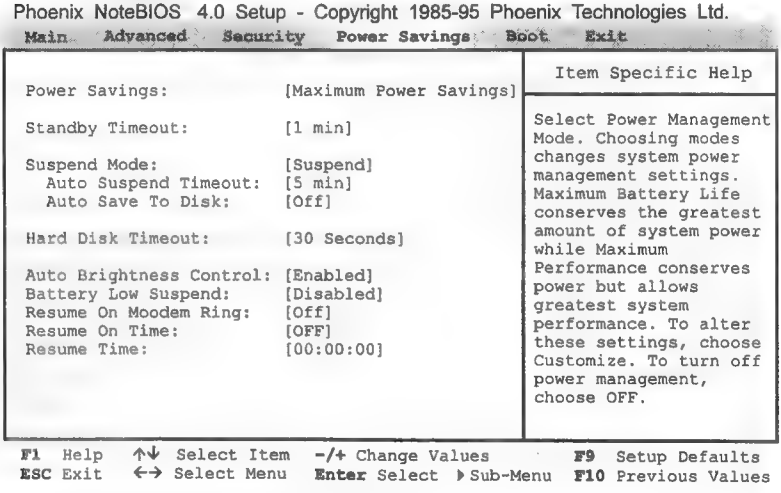


Figure 2-9: Power Savings Menu

Power Savings

This option must be enabled to use any of the automatic power saving features. The options for this field are:

- Disabled
- Customized
- Maximum Power Savings (default value)
- Maximum 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 set to *Maximum 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.

When this field is specified as *Maximum Performance*, best 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 power savings.

Standby Timeout

This field 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:

- Off
- 1 Minute (default value)
- 2 Minutes
- 4 Minutes
- 6 Minutes
- 8 Minutes
- 12 Minutes
- 16 Minutes

If APM is installed, this function will be controlled by APM and may function differently depending on the APM settings.

Suspend Mode

This field determines whether the Notebook will save its CPU status and Suspend to its lowest power consumption mode or Suspend to disk and power off. Available options for this field are:

- Suspend (default value)
- Save To Disk

Auto Suspend Timeout

This field determines how much system idle time must pass before the system enters Suspend mode. When set to *Off*, the system cannot enter Suspend mode which is the lowest power state for the Notebook. The possible settings for this field are as follows:

- Off
- 5 Minutes (default value)
- 10 Minutes
- 15 Minutes
- 20 Minutes
- 30 Minutes
- 40 Minutes
- 60 Minutes

Auto Save To Disk

This field determines whether the Notebook continues to stay in Suspend mode indefinitely or whether the system saves to disk and powers down the Notebook after 1 hour of inactivity in Suspend mode. The possible settings for this field are as follows:

- Off (default value)
- After 1 hour

Hard Disk Timeout

This field allows you to specify the period of inactivity required before the hard disk spins down and enters the Standby (motor off) state. The possible options for this field are:

- Disabled
- 10 Seconds
- 15 Seconds
- 30 Seconds (default value)
- 45 Seconds
- 1 Minute
- 2 Minutes
- 4 Minutes
- 6 Minutes
- 8 Minutes
- 10 Minutes
- 15 Minutes

Auto Brightness Control

When this feature is enabled the auto brightness control becomes active, resulting in an increase in battery life.

Battery Low Suspend

The field allows you to enable the Battery Low Suspend option. If this option is enabled, when the battery reaches a low charge the system will automatically Suspend to RAM or Save to Disk depending on which mode is selected in the *Suspend Mode* option of the Power menu.

Resume On Modem Ring

When this field is set *On*, a modem ring will cause the system to resume from Suspend mode.

- Off (default value)
- On

Resume On Time

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

- Off (default value)
- On

If you set this field to *On*, you must also set the *Resume Time* field.

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 PM by setting this field with a value of 13:00 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 and the following screen appears:

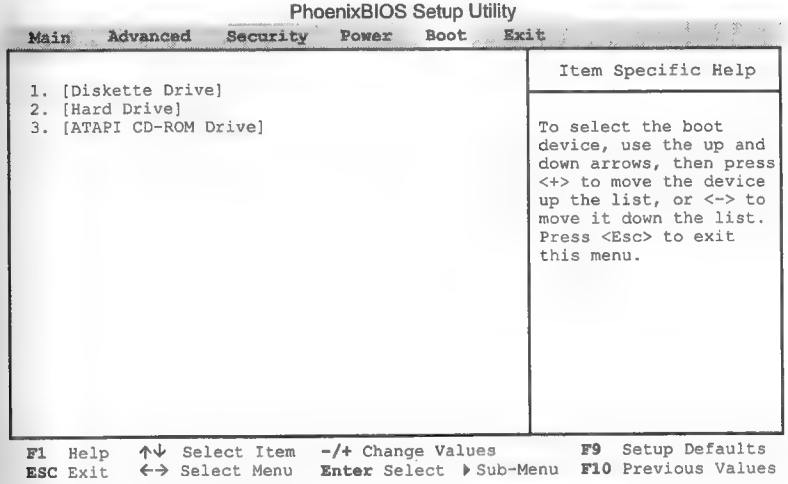


Figure 2-10: Boot Menu

Boot Sequence

The Boot Menu allows you to use the up and down arrow keys to select among the three possible boot devices listed. By using the [+] and [-] keys, it is possible to alter the priority the system uses to search for the boot device on system power up in 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:

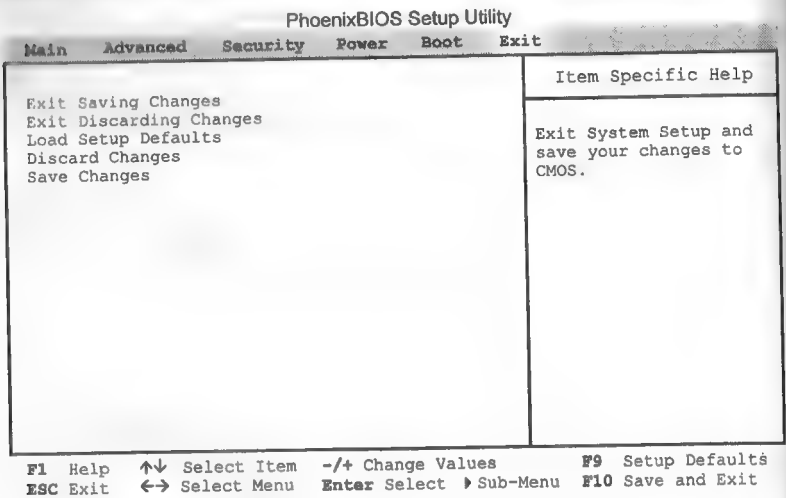


Figure 2-11: Exit Menu

> ***Note: 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.***

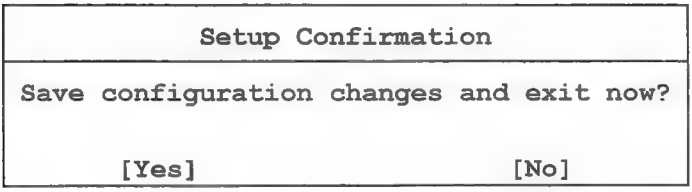
Each of the options on this menu is described below.

Exit Saving Changes

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 sus-

tained by an on-board battery and stays on even when the Notebook is turned off.

Once this option is selected, the Setup program displays the following message:



Select *Yes* to save changes and exit.

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 as described below.

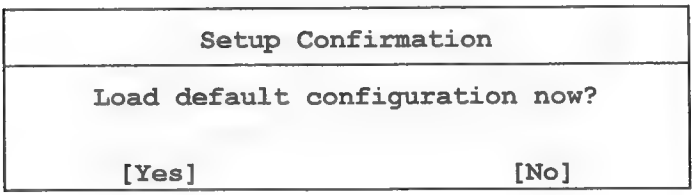
*Note: **If you attempt to exit the Setup program without saving your changes, the program will prompt you with a message asking if you want to save your changes before exiting.***

Exit Discarding Changes

This option should only be used if you do not want to save the changes you have made to the Setup program. 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 Setup 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:

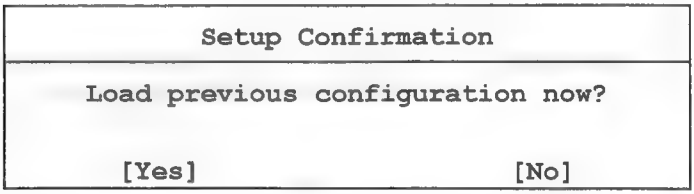


Select *Yes* to load default values.

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

Load Previous Values

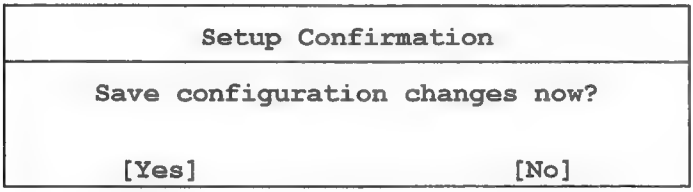
This option allows you to discard the selections you've made and restore the values you previously saved. After selecting this option, all selections are updated, and the following message is displayed:



Select *Yes* to discard any changes and load the previously saved values.

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:



Select *Yes* to save any changes to Non-Volatile RAM.

This concludes Chapter Two. The next chapter covers operation of the Notebook.

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CHAPTER 3
OPERATION

Introduction

This chapter provides information pertaining to the keyboard, how the System Window symbols help you to diagnose or determine any of the specific computer activities going on at a given time, and a description of the Notebook's audio features.

Some Important Keys On The Keyboard

Your Notebook computer features a low-profile keyboard that emulates all the functions of a full-size 104/105-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 which you will commonly use when working with either the Disk Operating Software 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 Disk Operating System Software or other application software, such as word processors, spread sheet applications, or database management programs.

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

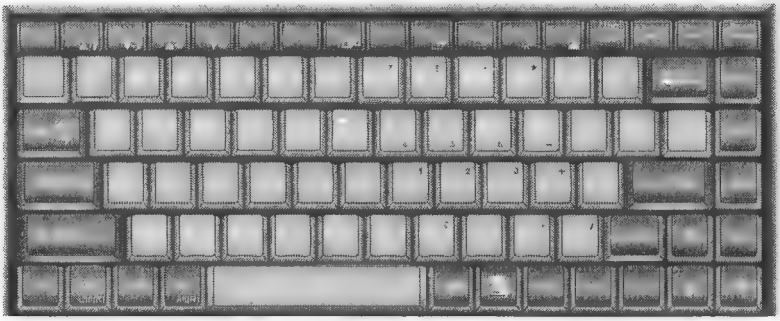


Figure 3-1: The Keyboard Layout

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. **[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. To use SysRq, press the [Fn] key and the [PrtSc/SysRq] key together.
3. **[Scroll Lock]:** This key is located above the Back Space key and between the [PrtSc/SysRq] and [Pause/Break] keys. When Scroll Lock is engaged, pressing the cursor control keys moves the cursor by fields of text. Strike the Scroll Lock key once to engage this mode. Striking it a second time will disengage the Scroll Lock function.
4. **[Pause/Break]:** The Break key is used in conjunction with the Control key ([Ctrl] + [Break]) to cancel a command.

5. **[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 Status symbol comes on in the System Window display.
6. **[Shift]:** Similar to the typewriter's Shift key, this key allows you to type letters in "UPPER CASE."
7. **[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. Pressing [Ctrl] only is equal to pressing the left [Ctrl] key on a full-size 104/105-key keyboard. Pressing [Fn] + [Ctrl] is equal to pressing the right [Ctrl] key on a full-size keyboard.
8. **[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. Pressing [Alt] only is equal to pressing the left [Alt] key on a full-size 104/105-key keyboard. Pressing [Fn] + [Alt] is equal to pressing the right [Alt] key on a full-size keyboard.
9. There are three special Windows 95™ keys on the keyboard. The key with the Window 95™ Logo activates the Start menu button on the bottom left of the screen. The other key which looks like a menu with a small arrow activates the properties menu and is equivalent to pressing the left mouse button while pointing at any object on the Windows desktop.

The Notebook Function [Fn] Key

Besides the above keys there is a special purpose [Fn] key, located just beside the [Ctrl] key. It is used in combination with other keys to adjust the following Notebook features:

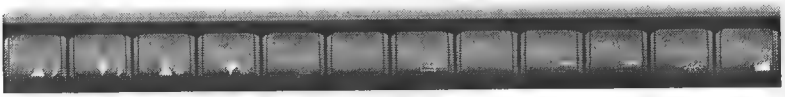


Figure 3-2: The Function Keys

1. [Fn] + [F1] : to increase contrast (not available on TFT color display panels).
2. [Fn] + [F2] : to decrease contrast (not available on TFT color display panels).
3. [Fn] + [F3] : to increase brightness.
4. [Fn] + [F4] : to decrease brightness.
5. [Fn] + [F5] : to switch to TV display.
6. [Fn] + [F6] : reserved
7. [Fn] + [F7] : to switch among LCD, external monitor, and simultaneous displays.
8. [Fn] + [F8] : to toggle the Expand Mode function On/Off.
9. [Fn] + [F9] : to set the zoom video source to PCMCIA
10. [Fn] + [F10] : to set the zoom video source to TV
11. [Fn] + [F11] : to suspend manually into power management.
12. [Fn] + [F12] : to toggle the Battery Gas Guage On/Off
13. [Fn] +[Num Lock] : to disable the numeric keypad on the Notebook keyboard only if both the external and the Notebook keyboards have Num Lock enabled.

The Function Keys

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

Embedded Numeric Keypad

The embedded numeric keypad consists of 15 keys that make number intensive input more convenient. These keys are labeled in blue on the keycaps. Numeric assignments are located at the upper right of each key as shown in ***Figure 3-1***. When the numeric keypad is engaged, the NumLock icon will appear in the System Window. The keypad is activated by pressing the [Num Lock] key. If an external keyboard is connected, pressing the NumLock key on either the Notebook or external keyboard will enable/disable NumLock of both keyboards in unison. To disable the Notebook numeric keypad while keeping the keypad on an external keyboard activated, use the [Fn] + [Num Lock] hot key on the Notebook keyboard.

System Window Display Panel

The System Window

Located above the keyboard, the System Status Display Panel informs you of the Notebook's current operating status at a glance. Upon activating a certain function, an LED symbol or icon corresponding to that function will light up, indicating that that particular function is engaged. The icon will remain in on until you deactivate that function.

Figure 3-3 shows the System Status Display Panel with all of the icons that can be displayed. Each of the icons in the System Window is described below.

Figure 3-3: System Window Display Panel

PMU

The faucet icon indicates that the power management system is enabled. The power management system is set using the system BIOS during boot-up. This icon will light when the system enters Suspend mode. Refer to the section in Chapter Two on Setting up Power Management for more details.

HDD Activity

Indicates when lit that the hard disk is being accessed.

FDD Activity

Indicates when lit that the system is accessing the floppy disk drive.

PCMCIA Activity

Indicates when lit that a PCMCIA card is inserted in the slot.

Caps Lock

Indicates that [Caps Lock] is activated.

Num Lock

Indicates that [Num Lock] is activated.

Scroll Lock

Indicates that [Scroll Lock] is activated.

AC Power Status

This icon indicates that AC power is being supplied to the Notebook.

Left Battery Indicator

This icon indicates the status of the left battery pack. For a detailed explanation of the meaning of the battery icons, please refer to Chapter Five.

Right Battery Indicator

This icon indicates the status of the right battery pack. For a detailed explanation of the meaning of the battery icons, please refer to Chapter Five.

Low Power Battery Status

When a battery icon begins flashing, battery power has reached its lowest point. Failure to save your data at this point could result in a loss of data.

Pointing Device

Touchpad Drivers and Utilities

The Notebook's integrated Touchpad is compatible with the PS/2 mouse. A device driver is not required for working with application software that supports PS/2 mouse operation. See the utility diskettes that were bundled with your Notebook for device drivers of applications which require a mouse driver, and utilities that provide added features when using supported applications.

To install for Windows:

1. Insert the Touchpad driver utility diskette into the floppy drive.
2. Run the "Setup" file.
3. Instructions covering installation will be displayed. Follow the instructions to install the Touchpad drivers and utilities.

Refer to the README text files on the diskette for further information on installing and using the Touchpad drivers and utilities.

Using the Touchpad

The Touchpad is a pressure sensitive pointing device that provides all the features of a two-button mouse. Its primary function is to move the cursor around the screen.

The instructions listed below describe how to use the Touchpad.

1. First, place your fingers on the keyboard in the normal typing position. The Touchpad is easily accessible by moving either your left or right thumb off the space bar and on to the Touchpad.

2. Gently move your thumb across the pressure-sensitive Touchpad in the direction you want the cursor to move. The pad detects the change in pressure and moves the cursor in the corresponding direction.
3. With a conventional mouse, selections are usually made by double-clicking the mouse's left button. The Touchpad also supports this feature. It is described in more detail below.
4. The Touchpad offers another method of making selections in a software program. It is called *double-tapping*. This function corresponds to double-clicking with a mouse. Once the cursor has been moved to the object you want to select, *lightly* double-tap the pressure sensitive Touchpad itself. This double-tapping on the Touchpad will select the desired item and prompt the software to perform the related operation.

The buttons located to either side of the Touchpad are essentially the same in function as those on a two-buttoned mouse. 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 left button one time. The function of these buttons are software specific.

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

The Floppy Disk Drive

Your Notebook features a high-density 3.5" floppy disk drive. The floppy disk drive interfaces with the rest of the Notebook's system via a disk drive controller. The disk drive controller is an integral part of the computer's main board architecture. The disk drive transfers data between the diskette and memory as requested by the system. The floppy drive is designated drive A by the operating system. The FDD module can be replaced with a DR-36 compatible battery pack. The Notebook comes with an external FDD cable. Using this cable, the FDD module can be removed and attached to the external FDD connector at the rear of the Notebook.

Using Floppy Diskettes

The floppy diskette is the most widely used data storage medium for transferring data from one PC to another. When you insert the diskette in the drive, the diskette's metal shutter automatically opens.

When the system accesses a diskette, the floppy diskette drive spins the disk under the read/write head. The read/write head then locates the proper position on the disk and performs the requested operation.

Depending on the operation performed, the read/write head detects or alters the magnetic orientation of the ferric oxide particles that coat the Mylar disk. The read/write head can carry out four basic operations as prescribed by the disk operating system (DOS):

- **read** data currently stored on the diskette
- **write** new data to the diskette
- **erase** data from the diskette
- **format** a diskette

> ***Note: For a detailed description of the DOS commands related to disk drive operation, refer to your DOS User's Guide.***

Your Notebook's floppy disk drive accepts both 720KB double-density (DD) diskettes and 1.44MB high-density (HD) diskettes. These diskettes are sometimes labeled by the manufacturer as double density 1.0MB and high-density 2.0MB diskettes. These labels, however, indicate the unformatted capacities of the diskettes.

When working with diskettes, it is easy to accidentally erase the data stored on them. Make backup copies of all software installation diskettes and other important diskettes. Your originals will serve as archive copies so store them in a safe place. Work only with the write-protected backup copies. One of the easiest ways to make backup copies is to use the DISKCOPY command. Refer to your *DOS* or *Windows 95 User's Guide* for instructions on using the DISKCOPY command.

Inserting and Removing Diskettes

To insert a floppy diskette into the floppy drive, carry out these steps:

1. Hold the diskette with the drive wheel facing down and the metal shutter end with the arrow towards the drive.
2. Insert the diskette into the drive slot and gently push it into the drive.
3. When the diskette clicks into place the eject button will pop out. The diskette is now ready.

> *Note: New diskettes must be formatted by the disk operating system (DOS) before they can be used for storing data. Refer to your DOS or Windows User's Guide for detailed information on formatting floppy diskettes.*

To remove a diskette from the drive, follow these steps:

1. Ensure that the FDD icon in the System Window display panel is not lit. Never remove a diskette from the drive when the icon is present as this may damage both the diskette and the floppy drive read/write head.
2. Push the diskette eject button.
3. When the diskette pops out, remove it from the drive slot and store it in a cool, dry place.

The CD-ROM

This section covers the information you need for playing both CD-ROM titles and music CDs.

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

The CD-ROM drive employs sophisticated laser and drive technology, yet requires very little maintenance. The CD-ROM drive allows you to run the latest multimedia CD titles providing a new educational and entertainment dimension to your personal computing experience.

The CD-ROM module can be replaced with a compatible DR-36 battery pack.

Features of the CD-ROM Module

The features of the CD-ROM drive are listed below.

- The Audio Play feature allows you to play music CDs
- Front panel load/unload button
- 20 speed or greater
- 290 msec. ATAPI/IDE Interface for high-speed performance
- 640 MB capacity
- MSCDEX compatible
- Supports CD-DA, CD-ROM mode 1 and mode 2, Multi-Session Photo CD™, CD-I/Video CD (ps.)
- . Low power consumption

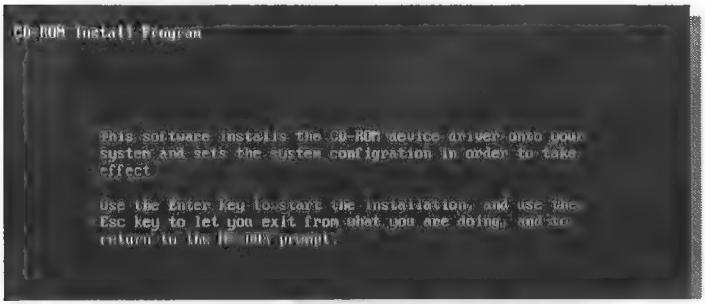
Toshiba CD-ROM Device Driver Installation

Before you can use the CD-ROM, you must first install the CD-ROM device driver. This device driver can be found on the utility diskette labeled **CD-ROM Driver** that came bundled with the Notebook.

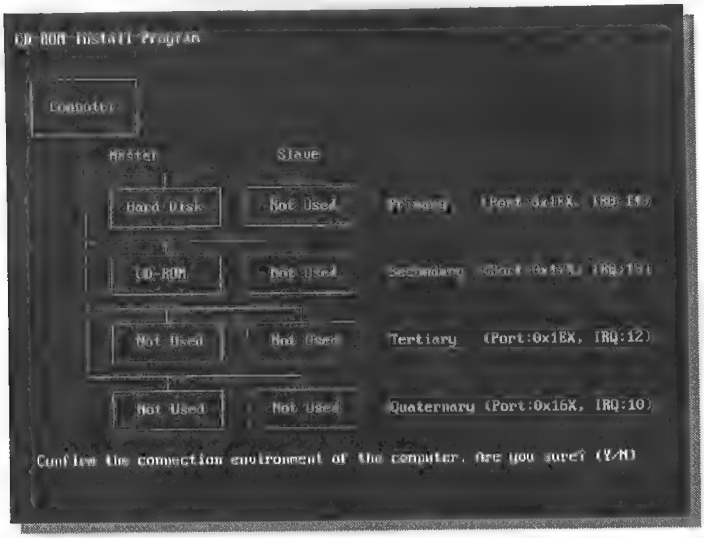
Toshiba CD-ROM Device Driver Installation (Windows 3.1)

To install the CD-ROM driver for the Toshiba CD-ROM, please follow these steps:

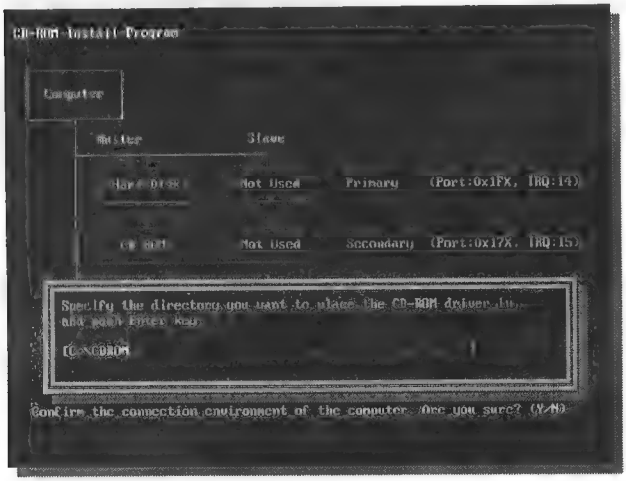
1. At the DOS prompt, insert the Utility Diskette 17 labeled "Toshiba CD-ROM Driver" into drive A.
2. At the DOS prompt change to drive A.
3. Change the directory to A:\CDROM\
4. Type INSTALL and press [Enter]. The Toshiba CD-ROM driver installation program will start.
5. The first screen is an introduction to the CD-ROM installation program.



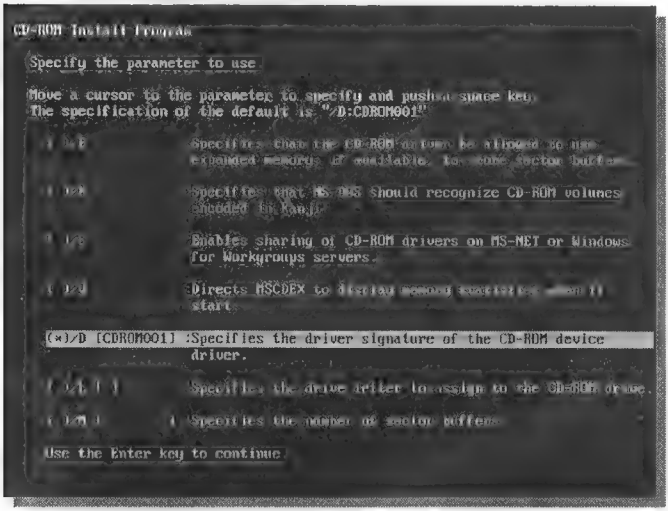
6. Press [Enter] to continue. The second screen prompts you to confirm the computer's environment settings.



7. Verify that the settings are correct and press [Enter]. The next screen asks you to specify the directory for the CD-ROM driver program files

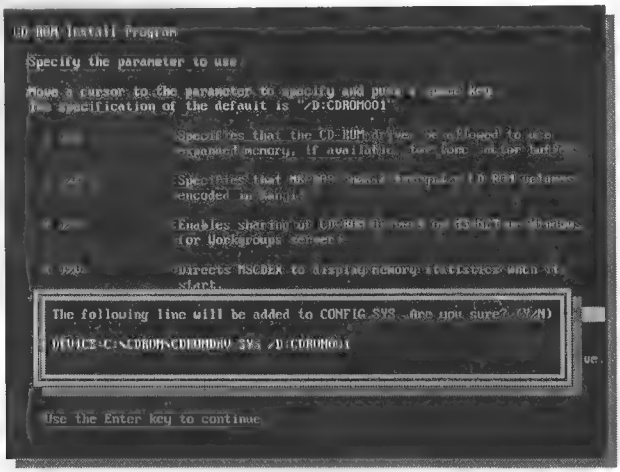


8. To accept the default directory location, press the enter key. If you want to choose a different directory in which to install the CD-ROM program files, press [N]. Use the backspace key to erase the default directory name. Type in a new directory name and press [Enter]. The next screen prompts you to specify the CD-ROM driver parameters.

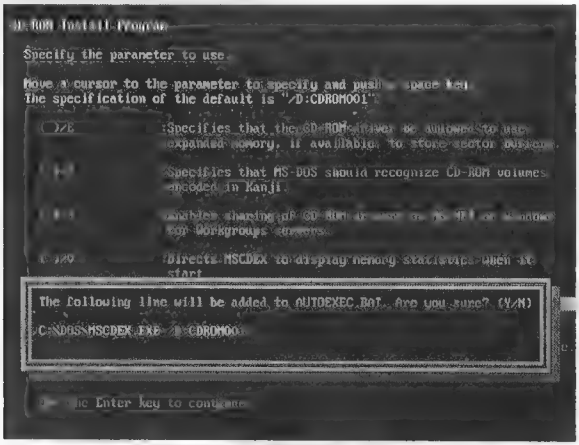


9. Move the highlight down to the default value "(*)/D:CDROOM001" and press [ENTER]. The next screen will prompt you to allow the setup program to add a line to the configuration system file (config.sys).

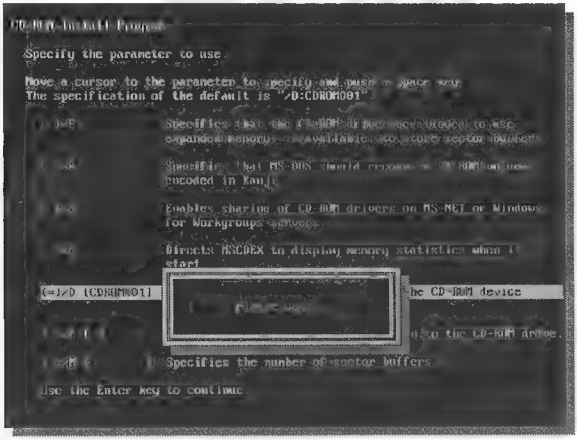
Note: Do not choose any of the other parameters. The CD-ROM driver will not operate using the other parameters listed in the illustration above.



10. Press [Enter] to allow the installation program to add the line to the configuration system file. The next screen will prompt you to allow the program to add a line to the automatically executed batch file (AUTOEXEC.BAT).



11. Press [Enter] to allow the installation program to add the line to the AUTOEXEC.BAT file. The next screen prompts you to wait for the installation program to finalize system settings.



12. When the installation program has finalized system settings, the following screen will appear.

13. Press [Enter] to quit the installation program and return to the DOS prompt or Windows 3.1. Restart the computer to enable the CD-ROM drive. The installation of the Toshiba CD-ROM device driver is now complete.

Playing a Video CD

If you haven't already done so, install a Video CD playback program and run it to execute the file(s) you want to play. When a control panel appears, pull down the file menu to select a file to play.

> *Note: If your Video CD is MPEG encoded, you can install software complying with MPEG standard-1 to playback an MPEG encoded Video CD.*

The FIR Module

The Notebook is equipped with a Fast Infrared (FIR) communication module located on the rear side of the Notebook. If you are having trouble finding this module, please see ***Figure 1-4***. The FIR 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 in the form of pulses of infrared light. The receiver picks up pulses of infrared light transmitted by other FIR modules.

The FIR module enables you to perform wireless, serial communication. Use an FIR-specified application to transmit or receive data via the Notebook's FIR module. Follow the guidelines listed below when using the Infrared Communication module to transmit or receive data.

- Make sure the Infrared Communication field in the BIOS Setup program is set to FIR. Refer to Chapter Two for information on the BIOS Setup program.
- Ensure that the Notebook's FIR module is properly lined up with the other device's Infrared Communication module. The angle between the two Infrared Communication modules should not exceed ±15°.

- There should be a clear, unobstructed path between the two Infrared Communication modules; otherwise the optical signal will be blocked. Likewise, do not place anything between the two Infrared Communication modules during data transmission.
- Make sure the distance between the Notebook's FIR module and the other device's Infrared Communication module does not exceed one meter.
- Do not move either the Notebook or the other device during transmission of data, otherwise data transmission will be distorted resulting in loss of data or a system crash.
- An error can occur if FIR transmission is conducted in an environment with high levels of noise. To avoid transmission errors do not transmit Infrared Communication signals near equipment with compressors, such as refrigerators or air conditioners.

FIR Device Driver and Utilities

To install the FIR device driver for Windows 95/OSR2:

1. Insert the FIR installation diskette (Utility Diskette 8).
2. Copy all of the file on the diskette to the Notebook's hard disk and run W95IR.EXE to extract the files to C:\MSIR20.
3. Run SETUP.EXE from the C:\MSIR20 directory.
4. Run RELNOTES.EXE for more help.
5. After you have finished copying and extracting the files. Double click the "Add New Hardware" icon from the "Control Panel," select "No" when the system prompts you to search for new hardware.
6. Select Ports (COM & LPT).
7. Set the path to C:\MSIR20 when the system prompts you for the location of the FIR driver.
8. Select the "SMC IrCC (Fast Infrared)" and follow the instructions on the screen.
9. Select SMCIRLAP.INF at C:\MSIR20 and click the right button of the Touchpad to install it.
10. Reboot the computer.

FIR Default Setting	IO/Base	IRQ	Fast IO/Base	DMA
	2F8h-2Ffh	3	240h-248h	0

Audio 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 digital audio generator that produces realistic, music and human voice sounds in 16-bit stereo. A MIDI wavetable generator and 1MB of on-board ROM store instrument samples to allow playback of MIDI files with realistic instrument sounds. MIDI files are of much higher quality than sound files recorded using outdated FM synthesis methods.

The Notebook audio system also features SRS 3D Surround Audio which enhances the stereo separation of a stereo output signal and widens the sound field. The widened sound field gives the illusion of sounds coming from a larger spatial area than what the stereo speakers could possibly project. For the best 3D audio results, powered external speakers are recommended.

The Notebook is equipped with internal stereo speakers, a sensitive unidirectional microphone, and both input and output audio ports for external audio units. An external microphone can be connected to the microphone jack. External speakers or headphones can be connected to the Notebook's Audio-out jack. All audio features are software controlled.

The audio utility diskettes bundled with the Notebook contains several AudioDrive application programs that run under both the DOS and Windows environments. 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 multimedia sound system includes the following features:

- An FM sound generator capable of reproducing a variety of 16-bit sounds. Compatible with many applications that use the digital voice channel to create special effects and deliver realistic human speech.
- An MPU-401 MIDI interface supporting 16-byte FIFO for both input and output.
- A General MIDI compatible MIDI wavetable synthesizer capable of producing 128 instrument sounds, 47 percussion sounds and digital Reverberation and Chorusing effects. The synthesis engine can generate up to 32 simultaneous notes. All instrument samples are stored onboard the wavetable sample ROM.
- SRS 3D Surround Audio provided by onboard hardware.
- A built-in unidirectional microphone input which uses AGC (Automatic Gain Control) that adapts to different recording conditions by compressing sound input.
- Digitized audio recording through the Notebook's built-in microphone or any external source.
- Dynamic filtering reduces noise and distortion rate.
- A built-in stereo speaker system.
- Integrated power amplifier for analog output and volume control for both record and playback.
- Audio compression ratio of 4:1, allowing the creation of files that can be easily stored on a floppy diskette or even sent through a network.
- Audio applications are compatible with Microsoft Windows 3.x/Windows 95 and comply with Windows 3.x/Windows 95 Object Linking and Embedding (OLE) requirements.

Audio Control Buttons

Your Notebook is equipped with several audio control buttons and LED status indicators. Each button and its indicator are described below.

▲	Hold down this button to increase the speaker volume. Release the button once the desired volume level is reached.
▼	Hold down this button to decrease the speaker volume. Release the button once the desired volume level is reached.
	Press this button to mute the speaker output. When mute is activated the LED indicator lights and the mute icon appears in the right hand corner of the Windows 95 status bar.

Audio Application Software

The Notebook includes one diskette which contains audio software and device drivers for both Windows 3.x and Windows 95. The Notebook's audio system supports many third party software applications. Check the third party software manual to select the audio device driver, or follow the program's instructions for choosing the correct device driver.

To install the Audio Driver and utilities for Windows 3.x:

1. Insert the Audio Driver Installation diskette (Utility Diskette 11).
2. Open File Manager.
3. Switch to drive A: and select the "SETUP" icon.
4. Follow the instructions on the screen. Disk 2 is labeled Utility Diskette 12.

To install for Windows 95/OSR2:

1. Insert the Audio Installation diskette (Utility Diskette 2).

2. Run A:\SETUP.EXE from the DOS prompt or from the Start menu.
3. Follow the instructions on the screen.
4. Remove "Utility Diskette 2" from the floppy disk drive and select "Restart" from the "Complete Installation" menu.
5. After restarting the system, insert "Utility Diskette 2" again for the Update Device Driver Wizard.
6. When the "Insert Disk" pop-up menu appears, press "OK" and type "A:" in "Copying Files...".

Refer to the Audio Manual for further information on installing and using the audio device drivers and utilities.

To install the audio device driver for DOS:

1. Boot from the MS-DOS operating system.
2. Insert the DOS Audio Driver Installation diskette (Utility Diskette 3).
3. Switch to drive A: and type "SETUP" and press [Enter].
4. Follow the instructions on the screen.

To install the audio utilities for DOS:

1. Boot from the MS-DOS operating system.
2. Insert the Audio Utility diskette (Utility Diskette 10).
3. Switch to drive A: and run the utilities from your diskette. You may want to copy the utilities to the Notebook's hard drive and run them from there.
4. Follow the instructions on the screen.

Video Display Drivers and Utilities

The Notebook comes with enhanced display drivers and utilities for Microsoft Windows 3.x/Windows 95.

To install for Windows 3.x:

1. Insert the video display device drivers utility diskette (Utility Diskette 13) into the floppy drive.
2. Open File Manager.
3. Run SETUP.EXE from the floppy drive.

4. Follow the instructions on the screen.

To install for Windows 95/OSR2:

1. Insert the video display device drivers utility diskette (Utility Diskette 1) into the floppy drive.
2. Open up Control Panel and select the "System" icon.
3. Access the "Device Manager" tab and choose "Display Adapters."
4. Open up "Properties" for the default VGA driver "Standard PCI Graphics Adapter (VGA)" and select "Update Driver...." from item Driver.
5. Install the new video driver from Utility Diskette 1. You can use browse to select the driver you need, then click "OK".
6. Follow the instructions on the screen.
7. When the "Insert Disk" pop-up menu appears, press "OK" and type "A:" from "Copying Files...".

To install for Windows NT:

1. Boot NT and log on as the administrator (or anyone who has administrator privileges).
2. Run "Control Panel" and open the "Display apple" and change to the "Select" tab.
3. Select "Display type....".
4. Select "Change...."
5. Select "Have Disk...."
6. Insert the Display Installation diskette (Utility Diskette 1) into the floppy disk drive. Under the a:\NT4VGA directory, open the "NeoMagic" file name and select "OK".
7. Click "OK" to install the NeoMagic MagicGraph 128/V/ZV driver.
8. Click "Yes" to confirm you are installing a third-party driver.
9. Click "OK" to shut down the system and reboot.

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

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 sockets for connecting industry standard PCMCIA cards and stereo jacks for connecting external audio equipment. For added expansion and versatility, you can connect your Notebook to an optional Docking Station via the 204-pin connector located in back 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 peripheral devices to your Notebook

Additional Equipment You Can Use

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 ***Figures 1-1, 1-5, 1-6 and 1-7*** of Chapter One to identify the following I/O ports.

- One FIR port
- One parallel port
- One serial port
- An external monitor connector
- An external keyboard or PS/2 mouse connector
- Two PCMCIA slots
- An external microphone connector
- A Line Out audio jack
- A Line In audio jack
- Two USB connectors
- One Game/MIDI Port
- One TV Input RCA Jack
- One TV Output RCA Jack
- One Voice/Fax/Modem port (Optional)
- One external FDD connector

FIR Module

The Notebook is equipped with a Fast Infrared (FIR) communication module located on the rear side of the Notebook. If you are having trouble finding this module, please see ***Figure 1-6***. The FIR module enables you to perform wireless, serial communication. Use an FIR-specified application to transmit or receive data via the Notebook's FIR module.

Note: The FIR option is the default IR mode in the Setup program. If you are having trouble with FIR transmissions, ensure that this option is enabled in the Setup program. Refer to Chapter Three for more information on using the FIR communication module.

Parallel Device

Refer to ***Figure 1-7*** to locate the parallel port. This port uses a 25-pin connector, allowing you to attach any equipment that is compatible with this connector standard. The parallel port is most commonly used for connecting a printer. The Notebook's parallel port supports both EPP and ECP capabilities.

Note: 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.

Serial Device

Refer to ***Figure 1-7*** to locate the serial port. This port is a standard 9-pin serial port. Any device that uses this standard can be connected to this port. For example, most pointing devices such as a mouse or graphics tablet can be directly connected to this port. External modems or fax/modems will usually employ a standard cable. If you have any doubt about the cables required for equipment you plan to purchase, you should consult your Notebook dealer to ensure that you have the correct cables.

External Monitor

The Notebook has a port for connecting an external VGA monitor. Refer to ***Figure 1-5*** to locate the VGA port. It is a standard 15-pin analog connector commonly used with VGA monitors. The display output of the computer supports standard VGA colors and resolutions on a color monitor.

External Keyboard or PS/2 Mouse

The 6-pin mini DIN port at the right side of the Notebook allows you to attach a full-sized enhanced keyboard or PS/2 mouse. Refer to ***Figure 1-1*** to locate this port.

You can use any standard PS/2 101/102-key enhanced keyboard or 104/105-key Windows 95 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. Both the touchpad and an external PS/2 mouse can be used simultaneously.

External Mic and Speaker Out

There is a built-in microphone located on the front of the notebook. Please see ***Figure 1-1*** if you are having trouble locating the microphone. You can use it to record voice, sound, and music. There are also three audio jacks: a stereo Line In, a stereo Line Out, and an external microphone jack. Please refer to ***Figure 1-6*** to locate these audio jacks. The external microphone jack is used for connecting an external microphone. You can connect external powered stereo speakers or headphones to the stereo Line Out jack.

USB Device

The USB connector features two ports. Please refer to ***Figure 1-6*** to locate the 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 these ports.

Connecting External Devices

Connecting Serial Devices

The Notebook is equipped with one serial port. Please refer to ***Figure 1-7*** to locate the serial port. Connect serial devices such as an external mouse or modem to these ports.

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 comes 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.

First turn the Notebook on before turning on the printer.

Connecting An External Monitor

Perform the following steps to connect an external monitor:

1. Make sure the Notebook and the monitor are 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 AC adapter to the computer.
5. Connect the monitor to a power source.
6. Turn on the monitor.
7. Turn on the computer.

Note: The Notebook's display controller supports XGA and SVGA modes (for the LCD) which has a screen resolution of 1024 x 768 pixels and 800 x 600 pixels (screen dots) respectively. If the monitor is connected after the Notebook is powered on, the display will not appear on the CRT monitor.

Connecting An External Keyboard

The Notebook has a connection for a full-size enhanced 101/102-key keyboard or 104/105-key Windows 95 keyboard commonly used with desktop computers. A PS/2 mouse can also be connected to the same port. The external keyboard which you desire to connect needs to be equipped with a PS/2 connector. You should be able to obtain a keyboard adapter from your dealer allowing you to connect a keyboard that uses the larger jack which is standard for most desktop computers.

Connecting Audio Devices

Note: Always switch off the computer and any audio equipment before connecting devices to or disconnecting them from the computer's audio ports.

The Notebook features several ports for connecting various types of sound equipment such as speakers, headphones, a microphone, and a MIDI device. Refer to ***Figure 1-5*** in Chapter 1 to locate the MIDI/Game port. The other ports are all located on the rear panel of the Notebook. (Refer to ***Figure 1-6***.)

Connecting an External Microphone

In addition to the Notebook's internal microphone, you can also connect an external microphone to the MIC jack located on the rear panel. the Notebook's audio system employs a technology called Automatic Gain Control which improves the microphones input quality resulting in recordings with less distortion. To take advantage of this feature, ensure that you purchase a dynamic microphone with an impedance between 600 and 10K ohms.

Follow the instructions provided below to connect a microphone to the MIC jack.

1. Turn the computer's power off.
2. Insert the microphones connector plug into MIC-IN jack located on the rear side of the Notebook. (Refer to ***Figure 1-6.***)
3. Now power on the computer.

You are now ready to record sound files using the Audio Applications software installed under Windows.

Note: ***The Notebook is equipped with an internal stereo microphone that has already been configured to work with the computer's sound system. (Refer to Figure 1-1.)***

Connecting External Speakers or Headphones

The audio LINE-OUT jack supplies access to the computer's audio output (including the output from the CD-ROM). Follow the instructions listed below to connect external speakers or headphones to the audio LINE-OUT jack.

1. Turn the computer's power switch off.
2. Insert the connector plug into the audio LINE-OUT jack located on the rear side of the Notebook. (Refer to ***Figure 1-6.***)
3. Now power on the computer.

Note: ***The Notebook's internal audio amplifier is rated at 1 watt per channel. The Audio LINE-OUT signal is not amplified. Only connect powered external speakers; this port cannot drive non-powered speakers. When the system is in Suspend mode, the speaker output and the LINE output are automatically muted.***

Connecting External Stereo Equipment

You can connect the Notebook's audio output to the LINE-IN connector of a stereo amplifier or stereo tape recorder. For this procedure, you will need a cable with a 1/8-inch stereo plug on each end.

Follow the instructions listed below to route the computer's audio output to an external audio device.

1. Turn off both the computer and the stereo equipment to be connected to the Notebook.
2. Insert one of the connector plugs into the audio LINE-OUT jack located on the rear side of the Notebook. (Refer to ***Figure 1-6***.)
3. Insert the other connector plug into the external device's LINE-IN jack.
4. Now turn on the computer and the stereo device connected to the Notebook.
5. You can similarly connect the output signal from a tape deck or other stereo equipment to the Notebook's audio LINE-IN connector. You will need a cable with a 1/8-inch stereo plug on each end for this procedure as well. Follow the instructions listed below to make the connection.
6. Turn off both the computer and the tape deck.
7. Insert one of the 1/8-inch connector plugs into the audio LINE-IN jack located on the rear side of the Notebook. (Refer to ***Figure 1-6***.)
8. Insert the other connector plug into the tape deck's LINE-OUT jack.
9. Now power on the computer and the tape deck.

Connecting FDD to the External FDD Connector

Following the instructions listed below when connecting the FDD Module to the external FDD connector.

1. Connect the external FDD cable to the FDD module.
2. Ensure the Notebook is powered off.
3. Connect the external FDD cable to the Notebook PC.
4. Power on the Notebook.

Note: The external FDD is designated FDD A: by the operating system. An internal and an external FDD cannot be installed at the same time.

PCMCIA Cards and Expansion Sockets

Your Notebook computer features two PCMCIA expansion sockets designed to interface with one or two Type II cards or stacked to accommodate 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 adapters are just a small sample of the PC card products available on today's market.

Using PCMCIA Cards

The PCMCIA (Personal Computer Memory Card International Association) is a widely accepted industry standard that defines the design and operation of PC 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 the operation of PC cards.

PCMCIA Drivers and Utilities

The Notebook comes with a PCMCIA utility diskette which contains drivers and utilities for PCMCIA socket services.

Refer to README file on the CardWorks utility diskette for information about installing CardWorks.

The CardWorks PC Card Utility for Win 95

This section introduces **CardWorks** and summarizes many of the features **CardWorks** provides. For further information about **CardWorks**, please refer to the User's Manual that is located on the **CardWorks** installation diskette.

What Is CardWorks?

CardWorks is a Windows 95 software suite that includes SystemSoft's industry leading CardSoft & CardWizard PC CARD software to enhance the functionality of PC CARD technology in Windows 95. **CardWorks** is intended to make PC CARD use easy and pleasurable, while affording the greatest compatibility in the computer industry.

CardWorks is a companion product to the default Windows 95 PC Card software. **CardWorks** allows the simultaneous use of both Plug and Play (PnP) device drivers and existing real mode PC Card drivers.

The Wizard application features a PC card expert system that addresses advanced configuration issues. When you insert a new PC card in a PC Card slot, **CardWorks** will display a graphical representation of the slots and information about the new card. If there are any problems, the AutoCorrect function locates and fixes them.

CardWorks Features

The **CardWorks** package has the following features:

- Automatic configuration of PC cards
- Minimal user intervention in configuring PC Cards
- Support for cards using existing PC Card drivers
- Wizard Application Features

The **CardWorks** Wizard application acts as a computer-based technical advisor to help you diagnose and correct problems such as:

- Incorrect or missing PC card drivers
- I/O address, IRQ, DMA Channels, and memory address resource conflicts
- Improperly installed software

- Conflicts between PC card programs and extended memory managers (such as EMM386)
- After a conflict has been found and diagnosed, the **CardWorks** AutoCorrect feature immediately resolves the difficulty

Installation

This section explains how to install **CardWorks** on your computer.

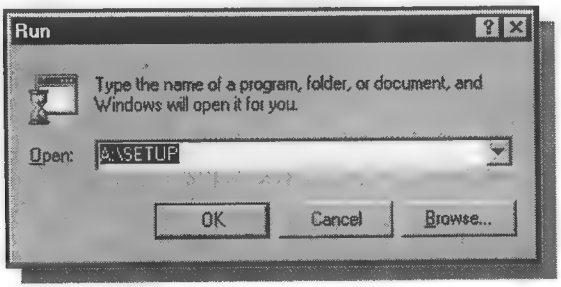
Installation Features

The **CardWorks** installation program will:

- Uninstall any **CardWorks** PC Card software previously installed on your machine
- Decompress the files contained on the **CardWorks** diskette and install them on your computer's hard disk
- Automatically back up any files to be modified
- Modify the configuration files
- Create or update the **CardWorks** group in Windows 95

CardWorks Installation

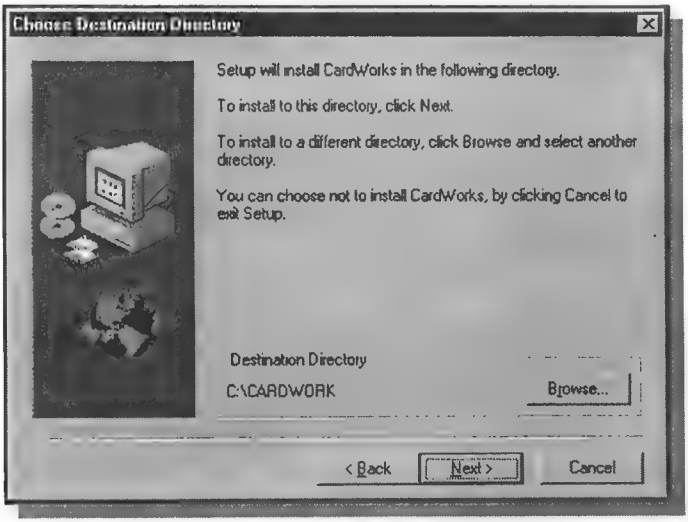
1. Load Windows 95. Click the *Start* button, then click the *Run* command.



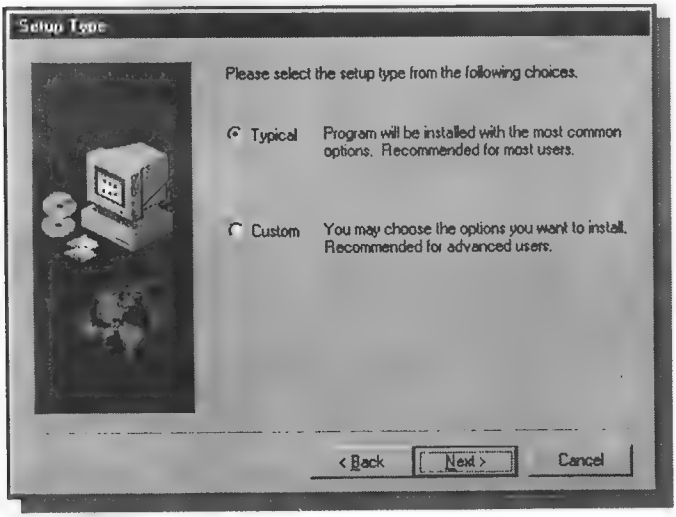
2. Insert Utility Diskette 4 into drive A. In the *Command Line* box and type "A:\SETUP."
3. Click the *OK* button. The installation program starts and then displays an initialization screen.

4. Then the following dialog box will open.

5. The next screen prompts you for the program directory.

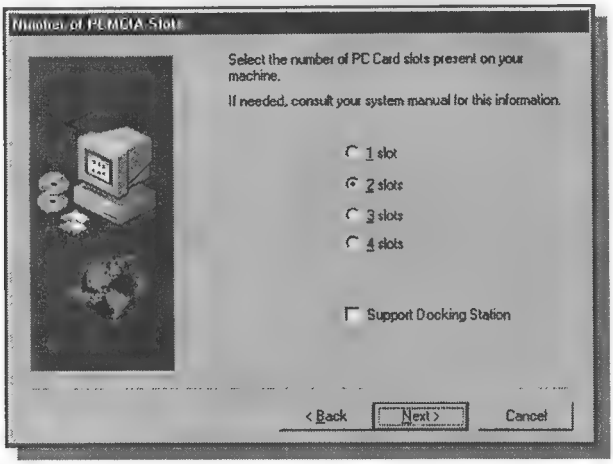


6. The next screen prompts you to perform either a typical or custom installation

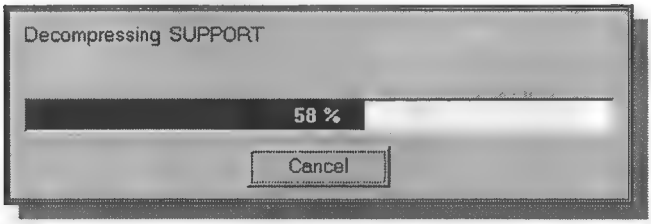


Note: If PC Card software has already been installed on your system you will be warned to remove all PC Cards from the slots before you continue with the installation.

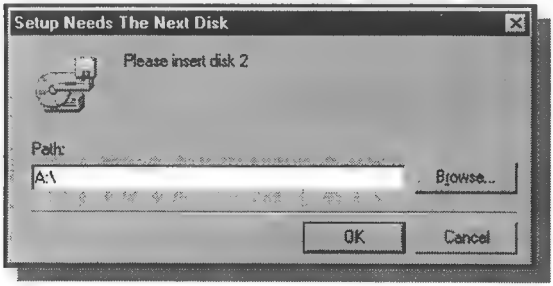
7. Choose *Typical* and click *Next>*. Choose *Custom* if you are an experienced computer user and you want to customize program settings.



8. Click the radio button next to *2 slots*, and then click *Next>*. The install program will decompress and install files.

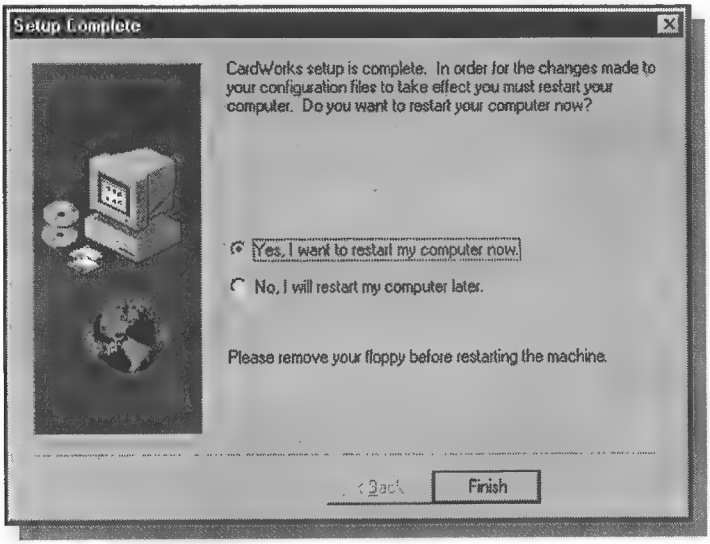


9. You may be prompted to insert a second disk.



10. Insert Utility Diskette 5 and click *OK*.

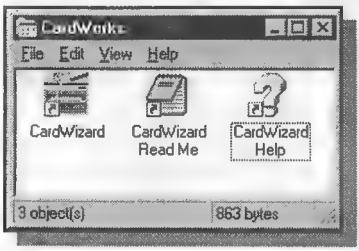
11. After the program has finished installing the files, it will prompt you to read the README file. Click *YES* or *NO*.
12. The next screen prompts you to restart your computer.



13. Click the radio button next to "*Yes, I want to restart my computer now*" to restart your computer and finish program installation. Click "*No, I will restart my computer later*" if you want to return to Windows. The program installation will not be complete until you restart Windows. Click *Finish*.

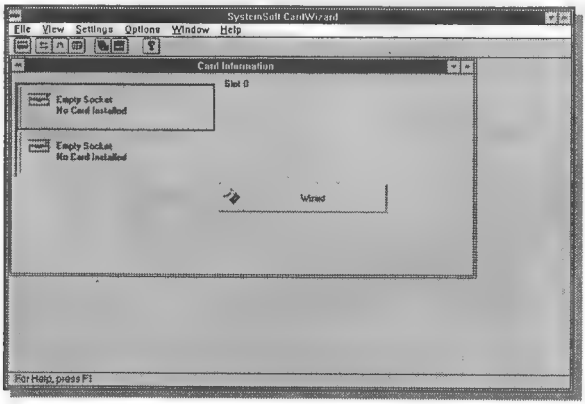
The CardWizard Program

After you have rebooted your Notebook, you will see the ***CardWorks*** program group.



Each of the icons is briefly described below.

Double click this icon to open the **CardWizard** Program.



The **CardWizard** Program features an intuitive menu driven interface, making it easy for you to manage PC cards under the Windows environment.

Double click the **CardWizard** Readme file icon for more information about the **CardWizard** program configuration and last minute information.

Double click the **CardWizard** help icon to get assistance in running the **CardWizard** program. You can also access help by opening the **CardWizard** program, clicking on the *Help* menu, and then clicking on *Contents*.

For more information on the **CardWizard** PC Card Utility program, please refer to the User's manual located on the **CardWizard** Installation diskette.

Using PCMCIA Cards

The PCMCIA (Personal Computer Memory Card International Association) is a widely accepted industry standard that defines the design and operation of PC 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 the operation of PC cards.

Inserting a PCMCIA Card

Follow these instructions and refer to ***Figure 4-1*** to insert a PCMCIA card:

1. Hold the PCMCIA card with the arrow side up and the connector side toward the socket.
2. Align the card connectors with the appropriate socket and carefully slide the card into the socket until it locks into place.
3. The eject buttons are located to the left of each slot. To remove a PC card simply push the respective eject button. The upper button will eject a Type II PCMCIA card from the upper socket. The lower button will eject a Type II or Type III PCMCIA card from the lower socket. Then remove the card and store it properly.

> ***Warning: When using certain types of communication cards, e.g., LAN adapter cards, it is recommended that you do not enter Suspend mode.***

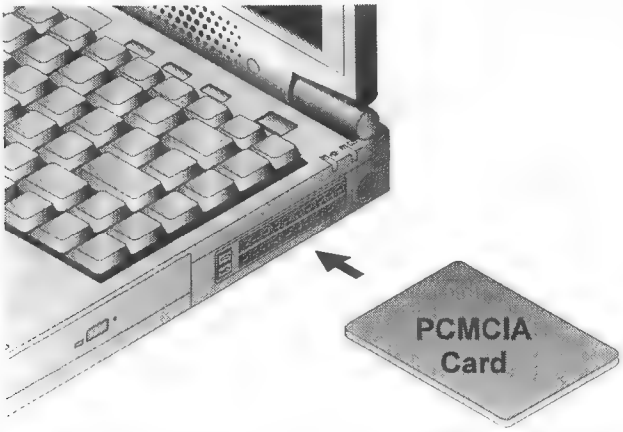


Figure 4-1: PCMCIA Card Installation and Removal

Note: 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.

With certain SRAM cards or other PC cards, it is necessary to halt operation before removing the card. Refer to the documentation that came with your card for more information.

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.

> *Note: 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 signal path for the ZV-port must be selected via the BIOS Setup program or the [Fn] + [F9] hot key.*

Connecting a TV Display

The Composite TV Out port is located on the rear side of the Notebook (see ***Figure 1-6***). To connect a television set to the TV jack, follow the instructions listed below:

1. Turn off the computer.
2. Connect the video in/out cable to the Notebook TV jack; then connect the other end to the video input of your television.
3. Now power on both the Notebook and the television.
4. Use the [Fn] + [F5] hot key to switch the video signal to the television. The TV picture should come into synch and match the display on the Notebook's LCD screen.

Connecting a TV Signal Source

This feature require an additional device driver to work.

> *Note: The signal path for the TV signal must be selected via the BIOS Setup program or the [Fn] + [F10] hot key.*

Follow the instructions listed below to install the TV device driver.

1. Load Windows 95.
2. Insert the Video Cap diskette into drive A:.

3. Select run "A:\setup" from the start menu.
4. Follow any instruction that appear on the screen. The device driver will be installed by the Installation Wizard.

Operation for TV Video Input

1. Select TV video as the video source via the BIOS Setup program or the [Fn] + [F10] hot key.
2. Run the Microsoft application VIDCAP.EXE.
3. Select Composite 2 as input source.

Connecting a Phone Line to the Fax/Modem

The Fax/Modem port is located on the rear side of the Notebook (see ***Figure 1-6***). 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 Fax/Modem Driver Windows 95 Utility Diskette 18.

How to install the modem INF device driver for Windows 95/OSR2

1. Open 'My Computer', select the 'Control Panel' and double click 'Modem' icon.
2. If this is the first time you are installing this driver, go to step 4.
3. Click 'Add' button to add a new modem.
4. Check 'Don't detect my modem, I will select it from a list', then click 'Next'.
5. Click the 'Have disk' button.
6. Insert the device driver diskette into the FDD, then enter or browse the directory of the INF file and click 'OK'.
7. Select the modem you want to install from the list, then click 'Next'.
8. Select a communication port for your modem, usually COM2.
9. Click 'Next', then follow the rest of the procedure on the screen to complete this installation.

Voice\Fax\Modem Application Software

The Notebook includes two diskettes which contains the modem software for Windows 95.

To install for Windows 95/OSR2:

1. Insert the Modem Installation diskette (Utility Diskette 19).
2. Run A:\SETUP.EXE from the DOS prompt or the from the Start menu.
3. Follow the instructions on the screen to complete the installation.

Connecting a MIDI Device

The computer's MIDI/Game port connector is located on the Notebook's left side. (Refer to ***Figure 1-5***.) The MIDI interface conforms to standards defined by the *International MIDI Association.* You will need a MIDI Mate connector box to use a MIDI device with the Notebook. This adapter can be purchased at most computer stores and music shops. The optional MIDI Mate connector box allows you to connect keyboards, synthesizers, and other MIDI devices to the MIDI/Game port connector. The MIDI Mate features one MIDI-IN connector and one MIDI-OUT THROUGH connector. Refer to the documentation that came with your MIDI device for more information about making MIDI connections.

Connecting a Joystick

Playing computer games is a fun way to take advantage of the Notebook's vast array of multimedia features. Today's computer games are dynamic and interactive. Most computer games are programmed with support for a Joystick. A Joystick is a specially designed pointing device that affords greater manipulation of the cursor. To get the most out of your computer games you should use a Joystick. You can connect a Joystick to the computer's MIDI/Game port. The Game port supports any analog Joystick with a 15-pin D-Sub connector.

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

Connecting a USB Device

Before connecting a USB device, you should enable the USB function in BIOS (see Chapter 2). To install for Windows OSR2:

1. Make sure you have already run USBUSPP.EXE from your Windows OSR2 installation CD. Follow the instructions on the screen. When prompted for the path, key in "C:\Windows\System".
2. After rebooting, follow the setup instructions of your USB device.

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

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 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. The battery pack is a set of Nickel-Metal Hydride (NiMH) or Lithium-Ion (Li-Ion) batteries housed in a plastic shell. There is one pack inserted in the battery housing of the computer.

In this section we'll go over AC and battery power operation and explain 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. We've already seen how to connect it to the computer in Chapter One. When the Adapter is connected to the computer, it provides power as long as it is plugged into an electrical wall outlet.

If the AC Adapter is not functioning properly, please consult your dealer immediately for support.

The Battery Power System

The Notebook's NiMH/Li-Ion removable battery pack is found in the battery compartment. Please see ***Figure 5-2*** if you are having trouble locating the battery compartment.

A fully charged pack will provide approximately 2 hours of battery life. The battery life can be extended by using the power management features. The battery system implements the Smart Battery standard which allows the battery to accurately report on the amount of usable time and charge percentage left in the battery before recharging is required. Additional battery packs are optional equipment and can be purchased separately.

Before using the computer on battery power for the first time, check the battery status icon in the System Window display panel to make sure the battery is fully charged. See Chapter Three for a description and explanation of the different battery icons. For your convenience a summary of this information has also been included later in this chapter.

Charging the battery takes about 3 hours. If possible, always charge the battery completely.

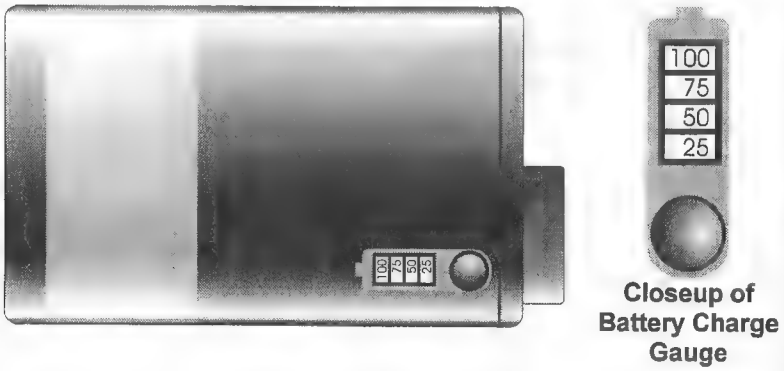


Figure 5-1: The Notebook's Battery Pack

Notice on the front of the battery casing there are 4 LEDs. Please refer to ***Figure 5-1***. These LEDs indicate how much battery life is remaining. If all four LEDs light, the battery is charged to capacity. Each LED represents approximately 25% battery charge. There is 75% battery life remaining if three LEDs are lit. If no LEDs are lit, the battery is fully discharged.

Removing the Battery Pack

The Notebook is designed to hold either one or two battery packs. Each of the two MultiBays™ can house a battery. The procedure for removing modules is the same for both bays. To remove the battery pack from its MultiBay™ compartment, please refer to ***Figure 5-2*** and the following instructions:

1. Power off the Notebook.
2. Close the Notebook's LCD cover, ensuring that it snaps into place.
3. Turn the Notebook over so that its underside is facing up and its front is facing you.
4. Locate the module release latch on the underside of the Notebook. Slide the latch in the direction of the arrow to unlock the battery module.
5. Remove the module bay cover.
6. Now gently pull the battery out of its housing bay.

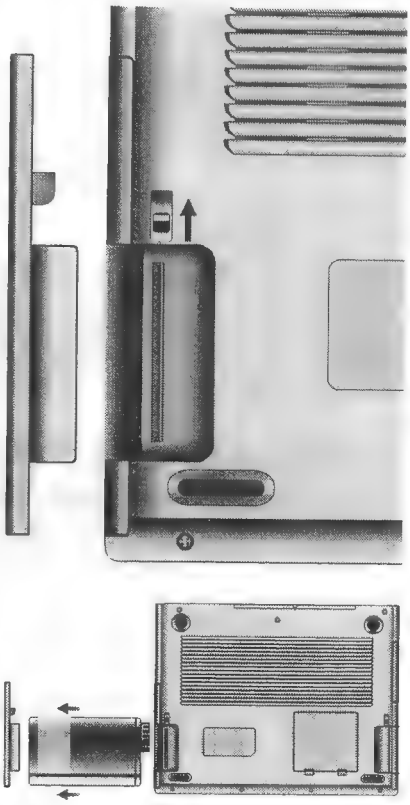


Figure 5-2: Battery Pack Removal

Inserting the Battery Pack

For reinserting the battery back into the battery compartment, refer to the following instructions.

1. Gently slide the battery into the MultiBay™ compartment.
2. When the battery is fully seated you should hear it click into place.
3. Slide the latch to the locked position.

Preparing the Battery Pack for Use

Before using the battery pack for the first time, the Smart Battery IC within the battery pack should be calibrated in order to get accurate reporting of remaining battery life status. To calibrate the battery pack follow the instructions below.

1. Insert the battery into the battery compartment and turn on the Notebook. Let the battery run down until the Notebook system completely shuts down, or if the battery is completely without power go to the next step.
2. Turn the Notebook off and let the battery fully recharge. When the amber battery charge indicator turns off, the battery is fully charged.
3. The battery pack is now calibrated properly.

In general, using the battery until the low battery warning indicator appears and fully recharges the battery each time (full discharge/charge cycle) will ensure the accurate reporting of the battery gauge status.

Notes on Storing the Battery

- Fully charge the battery pack before storing.
- Always remove the battery pack from the Notebook's battery compartment before storing.
- When the battery pack will not be used for extended periods of time, recharge it every month. When you use the battery pack again, be sure to fully charge it first.

Automatic Battery Pack Charging Function

You can automatically charge the battery pack by using the AC Adapter. When running the Notebook off AC power, the inserted battery pack will automatically be recharged while you are working on your Notebook. The charge time is about 3 hours with the Notebook power turned off. Charging the battery will take longer if the Notebook is powered on.

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

If the Notebook is not using AC power, the battery with the highest charge level will be the first battery to be discharged. After the battery with the highest charge level discharges to the level of the second battery, both batteries will discharge almost simultaneously.

Note ***Do not allow a battery to go below 20% charge level. If a battery goes below 20%, then you should charge it as soon as possible. If you let the battery go without being charged, even if the Notebook is not being used, it will continue to discharge. It will than take an inordinate amount of time to charge from below 20% to 25%. After the battery charges to 25% when it has been over-discharged, then the Smart Battery will quick-charge the battery.***

Using Battery Power

The battery system will provide approximately 2-3 hours of power to the Notebook. This value will vary depending on how you use the power saving features, your general work habits, and the type of CPU and LCD your Notebook has. We recommend that you use the AC power adapter as often as possible to conserve battery power.

The System Window will indicate the status of the battery pack when you are using battery power, while the time and charge remaining can be obtained under DOS or Windows 95™ due to implementation of the Smart Battery standard.

You can also use the [Fn] + [F12] to display the Battery Gas Gauge. When this feature is turned on the Gas Gauge will appear on the LCD screen. The [Fn] + [F12] hot key toggles the Battery Gas Gauge On and Off.

*Note: **The Low Battery Warning Beep is automatically enabled in Windows 95. However, POWER.EXE must be enabled in order to use the Low Battery Warning Beep function in DOS. In Windows 3.1, W31-APM must be enabled to use the battery warning beep feature. POWER.EXE must be loaded via a DEVICE= line in CONFIG.SYS in order to report the status of the battery while using DOS or Windows 3.x. POWER.EXE is not necessary when running Windows 95™. For additional information, please see your DOS and Windows 3.1 User's Manuals for details.***

Battery Status

Left Battery Indicator — This icon indicates the status of the left battery pack. This indicator will flash when the battery charge level is low.

Right Battery Indicator — This icon indicates the status of the right battery pack. This indicator will flash when the battery charge level is low.

When the pack initially reaches the very low battery state approximately 10 ~ 15 minutes of the usable battery life is left. The battery low icon will start to flash and you will hear an audible beep signal alerting you to the very low battery status. You must save your data or connect AC power immediately; otherwise, you may lose your data.

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

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. If the Notebook is left without a power source for too long, this battery will be exhausted and system information will be lost. Please avoid this condition by ensuring that the Notebook never remains without a power source for more than ten days.

> ***Warning:*** ***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 along 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 hotkey [Fn] + [F11] is one the Notebook's most useful, non-automatic features. If you need to temporarily step away from the computer, simply press this button to put the computer into its maximum power saving mode while maintaining your work. When you return, just press any key 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 Floppy Disk/CD-ROM Drive

The floppy disk and CD-ROM drives consume a substantial amount of battery power. Use the FDD/CD-ROM 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 saving features which you can use to maximize battery life. You can control some of these features through the Power menu in the Setup program. Refer to Chapter Two 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 save 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" mode and "Suspend" mode.

Full Power Mode

The computer operates in Full Power mode when power management is disabled. When the computer is operating in Full Power Mode, the Power LED remains on. If you are conscious of power consumption, you will probably rarely operate the computer with all power management features disabled.

Standby Mode

In addition to reducing the CPU speed, this mode puts peripheral components in their lowest active states. These peripheral components include the hard disk, the LCD screen and the screen backlight. The Notebook enters Standby mode when the system remains idle for a specified amount of time. Press any key to resume system operation.

Suspend Mode

In Suspend mode the CPU clock speed is reduced and most of the computer's peripheral components are put in their lowest active states. These include the hard disk and the monitor. The computer enters Suspend when the system remains idle for a specified amount of time. Press any key to resume system operation.

A Suspend Example

The time out settings for Hard Disk Off, System Standby, and System Suspend specify the amount of time the system must be inactive before the next power management level is enabled. Refer to the *Power Menu* section in Chapter Two. The example below demonstrates this function. If the Hard Disk Timeout is set to 2 minutes, the Standby Timeout to 8 minutes and Auto Suspend Timeout is set to 10 minutes the following power management events take place:

1. After 2 minutes of system inactivity the hard disk spins down.
2. After 6 additional minutes (a total of 8 minutes of inactivity) the system enters Standby.
3. After 10 additional minutes in the system Standby mode, the system suspends to memory or disk.

After the system has suspended, operation can be returned (resumed) to the point in your application where it was suspended. Refer to the *How to Resume* section in this chapter 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 Auto Suspend field in the Power menu. This time out period is the amount of idle time that the system allows before a Suspend is initiated.
- Pressing the Suspend hotkey [Fn] + [F11].
- Close the LCD Cover

Warning: ***POWER.EXE must be loaded in a DEVICE = line in your CONFIG.SYS for APM (Advanced Power Management) to work correctly while under DOS or Windows 3.x. Failure to use POWER.EXE could cause the Notebook to become unstable or crash during SUSPEND/RESUME operations. POWER.EXE is not necessary while running Windows 95™. For additional information refer to your DOS User's Manual.***

The Chain of Suspend Events

If the system enters Suspend mode from 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 video screen is turned off
- CPU, DMA clocks, and the math co-processor are powered down
- All controllable peripheral devices are suspended

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

The amount of time that the system remains suspended depends on the amount of battery power remaining. Due to this limitation, you should always save your data before the system suspends.

How to Resume

Pressing any key causes the system to resume operation after entering Suspend. 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.

Power Management Summary

The following table summarizes the Notebook's power-saving features:

Power Mode	How to Enter Mode	How to Reactivate
System Idle	• Transits automatically	• Press any key • Access HDD
System Standby	• Transits automatically after specified time out	• Press any key
System Suspend	• Transits automatically after specified time out • Close the LCD Cover • Press Suspend hotkey	• Press any key
Hard Disk Off	• Transits automatically after specified time out	• Access HDD

The APM Interface

In addition to the power saving features built into the resident BIOS System Configuration Utility, your Notebook computer also supports the Intel-Microsoft Advanced Power Management. 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 system BIOS
- Constantly monitors all system activity to provide one of the most accurate detection schemes for determining true idle under DOS, Windows, and OS/2
- Accounts for operating system inactivity and power demands
- Accounts for application inactivity and power demands
- Allows application programs, DOS, and BIOS to share power management features to ensure more efficient use of power
- Determines when power-saving features should be activated
- Operation is 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.

APM is software-based, therefore you must set up your system software configuration to load it in order for it to operate automatically. APM is supported by MS-DOS version 6.0 or higher, as well as Microsoft Windows 3.1. The DOS version of APM is included on the DOS diskette with the filename POWER.EXE. Once DOS is installed, POWER.EXE can be found in the DOS subdirectory. To configure APM for DOS, enter the following line into your CONFIG.SYS file:

```
DEVICE=C:\DOS\POWER.EXE
```

> *Note: **POWER.EXE does not need to be loaded under Windows 95™.***

When running Windows, you will notice an APM icon in the Control Panel. A dialog box appears when you double-click on this icon. This dialog box allows you to select between standard, advanced, or no power management modes. The dialog box contains a battery power status gauge. This gauge indicates the current battery power level. A message is also displayed regarding current battery status. There is also a "Help" button that calls up an explanation of this feature and how to use it.

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.

Save to File/Disk Utilities

To install the Save to File feature on your system:

1. Please boot your computer in pure DOS mode. (Bypass the AUTOEXEC.BAT and CONFIG.SYS.)
2. Insert Utility Diskette 8 into the FDD.
3. Run PHDISK3E /C /F from the floppy disk drive or your hard disk to create the Save to File feature.
4. For more information, please run PHDISK3E.EXE.

To install the Save to Disk feature on your system:

This utility will destroy any data on your hard disk. Run this utility before you partition your hard disk.

1. Please boot your computer from a system floppy diskette in pure DOS mode. (Bypass the AUTOEXEC.BAT and CONFIG.SYS.)
2. Insert Utility Diskette 8 into the FDD.
3. Run PHDISK3E /C /P from the floppy disk drive or your hard disk to create the Save to File feature.
4. For more information, please run PHDISK3E.EXE.

This concludes Chapter Five. The next chapter covers the optional equipment that can be added to the basic Notebook system.

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 devices installed inside the computer rather than standard peripherals 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.
- The FDD module can be replaced with a DR-36 battery pack.
- The FDD module can be removed and attached to the external FDD connector at the rear of the Notebook.
- The CD-ROM module can be replaced with a secondary HDD module or a DR-36 compatible battery pack.

System Memory Expansion

Available memory options come in 8 MB, 16 MB, 32 MB and 64 MB modules. While 8 MB is sufficient for most circumstances, you may find in some cases additional memory is required. This is particularly true as more and more application programs are designed to run under Windows. Running two different applications in the Windows environment at once may require additional system memory. The Notebook is equipped with two memory sockets for installing standard 8 MB, 16 MB, 32MB or 64 MB 144-pin DIMMs (Dual In-line Mem-

ory Module). These expansion memory modules can be purchased from your dealer.

Installing Memory Modules

Remove the Memory Access Panel

Turn the Notebook over so that its underside is facing you. Gently pull the latches in the direction of the arrow and lift the memory access panel as shown in the illustration. You find two 144-pin DIMM sockets on the Notebook's system board.

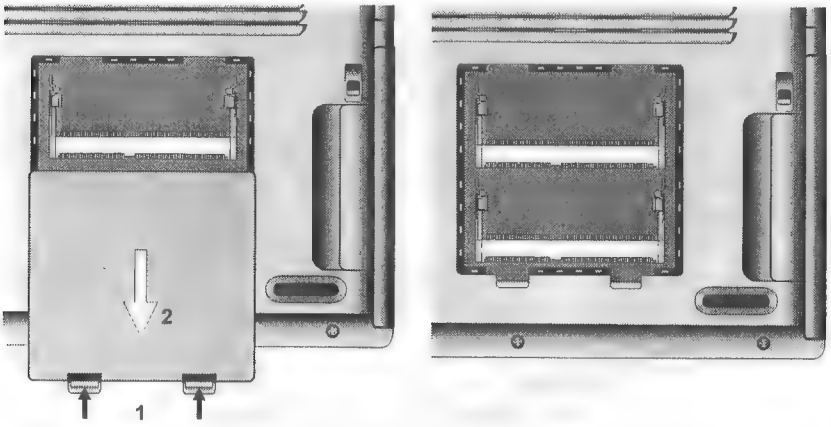


Figure 6-1: Removing the Memory Access Panel

Install the Memory

After removing the memory access panel, memory modules (DIMM) can be installed. Carefully align the connector of the DIMM module with the DIMM socket. Gently press down on the DIMM. You will see two metal tabs on both sides of the DIMM socket. Gently, but firmly push the module until the two metal tabs lock the DIMM in place. Now replace the keyboard in the reverse order in which it was removed.

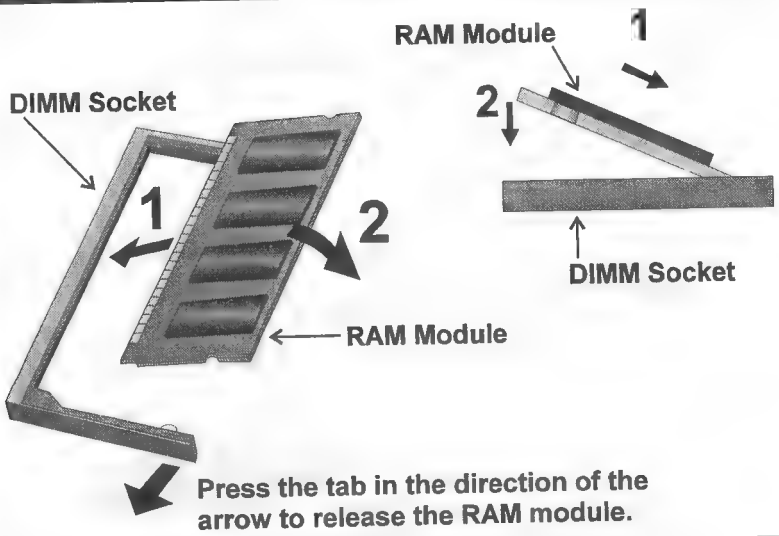


Figure 6-2: Installing RAM Modules

Note: The DIMM module must be 3.3V EDO RAM or SD-RAM. Special care must be taken to ensure that the SD-RAM modules match this 3.3V specification due to compatibility issues. We recommend using EDO RAM instead of SD-RAM.

Installing and Removing the FDD Module

Your Notebook comes equipped with an FDD hardware module.

The FDD Module

The FDD module comes inserted in your Notebook. Please refer to *Figure 6-3* and the following instructions to install the FDD Drive Module into the Notebook's module bay.

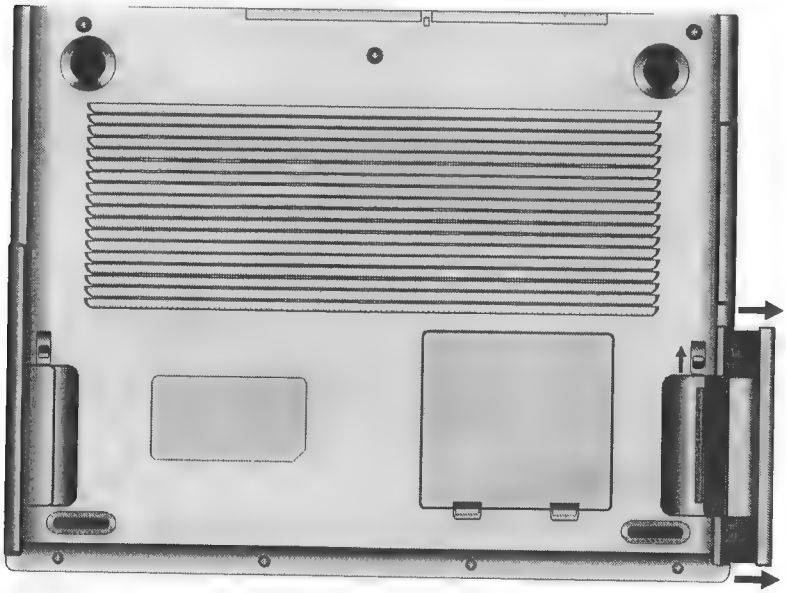


Figure 6-3: Removing and Inserting the FDD Module

Removing the FDD Module

For step by step information on removing the modules from the FDD bay of the Notebook, please refer to the following set of instructions.

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

2. Locate the FDD module release latch on the bottom panel of the Notebook. Please see ***Figure 6-3*** if you are uncertain of its location.
3. Push the release latch toward the front of the Notebook. While holding the latch in this position, slide the module to the left until the catch is fully released. Now lift the module out of its bay.
4. To install the module, simply push the release latch toward the front of the Notebook and slide the module all the way into the bay until it clicks into place.
5. With the Notebook still powered-off, reconnect the peripherals.
6. Turn on the Notebook.

The External FDD Connector

Following the instructions listed below when connecting the FDD Module to the external FDD connector.

1. Connect the external FDD cable to the FDD module.
2. Ensure the Notebook is powered off.
3. Connect the external FDD cable to the Notebook PC.
4. Power on the Notebook.

> *Note: **The external FDD is designated FDD A: by the operating system. An internal and an external FDD cannot be installed at the same time.***

Installing PHDISK

In order to make use of the Suspend to Disk feature, the HDD installed in the Notebook must be specially prepared with *PHDISK* prior to formatting and installation of other software. Note that if you prefer to Suspend to RAM, then *PHDISK* does not need to be run. The Utility Diskette 8 has the PHDISK.EXE program which will create a partition on your HDD equal to the amount of memory in your Notebook.

Suspend to Disk saves that exact status of the Notebook by copying all the system memory to the HDD before shutting down the system. This saves maximum power as the system can be restored to its prior condition from the power off state.

To run *PHDISK,* first boot DOS from drive A. A bootable floppy disk must be used such as the first DOS installation disk. Insert the disk containing the *PHDISK* program and run it from the DOS prompt by typing "PHDISK" and then pressing [Enter].

PHDISK will display additional information regarding the amount of memory in your system and the command line options required to create a Suspend to Disk partition. Follow the onscreen instructions. Once the partition is created, you can continue to install your Notebook operating system, i.e., DOS, Windows, etc.

By default, *PHDISK* will only create a partition as large as the amount of memory in your Notebook. **If you add any additional memory to your system, you will need to re-run *PHDISK* which will cause you to lose all your data.** Alternatively, you can manually specify the amount of HDD space to reserve for the Suspend to Disk feature. If you plan on eventually having 16MB or even 32MB of DRAM, then create enough space at the outset for that possibility.

This concludes Chapter Six.

APPENDIX A
TROUBLESHOOTING

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

Isolating the Problem

The problems that you will encounter can be divided into two basic categories: hardware problems and software problems. Hardware problems can be further divided into electrical and mechanical problems. You will know you have a hardware problem if the screen is dark, the computer cannot read the disk drives, or you get an error message during the Power-On Self Test (POST).

Software errors can occur at several levels. The ROM BIOS and the operating system can give you a large number of error messages. And on top of this, each application software package has its own set of error messages. It is important to determine whether the software error message you are getting is from the application or the operating system. Once you know this, you can refer to the respective software manual for a solution to the problem.

Checking Cables and Connections

Start by performing a careful visual inspection of the exterior of the computer. If no lights are displayed, make sure that your computer and its peripherals are getting power and communicating with each other properly.

To check the power cables, and connections:

If you have been using battery power, connect the computer to an external power source and make sure that the battery has a charge.

If you are using the computer with the AC adapter, check the power outlet, the power cord, and any power switches that may affect your computer.

Check the wall outlet or power strip with an item that you know is functioning properly. A lamp or radio is a convenient item for checking the power. You may also need to check the fuses and breakers in your electric box.

If the outlet is controlled by a wall switch, make sure that the switch is on.

If the outlet is controlled by a dimmer switch, use a different outlet.

If your computer is plugged into a power strip with an On/Off switch, make sure the switch is on.

With the computer's power switched off, check all cable connections. If the computer is connected to any peripheral devices, look for loose or disconnected cables. If the computer is too close to a wall, a cable connection may be loose or the cables may be crimped.

> ***Note:*** ***Do not substitute a cable with another cable for a different type of device even if the cable looks exactly the same. The wiring inside the cable may be different.***

When you are certain that you have power available and all connections are good, turn the computer on again. If the computer still does not start, you may have a hardware problem.

The Power-On Self Test

The Power-On Self Test (POST) runs every time you turn on or reset the computer. The POST checks memory, the main system board, the display, the keyboard, the disk drives, and other installed options.

A few seconds after you turn on your computer, a copyright message appears on your display screen. A memory test message appears next; as the test continues, memory size increases until all installed memory is tested. Normally, the only test routine visible on the screen will be the memory test.

Two classifications of malfunctions can be detected during the POST:

Error messages that indicate a failure with the hardware, the software, or the *Basic Input/Output System* (BIOS). These *critical malfunctions* prevent the computer from operating at all or could cause incorrect and apparent results. An example of a critical error is microprocessor malfunction.

Information messages that furnish important information on the power-on and boot processes such as memory status. These *non-critical malfunctions* are those that cause incorrect results that may not be readily apparent. An example of a non-critical error would be a memory chip failure.

In general, if the POST detects a system board failure (a critical error), the computer halts and generates a series of beeps. If failure is detected in an area other than the system board (such as the display, keyboard, or an adapter card) an error message is displayed on the screen and testing is stopped. It is important to remember that the POST does not test all areas of the computer, only those that allow it to be operational enough to run diagnostic programs. If the system does not successfully complete the POST, but displays a blank screen, emits a series of beeps, or displays an error code, consult your dealer.

General Hardware Problems

A few common hardware problems and suggested solutions are presented in the table below:

Problem	Solution
You turn on the computer and nothing happens.	If the Notebook is running on battery power, check to see that the batteries aren't completely exhausted. Check the power LED indicator. If it is on (GREEN) then power is being supplied to the Notebook. If the LED isn't on, make sure that the power cord is securely connected to a live power source. Check all connections — make sure that the AC adapter jack is securely connected to the AC adapter port. If the Notebook still doesn't come on, remove the battery from its compartment, reinsert it and try again. If there is still no power, contact your dealer.
The display screen is dark	Make sure that the computer is not in Suspend mode. Check the Brightness and Contrast controls for the screen. If the controls are turned too far down, the screen will be dark. If after trying this the screen is still blank, try rebooting the computer by pressing the [Crtl] + [Alt] + [Del] keys. If this does not solve the problem, turn the computer off, wait five seconds, and then turn it back on. If the problem persists after trying these suggestions, turn off the computer and consult a qualified service technician.
An incorrect date and time are displayed.	Correct the date and time using the DOS DATE and TIME commands or the options in the Setup Utility. (You can also set the date and time in Windows 95 by double clicking the clock on the task bar or in the control panel.) If the date and time become incorrect after a short time, your CMOS battery may be bad. Contact your dealer to change the battery.

Problem	Solution
The message "Non-system disk or disk error, Replace and strike any key when ready" appears during boot.	Check and make sure that you do not have a non-bootable floppy diskette inserted in your floppy drive. If your FDD is clear, check that the "Hard Disk" setting in the BIOS program is set correctly for your Notebook's hard disk drive. The setting has to be correct or the Notebook won't work. If the BIOS settings are correct but the problem persists, you may not have an operating system installed on your drive. Contact technical support for assistance.
The computer keeps making a beeping noise at regular intervals.	When the Notebook is low on battery power, it emits an audible warning signal. Save your work, turn off the computer, and switch to AC power.
You hear irregular beeps during operation of the Notebook and the system halts.	The problem is beyond the scope of this manual. Contact technical support.
An unidentified message is displayed.	Reboot the computer and run the BIOS system setup. Confirm the Setup parameters. If the same message is displayed after booting up again, contact technical support for assistance.
When you turn on the computer you cannot access the hard drive.	Check that the "Hard Disk" setting in the BIOS program is set correctly for your Notebook's hard disk drive. The setting has to be correct or the Notebook won't work. If the problem persists, try changing the BIOS settings with "to Load Default Settings."

Problem	Solution
You turn on the computer, but don't get a prompt (usually "C:\") on the screen. The computer seems to be running.	Are you sure that an operating system is installed on the Notebook's Hard Disk? If not, you should get a message prompting you to insert a bootable disk into drive A. Also check the brightness and contrast controls to make sure they are set correctly. Before installing the Operating System to the hard drive make a bootable rescue disk. Use the rescue disk to boot, then transfer the system files to c:\.
The Touch-pad does not work.	The software you are using might require an extra device driver. Check your Touchpad utility diskette to see if the required device driver is available.
The system cannot access the CD-ROM drive.	Check that a CD is properly inserted in the drive. Make sure that you are using the correct program for that kind of CD. For example, the system cannot read a data CD using an audio program.
You cannot operate the printer.	Check the printer cable connection. Ensure that the printer power switch is turned on. Confirm that the printer is on-line.
You cannot save data to a floppy diskette.	Ensure that the disk has been formatted. Consult your operating system manual for information on formatting floppy diskettes. The diskette is write-protected. Eject the diskette, slide the write-protect tab to the closed position, and try again. The diskette is full. Try using another diskette or free up some space on the diskette. The floppy disk drive is not operating. Contact your dealer for support.

If after trying all of the suggested solutions you still have a problem, make a list of what steps you have taken to correct the problem and contact your dealer.

Contacting Your Dealer

If you still have a problem after reading the preceding sections, the next step is to contact your dealer. He can determine if the problem is something that requires the computer to be taken to the shop. Before you call your dealer, however, prepare the following information:

- How is your computer configured? Your dealer needs to know what peripheral devices you are using.
- What messages, if any, are on the screen?
- What software were you running at the time?
- What have you done already to try to solve the problem? If you have overlooked a step, your dealer may be able to solve the problem over the phone.

APPENDIX B

SPECIFICATIONS

CPU

- Intel Pentium 55C (MMX) 150/166 2.5V core (SPGA Package)
- *Intel Pentium (MMX) Tillamook 166/200/233 2.5V interface, 1.8V core (TCP Package)
- 1.8V, 2.2V, 2.5V, 3.1V selectable

Note:** * Only for Tillamook models

L2 Cache

- On-board 512KB Pipelined Burst Cache
- On-board 256KB Pipelined Burst Cache

***Note:** Low profile PGA socket mounted on board for configuration-on-demand*

System Memory

- EDO RAM upgradeable to a total of 128 MB by using 8 MB, 16 MB, 32 MB or 64 MB 144-pin, 3.3V DIMM Modules
- SDRAM upgradeable to a total of 32 MB by using 8 or 16 MB 144-pin, 3.3V DIMM Modules
- System ROM BIOS, 256KB Plug & Play Flash EEPROM
- Video DRAM, embedded 2.2 MB

Fixed (Hard) Disk Drive

- 1 built-in 2.5", 12.7 mm thick MCC standard IDE HDD

Floppy Disk Drive

- 1 removable 3.5" 1.44 MB floppy disk drive module. The FDD module can be replaced with a secondary battery pack or an optional function pack module.

CD-ROM Module

- 1 removable 5.25" ATAPI IDE CD-ROM module. The CD-ROM module can be upgraded.

Display

- 800x600 SVGA 12.1" D-STN color LCD
- 800x600 SVGA or 1024x768 XGA 12.1" TFT color LCD
- 1024x768 XGA 13.3" TFT color LCD
- Field detachable to satisfy a wider segment of market share.

Keyboard

- 87/88 keys PC/AT Windows 95 compatible keyboard and embedded numeric keypad
- Standard desktop pitch 19 mm, travel 2.5 mm
- Special hot keys
- Field detachable to satisfy a wider variety of markets

External Interfaces

- One 25 pin parallel port
- One 9-pin serial port
- One 15 pin external monitor port
- One 6-pin external keyboard or PS/2 mouse port
- Optional 204-pin Docking Connector supporting I/O Replicator
- One ϕ2.50 mm coaxial male DC connector (DC port for AC adapter)
- One built-in microphone
- Two built-in speakers
- One line-in (stereo), 1/8" jack
- One line-out (stereo), 1/8" jack
- One mic-in (mono), 1/8" jack
- One built-in 16-bit digital audio, Sound Blaster™ compatible 16-bit, OPL3 synthesizer
- One built-in General MIDI compatible Wavetable Synthesizer with 1MB of instrument sample ROM
- One built-in IrDA compatible Fast Infrared (FIR) communication module
- Two built-in Type II PCMCIA sockets, stacked to form one Type III.
- One integrated PS/2 capacitive touch-sensitive touchpad with 2 click buttons located to either side of the pad
- Two USB connectors
- One TV Input RCA Jack
- One TV Output RCA Jack
- One K56 Voice/Fax/Modem Module (Optional for USA version)
- One 26 pin external FDD connector

System Icons

- PMU (Power management)
- HDD in use
- FDD in use
- PCMCIA in use
- Caps Lock
- NumLock
- Scroll Lock
- AC Power Indicator
- Left Battery Indicator
- Right Battery Indicator

LEDs

- Power/Suspend
- Battery Charge

External Controls

- Increase Volume button
- Decrease Volume button
- Mute button
- Power On/Off button

Standard Accessories

- AC adapter
- Carry bag
- Utility/Driver Software
- Ext. FDD cable

Battery

- One Rechargeable NiMH battery pack
- About 2-3 hours of operation (may vary depending on operating temperature, battery condition, and power management features).
- About 3 charging hours (may vary depending on operating temperature, battery condition, and power management features).

Power Management

- Auto-switching AC/DC adapter
- Automatic transition between modes (Active/Standby/Suspend)
- Intelligent power management technology

Dimensions

- 9.65"(D) x 12.40"(W) x 1.89"(H)
  245mm (D) x 315mm (W) x 48mm (H)

Weight

- 12.1" Color TFT LCD Notebook
  3.35 kg. (7.37 lb.) including battery, HDD, FDD and CD-ROM modules

Optional Equipment

- Additional battery packs
- 8, 16, 32, 64MB memory module
- Docking Station
- AC adapter
- One K56 Voice/Fax/Modem Module (Optional)
- External FDD cable

Note: Specifications are subject to change without notice.

Upgrading your Notebook

This Notebook can be upgraded by installing a faster CPU, a larger HDD and additional memory modules. Installation of the these components should be performed by a professional dealer. The boot up display message will always correctly show the CPU installed. Please contact your dealer for upgrade information.

Notebook

Tech 800 888 2017

CS 880 2012

281 1052 M-F 6a-6p

P/N 62-671103-00