Notebook Computer

User's Manual

Preface

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Limitation of Liability

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Notices

Federal Communications Commission Radio Frequency Interference Statement

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

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

Notice:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Shielded interface cables and a non-shielded AC power cord must be used in order to comply with emission limits.

This equipment is to be used with power supply: ILAN F1960H. There is no internal power supply.

Canadian DOC Notice For Class B Computing Devices

This Class B digital apparatus meets all requirements of the Canadian Interference - Causing Equipment Regulations.

Cet appareil numerique de la classe B repecte toutes les exigences du Règlement sur le matèriel brouilleur du Canada.

Safety Precautions

This section is designed to assist you in identifying potentially unsafe conditions while working with this product. Required safety features have been installed in the computer to protect you from injury. However, you should use good judgment to identify potential safety hazards:

- Read all of these instructions before using your Notebook and save them for later use.

- Follow all warnings and instructions marked on the product.

- Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. To clean, wipe with a damp cloth.

- Do not use this product near water.

- Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

- Slots and openings in the cabinet are for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. This product should never be placed near or over a radiator or heater.

- Never push objects of any kind into this product through cabinet openings, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill liquid of any kind on the product.

- This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

- If you use an extension cord with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.

- Adjust only those controls that are covered by the operating instructions, since improper adjustment of other controls may result in damage and may require extensive work by a qualified technician to restore the product to normal operation.

- Do not attempt to service this product yourself, as opening or removing the cabinet may expose you to dangerous voltage. Refer all servicing to service personnel.

- Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

  ➢ If the power cord or plug is damaged or frayed

  ➢ If the product has been exposed to rain or water

  ➢ If the product does not operate normally when the operating instructions are followed

  ➢ If the product has been dropped or the cabinet has been damaged

  ➢ If the product exhibits a distinct change in performance, indicating a need for service

- Unless the manufacturer indicates that a device can be *hot-plugged*, you should turn off the computer before connecting peripheral devices.

- Replace the battery pack only with the same type as the original. Use of another battery pack may present a risk of fire or explosion.

- Do not use or leave the AC Adapter near a fire, stove, or other hot environment.

- Do not immerse the AC Adapter in water or expose it to moisture.

- Do not cover the AC adapter with anything (such as a book, box, paper, etc.).

Warning: The battery pack may explode if handled incorrectly. Do not disassemble the battery or dispose of it in fire. Keep away from children and dispose of the used battery promptly.

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Il ya danger d'explosion s'il a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Wichtige Sicherheitshinweise

- Lesen Sie alle Hinweise vollständig durch.

- Bewahrend Sie alle Begleitmaterialien sorgsam auf.

- Folgen Sie allen am Gerät angebrachten Warnungen und Hinweisen!

- Vor dem Reinigen des Netzgeräts Netzstecker ziehen! Keine Flüssigreiniger oder Sprühreiniger verwenden! Zum Reinigen ein angefeuchtetes Tuch benutzen!

- Das Netzgerät nicht in feuchten Räumen verwenden.

- Auf der Oberseite des Gehäuses des Netzgerätes befinden sich Belüftungsöffnungen, die im Sinne der Betriebssicherheit nicht abgedeckt werden sollten.

- Das Netzgerät ist mit einem Schukostecker ausgestattet, welcher einen sicheren Schutzleiteranschluß für das Gerät bietet. Dies ist eine Sicherheitsmaßnahme. Falls der Stecker nicht an die Steckdose paßt, sollte ein Elektriker die Steckdose gegen eine neue austauschen.

- Das Gerät wird durch Abziehen des Netzstecker vom Stromnetz getrennt. Die Steckdose sollte sich daher in der des Geräts befinden und leicht zugänglich sein.

- Der Rechner sollte nur mit dem vom Hersteller angegebenen Netzgerät betrieben werden.

- Ersetzen Sie den Akku nur durch einen baugleichen Typs, sonst besteht Feuer- und Explosionsgefahr! Der Akku sollte nur vom Fachpersonal ausgewechselt werden.

- Dieses Gerät enthält einen Nickel-Kadmium-Akku. Im Interesse des Umweltschutzes bitte nicht mit dem Hausmüll entsorgen. Eine Entsorgung kann je nach nationalen Vorschriften über eine Kundendienststelle oder entsprechende Sammelstellen erfolgen.

Warnung *Der Akku kann bei falscher Handhabung explodieren! Nicht zerlegen oder in offenes Feuer werfen! Von Kindern fernhalten und nach Gebrauch sofort entsorgen!*

Abbreviations

Abbreviation	Meaning
ACPI	Advanced Configuration and Power Interface
AMD	Advanced Micro Devices
APM	Advanced Power Management
ASKIR	Amplitude shift keyed infrared port
ATA	AT Attachment (Advanced Technology Attachment)
ATAPI	AT Attachment Packet Interface
BIOS	Basic Input/Output System
CMOS	Complementary Metal Oxide Semiconductor
CPU	Central Processing Unit
DIMM	Dual In-line Memory Module
DMA	Direct Memory Access
DRAM	Dynamic Random Access Memory
SDRAM	Synchronize Dynamic Random Access Memory
D-STN	Dual Scan STN (Super Twisted Nematic)
D-STN XGA	Dual Scan STN (Super Twisted Nematic) Extended Graphics Array
ECP	Enhanced Capabilities Port
EDO DRAM	Extended Data Output DRAM
EIDE	Enhanced IDE (Integrated Drive Electronics)
EPP	Enhanced Parallel Port
FDC	Floppy disk controller
FIR	Fast Infrared
GB	Gigabyte (1GB = 1,073,741,824 bytes or 1,024MB)
HP SIR	Hewlett-Packard Serial InfraRed
I/O	Input/Output
IDE	Integrated Drive Electronics (internal hard disk drive interface)
IEEE	Institute of Electrical and Electronics Engineers
IrDA	Infrared Data Association
IRQ	Interrupt ReQuest
ISA	Industry Standard Architecture
JEIDA	Japanese Electronic Industry Development Association. A Japanese trade and standards organization. The PC card specifications JEIDA 4.1 and PCMCIA 2.0 are the same.
KB	Kilobyte (1KB = 1,024 bytes)
LAN	Local Area Network
LCD	Liquid Crystal Display
LCM	Liquid Crystal Module

LED	Light Emitting Diode
Li-Ion	Lithium Ion (battery)
MB	Megabyte (1MB = 1,048,576 bytes or 1,024KB)
MESI	Modified Exclusive Shared and Invalid (protocol)
MHz	MegaHertZ
MIDI	Musical Instrument Digital Interface
MMU	Memory Management Unit
MMX	MultiMedia EXtensions
MPEG	Motion Picture Experts Group
MS-DOS	Microsoft Disk Operating System
Ni-MH	Nickel Metal Hydride
NTSC	(National TV Standards Committee) The US color TV standard administered by the FCC. It currently broadcasts at 525 lines of resolution that are transmitted as 30 interlaced frames per second (60 half frames per second, or 60 "fields" per second in TV jargon).
PAL	(Phase Alternating Line) A European color TV standard that broadcasts an analog signal at 625 lines of resolution 25 interlaced frames per second (50 half frames per second).
PCI	Peripheral Component Interconnect
PCMCIA	Personal Computer Memory Card International Association
PGA	Pin Grid Array
PIO	Programmed Input/Output
POST	Power On Self-Test
RAM	Random Access Memory
ROM	Read Only Memory
RTC	Real Time Clock
SIR	Serial Infrared
SMI	System Management Interrupt
SPP	Standard Parallel Port
SRAM	Static Random Access Memory
SVGA	Super Video Graphics Array
S-Video	S-video hookups use a special 5-pin connector rather than the common RCA phono plug.
TFT	Thin Film Transistor
TFT XGA	Thin Film Transistor Extended Graphics Array
USB	Universal Serial Bus
VGA	Video Graphics Array
XGA	Extended Graphics Array
ZV Port	Zoomed Video Port

Personal Inventory

This Notebook computer system is designed for years of productive and pleasurable computing. Use this section to keep notes about details of your purchase. Update this section when you add new options.

Date of Purchase:	
Dealer's Name:	
Phone:	
Address:	
E-Mail Address:	
WWW Site:	

Type of LCD screen display *Noted on the outside box

❑ 12.1" Color TFT SVGA LCD

❑ 12.1" Color DSTN LCD

❑ 14.1" Color TFT XGA LCD

❑ Others: _____

Serial Number:	
CPU Type:	
Hard Disk Capacity:	
Memory Capacity:	
Optional Equipment:	

Chapter 1

Introduction

Welcome to the Notebook PC

Congratulations on your purchase of the Notebook PC. Your Notebook features the latest advances in portable computing technology. The Notebook's modular design provides maximum expandability without compromising portability. The high-performance Intel Socket-370 Celeron series 333/366/400/433/466/500/533 MHz CPU and enchanced IDE hard drive provide you with extra processing power for handling complex graphics and running large programs. Two PCMCIA slots give you the ability to use standard PCMCIA cards, such as a LAN adapter or memory cards.

The Notebook also features two factory fixed expansion module bays. The first accommodates an FDD. The second expansion module bay accommodates a 5¼" CD-ROM or DVD-ROM drive.

To keep pace with the accelerated advances in technology, your Notebook provides extensive upgrade options, including an exchangeable LCD panel, CPU upgrades, a removable hard disk drive, PC card (FAX MODEM card), and an optional port replicator.

Unpacking the Notebook

The Notebook comes securely packaged in a sturdy cardboard shipping carton. If anything is missing or damaged, please contact your Notebook dealer immediately.

The shipping carton should contain the following items:

- The Notebook computer
- An AC adapter
- An AC power cord
- A Standard Ni-MH or Li-Ion Battery Pack
- Software Drivers and Utility Diskettes
- This User's Manual
- A Carry Bag

Do not throw the packaging materials away. You may need them later if you have to ship the computer for repairs.

Accessories and Optional Devices

- Additional Battery Packs
- SO-DIMM 3.3V TSOP DRAM Modules (32MB/64MB/128MB modules)
- Internal K56flex Fax/modem MDC card (optional)
- Port Replicator

Getting to Know Your Computer

Opening the LCD Panel

At the front of the Notebook you will find a retaining latch on the display panel which locks the display in closed position when the Notebook is not in use.

1 Slide the display panel latch to the right until the display panel releases, and then raise the LCD screen.

2 At any time you can tilt the display toward or away from you to a comfortable viewing position.
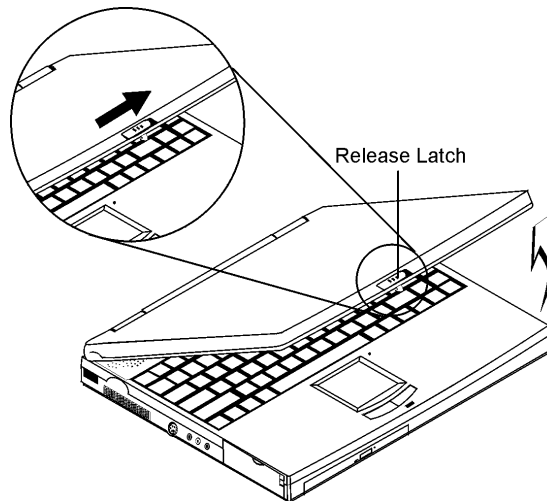
Caution: *To avoid damage to the display panel:*
1. Try not to slam the display upon closing it.
2. Try not to place any object on top when it is closed or open.
3. Be sure the system is turned off or in suspend mode before you close the display panel.

With the LCD screen open, you will see several features important for operating your Notebook computer.
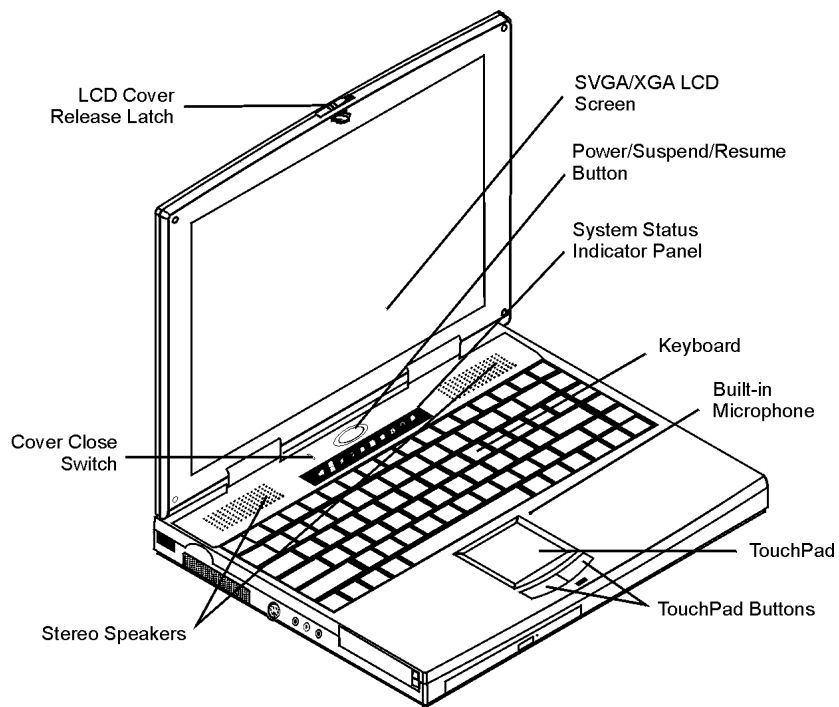
Each of these features is briefly described below.

LCD Cover Release Latch

Slide this latch to the right to open the LCD cover.

Cover Close Switch

When you close the LCD cover, this switch turns off the LCD backlight.

Stereo Speakers

The internal speakers provide true stereo sound.

SVGA/XGA LCD Screen

Your Notebook computer is equipped with a replaceable color Liquid Crystal Display (LCD) screen that supports up to 1024 x 768 x 16M LCD resolution utilizing a AGP BUS. A built-in backlight allows you to comfortably view the screen even when ambient lighting is low.

Power/Suspend/Resume Button

Pressing this button when the computer is in Suspend mode will resume normal operation.

Keyboard

Your computer has an 84-key enhanced keyboard that provides all the functions of a standard 101/102 key keyboard.

The Built-in Microphone

The built-in microphone is located to the right of the TouchPad.

TouchPad

The TouchPad is hardware-compatible with the IBM PS/2 mouse and software-compatible with the Microsoft mouse.

TouchPad Buttons

The buttons below the TouchPad correspond to the left and right buttons on a standard mouse. The PS/2 compatible mouse will work with the Notebook PC's TouchPad simultaneously.

System Status Indicator Panel

The system status indicator panel keeps you informed of the computer's operating status.

There are also three system status indicators — Power, Suspend, and Battery Charge — on the LCD cover.

(plug icon)	When lit indicates that the AC adapter is connected.
A B	The *A* icon indicates that the primary battery is being charged (or discharged when the AC adapter is not connected). The *B* icon has no function in this current version since there is no secondary battery available.
(lightning icon)	When Orange indicates that the AC adapter is connected and the battery is being charged. When the battery is charged to full capacity the LED is Green.

☽	Indicates when lit that the Notebook is in Suspend mode. See Chapter Three for information on Power Management modes.
▯	Appears when the PCMCIA card is inserted to the PCMCIA slot. See Chapter Three for information on using PCMCIA cards.
▤	Appears when the computer is accessing the FDD drive.
⬮	Indicates that the computer is accessing the hard disk drive
1	Indicates that the keyboard is in Num Lock mode.
A	Indicates when the keyboard is in Caps Lock mode. In this mode, the keyboard produces uppercase text when you press a key. When you press the Caps Lock key again, the indicator goes off and the keyboard produces lowercase text.
⬇	Indicates when the keyboard is in Scroll Lock mode. Some applications will move information across the screen differently when Scroll Lock is on.

Front Panel
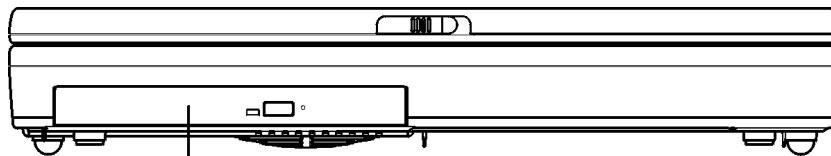
CD-ROM or DVD-ROM
Compartment

The CD-ROM/DVD-ROM Drive

Your Notebook comes with a swappable 20X (or higher) 5.25" IDE CD-ROM or DVD-ROM drive.

Right Panel

Removable Hard Disk Drive   Battery Lock   RJ-11 Connector Cover

Floppy Disk Drive   Battery   DC-IN Connector
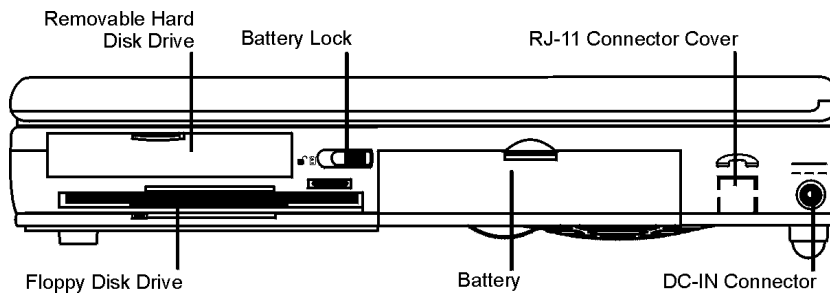
Removable Hard Disk Drive

Your computer includes a removable 2.5-inch IDE hard disk drive (9.5mm/12.7mm in height) with 1.44GB or more storage capability. The Notebook PC's BIOS automatically detects IDE drive types.

The Floppy Disk Drive (FDD)

Your Notebook has a 3.5" floppy disk 1.44MB (FDD) installed.

Battery Lock

Slide the battery lock to the left when removing the battery module from the battery bay.

Battery

Your Notebook comes equipped with a factory-installed battery pack module. After the battery runs down, the module can be removed and replaced with a charged battery.

RJ-11 Connector Cover

If you install an optional internal modem in your Notebook (see *Installing Optional Devices*, Chapter Four), this cover must first be removed to connect an RJ-11 connector to the modem.

The RJ-11 connector cover can easily be levered free with a flat-tipped screwdriver.

DC IN Connector

Plug the AC adapter into this connector. Refer to Chapter Two, *Connecting to a Power Source* for more information.

Left Panel
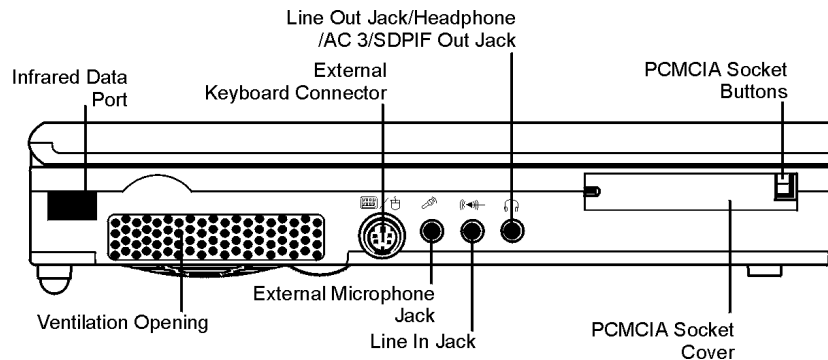
Infrared Data Port

The Infrared Data Port allows your Notebook to become truly wireless. You can use this port to transfer large amounts of data very quickly to any other machine (Notebook computers, printers, etc.) which is also equipped with an IrDA-compliant IR port. This allows you to print documents without any inconvenient cable hookups.

Ventilation Opening

Please don't block this opening during operation of the system.

External Keyboard Connector

You can connect an external keyboard, numeric keypad, or IBM PS/2 compatible mouse to this socket, marked with the keyboard/mouse icon. You can operate both the internal keyboard and an external keyboard at the same time.

External Microphone Jack

This mono microphone jack is used to connect an external microphone.

Headphone/Line-Out//SPDIF Jack

Connect stereo headphones to this jack to listen to the Notebook's audio output.

SPDIF engine receives the digital format data, regroup the date to be synchronous signal and de-multiplexes and audio and other digital data.

Line In Jack

This jack is for auxiliary input. The auxiliary input can be used to connect an external audio source (cassette player, CD player, etc.) to your Notebook.

PCMCIA Sockets Cover

Open this cover to access the PCMCIA sockets. The computer's PCMCIA sockets let you extend the capabilities of your computer by inserting PC cards. The cards are "hot swappable" and change cards without having to reboot your computer.

PCMCIA Socket Buttons

The computer has two PCMCIA connectors (two PCMCIA type II connectors or one PCMCIA type III connector). The upper socket is PCMCIA socket "0"; the lower socket is socket "1".

Rear Panel

USB Port   Parallel Port   Port Replicator Connector   TV Out Port

Serial Port   Ventilation Opening   External Monitor Port
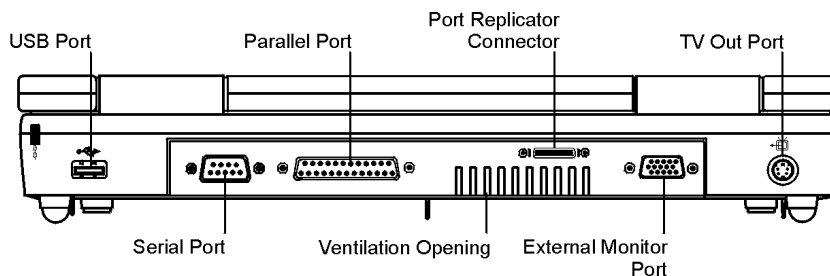
USB Port

Your computer includes one Universal Serial Bus (USB) port. USB is the latest development in Plug and Play technology.

It will eventually replace the need for separate connectors for external keyboards, serial ports, and parallel (printer) ports.

Serial 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.

Parallel Port

This port allows you to easily connect a parallel printer or plotter using this 25-pin bi-directional female port.

Ventilation Opening

Please don't block these opening when the system is in operation.

Port Replicator Connector

Connect the optional Port Replicator to the 20-pin Port Replicator connector.

The Port Replicator further enhances your Notebook's portability by making it easy for you to connect and disconnect peripheral devices to your Notebook. Please consult your dealer for details.

External Monitor Port

This port allows you to easily connect an external VGA/SVGA display monitor into your Notebook using the 15-pin female connector.

TV Out Port

This 4-pin S-Video port allows you to view the Notebook's Video output on a television monitor.

The Bottom Panel

Expansion Compartment   Smart Fan
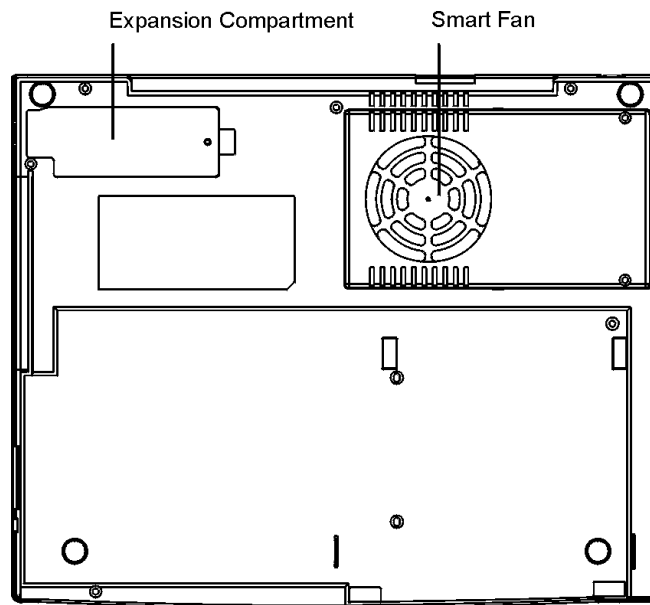
Smart Fan

The Smart fan prevents the Notebook's CPU and other internal components from becoming overheated. Keep this fan unobstructed to allow proper ventilation to the Notebook's internal components. There is an automatic thermal sensor that would detect the temperature of the CPU.

Smart Fan
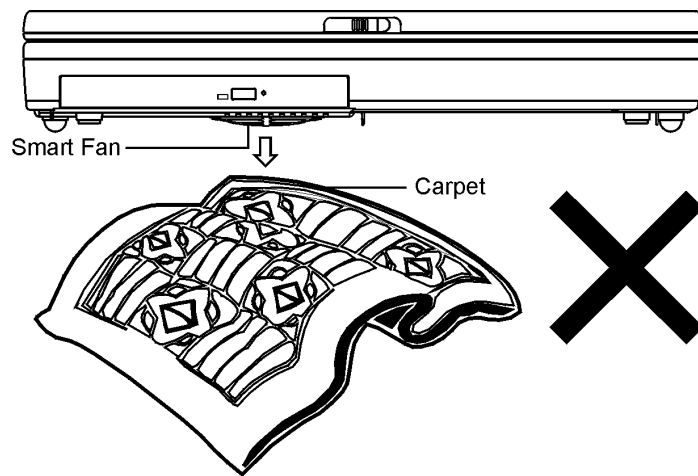
Carpet

Warning:
1. Try not to work on top of a carpet, rug, paper, on the lap or any material that are easily ignited when the notebook temperature reaches a certain level.
2. We recommend you to work on top of the table or some other hard material.

Expansion Compartment

This compartment houses the Internal K56flex Fax/modem MDC module. For more information refer to *Installing Optional Devices* in Chapter Four.

Preparing the Notebook for Transport

To prepare the computer for transport, you should first disconnect all peripherals. Make sure the computer is turned off before you do this. After disconnecting all peripherals, close the rear port covers to protect the connectors. The Notebook's hard disk head is self-parking. This means that the Notebook can be directly turned off from the DOS prompt.

Chapter 2

Getting Started

Operating Environment

To ensure long use and continued high performance, consider the following factors when setting up your computer:

- Set the computer on a flat, stable surface. To prevent damage, avoid using the computer where it is expose to strong vibration.

- Place the computer away from electromagnetic or radio frequency interference.

- Avoid using or storing where it will be exposed to extreme temperatures. Do not leave the computer in direct sunlight, over a radiator, or near a heat source for a long period of time. High temperature can damage the circuitry.

- If you are using the computer with the AC adapter, do not allow anything to rest on the power cord. Do not place the computer where people can step on or trip over the cord.

- The openings on the computer are provided to protect the computer from overheating.

Connecting to a Power Source

Connecting the AC Adapter

A universal AC adapter is provided to supply your computer with power and also charge the computer's battery pack. The adapter's AC input voltage can range anywhere from 100 to 240 volts, covering the standard voltages available in almost every country.

The power cord for the AC adapter requires a two-hole grounded AC outlet. To connect the computer to an external power source:

1 Plug the AC adapter's connector into the DC-IN connector on the right side of the computer.

2 Connect the power cord to the AC adapter and then to a wall outlet.
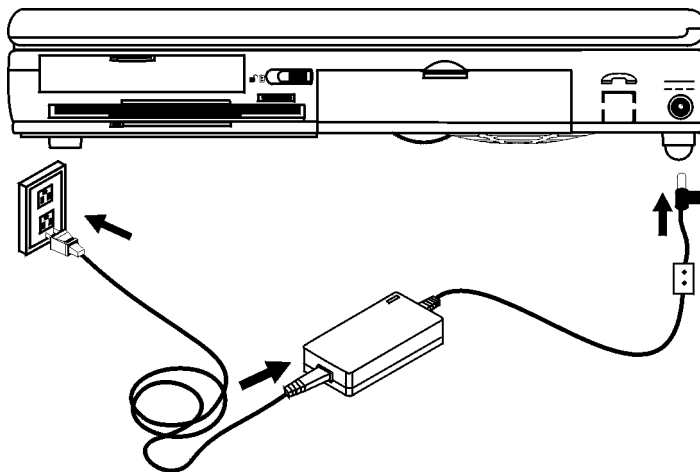
Caution: *The best kind of AC power source to connect your Notebook to is a UPS (Uninterruptible Power Supply). Lacking this, use a power strip with a built-in surge protector. Do not use inferior extension cords as this may result in damage to your Notebook. The Notebook comes with its own AC adapter. Do not use a different adapter to power the computer and other electrical devices.*

Whenever possible, keep the AC adapter plugged into the Notebook and an electrical outlet to recharge the battery.

Caution: *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.*

Turning On Your Notebook Computer

Turn on your Notebook by pressing the power button. Hold the button down for a second or two and release. The Power-On Self Test (POST) runs automatically.

After the POST is completed, the computer reads the operating system from the hard disk drive into computer memory (this is commonly referred to as "booting" a computer). If Windows 95 is installed, it should start automatically.

To turn the Notebook off, save your work and close all open applications, click on **Start**, then **Sh<u>u</u>t Down** and select **Shut down the computer** and click "**<u>Y</u>es**" or press the power button for 4 seconds.

About the ROM BIOS

Your Notebook computer is configured with a customized Basic Input/Output System (BIOS), which tests the computer and determines how the computer reacts to specific instructions that are part of programs.

About the Power-On Self Test

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

Two kinds of malfunctions can be detected during the POST:

- Error messages that indicate a failure with the hardware, the software, or the BIOS. These **critical malfunctions** prevent the computer from operating at all or could cause incorrect results. An example of a critical error is a microprocessor malfunction.

- Messages that furnish important information (such as memory status) on power-on and boot processes. 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.

The POST does not test all areas of the computer, but only those that allow it to be operational enough to run any diagnostic program. If your 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.

Resetting the System

After installing a software application package, you may be prompted to reset the system to load the changed operating environment. To reset the system, or "**reboot**," press the **[Ctrl] + [Alt] + [Delete]** keys simultaneously. This is known as "**warm boot**." This key combination acts as a "**software**" reset switch when you encounter hardware or software problems, which lock up the Notebook.

If this key combination does not shut down the Notebook, you can reset the Notebook by using the Notebook's power button. Should the Notebook lock up for some reason, pressing this button powers the Notebook off.

Adjusting the Brightness

To adjust the brightness on the LCD screen, press and hold down the **[Fn]** key in the lower left hand corner of the keyboard and press the **[F7]** key to reduce the brightness or **[F8]** to increase the brightness.

Operating on Battery Power

Your computer comes with a rechargeable battery pack that lets you operate the computer without an external power source. When the battery pack is fully charged, you can operate the computer for approximately **2 – 2.5** hours for Ni-MH battery and **2.5 – 3.5** hours for Li-Ion battery under the following conditions:

- The battery pack initially has a full charge.

- No peripheral devices are installed.

- The disk/CD-ROM drives run no more than 10% of the time.

Note: Only use batteries that are approved by an authorized dealer. All batteries are **not** the same and therefore should not be treated as such. Using the wrong battery could cause serious damage to your computer and yourself through toxic emissions.

Inserting and Removing the Battery Pack

The battery pack should already be inserted in your Notebook computer when you unpack it. If not inserted, follow these directions:

1 Turn off the Notebook and open the battery bay door. Slide the battery release latch to the left.

2 Insert the battery and slide the battery release latch to the right and close the battery compartment cover.

To remove the battery pack:

1 Turn off the computer and open the battery bay door.

2 Slide the battery release latch to the left.

3 Lift the battery finger grip and pull the battery from the bay.

Finger Grip

Battery Release Latch

Battery Bay Door
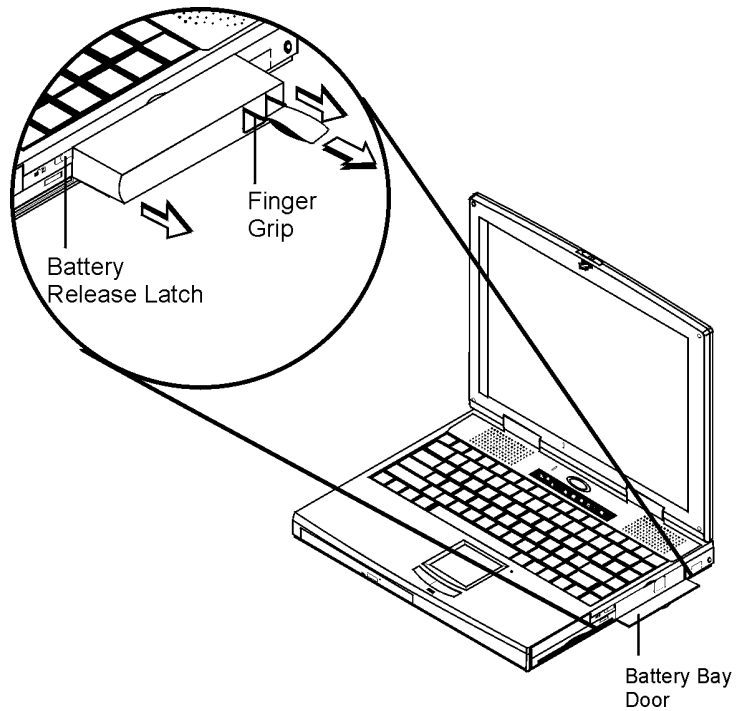
Charging the Battery Pack

The installed battery pack charges automatically any time the computer is connected to the AC adapter and an external power source. The Ni-MH battery pack can be fully charged in about 2.5 hours when the computer is turned off or over four hour when the computer is on. The Li-Ion battery can be fully charged in about 4 hours when the computer is turned off.

Note: It is a good idea to occasionally discharge the battery pack fully to preserve its operating performance. For details, see "Batteries & Battery Discharge" in Chapter Eight.

A Word about Ergonomics

Ergonomics is the study of how people with their different physical characteristics and ways of functioning relate to their working environment (the furnishings and machines they use).

The goal of Ergonomics is to incorporate comfort, efficiency, and safety into the design of keyboards, computer desks, chairs, and other items in an effort to prevent physical discomfort and health problems in the working environment.

Following are a few tips to help you work effectively without a lot of physical discomfort:

- Purchase a chair with armrests and good back support. Don't slouch when sitting; keep your back straight.

- Place the LCD panel or external monitor so that it is a little *above* eye level — when using a word processor remember to *Scroll Down* often to ensure you are reading or typing at the top of the screen; this will help to prevent neck strain:

- Try to place the LCD panel or external monitor so that there is little glare from the sun on the monitor.

- Walk around the room every hour.

- Every half-hour look away from the computer screen for a few minutes.

- Place everything that you need to work within easy reach.

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Chapter 3

Using the Notebook Computer

The LCD Display

The Notebook comes with a Color LCD display panel that supports the following display options:

Display	Resolution	Color Depth
12.1" DSTN/TFT SVGA	800 x 600	256 Color
14.1" TFT XGA	1024 x 768	256 Color

All displays support up to 1024 x 768 x 64K color mode on an external CRT. The LCD screen display results can be adjusted by changing the LCD panel angle, and the display brightness.

Adjusting the LCD Screen Display

The LCD screen display can be adjusted by the following key combinations.

Key Combinations	Definitions
[Fn] + [F5]	Decreases the contrast level of the display (for DSTN display only)
[Fn] + [F6]	Increases the contrast level of the display (for DSTN display only)
[Fn] + [F7]	Decreases the brightness level.
[Fn] + [F8]	Increases the brightness level.
[Fn] + [F12]	Switches between LCD and CRT displays.

LCD Care

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

- When you are not using the computer, keep the LCD screen closed to protect it from dust.

- If you need to clean your LCD screen, use a soft tissue to gently wipe the LCD surface.

- Do not put your fingers or sharp objects directly on the surface and never spray cleaner directly onto the display.

- Do not press on, or store any objects on the cover when it is closed. Doing so may cause the LCD to break.

External CRT Display

You can hook up an external monitor through the 15-pin CRT connector. Three configurations are available:

- LCD only
- Simultaneous display of the LCD screen and CRT monitor
- CRT only

You can switch between these display configurations by pressing the key combination **[Fn]** + **[F12]**. For information on connecting an external display, please refer to Chapter Four.

A Tour of the Notebook's Keyboard

The Notebook's keyboard uses a standard QWERTY layout with the addition of special function keys and an embedded numeric keypad for number intensive data entry. Your keyboard supports Windows 98 by incorporating the two Windows specific keys. With the two Windows 98 keys you will be able to access and take advantage of many of the time-saving features of Windows 98 software.

The QWERTY layout means the alphanumeric keys located on the keyboard are in the same position as those found on a standard typewriter.
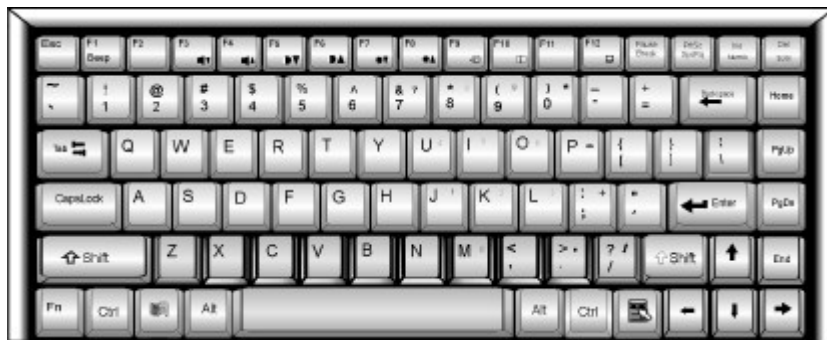
[Esc]: The Escape key allows you to cancel any specific command you may have just keyed in.

[PrtSc/SysRq]: Pressing this key will cause whatever is on the screen at the time to be printed. Consult your software user's manual for more information. To use SysRq, press the [Fn] key and the [PrtSc/SysRq] key together.

[Scroll Lock]: When Scroll Lock is engaged, pressing the cursor control keys moves the cursor by fields of text. Press the scroll lock key once to engage this mode. Pressing it a second time will disengage the Scroll Lock function.

[Pause/Break]: The Break key is used in conjunction with the Control key ([Ctrl] + [Break]) to cancel a command.

[Alt]: Used by itself, the Alternate Key has no effect in carrying out any commands, but functions with the [Ctrl] and [Del] key ([Alt] + [Ctrl] + [Del]) to reboot or restart your operating system program.

[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. Note that when the [Caps Lock] key is engaged, the Caps Lock Status symbol comes on in the System Window display.

[Shift]: Similar to the typewriter's Shift key, this key allows you to type letters in "UPPER CASE."

[Ctrl]: Used by itself, the Control key has no effect in carrying out any commands. Its function depends mainly upon the type of software you are currently using.

Windows 95/98 Keys

There are two specials Windows 95/98™ keys on the keyboard. A brief description of each key is given below.

The key with the Window 95/98™ Logo activates the *Start* menu button on the bottom left of the screen.

This key activates the properties menu and is equivalent to pressing the left mouse button.

The Notebook's Hot Key Controls

Key Combinations	Definitions
[Fn] + [F1]	This key combination enables/disables the mute the PC beep sound.
[Fn] + [F3] + [F4]	This key combination turns off the volume.
[Fn] + [F3]	Increases the speaker volume.
[Fn] + [F4]	Decreases the speaker volume.
[Fn] + [F5]	Decreases the contrast level of the display (For DSTN only).
[Fn] + [F6]	Increases the contrast level of the display (For DSTN only).
[Fn] + [F7]	Decreases the brightness level.
[Fn] + [F8]	Increases the brightness level.
[Fn] + [F9]	This key combination toggles the display between the LCD display and an external TV.
[Fn] + [F10]	Pressing the key combination switches the display 640 x 480 and 800 x 600. The display must be set to 640 x 480 in the control panel beforehand.
[Fn] + [F12]	Switches between LCD and CRT displays.
[Ctrl] + [Pause Break]	Halts the current operation
[Ctrl] + [C]	Halts the current operation without clearing the keyboard buffer
[Ctrl] + [Alt] + [Del]	This is the warm boot key combination used to reset the computer.

The Function Keys

Notice the twelve function keys in the top row of the keyboard. These keys appear in sequence ([F1], [F2], [F3], . . . & [F12]) from left to right. The functions of these keys vary with respect to the operating system and software in use.

The Cursor Keys

The four direction (arrow) keys control the movement of the cursor on the screen. They do not affect the displayed characters.

Embedded Numeric Keypad

The embedded numeric keypad consists of 15 keys that make number intensive input more convenient. Like the [Num Lock] key, these keys are labeled in blue on the keycaps. Numeric assignments are located at the upper right of each key.

When the numeric keypad is engaged, the NumLock icon will appear in the System Window. The keypad is activated by pressing the [Fn] + [NumLk] 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] + [NumLk] hot key on the Notebook keyboard.

The TouchPad

Using the TouchPad

The TouchPad is a pressure sensitive pointing device that provides all the features of a two-button mouse.

1 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.

3 The TouchPad offers a method of making selections called *double-tapping* and this corresponds to double-clicking with a mouse.
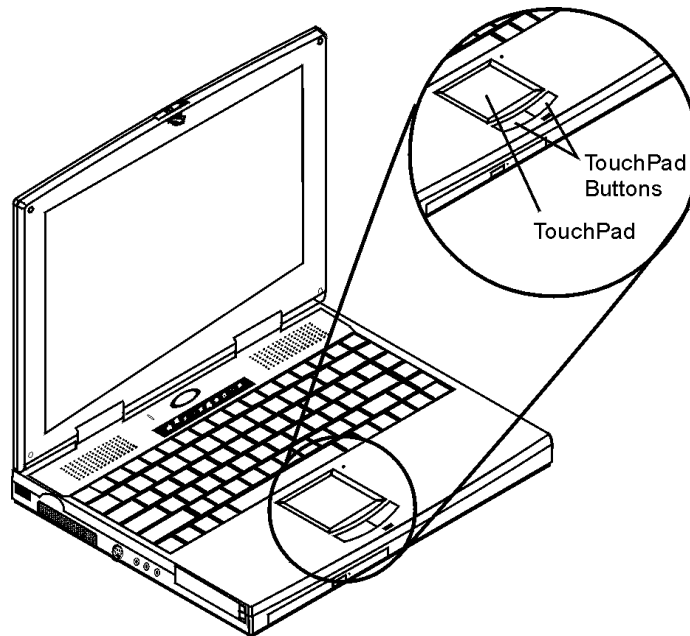
4 Clicking the buttons below the TouchPad makes selections, drags objects, or performs a variety of other functions depending on the software.

TouchPad Precautions

The TouchPad is a pressure sensitive device. Please take note of the following precautions.

- Make sure the TouchPad does not come into contact with dirt, liquids or grease.

- Do not touch the TouchPad if your fingers are dirty.

- Do not rest heavy objects on the TouchPad or the TouchPad buttons.

You can use the TouchPad with Microsoft Windows as well as non-Windows applications.

Connecting an External Tracking Devices

The system will only enables you to use one tracking device whether it is an internal or external tracking device.

Connecting an External PS/2 Device or Microsoft's IntelliMouse

When an *external PS/2 device or Microsoft's IntelliMouse* is connected to your system, the touchpad will be automatically disabled.

Data Storage and Retrieval

Data storage and retrieval are two of the most fundamental tasks you will perform when working with your computer. The Notebook is equipped with a 3.5" floppy disk drive (FDD) and a hard disk drive (HDD). The HDD is removable allowing for easy upgrades.

These two types of drives and their associated circuitry comprise your computer's main data storage and retrieval system. The following sections will cover instructions for operating each of these drives.

The Floppy Disk Drive

Your Notebook features a removable high-density 3.5-inch floppy disk drive module. It is designated drive A by the operating system.

Caring for Disks

Under normal conditions a diskette's rigid plastic case will protect it from damage. However, data stored on floppy diskettes are easily corrupted.

- Never touch the magnetic surface of the disk. When handling diskettes, take care that you don't drop them. Keep diskettes away from liquids.

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

- Do not expose diskettes to extreme temperatures or high humidity.

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

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

Caution: *Never turn off or reset the Notebook while the LED is on. Always try to store your diskettes in a dry, clean container, to protect them from the environment and magnetic fields.*

The Removable HDD Module

Your computer's hard disk drive is an integrated electronic drive, commonly referred to as an IDE drive, with a form factor of 2.5 inches. The formatted capacity of the Notebook's HDD is 2.1GB or above.

Removing and Replacing the Hard Disk Drive

The Notebook's hard disk is easily removed and replaced to allow easy upgrades. To remove the hard disk drive:

1 Open the HDD cover and slide the latches to release the HDD.

2 Gently pull on the HDD cover and slide the HDD out of its bay.

2
Slide the latch

1
Open the
HDD Cover

3
Pull on the HDD
cover to remove
the HDD
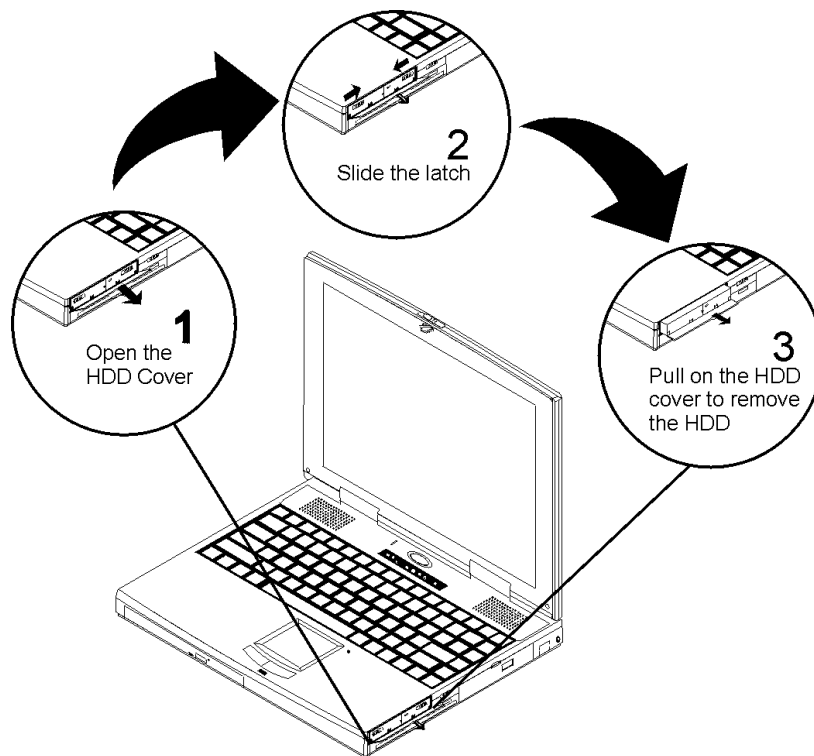
3 To reinsert the HDD module, simply slide the HDD into its bay until it mates with its connector.

4 Lock the HDD module by sliding the latches in the opposite direction just as when you are releasing the HDD mentioned in Step 2. Close the HDD cover.

The CD-ROM

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

- Supports CD-DA, CD-ROM mode 1 and mode 2, Multi-Session Photo CD™, CD-I/Video CD (pcs.)
- Low power consumption
- 12.7mm height

Precautions for Handling CD-ROM Discs

- Always hold the disc by the edges, avoid touching the surface.
- Use a clean, dry, cloth to remove dust, smudges, or fingerprints. Wipe from the center outward.
- Do not write or place objects on the surface of the disc.
- Store discs in a cool dry place not to damage the disc.
- Do not use benzene, thinners, or cleaners with detergent. Only use CD-ROM cleaning kits.
- Do not bend or drop the discs.

Loading a Disc

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

1 Push the CD-ROM eject button on the CD drive door. Gently pull the tray all the way out.

2 Carefully lift the CD-ROM by the edges and make sure the shiny surface is face down (the side with no writing on it). Carefully insert the CD-ROM onto the tray. Push the CD-ROM down gently so that it snaps onto the center ring.

3 Push the tray back into the drive.

To remove a CD-ROM, do the following:

1 Check the LED display and make sure that the computer is not accessing the CD-ROM drive.

2 Push the eject button and pull the tray all the way out.

3 Carefully pick up the CD by the edges and – while pressing down on the center ring – remove the CD-ROM from the tray.

Note: Do not insert any foreign objects into the disc tray. If you experience difficulty when ejecting the CD disk tray, stretch a paper clip (or use a pin or a thin metal rod) and insert it into the emergency eject hole located on the right side of the front panel. The CD disk tray should eject immediately. This procedure can also be used to remove a CD from the drive when the Notebook is powered off.

The Multimedia Sound System

The Notebook's built-in audio capabilities allow you to take advantage of a wide range of education and entertainment multimedia software. The Notebook is equipped with two internal stereo speakers, a microphone, and input 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.

External audio devices can be connected to the Line in jack. All audio features are software controlled. The Notebook's multimedia sound system includes the following features:

- A Creative chipset
- Supports Windows Sound System compatibility
- Full Duplex operation
- Dynamic filtering reduces noise and distortion rate
- 16-bit digitized audio playback
- A built-in microphone for convenient recording
- Two built-in stereo speakers
- Digitized audio recording through the Notebook's built-in microphone or any external source

Audio Volume Control

The Notebook is equipped with hot-key volume controls: Pressing the [Fn] + [F3] hot-key combination decreases the audio output volume, press the [Fn] + [F4] hot-key combination to increase the volume.

IR Communication

At the left side of the Notebook is the Infrared (IR) communication module that consists of one Light Emitting Diode (LED) and one photo sensor.

Its function is to act as a transmitter and the photo sensor acts as a receiver. The IR module enables you to perform wireless, serial communication. Use an FIR-specified application to transmit or receive data via the Notebook's FIR module.

The following table briefly describes each of the IR modes available. You must set these modes in BIOS. Please refer to Chapter Five for information on the BIOS Setup program.

IR Type	Description
FIR	Fast Infrared.
IrDA	Infrared Data Association protocol

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.

- Ensure that the Notebook's FIR module is properly lined up with the other device's Infrared Communication module with an angle not exceeding ±15°.

- There should be a clear, unobstructed path between the two Infrared Communication modules; otherwise the optical signal will be blocked.

- 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.

30° <1m>
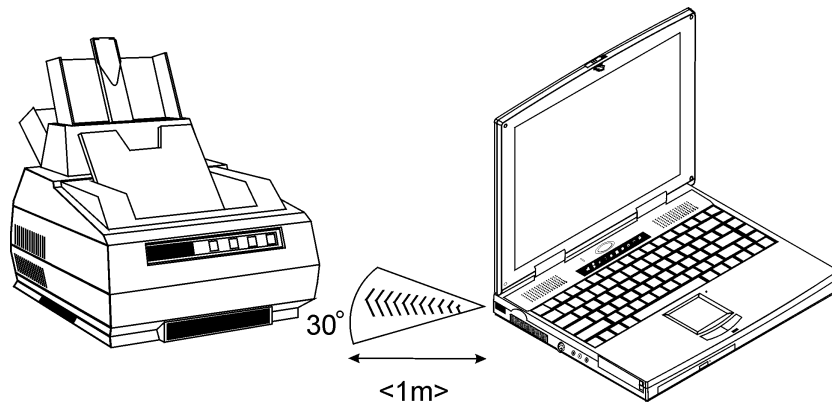
PCMCIA Cards and Expansion Sockets

The Notebook features two PCMCIA expansion sockets designed to interface with one or two Type II cards or stacked to accommodate one Type III card.

Inserting a PCMCIA Card

The computer will emit a medium tone followed by a high tone when a PC card is inserted. When you eject a card, the computer will emit a high tone followed by a medium tone. You can insert and remove a PC card whether the computer is turned *On* or *Off*.

Follow these instructions 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 into the socket until it locks into place. The system will beep once to indicate that it has detected the PC card.

To remove a PC card push the respective eject button, the button will pop out, push the button again to eject the PCMCIA.

The upper button will eject a Type II PCMCIA card while 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.

Eject Buttons

Insert Card

PCMCIA Card
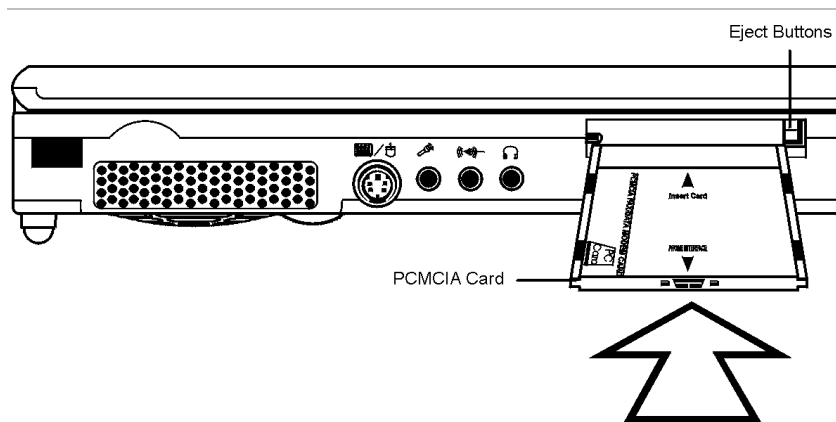
Note: When inserting a Type III PC card, make sure the connector is inserted in the lower socket. Before ejecting a PC card, ensure that it is not being accessed by the System.

 For example, if the 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.

Power Saving Modes

This section contains information on the Notebook's power system, including the AC Adapter, the battery system, recharging the battery, and tips for conserving battery power. 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 AC Adapter

The AC Adapter's primary function is to provide power to the Notebook. If the AC Adapter is not functioning properly, please consult your dealer immediately for support.

The Battery Power System

A fully charged pack will provide approximately 1.6 to 2.0 hours of battery life. The battery life can be extended by using the power management features.

Before using the computer on battery power for the first time, check the battery status icon on the Windows Toolbar to make sure the battery is fully charged. See *Battery Status* later in this section for a description and explanation of the Windows Battery icon.

Charging the battery takes about 2.5 hours for the Ni-MH battery pack. The Li-Ion battery pack takes about 4 hours to charge when the system is in off state. If possible, always charge the battery completely.

Removing the Battery Pack

To remove the battery pack from its compartment, please refer to Chapter Two, *Inserting and Removing the Battery Pack*.

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 follows the instructions below:

1 Insert the battery into the battery compartment and turn on the Notebook. If the battery is completely without power go to the next step. Otherwise, let the battery run down until the battery low-low warning beeps are heard. The system will automatically enter Suspend mode.

2 Turn the Notebook off. Connect the AC adapter and let the battery fully recharge. When the 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-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.

Automatic Battery Pack Charging Function

You can automatically charge the battery pack by using the AC Adapter. The charge time is about two and a half-hours (Ni-MH) or four hours (Li-Ion) when the Notebook power is turned off. The following table summarizes the charging modes:

Charge Mode	Charge Time
Fast	• **Ni-MH Battery Pack** 2.5 hours with the system off or in Suspend mode. • **Li-Ion Battery Pack** 4 hours with the system off or in Suspend mode.
Trickle (Ni-MH battery pack only)	When the system is on or off, a trickle charge is supplied to the Ni-MH battery pack to maintain full charge capacity after being charged.
Pre-Charge (Li-Ion battery pack only)	A pre-charge is supplied to the Li-Ion battery pack.

Note: If the temperature of the Ni-MH battery rises, we would temporarily close down the battery charging function in order to extend the battery life. The charging process would continue if the temperature drop to a certain level. If you prefer to cut short the charging time, we would recommend you to turn off the power of the system.
As for Li-Ion battery, there is no limitation since the temperature will not rise during the charging process.

Battery Status

Windows 95 and Windows 98 has an applet in the Control Panel that will display an icon in the Windows taskbar indicating when the Notebook is running on battery power or is attached to the AC adapter. This applet also displays a meter that indicates how much charge is remaining in the battery.

For Windows 95

To open this program click on *Start*, then *Settings*. Click the **Control Panel** icon.

In the **Control Panel**, double click the **Power** icon. The screen will display the illustration shown below:
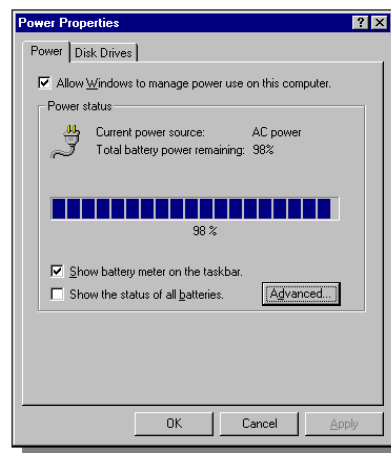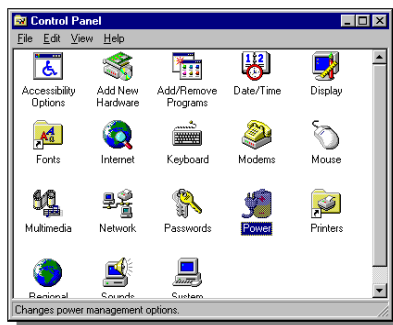
Click the box next to *Show battery meter on the taskbar* to have the power icons displayed on the Windows taskbar.
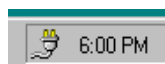
When the AC plug is displayed, it indicates that the AC adapter is attached to the Notebook.
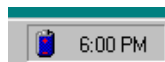
When the battery icon is displayed, it indicates that the Notebook is running on battery power.

Double click the battery icon to display the following screen:
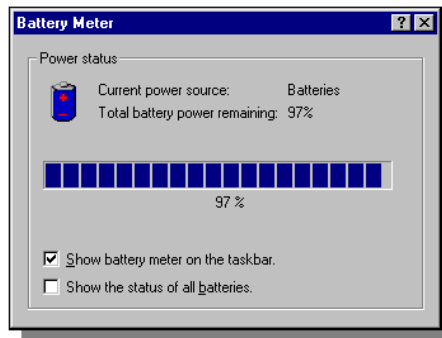
This screen indicates how much battery charge remains.

For Windows 98

In the "**Control Panel**", double click the "**Power Management**" icon to display the "**Power Management Properties**" as shown on the right screen.

Power Scheme

In setting your power options, click on the "**Power Scheme**" tab to select the power scheme most appropriate for you in using your computer.
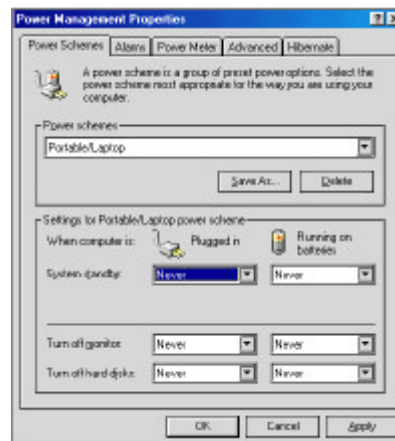
- Home/Office Desk
- Portable/Laptop
- Always On

Settings for Portable/Laptop power scheme

Under this item you are allowed to set the time setting for the system to enter the standby mode whether you are operating the system by battery or AC power source.

Turn off monitor

Under this item, you are allowed to set the time setting to turn off the monitor whether you are operating the system by battery or AC power source.

Turn off hard disks

Under this item, you are also allowed to set the time setting to turn off the hard disks either operated by battery or AC power source.
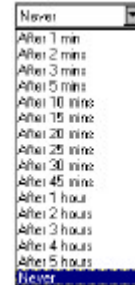
Power Meter

Click on the "**Power Meter**" tab to display the type of power source you are using to operate your notebook computer.

Current power source: Batt   This indicates the Notebook is
Total battery power remaining: 98%   operated with battery.

Current power source: AC ρ   This indicates the Notebook is
Total battery power remaining: 96%   operated with an AC power source.

If the battery charge drops below a certain voltage level, a beeping sound will prompt you to save your work and turn off the computer, or connect the AC adapter. The message is:

> You should change your battery or switch to outlet power immediately to keep from losing your work.

Battery Low Warning

When the pack initially reaches the "**Battery Low**" state approximately 10 ~ 15 minutes of the usable battery life is left.

You will hear an audible beep signal every 1.5 seconds alerting you to the "**Battery Low**" status. When the battery power reaches the "**Battery Low Low**" status the beeping sound will accelerate.

Your battery now has 1 ~ 2 minutes of battery charge remaining. You must save your data or connect AC power immediately; otherwise, you may lose your data.

Note: The Notebook can not be powered on while the battery is in the "Battery Low" state: to power the Notebook on once the battery pack has reached the "Battery Low" state, the AC adapter must be connected.

Sound	Meaning
Continuous beeping every 1.5 seconds	**Battery Low:** Indicates that there is 10 to 15 minutes charge remaining.
Beeping accelerates	**Battery Low Low:** Indicates that there is 1 to 2 minutes of battery charge remaining. Save your work and turn off the Notebook, or connect the AC adapter.

When there is only one minute of battery charge remaining, the Notebook will suspend to the HDD (if a PHDISK HDD partition has been set) and power off. If a PHDISK HDD partition has not been set the Notebook will suspend to DRAM. You should connect AC power and resume to save your work.

Windows 95 OSR/2 has a Smart Battery function that allows you to change the settings for the battery warning signals. Please consult the Windows 95 OSR/2 help for details.

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

Small Battery for the 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.

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 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.

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. Standby mode is also commonly known as System Sleep 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.

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 is turn off and most of the computer's peripheral components are put in their lowest active states. These include the hard disk and the LCD display. The computer enters Suspend when the system remains idle for a specified amount of time. Press the Power button 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 Chapter Five, *The Power Menu.* 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.

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.

- System suspends to hard disk when battery level is critically low. A PHDISK partition must be created on your hard drive to enable this feature. Refer to Chapter Seven for details.

- Pressing and holding the power button for 1 second.

> **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.

How to Resume

Pressing the power button causes the system to resume operation after entering the Suspend mode. Resuming returns the system's operation to the point in your application where the suspend mode 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

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 (*Suspend to Disk* or *Suspend to RAM)*	• Transits automatically after specified time out. • Press Power button. • Battery low state.	• Press the Power button
Hard Disk spin down	• 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
- Operates transparent to the user (behind the scenes)

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

Connecting Peripheral Devices

External Keyboard/Numeric Keypad

You can use your Notebook computer with an optional external keyboard, numeric keypad, or IBM PS/2 compatible mouse. The devices are "hot pluggable". You do not have to power down the Notebook to connect these devices.

1   Plug the keyboard cable connector into the PS/2 keyboard socket on the left side of the computer.
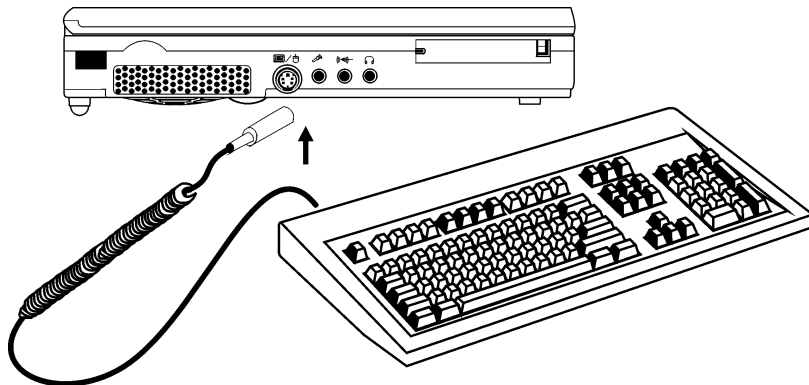
To connect a PS/2 compatible mouse to your computer:

1   Plug the PS/2 mini-din connector into the keyboard/mouse socket on the left of the computer.

2 The mouse works immediately after being plugged in.

External Monitor

You can use an optional external VGA/SVGA display monitor with your computer.

1 Plug the monitor's signal connector into the external monitor port. Secure the screws on the connector.
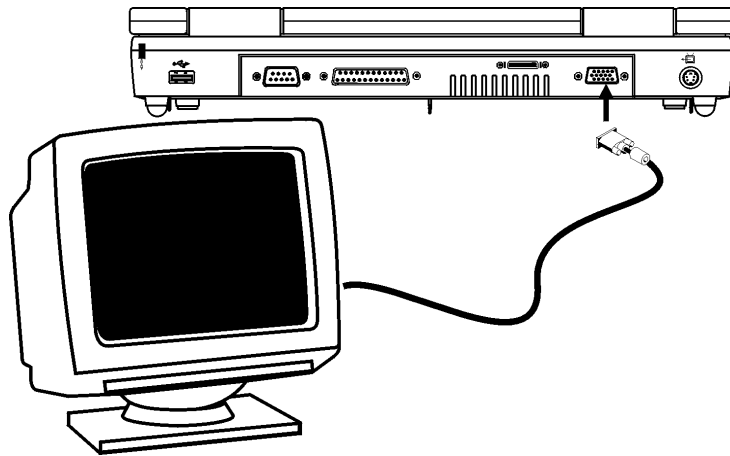
2 Plug the monitor's power cable into a wall outlet.

3 Before you turn on the monitor, turn on your computer and use the System Setup to designate the screen(s) that you want to use.

Parallel Printer

Your Notebook computer is equipped with an enhanced bi-directional parallel port. Use the parallel port to connect the computer to a printer or plotter.
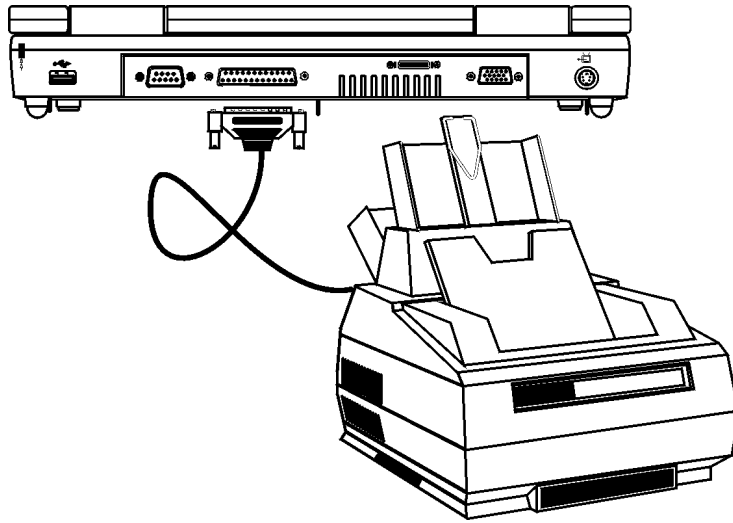
Serial Devices

The RS-232C serial interface port is used to connect a peripheral device that can both input data to the computer and receive data from the computer. The serial port is designated as COMA. After you connect a peripheral device to the serial port, secure the two small screws on the connector.
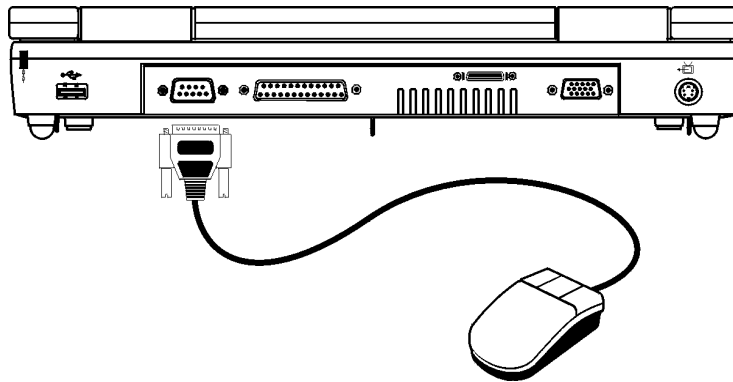
Note: You cannot use the TouchPad with a serial mouse at the same time. When the serial mouse is connected to your Notebook, the TouchPad will be automatically disabled.

Audio Sources and Output Devices

The built-in audio let you record and play back sound from a variety of sources. These features include:

- Scalable sampling rate (from 4 to 48 kHz) and compression ratios that gives complete control of record time to required storage ratio.

- 3-D positional audio DirectX™ 5.0

- Digitally controlled volume with muting.

- Auxiliary line-in and speaker line-out for maximum flexibility.

- Built-in microphone and speaker to enhance portability.

To adjust the volume of your internal speakers or speakers attached to the stereo speaker port, use the volume controls found in your application or in the Windows Volume Control accessory.

Your computer comes with several software utilities and programs already installed. Among these is a group of programs that let you control the computer's various audio capabilities.

External Microphone Jack

Audio Out Jack

Headphone Jack
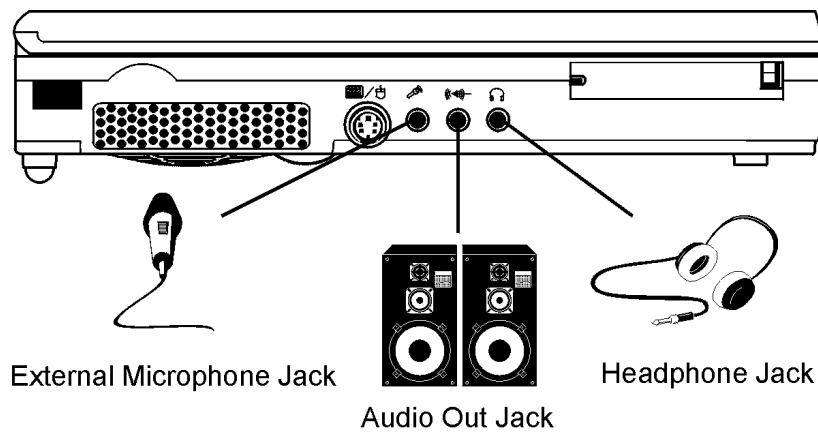
Port Replicator

You may optionally purchase a port replicator for your Notebook computer. Rather than having to detach all your devices every time you take your Notebook computer with you, and then reattach them when you come back, all the devices connect to the port replicator, which you then connect to your computer through a single port.

USB Device

You may optionally purchase a USB (Universal Serial Bus) for your Notebook computer. USB devices such as mice, keyboards, and monitors are becoming more widespread throughout the Computer Industry. The USB bus has a total bandwidth of 1.5MB per second. Up to 127 devices can be attached in a daisy chain fashion. It is expected to be used for devices such as the mouse, keyboard, printer and scanner.

Flatbed Scanner
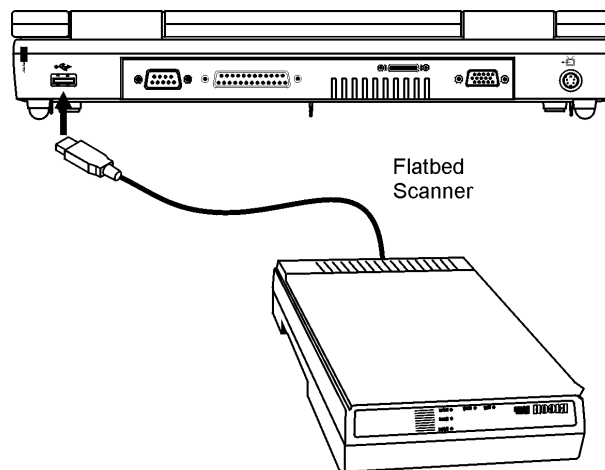
TV Out

You can connect a TV monitor to the Notebook's S-Video port and view the Notebook's video output.
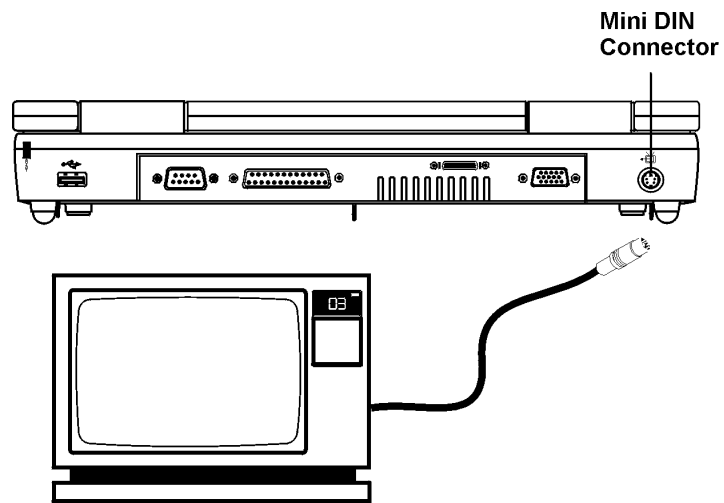
The TV Out port accommodates a Mini DIN type connector.

Installing Optional Devices

The K56flex Fax/modem MDC module can be installed in the expansion card bay of the Notebook.

1	Remove the Phillips screw from the expansion bay cover (1) and lift the cover free (2). Position the expansion card so the expansion card connector is facing down.
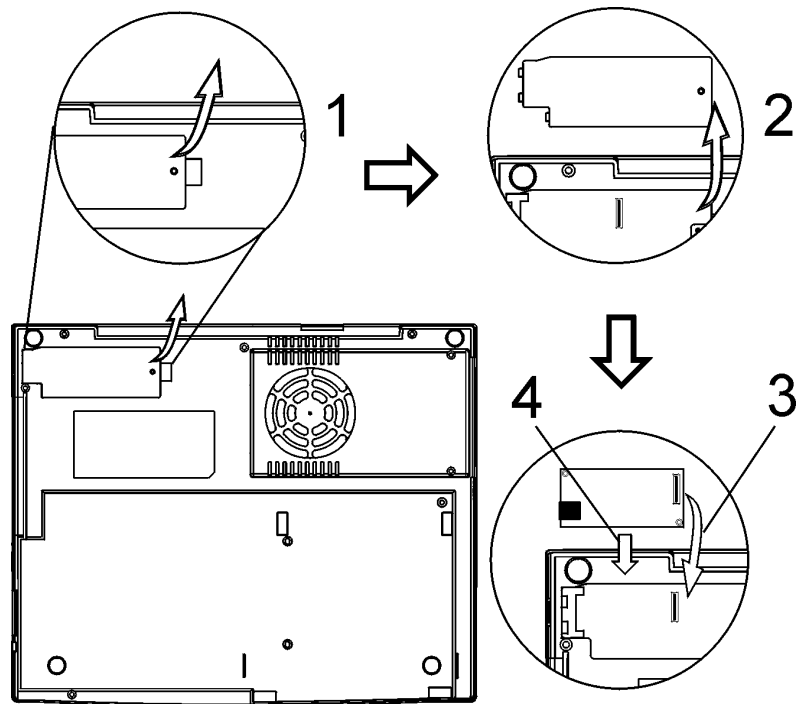
2 Insert the expansion card under the Notebook casing (3) and then push down on the card so its connector mates with the mainboard connector (4).

3 Replace the expansion bay cover and secure it with the screw you removed at *Step 1*.

Note: Before installing the Fax/Modem card you must first remove the RJ-11 connector cover, from the right side of the Notebook.

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Running BIOS Setup

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. 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.

Navigating through BIOS Setup

The Setup program has been designed to make it as easy to use as possible. 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.

Accessing the BIOS Setup Program

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

Item Specific Help

On the right side of the Setup screen is an area labeled Item Specific Help. This area will list navigation key shortcuts and information that is specific for the item that you are currently editing.

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 - 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.
Shift + Tab		Moves the cursor to previous position available in the field.
Minus key (-)	F5	Scrolls backward through the values for the highlighted field.
Plus key (+)	F6, Space	Scrolls forward through the values for the highlighted field.
Home	PgUp	Moves the cursor to the field at the top of the window.
End	PgDn	Moves the cursor to the field at the bottom of the window.
F9		Sets the parameters for the current menu to their *default* values.
F10		Save and Exit.
Enter		Will select a sub menu or show a range of options for a field.

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. Use the [**Esc**] key to return to the Main menu.

General Help

In addition to the Item Specific Help window, the BIOS Setup program also provides a General Help screen can be called up from any menu by simply pressing [**F1**] or the [**Alt**] + [**H**] combination.

Use the [**PgUp**] and [**PgDn**] keys or the up and down arrow keys (-ˉ) 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.

Save Changes and Exit 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:
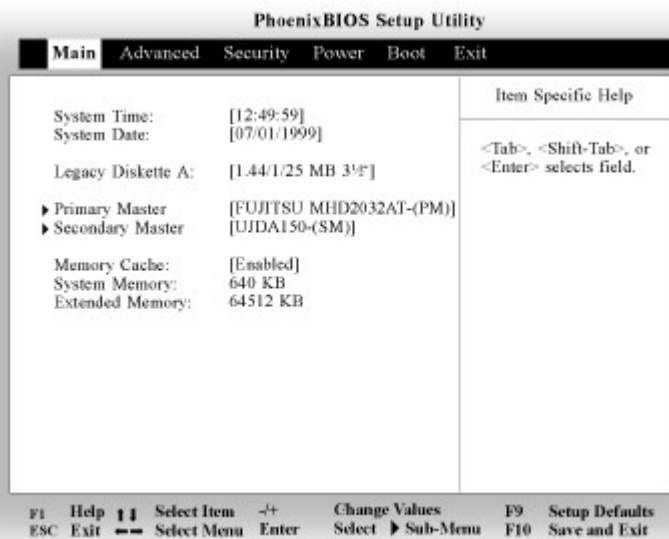
System Time

Sets your system to the time that you specify). The format is hour, minute, second. 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. 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
- 1.44/1.25 MB 3½" (default value)

þ Primary Master

This field is used to configure the IDE Hard Disk installed in the system.   ⌡ Primary Master   [None]

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

```
                        PhoenixBIOS Setup Utility
┌──────────┐
│   Main   │
└──────────┘
      Primary Slave  [None]                      Item Specific Help

   Type:                    [Auto]          User = you enter
   Cylinders:               [ 7944]         parameters of hard-disk
   Heads:                   [ 16]           drive installed at this
   Sectors:                 [63]            connection.
   Maximum Capacity:        4100MB          Auto = autotypes
                                            hard-disk drive
   Multi-Sector Transfers:  [16 Sectors]    installed here.
   LBA Mode Control:        [Enabled]       1-39 = you select
   32 Bit I/O:              [Disabled]      pre-determined type of
   Transfer Mode:           [Fast PIO 4]    hard-disk drive
   Ultra DMA Mode:          [Mode 2]        installed here.
                                            CD-ROM = a CD-ROM
                                            drive is installed here.
                                            IDE/ATAPI Removable =
                                            removable disk drive is
                                            installed here.

   F1   Help   ↑↓  Select Item   -/+     Change Values     F9   Setup Defaults
   ESC  Exit   ←→  Select Menu   Enter   Select ▶ Sub-Menu F10  Save and Exit
```
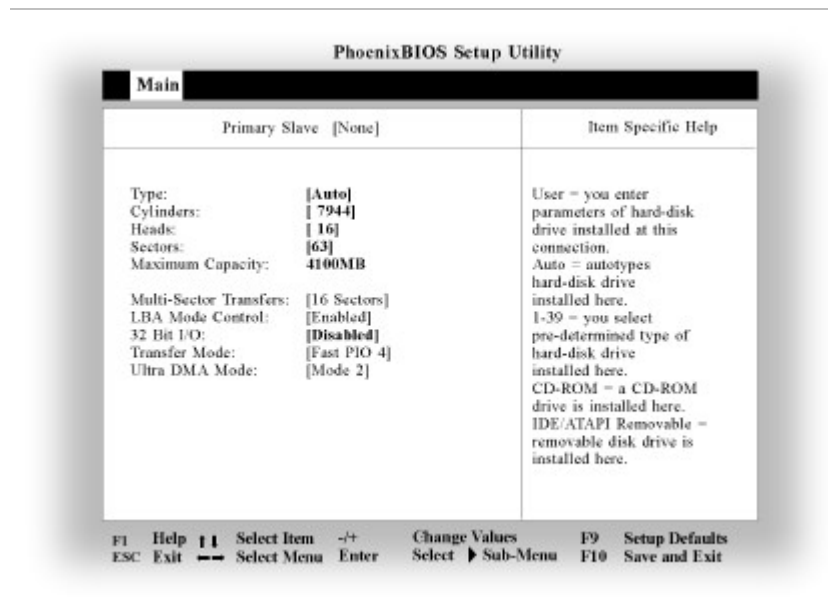
Note: Before attempting to configure a hard disk drive, make sure
you have the configuration information supplied by the manufacturer
of your hard drive. Incorrect settings can result in your system not
recognizing the installed hard disk.

Type

The following options are available for this field:

- Auto (default value)
- None

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*.

CD-ROM if a CD-ROM is installed as the IDE Adapter 0 Master.

To configure a drive that is not an IDE type drive, if it is *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.

ATAPI Removable if the drive is an ATAPI type drive that supports high-capacity storage diskettes. This option would be used in the event that you have swapped the CD-ROM or DVD-ROM for an ATAPI type removable drive.

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

This field configures the drive's number of sectors per track. 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. Set the Type field to *Auto* to provide the optimum transfer mode. Configurations are:

- Disabled (default value)

- 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. Set the Type field to *Auto* to provide the optimum transfer mode. Configurations are:

- Disabled (default value)
- 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. Set the Type field to *Auto* to provide the optimum transfer mode. Configuration options are:

- Disabled (default value)
- 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. Set the Type field to *Auto* to provide the optimum transfer mode. Configurations are:

- Standard (default value)
- Fast PIO 1
- Fast PIO 2
- Fast PIO 3
- Fast PIO 4

Ultra DMA Mode

When enabled, this option speeds up data transfer to and from the drive. In order to make changes to this field, the Type field must be set to *User*. Set the Type field to *Auto* to provide the optimum transfer mode. Configurations are:

- Disabled (default value)

- Mode 0
- Mode 1
- Mode 2

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

þ Secondary Master

The value in this field indicates the size of your Notebook's IDE Adapter 1 Master Hard Drive or the presence of a CD-ROM or DVD-ROM drive. The arrow head icon ⌐ indicates that this field contains a submenu. The submenu is used to configure an IDE Hard Disk or CD-ROM/DVD-ROM installed in the system.

To configure a hard disk drive or CD-ROM/DVD-ROM, move the cursor to highlight the *Secondary Master* field, and press the [Enter] key. The *Secondary Master* submenu screen will appear. When the *Type* field is set to "Auto", only the *32 Bit I/O* and *Ultra DMA Mode* fields are available. When set to "User" the fields and options on this submenu are the same as the *IDE Adapter 0 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.

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.

The Advanced Menu

Selecting *Advanced* from the menu bar displays the Advanced menu:
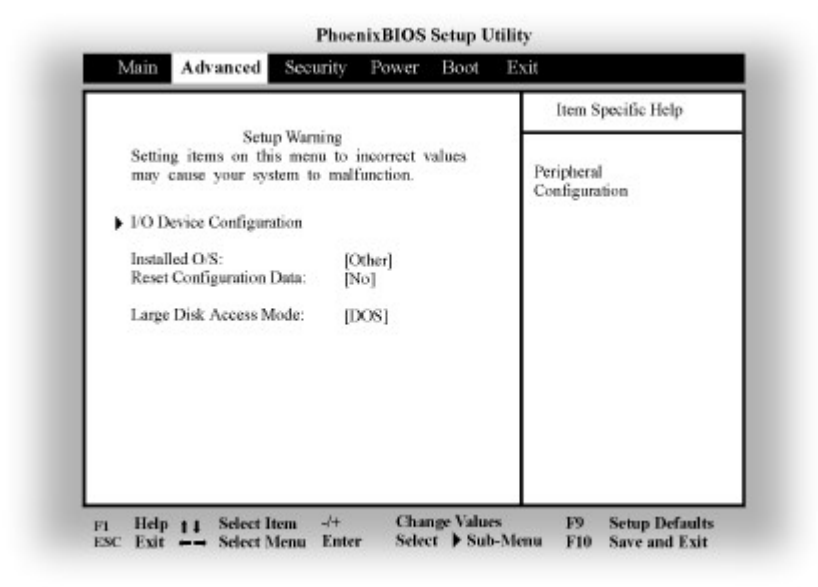
▶I/O Device Configuration

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:

- Disabled
- Enabled
- Auto (default value)

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

Serial Port B

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

- Disabled

- Enabled
- Auto (default value)

When *Enabled* is selected, the Base I/O Address menu item and Mode item appear.

Mode

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

- IrDA
- FIR (default value)

Parallel Port

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

- Disabled
- Enabled
- Auto (default value)

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)
- ECP
- EPP

Output Only mode allows data output but no data input. 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.

With the 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.

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.
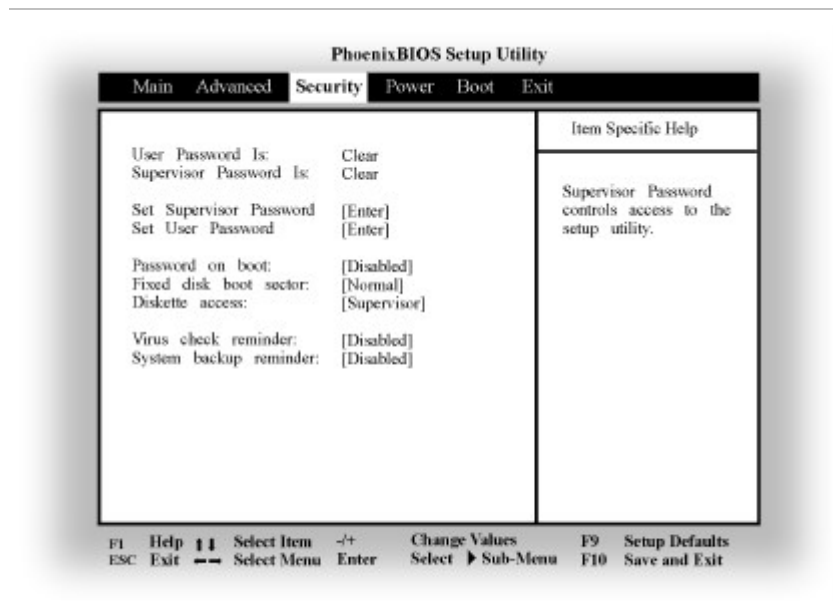
Floppy disk controller

Enables or disables the on-board floppy disk controller. The available options are:

- Disabled
- Enabled (default value)
- Auto

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.

```
                    PhoenixBIOS Setup Utility

 Main    Advanced   Security   Power   Boot   Exit

                                          Item Specific Help

 User   Password  Is:         Clear
 Supervisor  Password  Is:    Clear
                                          Supervisor  Password
 Set  Supervisor  Password    [Enter]     controls  access  to  the
 Set  User  Password          [Enter]     setup  utility.

 Password  on  boot:          [Disabled]
 Fixed  disk  boot  sector:   [Normal]
 Diskette  access:            [Supervisor]

 Virus  check  reminder:      [Disabled]
 System  backup  reminder:    [Disabled]




 F1   Help  ↑↓  Select Item   -/+    Change Values       F9    Setup Defaults
 ESC  Exit  ←→  Select Menu   Enter  Select ▶ Sub-Menu   F10   Save and Exit
```

A Note about Passwords

The BIOS Setup program allows you to specify passwords in the Security menu. The passwords control access to the BIOS and certain Security menu options during system startup.

The passwords are not case sensitive. In other words, a password can be entered using either upper or lower case letters; it makes no difference. If you forget your password, your system will have to be sent to the dealer to have it removed at your expense.

User Password Is:

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

Supervisor Password Is:

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

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

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.

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
- Supervisor (default value)

Virus Check Reminder

When enabled displays a reminder to check the system for viruses. The options for this field are:

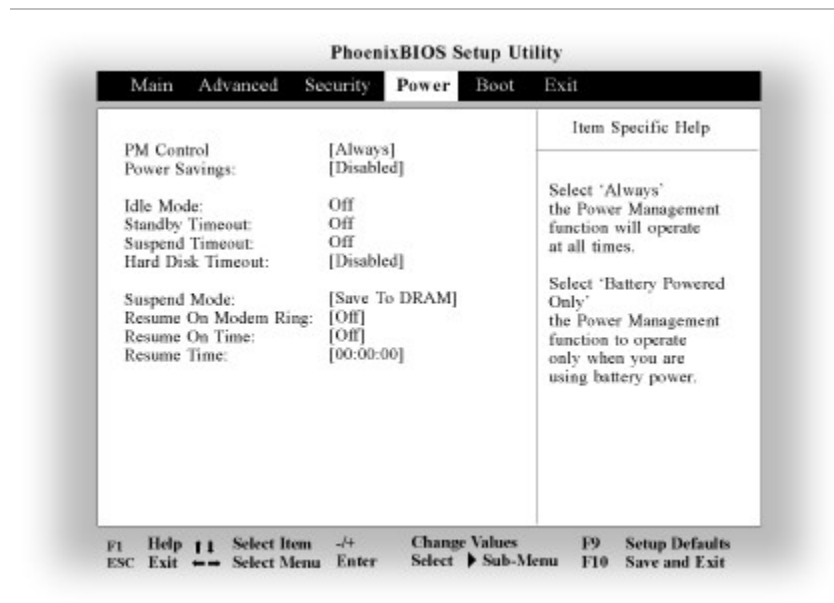- Disabled (default value)
- Daily
- Weekly.
- Monthly

System Backup Reminder

When enabled displays a reminder to backup the system. The options for this field are:

- Disabled (default value)
- Daily
- Weekly
- Monthly

The Power Menu

The Power menu allows you to enable and adjust the Notebook's advanced power saving features. Enabling these features will extend the life of the battery pack between charges. To make changes to Power Management settings, select *Power* from the menu bar. The following menu appears:

```
                    PhoenixBIOS Setup Utility

  Main   Advanced   Security   Power   Boot   Exit

                                              Item Specific Help

  PM Control              [Always]
  Power Savings:          [Disabled]
                                            Select 'Always'
  Idle Mode:              Off               the Power Management
  Standby Timeout:        Off               function will operate
  Suspend Timeout:        Off               at all times.
  Hard Disk Timeout:      [Disabled]
                                            Select 'Battery Powered
  Suspend Mode:           [Save To DRAM]    Only'
  Resume On Modem Ring:   [Off]             the Power Management
  Resume On Time:         [Off]             function to operate
  Resume Time:            [00:00:00]        only when you are
                                            using battery power.



  F1   Help  ↑↓  Select Item   -/+     Change Values      F9    Setup Defaults
  ESC  Exit  ←→  Select Menu   Enter   Select ▶ Sub-Menu  F10   Save and Exit
```

PM Control

This field allows you to choose the Power Management mode. You can set Power Management to operate at all times or only when you are using battery power. The options for this field are:

- Always (default value)
- Battery Powered Only

Power Savings

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

- Disabled (default value)
- Customized
- Maximum Power Savings
- Maximum Performance

If this menu item is set to *Disabled,* Power Management features will not function regardless of other field settings on the Power menu. The *Customized* option allows you to make your 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.

Idle Mode

This field allows you to set the system to idle mode.

- On
- Off (default value)

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 (default value)
- 1 Minute
- 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 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 (default value)
- 5 Minutes

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

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 (default value)
- 1 Minute
- 2 Minutes
- 4 Minutes
- 6 Minutes
- 8 Minutes
- 10 Minutes
- 15 Minutes
- 20 Minutes

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:

- Save to DRAM (default value)
- Save To Disk

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

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

Resume On Time

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

- Off (default value)
- On

Resume Time

This option allows you to specify the time the system will resume. The Resume On Time field must be set to *On* for the settings in this field to function. 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. You can also configure the way that the system will boot up.

To make changes, select *Boot* from the menu bar. The following screen appears:
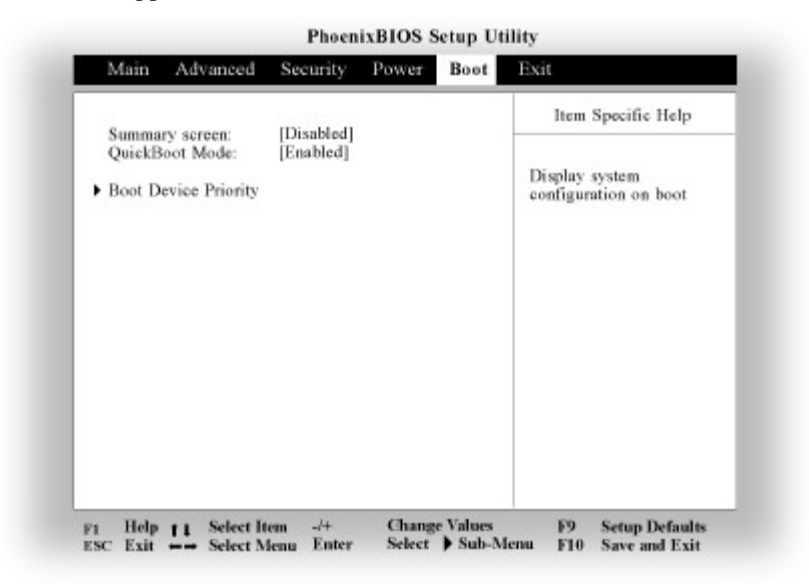
Summary Screen

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

- Disabled (default value)
- Enabled

QuickBoot Mode

Setting this field to Enabled allows the system to skip certain POST operations. Options are:

- Disabled
- Enabled (default value)

þ Boot Device Priority

Use the up and down arrows [↑↓] to select the boot device. Then press the plus key [+] to move the device up the list or the minus key [-] to move the device down the list.

After you have made your changes to the Boot Device Priority menu, press [Esc] to exit to the Boot menu.

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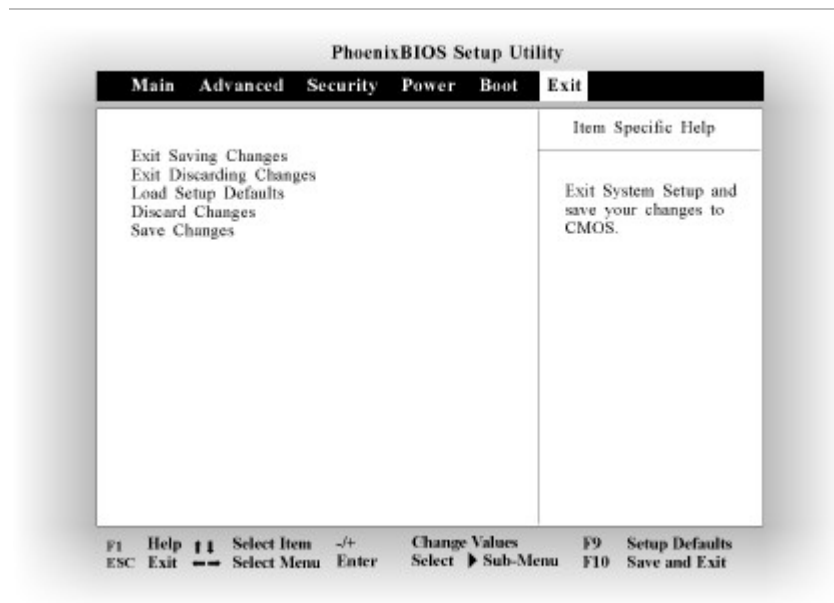
Note: Pressing the [Esc] key does not exit this menu. You must select one of the options from this menu or a menu bar item to exit this menu.

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.

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

Select *Yes* to save changes and exit the BIOS setup program or press [Esc] to return to the Exit menu. 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 Exit Discarding Changes.

Warning
Configuration has not been saved! **Save before exiting?**
[Yes]   **[No]**

Select *Yes* to save changes and exit the BIOS setup program, select *No* to exit BIOS without saving your changes, or press [Esc] to return to the Exit menu.

Load Setup Defaults

This option allows you to load the default values for each of the parameters on the Setup menus.

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

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.

Discard Changes

This option allows you to discard the selections you've made and restore the values you previously saved.

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

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.

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

Select *Yes* to save any changes to Non-Volatile RAM. To exit the BIOS Setup program, open the Exit menu and select one of the exit options.

Note: To exit BIOS Setup without saving your changes, select Exit Discarding Changes from the Exit menu and press [Enter]. When prompted by BIOS to save your changes before exiting, select [No] and press [Enter].

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The Software Utilities Disks

Installing Software Drivers in Windows 98

Windows 98 automatically installs and configures your hardware drivers. Although there are some slight differences in the interface, you will be able to intuitively follow the same procedures for Windows 98.

VGA Display Drivers

This section describes the operation and installation of VGA display software drivers supplied on the Driver Utility CD-ROM that is shipped with your computer.

1   Insert the CD-ROM Driver into your CD-ROM drive.

2   Click "**Start**" and Select "**Run**".

3   Type the following: **D:\Driver\Disk0\Setup** (If D is not your CD-ROM drive, substitute D with the correct drive letter).

4   Click on "**Setup**" to begin the Installation Wizard.

5   Follow the Wizard's on-screen instructions to complete the installation.

VGA Utilities

After you have restarted Windows, open the "**Control Panel**" and double click on the "**Display**" icon.

From the "**Display Properties**" window, select the "**Settings**" tab and click on the "**Advanced**" tab to enter the **RAGE MOBILITY AGP (English) Properties** window.
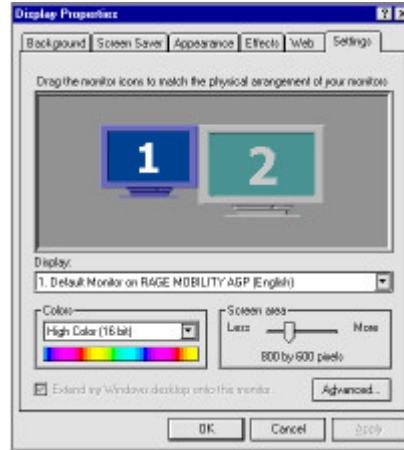
You will notice three new entries have been made in the Display Properties window: **ATI Displays** and **ATI Color**.

ATI Displays

The ATI driver allows three simultaneous outputs to TV, CRT and LCD.

Note: Before proceeding, be sure the monitor is connected to the notebook computer.

Option 1:   Simultaneous Display

This function supports two asynchronous simultaneous display paths
with the features of LCD/CRT, LCD/TV or CRT/TV).

1   Click on the "**Control Panel**" and double click on the "**Display**"
icon.

2   Click on the "**Settings**" tab to enter the "**Display Properties**"
window. Click on the "**Advanced**" button.

3   From the "**RAGE MOBILITY AGP (English) Properties**"
window, click on the "**ATI Display**" tab

4   Select the "**Monitor**" or "**TV**" tab by clicking on the button on
the upper left corner to enable and connect the video display to the
monitor or TV screen.

5   Click on the button at the lower part to assign which of the two
screen should be the "**Primary**" and "**Secondary**" or both as
"**Primary**" or "**Secondary**" display.

6   Click on the "**Apply**" tab and you will be ask to keep the new
setting. Click "**Yes**".

7   The notebook and external monitor/TV screen will now
simultaneously display the same image.

When Connecting Between the LCD and External Monitor Display

Use the **[Fn]** + **[F12]** hot keys to toggle between the LCD and
external monitor display.

If you prefer to use only one display in operating your system, press the **[Fn] + [F12]** hot keys will shut down the LCD display, external monitor display or both at this random order.

When Connecting between the LCD and TV Display

Press the **[Fn]** + **[F9]** will shut down the TV screen if you prefer to use only the LCD panel for your operation.

Option 2:   Virtual Desktop Reality

Use this to achieve a large desktop display on a small size screen. To do this:

- Adjust the screen resolution by increasing the desktop area in the "**Display Area**".

- Use your touch pad or mouse cursor to point at any area of the screen to move the window screen to a larger view.

To achieve the "**Dual View**" function, follow the procedures below:

1   Click on the "**Control Panel**" and double click on the "**Display**" icon.

2   Click on the "**Settings**" tab to enter the "**Display Properties**" window.

3   Use the cursor to click on the Monitor "**2**" screen on the sub-screen of the "**Display Properties**" window.

4   A message is shown on your screen to ask you whether to enable the monitor that you have chosen. Click "**Yes**" to accept the change.

5   Click the "**Apply**" tab to run the function and restart the computer.

6   After the system has restarted, your notebook LCD screen and the external monitor screen are connected with each other.

7 From the LCD display, open the "**Display Properties**" and use the cursor to drag it to the right thus moving the image to the external monitor screen.

ATI Color

You can adjust the right color for your window screen by moving the "**Brightness**" adjustment window to increase or decrease the right resolution for your screen display.

From the "**Color Curve**", you can also adjust the color of your display to the brightest red, green or blue.
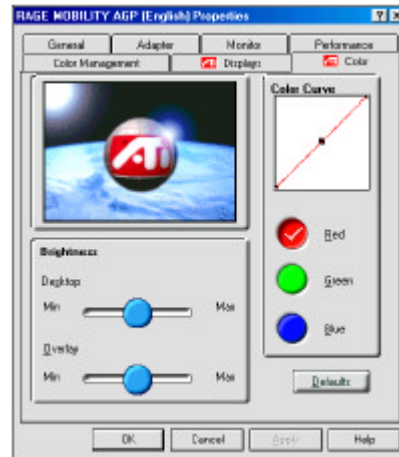
Installing the Creative Sound Drivers

To install the sound driver you must first remove the currently installed driver and then install the Creative Sound driver.

1 Click "**Start**" then click "**Settings**".

2 Double click the "**System**" icon. Click the "**Device Manager**" tab. Click the plus sign next to the entry labelled "**Other Devices**" (denoted by a yellow question mark - **?**).

3 Select "**PCI Multimedia Audio Device**" and then click the "**Remove**" button. You will be asked to confirm your action.

4 Click "**OK**" to remove the device. Do not click the "**Refresh**" button.

Now you can install the "**Creative Sound Driver**". Please follow these steps:

1 Insert the CD-ROM driver into your CD-ROM drive.

2 Click "**Start**" and Select "**Run**".

3 Type the following: **D:\Driver\Audio\Englih\Setup\Setup.exe**
(If D is not your CD-ROM drive, substitute D with the correct
drive letter).

4 The "**CREATIVE Software Installation**" window is shown on
your screen.

5 Follow the Wizard's on-screen instructions to complete the
installation.

From the directory of **C:\Creative\EV1938**, you will find the
following sub-directories of:

- Creative CD
- Creative MIDI
- Creative Mixer
- Creative Wave
- Creative Soundo'LE
- Wave Studio
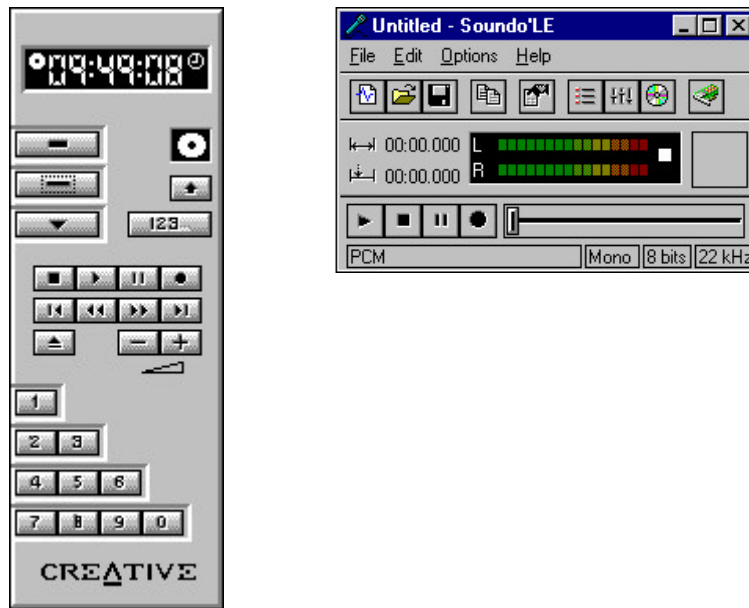
Installing Software Drivers in Windows NT

IDE Sound Driver

1 Insert the CD-ROM Driver into the CD-ROM drive.

2 Click "**Start**" and select the "**Setting**" then click on the "**Control Panel**". Double click on the "**Multimedia**" icon and select the "**Devices**" tab.

3 Click on the "**Add**" button and select the "**Unlisted or updated driver**" and click "**OK**".

4 From the "**Install Driver**" panel, use the browser to select the "**Creative SB Audio PCI 64V**" and click "**OK**".

5 Follow the instructional procedures to complete the installation.

Now that the installation is completed, you will find the devices installed in the system as shown on the right illustration.
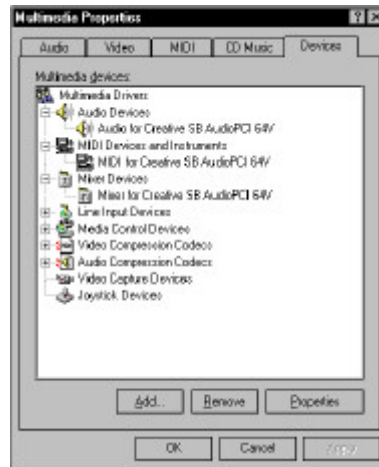
VGA Display Driver

1 Insert the ATI Installation CD-ROM into your CD-ROM drive.

2 Click "**Start**" and Select "**Run**".

3 Type the following: **D:\VGA\NTVGA\NT_b51\Setup** (If D is not your CD-ROM drive, substitute D with the correct drive letter).

4 Click on "**Setup**" to begin the Installation Wizard.

5 Follow the Wizard's on-screen instructions to complete the installation.

Using the PHDISK Utility

PHDISK.EXE is the utility program you use to prepare your hard disk for the Suspend to Disk function. It can be used to prepare either a dedicated partition or a DOS-based hidden file prior to storing system configuration data, and system and video memory. The PHDISK.EXE utility program can be found on the Drivers Utility CD-ROM that came packaged with your Notebook.

Command Line Options

The following table lists the PHDISK command line options and additional parameters. The PHDISK options can be called by using only the first letter of each option and parameter. For instance, either PHDISK /REFORMAT or PHDISK /R will invoke the reformat option.

Option	Parameters	Description
none		Displays the PHDISK Opening Screen
/CREATE	/PARTITION	Formats the Save to Disk partition
/DELETE	/PARTITION	Deletes all Save to Disk partitions
	/FILE	Deletes the space added to the Save to Disk partition added by /CREATE /FILE
/INFO		Displays data about the Save to Disk partition or file
/REFORMAT	/PARTITION	Reformats the Save to Disk partition after an error is detected

Below is an example of the kind of information that is displayed when PHDISK is called without a command line option.

This example displays both the Save to Disk FILE INFORMATION and Save to Disk PARTITION INFORMATION headers. These headers are displayed only when both a Save to Disk partition and a Save to Disk file exist.

The USAGE and OPTIONS headers are displayed in several screens displayed by PHDISK.

```
PHDISK 3.2 - Phoenix NoteBIOS 4.0 ™  Save to Disk Preparation Utility
Copyright © Phoenix Technologies Ltd.  1995 All rights reserved.

Save to Disk File information:
     Partition starts at sector xxxxxx (head xx, cylinder xx, sector xx)
     Partition size:  xxxx Kbytes total

Current System Status:
     You currently need a Save to Disk area of xxx Kbytes.  PhDisk will
     also require additional overhead and will automatically calculate the
     actual required space.

You have both a file and a partition.  Save to Disk will default to file.
Either delete the file, or the partition.

Usage: PHDISK [options]
/CREATE  (/FILE or /PARTITION) -- Create STD file or partition
/DELETE  (/FILE or /PARTITION) -- Delete existing STD file or partition
/INFO                          -- Information on STD disk area(s)
/REFORMAT /PARTITION           -- Reformat existing STD partition

This utility configures a hard disk to utilize the Phoenix NoteBIOS 4.0
Save to Disk feature.  Please refer to your user manual for information
regarding Save to Disk.
```

CREATE Option

The CREATE option measures the amount of on-board memory, and partitions a segment of the hard disk drive large enough to store all data present in the segment.

The CREATE option formats the Save to Disk partition or file, marking bad spots on the hard disk drive as they are found.

Automatic Memory Size Calculation

PHDISK automatically measures all system and video memory and calculates the exact amount of hard disk space required to store the maximum amount of data present in memory. The result of this measurement, [SIZE], is displayed on the PHDISK screen.

The total amount of system and video memory is calculated by one of the following formulas:

• If the video BIOS is VESA compatible:

- ➢ calculated memory = physical system memory
  + 0.3 Kbytes (Save to Disk overhead)
- If the system does NOT contain a VESA video controller:
  - ➢ calculated memory = physical system memory +
  - ➢ 2 Mbytes (maximum video memory required)
    + 0.3 Kbytes (Save to Disk overhead)

User-Specified Memory Size

The user may specify a certain amount of memory to be allocated for the Save to Disk function. However, the amount of space required to store all system and video memory is calculated automatically, whenever the CREATE option is used, even if the user specifies some desired amount.

If the amount specified by the user is equal to or greater than the calculated amount, then the user-specified amount is allocated. If the user-specified amount is less than the calculated amount, then no space is allocated, and an error message is displayed.

If you wish to allocate a specific amount of disk space for this function, enter the amount in kilobytes, as a simple decimal number, *without* any notation such as *K* or *KB*.

/PARTITION or /P

PARTITION creates a hard disk partition where only Save to Disk data can be stored.

/FILE or /F

FILE creates a file on the hard disk DOS partition that is used to store only Save to Disk data.

When the system and video memory outgrow the size of this Save to Disk space, the /FILE option can be used to re-allocate a new Save to Disk partition, and also eliminates the time consuming task of backing up the entire hard disk drive before running PHDISK /CREATE /PARTITION. The Save to Disk file can be a temporary or a permanent solution.

After the Save to Disk file is created, use PHDISK /DELETE /PARTITION to prevent Save to Disk from writing data there, instead of writing to the file. Save to Disk may not differentiate between the Save to Disk partition and the Save to Disk file until the partition is deleted.

/CREATE Option Syntax

The syntax of the PHDISK /CREATE option is:

PHDISK /CREATE [SIZE] [/FILE][/PARTITION]

The table below shows the various ways to use the /CREATE option:

Command	Description
PHDISK /CREATE /FILE PHDISK /C /F	Supplements an existing Save to Disk file-space (adds the amount of additional memory required as calculated by PHDISK)
PHDISK /CREATE /PARTITION PHDISK /C /P	Creates a Save to Disk partition using the amount of memory required as calculated automatically by PHDISK
PHDISK /CREATE 10240 /FILE PHDISK /C 10240 /F	Creates a 10 megabyte Save to Disk file

REFORMAT Option

The /REFORMAT option resets the pointers in a Save to Disk partition. This option should be used after a Save to Disk operation is terminated by a read or write error.

Note: Only Save to Disk partitions can be reformatted; Save to Disk files can not. If a formatting error occurs while writing to a Save to Disk partition, use the PHDISK /CREATE /FILE /DELETE options to reformat the Save to Disk file.

/REFORMAT Option Syntax

Command	Description
PHDISK /REFORMAT /PARTITION PHDISK /R /P	Reformats the Save to Disk partition.

DELETE Option

When DELETE is specified, the pointers and data in the specified Save to Disk area (file or partition) are deleted. Use DELETE when bad data are displayed after a Resume from Disk operation.

Note: DELETE erases the <u>data</u> in the Save to Disk space. To actually <u>remove</u> the Save to Disk space, use the DOS FORMAT command.

DELETE Option Syntax

Command	Description
PHDISK /DELETE /FILE PHDISK /D /F	Deletes the contents of the Save to Disk file
PHDISK /DELETE /PARTITION PHDISK /D /P	Deletes the contents of the Save to Disk partition

INFO Option

The /INFO option displays data about the Save to Disk partition or file.

INFO Option Syntax

Command	Description
PHDISK /INFO /FILE/PHDISK /I /F	Displays the size (in kilobytes) of the Save to Disk file
PHDISK /INFO /PARTITION PHDISK /I /P	Displays the size (in kilobytes) and location of the Save to Disk partition

Below is an example of the output of the /INFO option when a Save to Disk partition exists on the system:

```
PHDISK 3.2 - Phoenix NoteBIOS 4.0 ™  Save to Disk Preparation Utility
Copyright © Phoenix Technologies Ltd.  1995 All rights reserved.

Save to Disk File information:
      Partition starts at sector xxxxxx (head xx, cylinder xx, sector xx)
      Partition size:  xxxx Kbytes total

Current System Status:

  You currently need a Save to Disk area of xxxx Kbytes.  PhDisk will also
  require additional overhead and will automatically calculate the actual
  required space.
```

Messages

PHDISK returns various messages, not all of which are listed here. The following list emphasizes the error messages, including a possible course of action should one of them appear:

PHDISK Sign-on Message

```
PHDISK 3.2 - Phoenix NoteBIOS 4.0 (TM) Save to Disk Preparation Utility
Copyright (c) Phoenix Technologies Ltd.  1995 All rights reserved.

Save to Disk File information:
      Partition starts at sector xxxxxx (head xx, cylinder xx, sector xx)
      Partition size:  xxxx Kbytes total

Current System Status:
  You currently need a Save to Disk area of xxxx Kbytes.  PhDisk will also
  require additional overhead and will automatically calculate the actual
  required space.
```

Help Screen

The HELP screen is displayed when PHDISK is called without any command-line options. The following text is displayed when a Save to Disk space already exists:

```
Usage: PHDISK [options]
/CREATE (/FILE or /PARTITION)  --  Create STD file or partition
/DELETE (/FILE or /PARTITION)  --  Delete existing STD file or partition
/INFO                          --  Information on STD disk area(s)
/REFORMAT /PARTITION           --  Reformat existing STD partition


This utility configures a hard disk to utilize the Phoenix NoteBIOS 4.0
Save to Disk feature.  Please refer to your user manual for information
regarding Save to Disk.
```

Unrecognized Option

The following text is displayed when an invalid option or parameter is entered on the command line:

```
Error: (User option) is an unrecognized command line option.  For a
command line summary, invoke PHDISK without any parameters.
```

Fatal Error

The following text is displayed when a hard disk error is detected during any Save to Disk operation. (Don't panic! The word *fatal* simply means that the program was terminated, not that your hard disk is damaged.)

```
Error: A fatal hard disk error has occurred.  Check your hardware configu-
ration and re-execute
```

Run a hard disk utility program to determine the source of the error, then run PHDISK again.

Not Enough Disk Space

The following text is displayed when the amount of unused disk space available is less than the amount required to create the Save to Disk partition:

```
Error: Not enough fre disk space exists to create the suspend to disk
partition.  Refer to the user manual for possible suggestions on increas-
ing the amount of free disk space for the suspend to disk partition.
```

Delete unused files, backup the DOS partition, reformat the disk, then run PHDISK /PARTITION /CREATE to create a larger partition.

Save to Disk Partition Exists

The following text is displayed when a PHDISK /CREATE /PARTITION operation is attempted while a Save to Disk partition exists.

```
Error: Phoenix NoteBIOS Save to Disk partition already exists.  To resize
the partition, delete the existing partition with PHDISK/DELETE and
create the partition with PHDISK/CREATE.
```

Re-allocate the Save to Disk partition, if needed; or do nothing.

Too Many Bad Sectors

The following text is displayed when the Save to Disk partition is too small because of an increasing number of bad sectors:

```
Error: Too many errors exist in the Phoenix NoteBIOS (TM) Save to Disk
partition.  Check your hardware configuration and rerun PHDISK.
```

Execute PHDISK /CREATE /FILE to create a Save to Disk file.

First Two Sectors Bad

The following text is displayed when the Save to Disk partition cannot be used:

```
Error: The first two sectors in the Save to Disk partition are both
unusable.  This disk is unsuitable for the Phoenix NoteBIOS Save to Disk
feature.
```

Execute   PHDISK   /PARTITION   /DELETE,   and   PHDISK
/PARTITION /REFORMAT.

PHDISK /CREATE Failed to Execute

The following text is displayed when no Save to Disk partition exists, or the partition table on head 0, cylinder 0, sector 1 is corrupted.

```
Error: The phoenix NoteBIOS (TM) Save to Disk partition doesn't exist or
the hard disk partition table on head 0, cylinder 0, sector 1 is cor-
rupted.  Invoke PHDISK/CREATE to create the Save to Disk partition.
```

Execute PHDISK /PARTITION /CREATE.

Good Sector Map Corrupted

The following text is displayed when a Save to Disk partition exists, but the GSM is corrupted.

> Error: The "good sector map" (GSM) in the Phoenix NoteBIOS Save to Disk partition is bad. Invoke PHDISK/REFORMAT to rebuild this table.

Execute PHDISK /PARTITION /REFORMAT to reset the GSM flags.

Not Enough System Memory

The following text is displayed when not enough system memory is available to run PHDISK.

> Error: Couldn't allocate additional memory required to execute PHDISK.

Add more system memory, then try the PHDISK command again.

File Already Exists

The following text is displayed when the PHDISK /FILE /CREATE command is entered, and a Save to Disk file already exists.

Delete the current file, using PHDISK /FILE /DELETE, before creating another Save to Disk file.

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Chapter 9

Troubleshooting

This chapter describes locating and solving problems that you may encounter while using your computer.

Locating a Problem

Problems with your computer can be caused by something as minor as an unplugged power cord – or as major as a damaged hard disk. The information in this chapter is designed to help you find and solve minor problems. If you try all the suggested solutions and you still have a problem, make a list of what steps you have taken to correct the problem and contact your dealer.

Successful troubleshooting is the result of careful observation, deductive reasoning, and an organized approach to solving 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. 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 look in the respective 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 LEDs are illuminated, make sure that your computer and its peripherals are getting power and communicating with each other properly.

To check the power cables, and connections:

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

2   If you are using the Notebook 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.

3   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 cables for different devices (other than the manufacturer recommended cables) even if they look exactly alike. The wiring inside the cable may be different.

4   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 Notebook. 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 either 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.

- 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 your 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: Failure in the installation of the Audio driver.

Solution: Be sure to first remove the current audio device from your system. Please follow the instruction on the installation of audio driver.

Problem: The display screen is dark

Solution: Make sure that the computer is not in Suspend mode. Check the Brightness controls for the screen. If the controls are turned too far down, the screen will be dark.

Problem: An incorrect date and time are displayed.

Solution: 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 depleted. Contact your dealer to change the battery.

Problem: The message: "Invalid system disk, Replace the disk, and then press any key" appears during boot.

Solution: Check and make sure that you do not have a non-bootable floppy diskette inserted in your floppy drive. If your FDD is empty, you may not have an operating system installed on your drive. Contact technical support for assistance.

Problem: You hear irregular beeps during operation of the Notebook and the system halts.

Solution: The problem is beyond the scope of this manual. Contact technical support.

Problem: An unidentified message is displayed.

Solution: 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.

Problem: The system cannot access the CD-ROM drive.

Solution:　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.

Problem:　You cannot operate the printer.

Solution:　Check the printer cable connection.　Ensure that the printer power switch is turned on.　Confirm that the printer is on-line.

Problem:　You can't save data to disk.

Solution:　Ensure that the disk has been formatted.
Consult your operating system manual for information on formatting floppy diskettes.

Problem:　The diskette is write-protected.
Eject the diskette, remove the write protection, and try again.

Solution:　The diskette if full.　Try using another diskette or free up some space on the diskette.　The disk drive is not operating.　Contact your dealer for support.

Problem:　You cannot use the mouse.
- Check the cable connection.
- Check the mouse with another application to see if there is a software incompatibility problem.
- If possible, check the mouse with another computer to see if it works.　If it doesn't operate on a different system, the mouse might be broken.

Contacting Your Dealer

If you still have a problem after reading the preceding sections, the next step is to contact your dealer. Your dealer 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.

Specifications

Detailed Notebook Specifications

General

CPU

- Intel Socket-370 Celeron series 333/366/400/433/466/500/533MHz CPU

Memory

- 0 MB DRAM on board
- Two 144-pin SODIMM Slots
- 3.3V TSOP DRAM
- Supports 66(440ZXm)/100MHz(440ZX) Synchronous DRAM

Core Logic Chips

- Intel 440ZXm/440BX

L2 Cache Memory

- Supports 128KB L2 PBSRAM cache

PCMCIA Sockets

- Two PCMCIA type II or one PCMCIA type III connectors
- Supports CardBus

Pointing Devices

- TouchPad

Keyboard

- Keyboard controller: Mitsubishi M38867
- 19mm pitch on QWERTY keys
- 12 function keys

- Windows 98 keys and hot keys

Audio

- Creative EV1938
- PCI sound/AC 97 ready
- External audio inputs and amplified output
- Headphone jack

I/O Ports

- 15-pin female D-connector video port
- 9-pin male D-connector 16550 UART RS-232 serial port
- 25-pin female D-connector EPP/ECP aware parallel port
- 6-pin mini-DIN external keyboard and PS/2 mouse connector
- 2-pin external AC adapter
- TV out port (S-connector)
- Two PCMCIA type II or one PCMCIA type III slots
- 20-pin port replicator connector
- One Universal Serial Bus (USB) port
- One line in jack
- One headphone/line-out/SPDIF out jack
- One microphone jack

Communications

- Fast IR (HP HSDL-1100, 4Mbps) IrDA compliant

Mass Storage

Hard Disk Drive

- Standard Capacity:1.44GB or higher
- Type: 2.5" (MCC Specification) IDE
- Height: 9.5mm/12.7mm

Floppy Disk Drive

- Media Type/Capacity: 3.5", 1.44MB

CD-ROM Drive

- Speed: 24X or more
- Type: IDE

DVD-ROM Drive

- Speed: 4X (with S/W MPEG II)

Video System

Display

- 12.1" DSTN/ TFT SVGA color LCD
- 14.1" TFT XGA color LCD
- Video Controller: ATI Rage Mobility-M
- Video DRAM: 4MB SDRAM
- LCD Resolution: 1024 x 768 x 256K colors XGA TFT LCD

Electrical

AC Adapter

- Universal input - auto-sensing - 2 wire AC and 2 wire DC

DC-DC Converter

- Supplies 5V, 3.3V CORE VCC and IO VCC, +12V, MP5V
- Contains smart battery charger
- Charge modes
  - System on
    5 hours charge time (Ni-MH battery)
    4.5 hours charge time (Li-Ion battery)
  - System off or in Suspend mode
    2.5 hours charge time (Ni-MH battery)
    4 hours charge time (Li-Ion battery)

Mechanical

Dimensions

- Weight: 3.18KG (7.0lbs)
- Size: 310mm (W) x 250mm (D) x 45mm (H)

Operating Environment

Temperature

- Operating: 5°C ~ 35°C
- Storage: -20°C ~ 60°C

Humidity

- Operating: 30% ~ 90% (non-condensing)
- Non-operating: 10% ~ 90% (non-condensing)

Altitude

- Operating: -200 to 10,000 feet above sea level
- Non-operating: -200 to 30,000 feet above sea level.

Options

- Spare battery pack: Li-Ion/Ni-MH
- Port Replicator
- K56 Flex fax/modem MDC module

Software Specifications

System Software

- System BIOS: Phoenix
- Video BIOS: ATI
- Supported Operating Systems
  - DOS
  - Windows
  - OS/2
- Standard Software Drivers
  - Pointing device driver
  - VGA/SVGA drivers
  - CD-ROM driver
  - Creative sound drivers
  - IR driver
  - Suspend to Disk utility

Power Management Modes

- Normal Mode: All clocks run at full speed; all peripheral devices have power.
- Idle Mode: The CPU clock and other clocks have reduced frequency.
- Standby Mode: The CPU clock and some other clocks have reduced frequency. The video circuits and the HDD are in low-power mode.
- Suspend: Most of the components in the system are off. The video circuits are in low-power mode.

Appendix B

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