Multimedia Notebook Computer

User's Manual

NOTICE

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FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into 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.

WARNING

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

You are cautioned that changes or modifications not expressly approved by the manufacturer for compliance with the above standards could void your authority to operate the equipment.

IMPORTANT SAFETY INSTRUCTIONS

The notebook computer is quite rugged, but it can be damaged. To ensure that does not happen, follow these suggestions:

1. **Don't drop it.** Make sure it's on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it.** Keep the computer and power supply away from any kind of heating element. Keep the computer out of direct sunlight.
3. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
4. **Keep it dry**. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power.** The computer has specific power requirements.
   - Only use a power adapter approved for use with this computer.
   - Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your dealer or local power company.
   - The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
   - When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.

• Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
• Before cleaning the computer, make sure it is disconnected from any external power supplies (i.e. AC adapter or car adapter).

BATTERY PRECAUTIONS

Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
Do not try to repair a battery pack. Refer any battery pack repair or replacement to your dealer or qualified service personnel.
Keep children away from, and promptly dispose of a damaged battery.
Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.

UL® Mainboard Battery Note

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

Warning

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Your battery pack is labeled with the type and manufacturer.

CLEANING

Do not apply cleaner directly to the computer, use a soft clean cloth.

Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

SERVICING

Do not attempt to service the computer yourself. Doing so may violate your warranty and expose you and the computer to electric shock. Refer all servicing to authorized service personnel.

Unplug the computer from the power supply. Then refer servicing to qualified service personnel under any of the following conditions:

- When the power cord or AC/DC adapter is damaged or frayed.
- If the computer has been exposed to rain or other liquids.
- If the computer does not work normally when you follow the operating instructions.
- If the computer has been dropped or damaged.

CONVENTIONS

This manual uses the following typesetting conventions:

	Example
commonly used terms (capitals):	FDD, HDD, AC, DC
features on the notebook (icons):	
keyboard keys (bold, as printed):	**Y**, **N**, **Enter**
programs, operating systems (italics):	*Setup*, *Windows 95*
files (all capitals):	AUTOEXEC.BAT
program groups (bold):	**Control Panel**
sequences (arrows):	**My Computer > Control Panel**
icons/user interface switches (bold):	**Continue**, **Yes**
menu items (initial capitals):	Boot High Speed
variables (quotes):	“Enabled”
text the user must enter (bold):	a:>**setup**
keys to press while in *DOS* (brackets, bold):	[**Enter**]
command switches (bold):	**format /s**
space:	~

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Chapter 6: Extras

Appendix A: Specifications

Advanced User Guides

TIPS

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1 Introduction

This manual is an introduction to your notebook computer system, its main features, and how to get it working.

In this chapter we cover:

- How to use this manual.
- A system map
- A Quick Start Guide for “advanced users”.

Using this Manual

Depending on how your system is configured, some or all of its features may already be set up. If they aren't, or if you need to re-configure (or re-install) portions of the system, refer to this manual.

Pages

Each page of the book has three parts:

Outer Margin	This area is reserved for warnings (be on the look-out for a), special notices or tips (☑)
Main Section	for introductory text and descriptions
Inner Margin	for advanced explanations & procedures (watch for a) and software setup instructions (watch for a)

☑

For Beginners

If you are new to the wonders of notebook computers, or just feel like a beginner, you should still look over all of the documentation. Don't worry if you don't understand everything the first time around. Just keep this manual near your computer, and learn as you go.

Advanced Advice

Advanced users should check the sidebars which look like this.
You'll find setup information about drivers, tips and more detailed information about the notebook's various features.
"Beginners" are welcome too. As you get used to your computer, you may be surprised at how much of this stuff you can understand.

CHAPTERS

Each chapter highlights one of the computer's main sub-systems, what it does, and how to get it working.

Preface	This has the usual legalities, table of contents, and most importantly, safety instructions.
Chapter 2: System	Has information about the keyboard, TouchPad, video & audio systems, and PC Card (PCMCIA).
Chapter 3: Media	Looks at media storage devices: HDD, CD-ROM, DVD-ROM and Floppy.
Chapter 4: Firmware	Is about the notebook's built-in software: the *POST* and *Setup* utilities.
Chapter 5: Power	Examines the power system, both hardware and software, including power management options.
Chapter 6: Extras	Is about improving the system with additional RAM, utilities, some "non-essential" or "enhancement" software, and the optional port replicator.
Appendicies A & B	These have information and explanations of the system's specifications and troubleshooting tips.
Glossary	Have definitions for terminology that may be new to you.

NOT HERE

Operating systems (i.e. *Windows 9x, Windows NT 4.0 , OS/2 Warp, UNIX,* etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

Warning

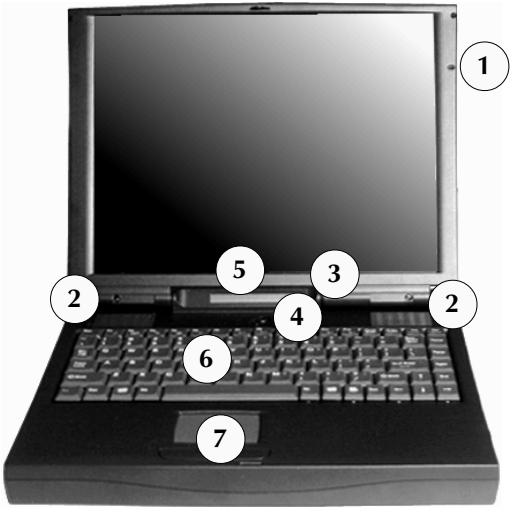
***Pay careful attention to warning and safety information indicated by the "" symbol and in the* Preface.**

Improper usage or maintenance of the the computer and/or its power system could damage the system and/or data as well as void your warrantee.

System Map

The following graphics are a general map of the notebook computer. Explanations of the various subsystems are covered in the chapters indicated.

Front View: LCD, Work Panel & TouchPad



Work Panel View
Fig. 1 – 1A

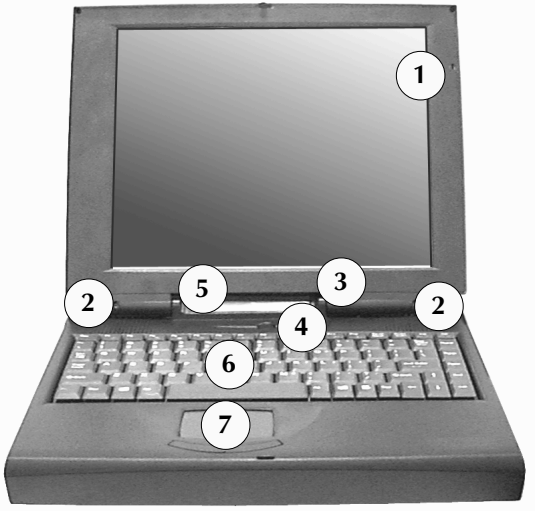
1. microphone
2. speakers
3. close-cover switch
4. power button
5. status screen
6. keyboard
7. TouchPad & buttons

1st ID

Latch To open the notebook cover, slide this latch to the right.

TouchPad *Chapter 2: System* covers basic functions.
Chapter 6: Extras, has a supplemental driver.

LCD Video functions are covered in *Chapter 2: System*.



WORK PANEL VIEW
FIG. 1 – 1B

1. microphone
2. speakers
3. close-cover switch
4. power button
5. status screen
6. keyboard
7. TouchPad & buttons

2ND ID

Left View: CD-ROM† Bay, and Power Bay

CD-ROM *Chapter 3: Media* covers basic functions, *Chapter 6: Extras*, has additional audio utilities.

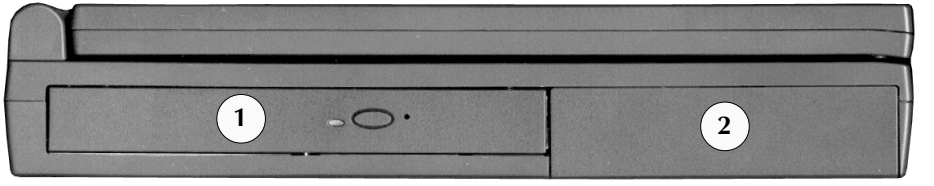
Power Bay Refer to *Chapter 5: Power* and *Appendix A: Specifications* for all aspects of the power system.

† or DVD-ROM (optional factory installed modules)

Left Panel

Fig. 1 – 2

1. CD-ROM Bay
2. Power Bay



RIGHT VIEW: DRIVES, AUDIO & PC CARD

HDD Bay Refer to *Chapter 3: Media* for more on how to setup or replace a HDD.

FDD *Chapter 3: Media*, covers the options available for this bay.

(**Fax-Modem**) For more on this option, refer to *Chapter 2: System*. If your system doesn't have a fax-modem installed, this slot will have a cover. Do not remove it. Ask your dealer about installing a fax-modem module.

(**PC Card**) Your computer uses newer technologies than the drivers included in *Windows 95*. Use the setup procedure detailed in *Chapter 2: System*. Supplemental PC Card drivers are detailed in *Chapter 6: Extras*, "Card Wizard".

(**Audio**) Setup for these ports is covered in *Chapter 2: System*.

Kensington Lock This is a standard security port.

Warning

Don't block the fan. Overheating may cause system instablility.

RIGHT PANEL

FIG. 1 – 3

1. HDD Bay
2. Floppy
3. Floppy eject button
4. fax-modem (option)
5. PC Card slots
6. mic-in
7. phones - using this port disables the speakers.
8. audio line-in
9. system cooling fan
10. adapter port
11. Kensington lock port

Rear View: Ports

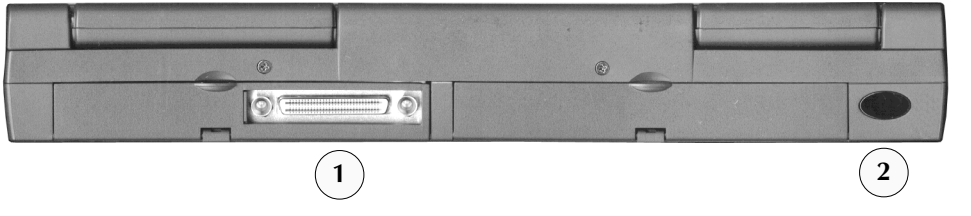
The principal peripherals plug in on this panel. To be safe, turn off both the system and peripherals *before* connecting them. Turn the peripherals on *first*, *before* you turn on the system.

[**Expansion Port**] With the main hinged door closed, connect to this port through the sliding door. The optional port replicator is covered in *Chapter 6: Extras*.

IrDA This port uses (serial) COM2 resources. The infrared connection supports the SIR, FIR and ASK standards. Its most common use is for a printer, modem or LAN.
Note: Newer versions of *Windows 95* have an IrDA driver built -in For older versions, support is available from Microsoft Corp. For other operating systems and IrDA standards, consult your system vendor. Also consult the user's guides for the device this port is going to work with.

Rear Panel (cover closed)
Fig. 1 – 4

1. expansion port (open)
2. serial 2 IrDA port



PS/2 Note

You can only use one type of PS/2 device per system session. If you want to use a different device (mouse or keyboard), you must shut down and restart the system. However, you can detach and reconnect the same device during a system session.

[**PS/2 Port**] Use this with any standard PS/2 external keyboard or mouse. For details, refer to *Chapter 2: System*, "TouchPad".

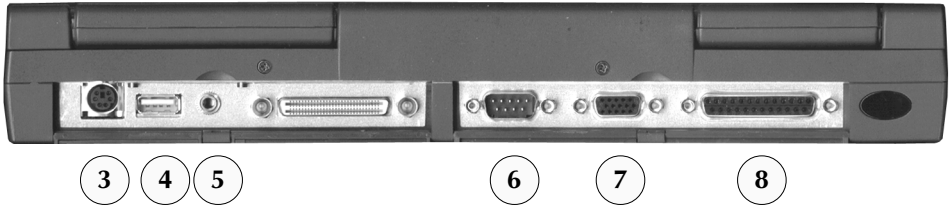
(**USB**) Refer to *Chapter 2: System* on how to activate this port.

[**TV-out**] Jack This is explained in *Chapter 2: System*.

[**COM1** (serial)] Use this with any 9-pin serial device (e.g. a mouse, serial printer or modem). Consult the user's guides for the device this port is going to work with. For pointing devices, refer to *Chapter 2: System*, "TouchPad".

Warning

The default settings in* Setup *make all ports "hot". Depending on the peripheral, this could cause a problem when you attach it. Check your peripheral's manual before you make a connection.



Rear Panel (cover open)

Fig. 1 –5

3. PS/2 port
4. USB port
5. TV-out
6. COM1 serial port
7. external monitor port
8. LPT1 parallel port

[**External Monitor**] Use this port with any standard color VGA monitor. For details, refer to *Chapter 2: System.*

[**Parallel Port**] This port supports several standards:

- Output only (Standard AT)
- Bidirectional
- Enhanced (EPP)-versions 1.7 & 1.9
- Extended Capabilities ECP

Most printers use the Standard mode. The *Setup*'s Help bar (refer to *Chapter 4: Firmware*) explains how to adjust this setting. Your peripheral's manual explains how to configure the device.

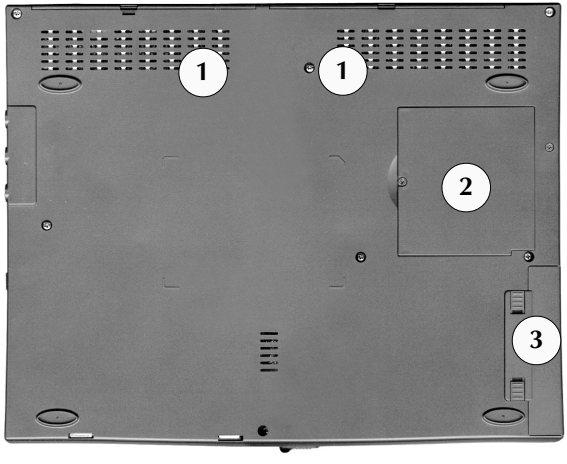
This port also serves as the external FDD connection. Refer to *Chapter 3: Media* for more on this feature.

Printer Note

Your operating system may include drivers for many printer models. Consult your printer dealer for the most recent driver for your model, as this can greatly affect the performance of the printer.

BOTTOM VIEW: COMPARTMENTS

The Drive bay is covered in *Chapter 3: Media*.



Warning
Don't block the cooling vents. Overheating may cause system instablility.

Warning
Follow the safety instructions for using batteries.

BOTTOM PANEL

FIG. 1 – 6

1. system cooling vents
2. RAM compartment
3. Battery compartment

HOT KEY CONTROLS

Some of the features are managed by **Fn**+key combinations:

Key Combinations

Whenever you use a key combination, start pressing them in the order they are listed. Don't release any of the keys in a sequence until you've pressed the last one.

Table 1 – 1
HOT KEY CONTROLS

Indicator	Meaning	Effect
Fn +	freeze	activates "Save to Disk" if the Save to Disk partition/file is available, otherwise activates "Suspend" (to RAM)
F2	enter ***Setup***	If pressed immediately after boot-up, this starts the ***Setup*** utility
Fn +	Standby/Suspend	activates "Suspend" (to RAM)
Fn +	LCD/Monitor	toggles between display devices: monitor, LCD and combinations (refer to video setup information)
Fn +	Speakers On/Off	toggles the on-board speakers on/off (does not affect phones)
Fn +	volume up	increases audio volume
Fn +	volume down	reduces audio volume
Fn +	brightness up	increases LCD brightness
Fn +	brightness down	reduces LCD birghtness
Fn +	contrast up	increases LCD image contrast (DSTN display only)
Fn +	contrast down	reduces LCD image contrast (DSTN display only)
(any key)	resume	ends power saving modes, including "Suspend" (to RAM), but not "Save to Disk"

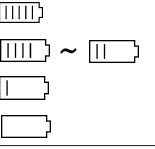
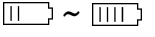
STATUS SCREEN INDICATORS

Your notebook lets you know what it's doing with the following status screen indicators:

Indicator	Meaning	Effect
	NumLock	Embedded numeric keyboard is on. Pressing the affected keys produces numeric characters.
	CapsLock	CapsLock is on. Pressing alphabetic keys produces capitalized characters - other keys are unaffected.
	Scroll Lock	Scroll Lock is on.
	HDD bay	HDD is being accessed.
	Floppy	Floppy is being accessed.
	PC Card	PC Card socket(s) are in use.
	Drive bay	CD-ROM/DVD-ROM is being accessed.

Table 1 – 2
STATUS SCREEN INDICATORS

Table 1 – 2 (cont.)
STATUS SCREEN INDICATORS

Indicator	Meaning	Effect
	Full power	All subsystems are fully powered.
	Sleep mode	The CPU clock is on "hold", all subsystems are in a reduced-power mode, and the LCD is off.
	Suspend to RAM	The CPU and other chips are turned OFF, RAM is refreshed slowly, system fan is OFF, peripheral devices and ports are in power-saving mode.
	Battery > 80% Battery < 80% to 20% Battery < 20% Battery empty	Battery has more than 80% power, considered "Full". "Low" battery range, rechare with the adapter
 lines & frame blink	charging	Steady lines correspond to charge level, cycling lines indicate "dumb" battery charging.
 all lines & frame blink	system problem	Re-insert or replace the battery, if the problem continues, consult your service representative. **Do Not Attempt to Repair the Battery.**
	AC-in	System is receiving AC power.

PACKING CONTENTS

Keep the packing materials in a safe place in case you need them for shipping or long-term storage.

QUICK START

If you're already familiar with notebook computers, the steps listed below tell you how to start up the notebook for the first time. They assume that you know where all of the parts of the computer are. You should review these steps, *before* you take any action. If you aren't sure about one of the procedures, check the relevant chapter before continuing.

1. Follow the safety instructions on page *iv*, especially the instructions on placement.
2. Remove all packing materials, floppy disks and any PC Cards.
3. Secure the battery pack in its compartment. (Ch. 5)
4. Securely attach any peripherals you want to use with the notebook (i.e. mouse or keyboard) to their ports. (Ch. 1)
5. Attach the AC adapter to the port on the side of the computer. (Ch.5)
6. Plug the AC power cord into an outlet.
7. Connect the AC power cord to the AC adapter.
8. Raise the lid/LCD to a 90° angle.
9. Push in the ⏻ button (power switch) to turn "on".

Battery Charges

When you get your system, the battery(ies) may not be fully charged. Follow the procedure in *Chapter 5: Power, First Time Use and Storage* (page 5-4), to charge it.

Save To Disk

If you plan to use the *Suspend to Disk* partition option in the future, setup the partition *before* you install the operating system. This involves creating partitions and formating your hard disk. Refer to *Chapter 5: Power* and your operating system documentation for details.

NOTES:

2 System

This chapter is about how to use and setup the most visible parts of the system:

input:	• the keyboard • the TouchPad
Output:	• Video subsystem • Audio subsystem
Communications	• PC Card • Fax/modem

Other Systems

Some operating systems lack supporting software for some components. If the software you need is not included on our CD-ROM, contact your dealer or service representative.

SETUP PROCEDURES

This chapter describes the basic setup for the *Windows 95/98* and *Windows NT 4.0* (with Service Pack 3) operating systems. These procedures are described in the inner margins and indicated by a "".

If you're using *DOS* system, check the appropriate "README" files on the accompanying CD-ROM. For other operating systems (e.g. OS/Warp, Windows 3.1x, UNIX, etc), please consult the manuals for those operating systems.

For additionial, nonessential, utilities check out *Chapter 6: Extras*.

KEYBOARDS

The notebook keyboard is like a full-sized version with typewriter-like keys and function keys. But, since it's a notebook, it also has special function keys (listed on page 1-12) .

Special Characters

Some software applications allow the number-keys to be used in conjunction with **Alt** to produce special characters. These special characters can only be produced by using number keys on the embedded numeric keypad. Regular number keys won't work.

Function Keys

Many software packages make use of Function keys (F1 ~ F12), so you should consult those manuals.

TYPE KEYS

FIG. 2 – 1

The embedded numeric keypad (outlined) is activated by pressing **NumLock** – its LCD will appear)

FUNCTION KEYS

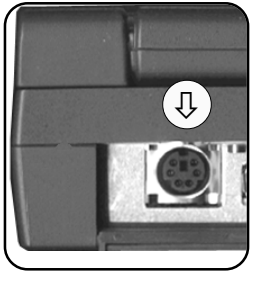
FIG. 2 – 2

External Keyboards

You can attach an external keyboard to the (PS/2) port. If you don't have a 6-pin keyboard connector, use a 5-to-6 pin adapter cable. The system automatically detects and enables the external keyboard as well as the notebook's. However, for those functions requiring the **Fn** key, use the Ctrl + Alt key combination.

If you have a Y-connector, you can attach both a keyboard and PS/2 mouse. However whatever the arrangement, the port can only accept one type of device configuration per system session. For example, if you connect a PS/2 mouse to this port, you cannot connect a keyboard to the port during the same system session. Doing so will cause a system conflict. If you already have a mouse attached, and want to use a keyboard, you must shut down and restart the system. However, you can detach and reconnect the same device during a system session.

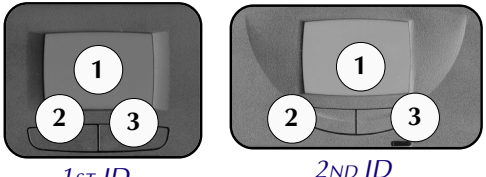
PS/2 Keyboard Port
Fig. 2 – 3



TouchPad

The system automatically enables the built-in TouchPad. If you're using any version of *Windows*, you don't have to install a driver for it. However, you must install a driver (if your dealer hasn't already done this for you) for the *DOS* environment.

If you want to use the TouchPad's advanced features, refer to the driver information in *Chapter 6: Extras*.



1st ID *2nd ID*

The TouchPad
Fig. 2 – 4
1. sensor pad
2. left "mouse" button
3. right "mouse" button

Note for left-handers: most operating systems allow you to reverse the mouse-button settings.

Configuring the TouchPad

The TouchPad uses the PS/2 port which is factory enabled. It can use the "Microsoft, or IBM PS/2" mouse driver available with most operating systems. Optimized TouchPad software for various operating systems is on the *Software & Utilites* CD-ROM which came with the system and is covered in *Chapter 6: Extras*.

Using TouchPad & Serial Device

Windows 95/98

1. Attach the serial device when the system is off.
2. Turn on the system and allow *Windows 9x* to detect and configure the device on the serial port (COM1). Insert the manufacturer's driver disk(s) if required.
3. Both devices are enabled.

To switch back to the TouchPad exclusively:

1. Exit *Windows 9x*.
2. Detach the serial device.
3. Start *Windows 9x*. It will automatically enable the available pointing device, in this case the TouchPad.

For information on how to change mouse settings for other operating systems, consult the manuals for those operating systems.

TouchPad & Serial Device

If you want to use a serial device as well as the TouchPad, you must make sure the device's driver can "see" it on COM1. In some operating systems, you can only use one pointing device driver at a time, either serial or PS/2. To use a serial device, attach it to the ⧈ port (while the system is OFF) and then start up and configure it with a suitable driver.

TouchPad & PS/2 Device

If you haven't installed any specialized pointer drivers, you can also use a mouse connected to the PS/2 port. Just make the connection, and the system automatically detects an attached mouse, enabling it as well as the TouchPad using the same drivers.

Note: the PS/2 port only accepts one type of device per system session. If you want to switch to another device, you must shut down and restart the system. However, you can detach and reconnect the *same* device during a system session.

Using TouchPad & Serial Device (cont.)

Windows NT 4.0

To use a serial device and the TouchPad at the same time in the *Windows NT 4.0* environment, you must configure the operating system as you install it the first time.

1. Attach the serial device when the system is off.
2. As Windows NT 4.0 runs its installation program, it will ask you to confirm its hardware and software components. At this point, modify the list so that the pointing device is: "Logitech Serial Mouse".

   The on-board PS/2 mouse will still be automatically enabled and if you install one, the resources will be available for a serial mouse.
3. If you want to use serial mouse on COM1, make sure it is present when you boot-up, and both devices will be active.

VIDEO

There are three display options: the notebook's LCD, an external monitor (CRT) and TV. You can select between them with the **Fn**+ toggle or the controls embedded in the video driver interface. The interface also lets you change the screen resolution and color output to whatever is most comfortable/efficient for you.

As you examine the video driver (see the side-bars for setup information), you'll notice that some displays have more flexibility than others. This is a matter of hardware, video memory and the driver for your operating system. The driver interface shows the available options.

THE LCD CONTROLS

FIG. 2 – 5

1. Contrast controls (not active with TFT)
2. Brightness controls
3. Display toggle (LCD/CRT/TV)

More on Video Displays

Appendix A: Specifications has a chart of the system's display capabilities.

Video Setup

WINDOWS 95/98

To setup the *Windows 9x* video driver and utilities:

1. Refer to **page 2-19** to enable the **USB** feature (for *Windows 95* only).
2. Insert the *Software & Utilities* CD-ROM, then Select **Run** from **Start** menu and navigate to

   d:\drivers\win95\agp\ALiAgp15.exe*

   or d:\drivers\win98\agp\ALiAgp15.exe*

   *This assumes your CD-ROM is in drive "D:".

   Open this file to launch the setup. When prompted, allow the system to restart.
3. Select **Run** from **Start** menu again and navigate to d:\drivers\win95\video\setup.exe

   or d:\drivers\win98\video\setup.exe

   Follow the on-screen instructions to install the ATI driver. When prompted, click on **Yes** to reboot the system.
4. After reboot, the "ATI Desk Top Help" appears. Uncheck **Show this screen next time you start Windows**, if you don't want to see this help screen on next boot.
5. Open **Control Panel** > **Display**, then click on **Settings** > **Advanced Properties** *or* **Advanced...**> **Monitor** (tab).
6. Click **Change...**(button) and choose a "Laptop Display Panel" (any size). Click on **OK** then on **Close**(twice). When prompted, click on **Yes** to restart the system.

Warning

Do not allow any foreign objects (i.e. paper or plastic) to get between the lid/LC D and the work panel. They could damage or scratch the LCD and/or accidentally activate the close-cover switch.

LCD

As you open the lid, adjust it so you can look at the screen straight-on, without any glare. If necessary, adjust the brightness and contrast controls.

Note: If your model has a TFT screen, the contrast controls aren't necessary.

SETUP

The video drivers on the accompanying *Software & Utilities* CD-ROM are optimized for specific operating systems. If the driver for your operating system isn't included, or you suspect it's outdated, consult your dealer. These drivers are required if you want to use a TV display or want enhanced performance on an external monitor as well as the LCD.

The instructions in the side-bars tell you how to install the drivers. However, your operating system's documentation may have additional tips.

Note: For most operating systems, video driver installation is different from any other driver's (i.e. sound).

Video Setup (cont.)

WINDOWS NT4.0

To setup the *Windows NT* video driver and utilities,

1. Install *Windows NT 4.0 Service Pack 3* (SP3) or above if you haven't done so.
2. Open **Control Panel** > **Display**.
3. Click on **Settings** > **Display Type...** > **Change...** (button) in the **vga compatible display adapter** field.
4. Insert the *Software & Utilities* CD-ROM.
5. Select **Have Disk...**.

   Click on **Browse...** and navigate to D:\drivers\nt40\video\atirage.inf*
   Click on **Open** and then on **OK**.

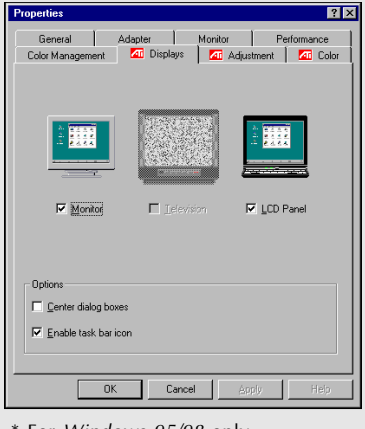
   * This assumes the video driver is on a CD-ROM identified as drive "D:".
6. Select "ATI 3D Rage LT Pro AGP 2X" and click on **OK** and/or **Yes** to continue the installation.
7. When finished, close the various screens and reboot. When you restart and return to the **Display** page, you can change the settings to your preferences. When finished, you must **Apply** the new settings to take effect.

Note: This driver doesn't support TV output.

Video Setup (cont.)

The Rage LT Pro driver adds three additional pages to the "Advanced" button in "Setting" tab of **Display Properties*** to support the new enhanced display features. The new added pages allow you to select output devices (**Display** page), to adjust the position and size of your screen (**Adjustment** page), as well as to correct color tone differences between real color values and the way your monitor or flat panel displays them (**Color** page).

Note: For *Windows 95*, the **Display** option is embedded in **Setting** page (see example on next page). It also adds an additional **Panning** page to **Display Properties** for setting hotkeys to control panning when the desktop's display area is larger than the screen resolution.

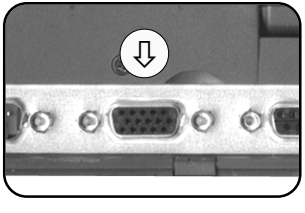


* For *Windows 95/98* only

External Monitor

If you prefer to use an external monitor, connect it to the VGA port on the rear panel.

Note: To reduce flickering on an external monitor, use faster refresh rates. But first check your monitor's documentation to make sure it can support the rates listed by the video driver.



Display Properties Control Panel
Fig. 2 – 6

VGA Port
Fig. 2 – 7

Make sure both the external monitor & notebook are OFF before you connect them.

TV

To use a TV display, conect the Y-cable TV-adapter's mini-din plug connects to a video adapter cable. However, *before* you use this connector, make sure the driver is configured for your TV's standard: NTSC or PAL (use the video driver control panel).

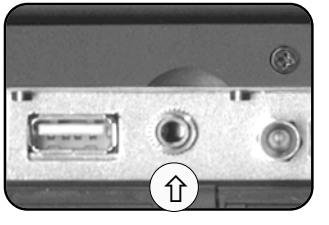
Warning

The NTSC and PAL settings can only be used with the appropriate televisions.

TV Port

FIG. 2 – 8

Both the TV & notebook should be OFF before you connect them.



Display Panel TV Settings

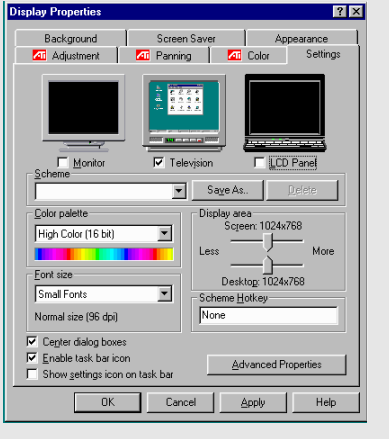
FIG. 2 – 9

Be sure the NTSC/PAL setting on the Device page is correct.

Alternative TV Output

By default, your computer is configured for "S" type video output. If your configuration requires the earlier, "AV" output, or your TV output color is incorrect, be sure to have your dealer to reset the SW2 jumper. Do not try to change the jumper settings yourself. Doing so may damage your system as well as void your warrantee.

Note: *Windows NT4.0* doesn't support TV output. For *Windows 9x*, use the **Display** control panel to switch between each display device.



SWITCHING

You can switch between the notebook's LCD and monitor (CRT) by toggling **Fn**+[monitor]. TV output is available only by using the video driver control panel:

TV Standard	Monitor Resolution	Toggle Sequence	Comment
NTSC	VGA 640 x 480	LCD > monitor > TV* > LCD + monitor	TV output is supported in any color depth supported by CRT (monitor) without panning.
	SVGA 800 x 600		
	XGA 1024x768		
	SXGA 1280x1024	LCD > monitor > LCD + monitor	TV output is not supported.
PAL	VGA 640 x 480	LCD > monitor > TV* > LCD + monitor	TV output is supported in any color depth supported by CRT (monitor) without panning.
	SVGA 800 x 600		
	XGA 1024x768		
	SXGA 1280x1024	LCD > monitor > LCD + monitor	TV output is not supported.

*__Fn+F4__ hot-key combination does not support TV output. To switch to TV display, you must use the video driver control panel (i.e. Display Properties). For more details, refer to page 2-10.

TABLE 2 – 1
VIDEO OUTPUT
KEY COMBINATION SEQUENCE

AUDIO

The audio subsystem, in combination with the CD-ROM module, gives the notebook multimedia capabilities. To use it, You first have to install the correct drivers. These are included in the software package which comes with the system. The procedure is explained in the side-bar.

The controls and ports are on the function keys and on the left panel:

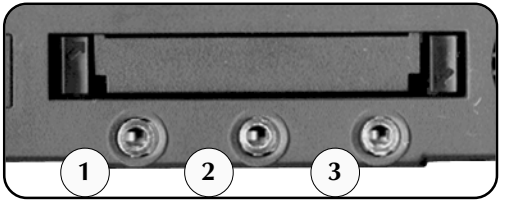
Warning

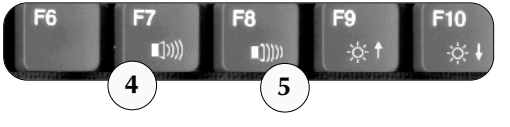
To protect your hearing, turn down the volume before you plug-in either headphones or speakers.

AUDIO SUBSYSTEM PORTS

FIG. 2 – 10

1. microphone (disables internal microphone)
2. headphones /external speakers (disables on-board speakers)
3. line-in
4. volume up control
5. volume down control





Audio Setup

WINDOWS 95/98

Your *Windows 9x Setup* utility cannot detect the latest version of the *ESS AudioDrive* utility. The utility included with your notebook takes advantage of technical improvements since *Windows 9x*'s release. To install,

1. For *Windows 95*, disable "Plug & Play O/S" (i.e. set to **No**) in BIOS setup (see page 4-8).
2. Open **Control Panel** > **System** > **Device Manager**.
3. Click on **Other devices**, and remove **PCI Multimedia Audio Device**.
4. Click on **Refresh**. When *Add New Hardware* **or** *Update Device Driver Wizard* appears, insert the *Software & Utilities* CD-ROM, and click on **Next** .

   (If *Windows 98*, you need to choose "Search for the best driver for your device", then **Next**.)
5. Choose "Specify a location" (If *Windows 98*),

   Click on **Other Locations...** (if *Windows 95*), and browse to:

   D:\drivers\win98\audio* (if *Windows 98*)
   D:\drivers\win95\audio* (if *Windows 95*)
6. Follow the on-screen instructions. When the *Wizard* reappears, click on **Finish** to complete the installation. If it asks for "Insert Disk", redirect to the same location as specified in step 4.
7. When finished, **close** the *System Properties* panel. The audio drive is ready for your use.

Audio Setup (cont.)

WINDOWS NT4.0

To install the audio driver after you're into the system, insert the *Software & Utilities* CD-ROM. Then,

1. Disable "Plug & Play O/S" (i.e. set to **No**) in BIOS setup (see page 4-8).
2. Install Windows NT4.0 Service Pack 3 (SP3) or above if you haven't done so.
3. Open **Control Panel** >**Multimedia** >**Devices** (tab) and click on the **Add** button.
4. Double-click on "Unlisted or Updated Driver" from the list. Then click **Browse...** and navigate to: D:\drivers\nt40\audio*.

   * This assumes your CD-ROM is drive "D:".
5. Click on **OK** (twice). When **ESS Maestro PCI Driver 4.02.13** appears, click on **OK** (twice) to confirm the resource settings. When asked, restart the system to activate the driver.
6. After the system restarts, you will see a speaker icon in the task bar on the lower right corner. You may double-click on the speaker icon to open the sound control panel to adjust the settings to your preferences.

ADDITIONAL AUDIO

The *Software & Utilities* CD-ROM accompanied with your system also includes supplemental audio software for *Windows 9x*. Refer to *Chapter 6: Extras* for more details.

PC Cards

The notebook has two PC Card expansion sockets:
socket 0 (lower), is Type III
socket 1 (upper), is Type II

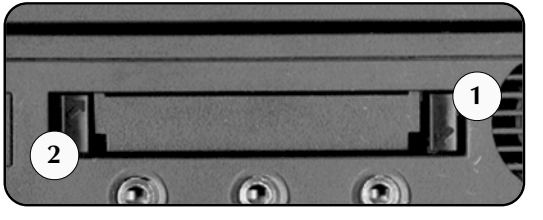
Both sockets are backward -compatible. For example, a Type III socket can handle a Type I, II, or III card.

Both support PCMCIA (rev. 2) and CardBus (PCI bus to PCMCIA socket).

Both sockets are Zoomed Video (ZV). The ZV Port is a direct connection between the PC Card and the notebook's video and audio subsystems. As such, it works directly with the CD-ROM module to support multimedia features.

Refer to the documentation which comes with your ZV card for more information about its capabilities and how to use its features.

PC Card Sockets
Fig. 2 – 11
1. Socket 0 (lower) eject button
2. Socket 1 (upper) eject button



PC Card Setup

WINDOWS 95/98

1. Download TI-1251B driver from the Microsoft web site or talk to your dealer.
2. Copy the **PCMCIA.INF** to Windows\inf folder (replacing the existing file).

(FOR WINDOWS 98, SKIP TO STEP 6 ONLY)

3. Delete ***.bin** (i.e. **Drvidx.bin** and **Drvdata.bin**) files in Windows\inf folder
4. Copy **CBSS.VXD**, and **PCCARD.VXD** to Windows\System (replacing the existing files).
5. Open **Control Panel** > **System** > **Device Manager** (tab) > **Other devices**. Remove the **PCI CardBus Bridge**listings (there are 2)
6. Under PCMCIA socket**,** remove **PCIC or compatible PCMCIA controller** or **Generic CardBus Controller** listings (there are 2), then click on **Refresh**.

   Follow the on-screen instructions. If it asks about keeping an exiting file, say **Yes**. If asked for reboot, say **Yes**. For *Windows 98*, the sockets will be ready for your use after reboot. For *Windows 95*, continue to next steps.
7. Return to **System Properties** > **Device Manager**. Double-click "Texas Instruments PCI-1251B CardBus Controller" (there are 2) under PCMCIA socket and uncheck **Disable in this hardware profile**. Follow the on-screen instructions. When it asks for reboot, say **No** for the first time.
8. After uncheck both controllers, reboot the system and disable the "Plug & Play O/S" (i.e. set to **No**) in BIOS setup (see page 4-8). After reboot, the sockets are ready for your use.

OPERATING SYSTEMS

WINDOWS 9X

The PC Card components are newer than the drivers supplied by *Windows 95/98*, so before you can use this device, you must make some changes (described in the side-bar) to your system. Once you activate the PC Cards, they are always "hot".

The updated drivers are also PCMCIA (rev. 2) , and CardBus compliant and they recognize Plug 'n Play PC Cards. However some older, "legacy", cards may require their own drivers. Although you can hot swap any PC Card, the accompanying *utility* provides enhanced resource support (see *Chapter 6: Extra*, page **6-8**).

SRAM/FLASH Card Note for Windows 98

SRAM CARD

1. Perform setup as described in the side bar.
2. Modify the **Config.sys** file in the root directory of drive "**C:**" as detailed below:

```
device=c:\windows\system\msmapper.sys
device=c:\windows\system\carddrv.exe /slot=2
```

3. Reboot the system for the changes to take effect.

FLASH CARD

1. Perform setup as described in the side bar.
2. Insert your *Windows 98* CD-ROM and locate **TRUFFS.INF** file, then click **right** mouse button and choose **install** to proceed.
3. When finished, reboot the system for the changes to take effect.

Warning

Do not add, remove or change cards while the system is in a power saving mode. This may cause a conflict with the stored system configuration information.

Warning

Some operating systems may experience difficulties if an I/O card (e.g. a fax/modem) is present in the socket when you warm boot the notebook. Depending on your operating system, the COM ports (I/O) for PC Card devices are reassigned.

Note: Windows 95 & Windows 98 does not have this limitation.

Windows NT 4.0

The operating system automatically installs the PC Card socket drivers. This driver is only PCMCIA (rev. 2) compliant. You can install or remove cards only when the system is turned off. In particular, any I/O PC Card (e.g. LAN or SCSI) must be present when you boot-up the system. CardBus and ZV support are not available.

The optional SystemSoft Driver allows hot insertion and hot removal, and provides CardBus support (see *Chapter 6: Extras*).

Inserting a PC Card

PC Cards require drivers specific to your operating system: one for the computer's sockets (see above), and a driver for the card you're installing. The first time you install a PC Card, *Windows 9x* and *NT 4.0* prompt you for that card's driver. If your operating system supports Plug n' Play (e.g. *Windows 98*), PC Cards can be inserted and removed while the system is on.

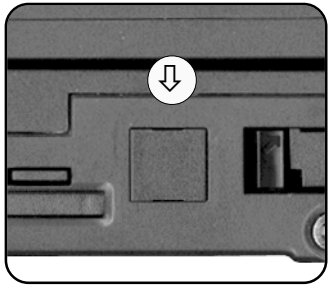
When the card is in correctly, the system beeps once. If the PC Card is not detected, check if the correct drivers are loaded.

Removing a PC Card

Push the appropriate eject button to remove the card. The system will beep twice when the card is ejected.

FAX/MODEM (OPTIONAL MODULE)

If your system includes the fax/modem module, both *Windows 95* and Windows *NT 4.0* will detect it during setup. However, our module takes advantage of newer technologies so you will have to install our updated drives to take advantage of its full speed.



FAX/MODEM PORT
FIG. 2 – 12

Setting up the Fax/Modem

WINDOWS 95/98

When *Windows 9x* starts up, it detects the Fax/Modem and launches the *Update Device Driver Wizard*.

1. Insert the *Software & Utilities* CD-ROM. Click on **Next**.
2. For *Windows 98*, choose "Search for the best driver for your device", then click on **Next** > **Browse** and navigate to

   d:\drivers\win98\modem*

   *This assumes your CD-ROM is drive "D:".

   For *Windows 95*, click on **Other Locations** > **Browse**, and direct the wizard to d:\drivers\Win95\Modem*

   *This assumes your CD-ROM is in drive "D:".
3. Follow the program's dialog boxes. When the *Wizard* reappears, and/or if it asks for "LT Installation Disk", redirect the wizard to the same location as specified in step 2. Follow the on-screen instructions to complete the setup.
4. When the installation is complete, *Windows* returns to its standard view. For *Windows 95*, reboot the system and press **F2** during the POST. Then diable the "Plug & Play O/S" (i.e. set to **NO**) under Advanced Menu.
5. Click the **Modem** icon in the **Control Panel** to continue the OS's setup (the *LT Win Modem* should be assigned to COM3).

Usage

Once your fax/modem is setup, you still have to configure the software that will use it. For the most part, this means working with your operating system's "Network" settings.

Be sure to keep the original installation software handy as you do this.

Additional information about how to use the fax/modem (e.g. AT commands) is included with the driver on the *Internal Fax/Modem Drivers* floppy.

Internet Access

For Dial-up Internet access, you must be sure to have all the proper "protocols" installed (e.g. TCP/IP). Refer to your operating system manual for this and/or your Internet Service Provider's documentation.

Setting up the Fax/Modem (cont.)

Windows NT 4.0

1. Disable the "**Plug & Play O/S**" (i.e. set to **No**) and **Serial Port B** in the BIOS setup (see *Chapter 4: Firmware*).
2. Install *Windows NT4.0 Service Pack 3* or above if you haven't done so.
3. Open **Run** from **Start** menu, then click on **Browse** and navigate to

   d:\drivers\nt40\modem\setup.exe*

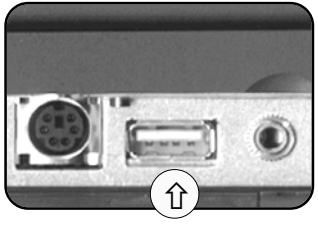
   *This assume your CD-ROM is drive "D:".
4. Follow the on-screen instructions. When prompted, allow the system to restart.

   When the system restarts, click **Modems** icon in the **Control Panel** (the modem should be assigned to COM2). Then click on **Dialing Properties** to continue the setup.

USB

Like the PC Cards, Windows 98 supports the latest USB system and requires no further setup but the technologies used in your system is newer than *Windows 95*. So before you can use this device, you must make some modifications to your system as described in the side-bar.

Once your system is setup, you should refer to the USB devices' manuals on how to operate them.



USB PORT
FIG. 2 – 13

USB Setup

WINDOWS 95

Follow steps below to enable the USB feature,

1. Disable "Plug & Play O/S" (i.e. set to **No**) in BIOS setup (see page 4-8).
2. Obtain the "usbsupp.exe" utitlity. This may be included on the CD-ROM containing Windows 95 (OSR2.1 version or above) or download the utitlily from Microsoft's web site (if you have difficulty finding it, ask your dealer for help).
3. Open **Control Panel** > **System** > **Device Manager** (tab) > **Other devices**. Remove the **PCI Universal Serial Bus** listing. Then click on **Close**.
4. Using the Windows Explorer, double-click on "usbsupp.exe" to launch it. Follow the program's dialog boxes to install the USB Supplement to your system. When prompted, allow the system to restart.
5. After reboot, the Update Device Driver Wizard will appear. Follow the on screen instructions. When Copying Files dialog box appears, browse to **C:\Windows\System*** folder to complete the updates.

* This assumes your *Windows 95* is installed in Windows folder on drive "C:".

WINDOWS 98

No setup is required. USB technology is fully integrated.

WINDOWS NT 4.0

USB technology is not supported.

NOTES:

3 Media

This chapter is about the system's data storage devices (or *drives*):

HDD:	• How to configure the system to use it • How to replace it
CD/DVD-ROM:	• How to access it
FDD (Floppy):	• How to use it and care for the media

INDICATORS

Whenever a drive is in use, the corresponding indicator appears:

- accessing the main HDD.
- accessing the FDD.
- accessing a CD-ROM.
  The icon does *not* appear if you are playing an audio CD.

DRIVES

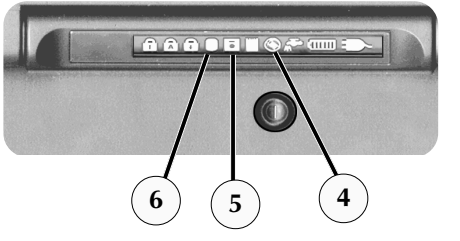
FIG. 3 – 1

1. CD-ROM
2. HDD
3. FDD

STATUS SCREEN DRIVE INDICATORS

FIG. 3 – 2

4. CD-ROM
5. FDD
6. HDD



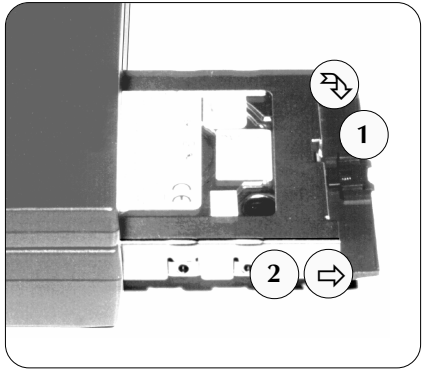
HDD

The HDD is in a removable metal frame.

Removing the HDD Module

If for some reason you must remove the HDD cartridge:

1. Make sure the computer is turned off and flip down the HDD bay door.
2. Grasp the HDD bay door handle and *pull* the cartridge out.



Warning

Don't try to remove the hard disk (HDD) while the system is on, or a floppy disk while the system is accessing it. These actions may cause the system to "crash", result in data loss or damage.

Removing the HDD

Fig. 3 – 3

1. grasp the HDD bay door
2. pull the cartridge out

Installing the HDD Cartridge

To install the (new or upgraded) HDD cartridge, carefully slide it back into the HDD bay. Be sure that the bay door handle is securely locked in position.

Replacing/Upgrading the Cartridge

If you're too harried or a bit of a technophobe, contact your dealer to purchase or replace your current HDD with an upgrade.

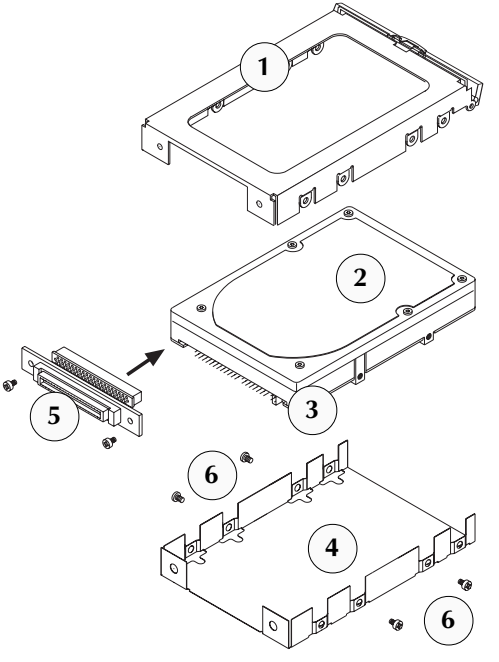
Warning

Some (usually older) HDDs have a small jumper switch. It must be set to "master" or the system may not correctly recognize the drive. Check your drive's documentation.

Assembling the HDD Cartridge

Fig. 3 – 4

1. cartridge frame
2. HDD (electronics face-down)
3. master/slave jumper
4. mylar shield
5. connector
6. screws



Replacing a HDD

You can replace your HDD with another 2.5", 12mm high IDE hard disk drive.
To assemble the cartridge,

1. Make sure the HDD's jumper pins are set to "master" (3). - Most HDDs don't require any settings, but check your HDD's documentation to be sure.
2. Holding the HDD (1) at an angle, plug its pins into the connector (5). Make sure all the pins are inserted fully.
3. Cover the HDD's electronic component side with the shield (4).
4. Insert the HDD and shield combination into the frame (1). As you do so, carefully fit the edges of the shield around the screw holes of the frame.
5. Secure the HDD, shield and frame with the four mounting screws (6).

Setting Up a New HDD for the First Time

Before you can use a new HDD for the first time, you have to do two things:

- tell the computer about the HDD. (refer to *Chapter 4: Firmware*)
- prepare the HDD to accept data. (refer to your operating system manual)

Warning

Whenever you install a different hard disk that has a* Save-to-Disk *partition on it, make sure you follow the procedures detailed in* Chapter *4: Firmware and Chapter 5: Power.

Formatting the HDD

A hard disk must be partitioned, and formatted before use. To partition the HDD, use the utility from your operating system (e.g. *MS-DOS*'s **fdisk** command) to do this. To format, use the utility from your operating system (e.g. *MS-DOS*'s **format** or **format/s** command). Consult your operating system's manual for more information on its partitioning and formatting utilities.
Note: If you want to use the *Save to Disk* feature, refer to *Chapter 5: Power* before you partition the HDD.

After you replace or upgrade the HDD, turn the system on and configure it for the newly-installed HDD using *Setup*. Refer to *Chapter 4: Firmware*.

528MB or Larger HDDs & LBA Mode

The notebook automatically reads any HDD 528MB or larger as using LBA Mode. If you are using a 528MB or larger HDD which was formatted on an older system which did not use LBA mode, this system will not "see" it correctly. In that case, you must re-format the HDD on this system.

CD/DVD-ROM Drive

The CD/DVD-ROM drive appears in your file management utility as another drive.

Audio CD

Audio CDs are played using a CD-player application included in your operating system. If you want to use the CD/DVD-ROM to play an audio CD, make sure your operating system has the necessary drivers installed.

Using a CD/DVD-ROM

Fig. 3 – 5

1. Insert the disk face down.
2. Push the tray in until it clicks in place.

CD-ROM Drivers

Windows 95 & 98
Windows NT 4.0

These operating systems automatically detect and configure the CD/DVD-ROM drive.

Other Operating Systems (DOS)

These instructions assume you've already installed some version of DOS.

1. Turn on the computer and press **F2** during the POST to enter the *BIOS Setup*. Check your CD/DVD-ROM's make name shown in the "Secondary Master " option from the Main Menu.
2. Open the proper directory (either **TOSHIBA** or **MKE**) on the floppy disk*, and type:

   INSTALL.EXE

   *Also available on **the** accompanying *Software & Utilities* CD-ROM's **Drivers\DOS6X** folder.

   Note: If asked for "Installation Method", the **Express Installation** is recommended.
3. As each page appears, press **Y** or **Enter** to confirm the settings.

   Note: If you don't want to install the driver in the default directory (C:\CDROM), when the "Specify the directory..." dialog box appears, use **Backspace** to delete the current name, then type in your preference. Remember to start the directory name with C:\. If you get to the "Specify the parameter to use..." page, make sure the **( )/D [CDROM001]** switch has an asterisk(*). Then press **Enter**.
4. When the installation is complete, remove the floppy disk and reboot your computer.

Software DVD Setup

WINDOWS 95/98

Your built-in DVD drive works in the *Windows 9x* environment. If you don't install its drivers and application software, liked the *DOS* and *Windows NT,* it can only be treated as an ordinary CD-ROM player. To make your DVD work,

1. Refer to **page 2-19** to enable the ***USB*** feature (for ***Windows 95* only**).
2. Setup the ***video*** & **audio** drivers (see **page 2-7 & 2-12**.)
3. Insert the *DVD Drivers/Utilities* CD-ROM.

(FOR *WINDOWS 98*, SKIP STEPS 4 & 5)

4. Download ***DirectX 5.0*** from the Microsoft web site or talk to your dealer. Then click on **Start** in *Windows 95*. Select **Run...** and type **C:\DX5ENG.exe***. Click on **OK** to proceed (If prompted, restart the system.)

   * This assume your *DirectX 5.0* is English version and is stored in drive "C:".

5. Click on **Start** > **Run...** > **Browse...** and navigate to: **D:\DXMEDIA\Win95\installmedia52b.exe***. Click on **Open** and then **OK** to install ***DirectShow***. This will take a moment to install. Please wait for a while until "The operation completed successfully" prompted, click on **OK**.

   * This assumes your CD-ROM is drive "D:".

6. Click on **Start** > **Run...** > **Browse...** again and navigate to:

   D:\DVD\setup.exe*. Click on **Open**, then **OK** .

   * This assumes your CD-ROM is drive "D:"

INSERTING & REMOVING A CD/DVD-ROM

To insert a CD/DVD-ROM, follow these steps:

1. With the notebook turned on, press the button on the front of the module to release the spring-loaded tray.
2. Gently pull the tray out to its fullest extension.
3. Insert your CD/DVD-ROM shiny-side down (like an audio CD).
4. Gently push the tray in until it clicks in place. The CD/DVD-ROM is ready to play.

To remove the CD/DVD-ROM, press the same button to release the tray.

If the notebook is turned off, you can open the tray by inserting a probe (e.g. a straightened paperclip) into the small hole next to the button.

Multimedia Applications

MPEG

If you want to use the CD/DVD-ROM to watch movies or other MPEG features, there are two options:

1. *Software* - There are various software products which make use of the raw power of your system's CPU to decode MPEG1 or MPEG2 material.
2. *ZV-Port* - Both PC Card sockets support a ZV card. This card type works with the CD/DVD-ROM and video subsystems to produce better quality images. However, to use it, you must install these drivers:
   - The CD/DVD-ROM driver (covered in this chapter)
   - The audio and video drivers (covered in *Chapter 2: System*).
   - VPM driver - built into the video driver for Windows 95 and Windows 98.
   - ZV Card driver (supplied by the ZV Card's manufacturer).

Software DVD Setup (cont.)

7. Follow the on screen instructions to install ***DVD Express*** to your system. The utility will create a "DVDExpress" sub-folder in the "\Program Files\Mediamatics" folder for itself on your C: drive unless you choose otherwise. When prompted, select the region for your system* (See table below). When the installation is done, click on **Finish**.
   * ***Windows 98 does not allow region change***. So, be careful on choosing your region code. If you want to change your region **after** setup, you first must **reinstall** your *Windows 98,* then redo the entire setup again.
8. Open **Control Panel** > **System Properties**. Double click on the item listed under **CDROM**. Choose **Settings** page and make sure the **DMA** option has a check-mark (✔).

Note: The *Video* driver, *DirectX 5.0*, and *Directshow* programs are required prior to the DVD's installation. We also recommend to install all drivers, such as *PCMCIA* before this setup.

DVD Regional Coding

Region	Where
1	USA, Canada & US Territories
2	Europe, Japan, South Africa, Middle East (including Egypt)
3	South East Asia, East Asia (but not China)
4	Australia, New Zealand, Mexico, Central & South America, Carribbean and Pacific Islands
5	Former Soviet Union, Indian Subcontinent, Africa, North Korea, and Mongolia
6	China (but not Hong Kong)

THE FDD

INSERTING/REMOVING FLOPPY DISKS

Gently insert a 3.5-inch disk (with its label side up) into the Floppy drive until the disk is properly seated. Press the button on the right of the disk drive to eject the disk.

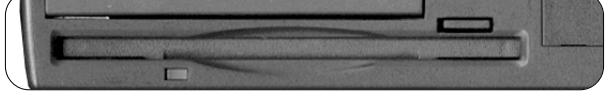
FDD Care

Following are a few tips on the proper handling of floppies:

- Store disks away from magnetic fields and extreme temperatures. These conditions can damage your data. It's also a good idea to make backup copies of software and data.
- If a disk label is already on the disk, use a soft-tipped pen to write on the label. This prevents damage to the disk. Don't use a pencil - its carbon particles can rub off inside the drive.
- Do not remove any disk from the drive when the LCD is flashing (in-use).
- Do not try to clean, bend, or throw disks.
- Do not touch or scratch any exposed portion of the disk medium. Don't pull open the protective door either - this lets dust get inside.

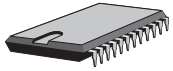
Warning

Do not remove a floppy disk while the drive is active. Doing so may damage the medium or cause a generaol protection fault, result in data loss and/or corruption.



FDD
FIG. 3 – 6

NOTES:



4 Firmware

This chapter is about the notebook's built-in software:

- the *POST* (Power-On Self Test) and
- the *Setup* utility.

If your computer has never been set up, or you are making important changes to the system (i.e. power management features), then you should review this chapter first and note the original settings found in *Setup*. Even if you are a beginner, keep a record of the settings you find and any changes you make. This information could be useful if your system ever needs servicing.

There is one general rule: *Don't make any changes unless you are sure of what you are doing.* Many of the settings are required by the system, and changing them could cause it to become unstable or worse. If you have any doubts, consult your system dealer.

THE POWER-ON SELF TEST (POST)

Each time you turn on the computer, several things happen:

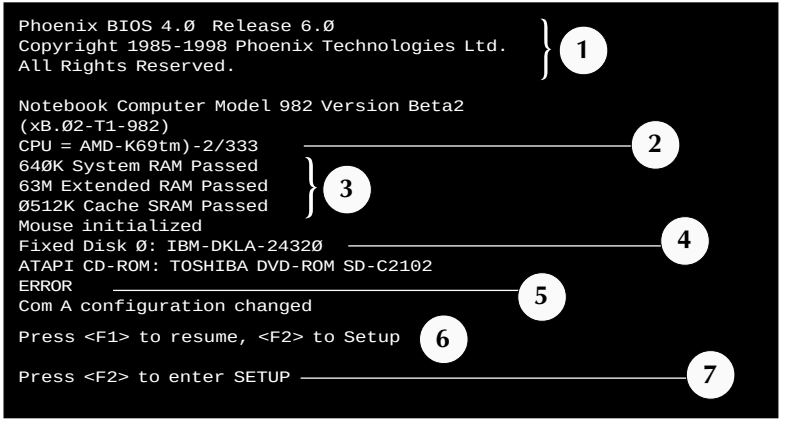
- BIOS information flashes on the screen.
- the system takes a few seconds to conduct a *POST*, including a quick test of the on-board RAM.

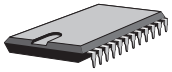
As the POST proceeds, the computer will tell you if there is anything wrong. If there is a problem which prevents the system from booting, it will tell you to run *Setup*. If there are no problems, the system will present a summary, and announce that it is starting the operating system. Once that message appears, you can no longer get into *Setup*.

STARTUP SCREEN: THE POST

FIG. 4 – 1

1. BIOS information.
2. CPU type
3. memory status
4. HDD identification notice
5. error notice (example)
6. Enter *Setup* cue
   - appears if there is an error
7. Enter *Setup* cue
   - appears only during POST (#6 is *not* present)





FAILING THE POST

Errors can be detected during the *POST*. There are two categories, "fatal" and "non-fatal".

Fatal Errors These stop the boot process and usually indicate there is something seriously wrong with your system. Take the computer to your dealer or authorized service center as soon as possible.

Non-Fatal Errors This kind of error still allows you to boot. You will get a message identifying the problem (make a note of this message!) followed by the cue:

```
Press <F1> to resume, <F2> to enter Setup
```

Press **F1** to see if the boot process can continue. It may work, without the correct configuration.
Press **F2** to run the *Setup* program and try to correct the problem. If you still get an error message after you change the setting, or if the "cure" seems even worse, call for help.

THE SETUP PROGRAM

The Phoenix *Setup* program tells the system how to configure itself and manage basic features and subsystems (e.g. port configuration and power management).

ENTERING SETUP

To enter *Setup*, turn on the computer and press **F2** during the *POST*. The prompt seen in Fig. 4 – 1 is usually present for a few seconds after you turn on the system. If you get a "Keyboard Error" (usually because you pressed **F2** too quickly) just press **F2** again.

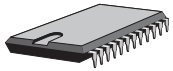
If the computer is already on, reboot using the **Ctrl** + **Alt** + **Delete** combination and then hold down **F2**. *Setup's* main menu will appear.

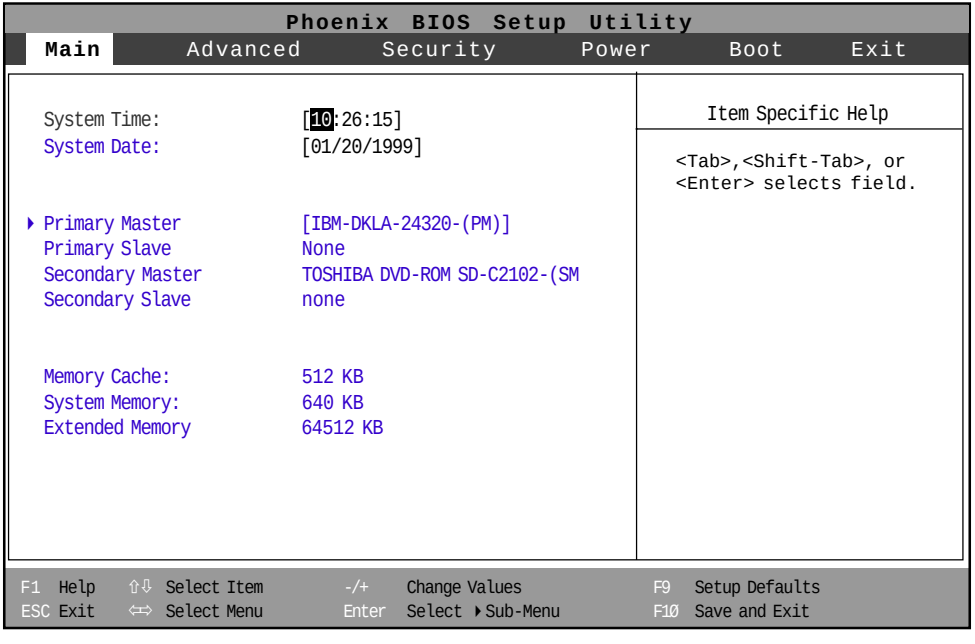
SETUP SCREENS

The *Setup* interface looks like a "windows" screen:

Along the top of the screen is a menu bar with five (5) menu headings. When you select a heading, a new screen appears. Scroll through the features listed on each screen to make changes to *Setup*.

Instructions on how to navigate each screen are in the box along the bottom of the screen. If these tools are confusing, press **F1** to call up a *General Help* screen. Then use the arrow keys to scroll up or down this page.





MAIN MENU

FIG. 4 – 2

The *Setup* menus shown in this section are for reference only. Your computer's menus will indicate the configuration appropriate for your model and options.

The "Item Specific Help" on the right side of each screen explains the highlighted item and has useful messages about its options.

If you see an arrow (" ▸ ") next to an item, press **Enter** to go to a sub-menu on that subject. The sub-menu screen which appears has a similar layout but the **Enter** key may execute a command.

More on Setup

Following is additional advice on portions of the *Setup*, not covered in the Item Specific Help.

Time and Date (Main Menu)

The hour setting uses the 24-hour system (i.e., ØØ = midnight; 13 = 1 pm). If you can change the date and time settings in your operating system, you will also change these settings. Some applications may also alter data files to reflect these changes.

Primary Master (Main Menu)

Pressing **Enter** opens the sub-menu to configure the main IDE HDD which fits into the notebook's HDD bay. Refer to *Chapter 3: Media* for more on these modules.

Type

(Main Menu >Primary Master)

This setting has several options for choosing which method *Setup* will use to detect the hard disk:

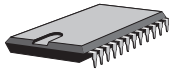
Auto	(*Default setting*) This is the easiest solution. It allows *Setup* to determine the hard disk's type and other information when you press **Enter**. It automatically loads the information into the *BIOS*.
None	No hard disk is installed. With this option, the system will require a floppy disk to supply the bootup information.

Switching Hard Disks

Every time you install a different hard disk in the notebook, it should be (re)configured, unless **Auto** is selected.

Auto Limitations

The **Auto** feature may provide a different set of parameters for the same hard disk at different times. However, it should be reconfigured with the same parameters you got the first time. If you use a different set of parameters, it may be impossible for you to read any data on the hard disk.
Make a record the original configuration parameters for your hard disk for future use.



CD-ROM The system expects a CD-ROM or DVD-ROM.

User This allows you to fill in the Cylinders, Heads and Sectors/Track fields. The size (MB) field is automatically calculated based on this information. The information for all these fields should be printed on the hard disk itself, or in its accompanying documentation.

Multi-Sector Transfers

(Main Menu >Primary Master >Type >CD-ROM & User)

This feature determines the number of sectors in each block that can be transferred together. The "Auto" Type setting selects the optimum number.

LBA Mode Control

(Main Menu >Primary Master >Type >CD-ROM & User)

If your hard disk is larger than 528MB (unformatted capacity), enable this feature. The "Auto" Type setting enables this setting if the disk is large enough.

32 Bit I/O

(Main Menu >Primary Master >Type >CD-ROM, & User)

This setting allows you to enable or disable 32 bit IDE data transfers. The default setting is set to "Disabled".

Warning

If you enable LBA mode while setting the HDD parameters manually, be sure to enable it each time you use the same hard disk. If you don't, you may encounter read/write errors.

When to Use LBA

The "standard" or ATA mode of "seeing" HDDs is inadequate for drives larger than 528MB. LBA mode corrects this and allows for hard disks up to 128GB. ATA and LBA modes overlap. So if LBA mode is not activated when a HDD is first formatted, sections may not be readable under the LBA system. (This does not matter with 528 MB or smaller HDDs).
If you're using a HDD not formatted using LBA mode, do not use the "Auto" setting.

Advanced Menu

Plug & Play O/S

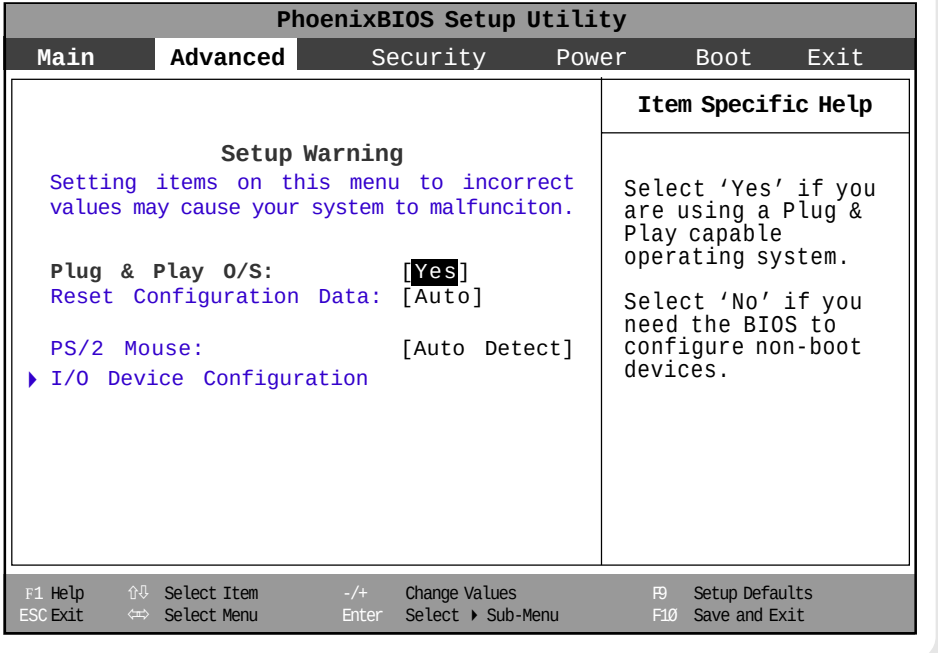
(Advanced Menu)

As this manual went to press, only *Microsoft Windows 95/98* family supported Plug & Play function.

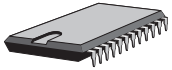
Plug & Play OSs

Most operating systems do not support Plug & Play. This includes Microsoft's DOS, Windows 3.1x, Windows NT 4.0 and IBM's OS/2 Warp. However, future versions of these systems may include Plug & Play. So you should check your O/S documentation to be sure.

If the operating system doesn't support Plug & Play, this switch must be set to "No" or your audio system and other features may not work.



Advanced Menu
Fig. 4 – 3



I/O Device Configuration (Advanced Menu)

Press **Enter** to open the sub-menu to configure port connections.

```
                    PhoenixBIOS Setup Utility
                         Advanced
 I/O Device Configuration                  Item Specific Help

 Serial port A:                [Auto]      Configure serial port A
 Serial port B:                [Auto]      using options:
    Mode:                      [Normal]
 Parallel port:                [Auto]      [Disabled]
    Mode:                      [Bi-directional]   No configuration
 Floppy disk controller:       [Enabled]
                                           [Enable]
 TV port:                      [NTSC]         User configuration

                                           [Auto]
                                              BIOS or OS chooses
                                              configuration

 F1 Help   ↑↓ Select Item   -/+   Change Values    F9  Setup Defaults
 ESC Exit  ⇦⇨ Select Menu   Enter Select ▸ Sub-Menu F10 Save and Exit
```

Advanced Sub-Menu, I/O Device Configuration
Fig. 4 – 4

Serial Port A

(Advanced Menu >I/O Device Configuration)

The "Auto" type setting allows *Setup* or *OS* to configure this port. If you don't plan to use this port, you can set this line to "Disabled" to conserve power.

Serial Port B

(Advanced Menu >I/O Device Configuration)

The "Auto" type setting allows Setup or OS to configure this port. If you don't plan to use this port, you can set this line to "Disabled" to conserve power.

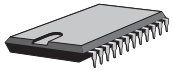
Mode (Normal)

(Advanced Menu >I/O Device Configuration >Serial port B)

There are several modes available if you set the serial port B to "Enabled". Make sure the mode you choose is supported by the device with which you want to communicate. "Normal" mode assigns it to be COM2 port. Fast IR (FIR), as the name implies, is the most powerful option followed by IrDA(SIR) and then ASK-IR.

Serial Resources

If you are not planning to use these serial ports, you can disable them (by choosing "Disabled"). This way you can assign resources to another device, e.g. a PC Card device.



Parallel Modes

Although most devices on the market use Standard mode (i.e. Output only mode); the default "Bi-directional" setting also supports Standard mode.

Parallel Port

(Advanced Menu >I/O Device Configuration)

The "Auto" type setting allows *Setup* or *OS* to configure this port. If you don't plan to use this port, you can set this line to "Disabled" to conserve power.

Mode (LPT)

(Advanced Menu >I/O Device Configuration > Parallel port)

There are several modes available once you have enabled the parallel port.

- Output only (Standard)
- Bi-directional
- EPP (version 1.9)
- ECP (Extended)

You should check your parallel device's documentation to see which one it can use.

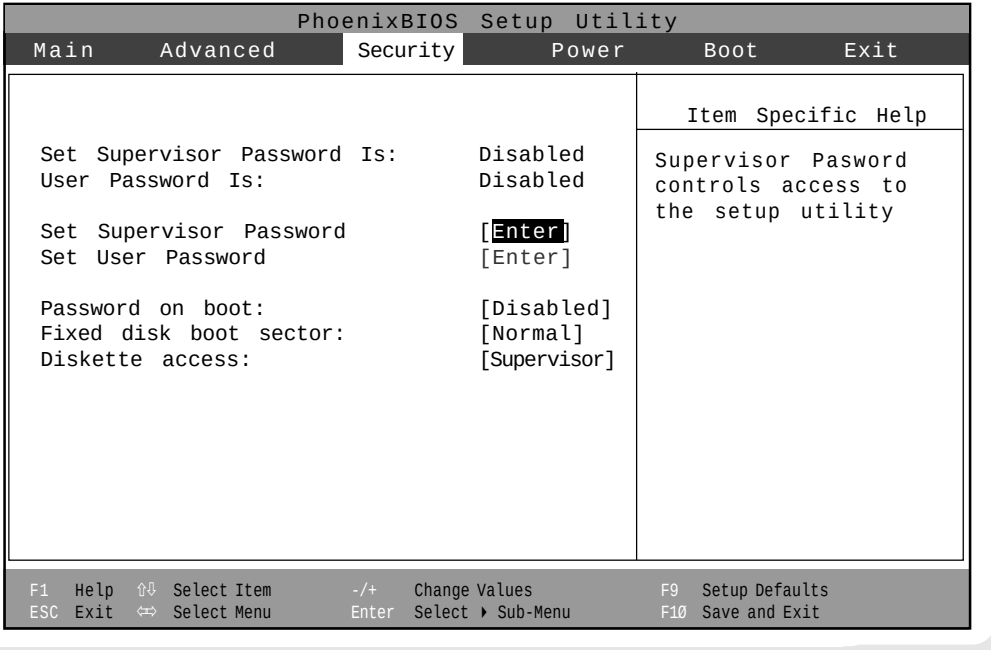
Security Menu

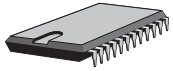
Set Supervisor Password & Set User Password (Security Menu)

Passwords can be up to seven (7) characters and/or numbers (but not symbols). When creating a password it must be entered twice, the second time for confirmation.

If you forget or lose a password, consult your dealer or service center.

Security Menu
Fig. 4 – 5





SET SUPERVISOR PASSWORD (SECURITY MENU)

Supervisors have unrestricted access to the system and can assign a "User" password.

Only a supervisor can change a "Supervisor" password. If you leave the field empty, both the Supervisor and User passwords are disabled and erased.

SET USER PASSWORD (SECURITY MENU)

To use this feature, a Supervisor password must be set first. Only the supervisor (using the Supervisor password) can set and change the User password. To disable the User password, enter the existing password first and leave the new password fields blank.

If you enter the system with the User password, you are denied access to:

specific disk & drive information
I/O device configuration (peripheral & port)
the "Advanced" menu
the "Security" menu (except for user password)

PASSWORD ON BOOT (SECURITY MENU)

When this is "Enabled", the system will ask for a password each time you turn on the system or reboot. Type either password and then press **Enter**.

The system allows three attempts. If the wrong password is entered again, the system locks and must be restarted.

Fixed Disk Boot Sector (Security Menu)

If this feature is active, you will get a warning message

```
Hard drive not installed
If operating system not found,
re-install hard drive.
Hit any key to exit.
```

whenever Boot Sector 0 is different from the one recorded. This includes re-partitioning or reformatting the hard disk. You must turn off the "Write Protect" feature to preform those functions or install a different hard disk.

If boot sector protection is not enabled (i.e. set to "Normal"), make sure that the new hard disk is not infected with viruses.

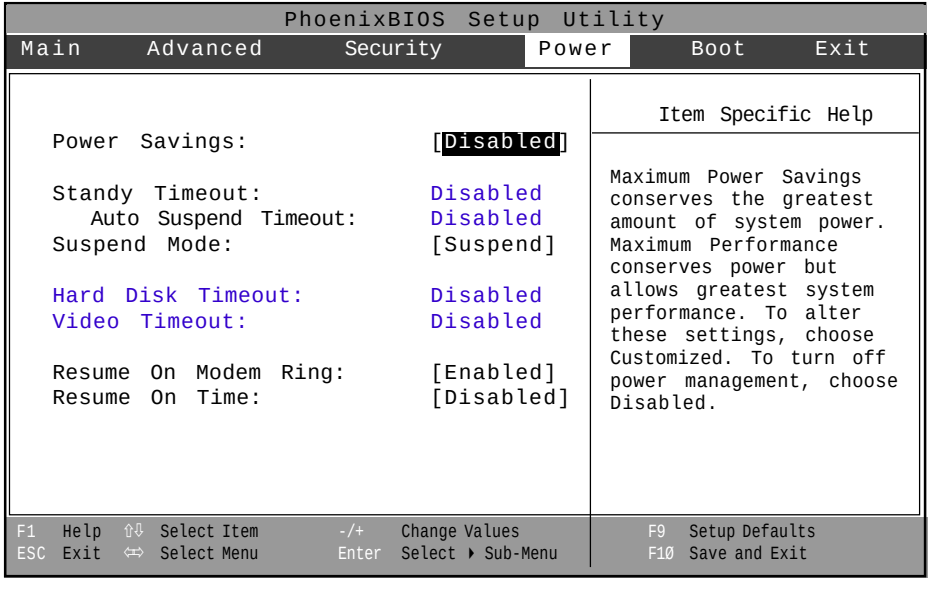
Diskette Access (Security Menu)

This feature determines who control the accessability to diskette drives. The default "Supervisor" setting assigns the supervior

POWER MENU

In this menu, you can choose among the preset power saving schemes or customize your desired settings. Before you adjust the settings, we suggest a review of the power management system in *Chapter 5: Power.*

Note: The **Fn** + combination activates Save to Disk (if a file or partition has been preapared).
The **Fn** + combination activates Suspend (to RAM)**.**



POWER MENU
FIG. 4 – 6

Power Saving (Power Menu)

This is the "master switch" for the power savings system. If you want to turn the power management off, set it to "Disabled".

Suspend Mode (Power Menu)

Use this menu to control the **Suspend** power management system. If you want to use the "Save to Disk" method, you must have set up a Save to Disk file or partition as described in *Chapter 5: Power*.

Resume On Modem Ring, Resume On Time (Power Menu)

Use these menus to control how the system will be reactivated from *Suspend (to RAM)* mode. This does not apply to *Save to Disk* mode.

If you want to resume from a ring-in (i.e. a modem singal), make sure the "Resume On Modem Ring" is set to "On". If you want to specify a specific period of time for the system to wake up, make sure to enable the "Resume On Time" switch and specify a time period to your preference in the "Resume Time" and/or "Resume Date" menus.

5 Power

This chapter is about the power system, both hardware and software:

Hardware

- AC adapter (*also see page* 1-7)
- battery pack (*also see page* 1-11)

Software

- *Setup* utility parameters (*also see page* 4-14)
- power & battery management controls (*also see pages* 1-12 *&* 1-14)

THE INTERFACE

The status screen has three icon groups about the Power system,

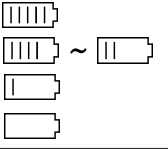
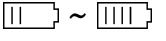
Indicator	Meaning	Effect
	Full power	All subsystems are fully powered.
	Sleep mode	The CPU clock is on "hold", all subsystems are in a reduced-power mode, and the LCD is off.
	Suspend to RAM	The CPU and other chips are turned OFF, RAM is refreshed slowly, system fan is OFF, peripheral devices and ports are in power-saving mode.
	Battery > 80% Battery < 80% to 20% Battery < 20% Battery empty	Battery has more than 80% power, considered "Full". "Low" battery range, rechare with the adapter
 lines & frame blink	charging	Steady lines correspond to charge level, cycling lines indicate "dumb" battery charging.
 all lines & frame blink	system problem	Re-insert or replace the battery, if the problem continues, consult your service representative. **Do Not Attempt to Repair the Battery.**
	AC-in	System is receiving AC power.

TABLE 5 – 1
STATUS SCREEN INDICATORS

and two hot-key controls:

 suspend/standby activates “Suspend” (to RAM).

	freeze	activates “Save to Disk” if the Save to Disk partition/file is available, otherwise activates “Suspend” (to RAM).

POWER HARDWARE

You can operate the notebook on either AC or battery power. The next two sections are about how to use these power sources and other AC/battery power related information.

AC POWER

The notebook comes with an AC power cord and a universal, auto-switching power adapter. You can use the adapter anywhere the voltage is steady, between 100 and 240 volts.

When the adapter is connected to a power source and then to the computer, the icon on the status screen appears to indicate the system is receiving AC power. To use the AC adapter:

1. Plug the power cord to the power adapter.
2. Plug the power adapter to the adapter port on the computer’s right panel.
3. Plug the power cord into a wall outlet.
4. Press the power button ⏻ for **one second** to turn the system on.

Warning

Only use an approved adapter. The wrong adapter could damage the computer.

CONNECTING AC ADAPTER
FIG. 5 – 1

Battery Power

The notebook comes with a rechargeable battery pack. You can get a replacement pack from your dealer.

First-Time Use & Storage

If you don't use a battery pack for a long time (about three weeks), it should be discharged completely and then recharged. The battery pack that came with your new computer may have been in storage or shipment for some time. So, we **strongly recommend** that you follow these steps when you receive this computer or if you have not used the battery pack for a long time.

1. Install the battery pack in its comaprtment (if it's not already there).
2. Make sure that the AC power source is plugged in. Refer to the AC Power section for details. Turn on the system and press **F2** to enter *Setup*. (If you are not sure how to do this, refer to *Chapter 4: Firmware*.)
3. Open the Power menu and set **Power Savings** to "Disabled". This prevents automatic Suspend when the battery is low.
4. Save the settings by using the "Exit Saving Changes" option in the Exit menu.
5. Make sure that your operating system does not activate Advanced Power Management (APM). If you are using *Windows 9x*, reboot using "Command prompt only".
   Note: if your hard disk is not bootable, insert a bootable floppy disk in drive A: before rebooting.

6. After the system finishes booting, detach the AC power source. Discharge the battery completely by leaving the system on for about two (2) hours, until the system shuts itself down. Ignore any low power warnings.
7. Once the system has turned itself off, plug in the AC power source to recharge the battery. For a faster charge, leve the system off while charging. The icon flashes while the system is charging. When the battery is full, the icon is steady, with all bars present. To figure out how long it takes to recharge the battery, refer to *Appendix A: Specifications*.
8. Turn on the computer and press **F2** to enter *Setup*. Open the Power menu and reset your preference. Save the setting and reboot.

Warning

Always save your work before changing the battery.
Do not attempt this function without entering Save to Disk or turning off the system. Otherwise you will loose all unsaved data.

Installing & Removing a Battery Pack

Before installing or removing a battery pack, avoid the chance of data-loss by saving your work first and then using one of these methods:

- Shut down the system.
- Use *Save to Disk* mode.
- Put the system in *Suspend (to RAM)* mode and make sure power is available from the AC adapter.

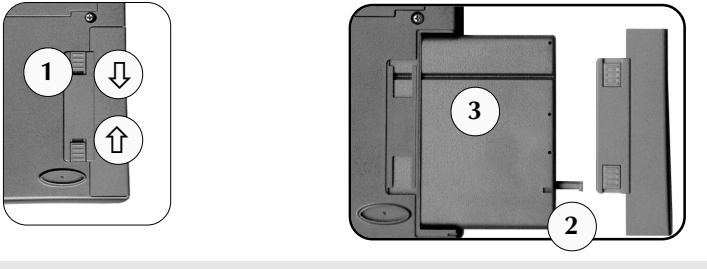
To install a battery pack:

1. Turn the computer upside down and open the battery compartment by releasing the latch and sliding the cover to the right.
2. Remove the used battery (if present) by pulling on its tab.
3. Remove the battery from its packaging.
4. Slide the battery into the compartment. You should feel a slight "click" as the connectors in the notebook slide into the battery pack's slots.
5. Replace the compartment cover and secure its latch.

Removing the Battery

Fig. 5 – 2

1. slide the power bay latches in
2. grasp the battery tab
3. pull the battery out



Using & Charging the Battery Pack

When the system is using battery power only, the status screen indicates the battery's charge. If the icon has only 1 bar left (less than 20%), the battery is low. If this happens, *save your work immediately* and either plug in the AC adapter and/or replace the battery pack.

When the system receives AC power, both  and a flashing  icon appear to indicate AC-in and battery charging. When the battery is fully charged, the  icon is steady. Refer to *Appendix A: Specifications* for a guide to battery life and figuring recharge times.

"Smart" & "Dumb" Batteries

The status screen icons appear the same for both battery types. However the values for "dumb" batteries are much less accurate.

Though not shown, the system detects Low battery status (about 10%) for both.

Partial Charges

If you don't have time to charge the battery fully, try to make sure the battery has enough power to complete the *Save to Disk* process (if you've configured your system to use it). You must charge the battery to at least the  level.

Warning

If your system does not have a "smart battery" (e.g. a MoliCel ME202BB), Windows APM will register power levels as either 20% for Low or 80% for all other states.

Power Management

Hardware (Battery Status & Warnings)

When the POST is finished, the status screen icon indicates the approximate battery charge. When the system detects a level of about 10% (sometime after the icon appears) the system starts making a warning "beep". When this happens, *save your work immediately* and plug in the power adapter.

If you don't have access to an AC power source, shut down the system and replace the battery pack or recharge until the power level is at least 40% ( ).

Note: The battery charge level is visible after the system completes the POST. The battery recharges when the system is OFF.

Save to Disk Setup

When the BIOS instructs the system to "Save to Disk", it makes use of a special **file** or **partition** on the HDD. This is created and managed by the *PHDISK* utility found on the same floppy as for the CD-ROM driver. Another copy is on the *Drivers/Utilites* CD-ROM.

Space

Both paritition and file methods occupy the same amount of space on your HDD. The PHDISK setup utility will automatically define the space to be reserved according to your system memory size. But if you prefer to define yourself, the size of the space must be greater than the total size of the memory (DRAM) and the notebook's video RAM. A typical setup's space requirement might be:

memory type	size in KB	size in MB
system	65,536KB	64MB
video	4,096KB	4MB
total	69,632KB	68MB
recommended*	70,656KB	69MB

* The recommended space should always be about 1MB more than the total calculated. The extra MB is for data from other chip registers.

(1MB = 1024KB)

Check the specifications for your system before you run the PHDISK utility.

Note: If you want to use different setup method (i.e. change from partition to file method, or vice versa) after setup, you must delete the existing partition or file before you can use the new setup method.

Save to Disk Setup (cont.)

The Partition Method

Since this method requires you to configure your HDD, you must make sure you have enough ***unpartitioned***, ***unformatted*** hard disk space to accommodate the size of the partition you expect to have **before** this setup. Follow these steps to prepare the partition:

1. Boot up the computer from a bootable disk.
2. Insert the *PHDISK* Utility floppy.
3. Run PHDISKP.EXE at the DOS prompt, type
   a:>**PHDISKP** [**Enter**], type "**1**" [**Enter**], then
   - to use the default setting, press [**Enter**]
   - to make a partition the size you prefer (e.g. for a 37MB=37,888KB partition), type "**37888**" then press [**Enter**]
4. When finished formatting, choose "**3**", then press **any ke**y to reboot the system.

Note: When run your operating system's partition utility (e.g. *MS-DOS*'s **FDISK**), it will tell you that it has found a "Non-DOS" partition. Do not do anything to this partition, and be careful not to format the "Non-DOS" partition.

Other Controls – Reformatting (partition only)

If your Save to Disk partition becomes corrupted or develops too many "bad sectors", you should reformat the partition by typing,
a:>**PHDISKP** [**ENTER**], type "**1**" [**Enter**]
When finished reformatting, choose "**3**", then press **any key** to reboot the system.

Low Battery & Save

When the Low battery warning starts, you have about 10% of battery power left. Then, the computer goes into *Save to Disk* or *Suspend* mode (if you haven't given the system more power).

The *Battery Low* line in Power Savings (see Chapter *4: Firmware*) has two options:

Save to Disk	– System status information is recorded to a special file or partition on the HDD and then the system turns OFF. **This requires the *PHDisk* utility** (see the sidebar).
Suspend	– Information is saved to the RAM and the system goes into low power mode.

If either of these options starts, the battery is "fully" depleted, though it maintains a small, safety, reserve.

If the battery depletes its safety reserve, the system can't be turned on and anything not saved to disk is lost. In this case, replace or enhance the power supply.

Warning

If you haven't set up the system for* Save to Disk*, or if the space reserved for the* Save to Disk partition *isn't large enough, the system will default to the* Save to Disk file *(if present and large enough) or to* Suspend *mode. If the system uses* Suspend *mode, your unsaved data will be lost when power is turned off.

FIRMWARE (SETUP CONTROLS)

The Power menu in *Setup* controls how *Suspend (to RAM)* or *Save to Disk* is activated. Refer to *Chapter 4: Firmware* on how to setup these modes.

Setup's Item Specific Help describes the power management control on the Power Savings page. You can see the default time-out values as you try the different settings on the "Power Savings" line.

SAVE TO DISK

Pressing **Fn** + F4 or a system time-out activates this.

When *Save to Disk* is enabled, the computer makes a starting beep to let you know when current work is being stored into the specially-reserved hard disk area (partition or file). When it's finished, the system shuts down.

To resume work, press the ON/OFF button to turn the system back ON. The

Save to Disk Setup (cont.)

THE FILE METHOD (FOR FAT16/FAT32 FILE SYSTEM ONLY)

This is a more flexible means of preparing your hard disk for the *Save to Disk* power saving system. However, it is not compatible with all types of file system. To setup this file you should,

1. Make sure your hard disk is defragmented (there are numerous utilities available for this).
2. Reboot the computer in the DOS mode.
3. Insert the *PHDISK* Utility floppy.
4. Run PHDISKF.EXE at the DOS prompt, type a:>**PHDISKF** [**Enter**], type "**2**" [**Enter**], then
   - to use the default setting, press [**Enter**]
   - to make a partition the size you prefer (e.g. for a 69MB=70,656KB partition), type "**70656**" then press [**Enter**]
5. When finished creating, choose "**3**", then press **any key** to reboot.

Note: When finished, the utility will save the file, **SAVE2DSK.BIN**, as a hidden, system, and read-only file in your root directory of drive "C:".

Other Controls – Deleting (partition or file)

If you want to remove the partition or file, type a:>**PHDISKP** [**ENTER**] (for partition method),

or a:>**PHDISKF** [**ENTER**] (for file method), then type "**2**" [**Enter**]. When finished deleteing, choose "**3**", then press **any key** to reboot.

Note: This deletes the contents of the partition if you use the parititon method. To make the partition DOS-usable, next use DOS's FORMAT utility.

system will return to the state before it went into *Save to Disk* and turn on all devices.

Security Note: If you setup a password in *Setup*, you will need it to resume from *Save to Disk*.

Ring in Note: If you want a ring-in from a fax-modem to wake the system, do not use this setting.

SUSPEND

Activated by pressing **Fn** +  or a system time-out.

In this mode, the computer is powered down, but still maintains power to the DRAM to preserve the system state information stored there.

Pressing any key reactivates the computer. However, each time this happens, you risk depleting the battery beyond its safety reserve and losing any data not saved to a disk.

Security Note: Passwords are not needed to resume from *Suspend*. If you want password protection, use the *Save to Disk* alternative.

Ring in Note: The system will wake if a ring-in is detected from a fax-modem or an activated serial (or other COM) port.

Warning

Do not remove or change the PC Cards while the system is in* Suspend *Mode. The slots are turned off and any change in the system configuration may cause problems when the computer comes back on.

SOFTWARE (UTILITIES)

Your system is designed to work with three power management utilities: APM, and two optional utilities form Phoenix.

APM

Developed by Microsoft and Intel this utility is embedded in the *Windows 9x* operating systems. However, the embedded *APM* is unable to utilize the full range of options available in Phoenix's *Setup*-based power management system. Use the battery icon on the (*Windows*')control panel to access *APM* (in *Windows 9x*). For best results, use "Advanced" settings.

For more information about *APM*, refer to your operating system documentation.

Note: If you are using a "dumb" battery, no utility can offer accurate information about the charge levels.

Additional Power Management

You can conserve power by reducing the amount of disk caching *Windows 9x* does. From the Control Panel, select System. From the **Performance** tab, select **File System...**. On the **Hard Disk** tab, select "Mobile or docking system" under "Typical role of this machine:". Your system performance may not be as fast, but the battery should last longer.

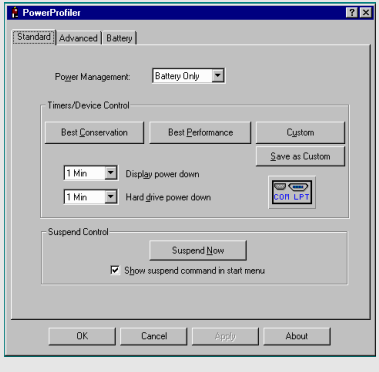
Installing SystemSoft PowerProfiler

To install *PowerProfiler* for *Windows NT 4.0*,

1. Insert the *Software & Utilities* CD-ROM.
2. From the **Start** menu, select **Run....** Then **Browse...** and Navigate to:

   D:\drivers\nt40\apm\setup.exe*

   *This assumes your CD-ROM is drive "D:".
3. Click on **Open**, then **OK** and **Next** to proceed.
4. Click **Next** to accept the default installation directory. Or click on **Browse...** to select an alternative directory.
5. After the installation is complete, select **Yes** to read the README file. Or select **No** to proceed.
6. Click on **Finish** to restart.



SystemSoft PowerProfiler

Available in *Windows NT 4.0*, SytemSoft's PowerProfiler utility provides a full range of power management options. It allows you to set power management parameters and various alarms to monitor declining battery power and control overall power consumption.

The installation adds an icon, Suspend, in the Start menu, and another icon, PowerProfiler, in the Programs group. PowerProfiler is set to automatically load with *Windows NT*. Once activated, a small battery icon appears on the right bottom corner of your screen. You can use this icon to invoke *PowerProfiler* or to put the system in *Suspend*.

POWERPROFILER
FIG. 5 – 3

NOTES:

6 Extras

This chapter is about add-ons and extra features available with your system:

Hardware
- Memory (also refer to page A-3)
- Port Replicator (optional)

Software
- improved TouchPad drivers (also see page 2-5 & 2-6)
- FIR driver for IrDA
- Audio
- PC Card

If you plan on increasing your system memory, be sure to read the “Memory” section before you make any purchases.

If you use the TouchPad frequently, the enhanced driver allows you to make it even more user friendly. However, it doesn’t have any effect if you’re using an external pointing device.

MEMORY

You can upgrade your notebook's memory to as much as 256MB. This involves opening the memory compartment and installing one or two DIMMs.

Warning

Check with your dealer to make sure installing RAM yourself doesn't violate your warranty.

You can install these modules in either one socket or both sockets (in any order and any size combination).

Socket requirements:

up to 256MB maximum using one or both sockets

Socket 1 & Socket 2 requirements:

- 16MB, 32MB, 64MB or 128MB modules
- 144-pin SO-DIMMs
- 3.3-volt
- TSOP package
- SDRAM DIMMs
  – rated at 10ns or faster

Warning

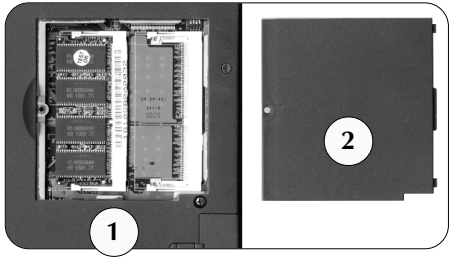
Make sure each module meets all of the criteria for the socket it will be used in.

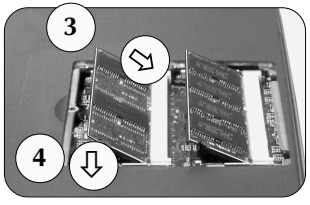
Make sure you put the correct type in each socket.

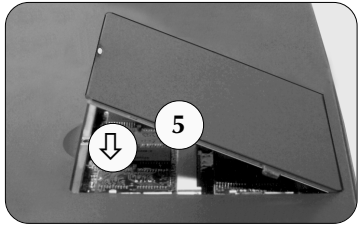
Installing DIMMs

If you install additional memory by yourself,

1. Make sure the system is turned off, you are wearing an antistatic wrist strap (available from most computer supply dealers) and you are in a dust/smoke-free environment.
2. Place the computer on a clean, dry, level surface.
3. Using a small Philips-head screwdriver, remove the anchor screw (1) from the memory bay cover and set the cover aside (2).
4. Insert a DIMM in either slot at about a 20° angle (3). Grooves on the sides of the module allow you to insert it only one way. Make sure it is seated as far into the slot as it will go.
5. Gently push down on the module (4) until its lock-catches snap into place. **DO NOT FORCE IT**. The module should fit in without much pressure. If there is a lot of resistance, check to make sure the DIMM is properly seated.
6. Install the second module in the same way.
7. Replace the memory bay cover (5).
8. After changing the RAM configuration, run *Setup* so the new total can be registered in the CMOS (refer to *Chapter 4: Firmware*).







Warning

Do not touch the module's edge connectors. Even the cleanest hands can leave oils which may attract corrosive particles.

INSERTING THE DIMM

FIG. 6 – 1

Follow the instructions on the opposite side-panel. Modules can be inserted in any order.

TouchPad

If you want to take full advantage of the TouchPad's capabilities, you need to install the Alps Glidepoint software which comes with your system. This utility is on the accompanying *Software & Utilities* CD-ROM.

Gestures

Glidepoint adds several new tabs to the **Mouse Properties** control panel. It also enhances the original **Buttons** and **Motion** tabs.

Customizing Gestures

To customize TouchPad features in *Windows* operating systems , use the *Buttons* tab in *Mouse Properties* of *Control Panel:*

1. From the **Start** menu, select **Settings** > **Control Panel**.
2. Double-click on the *Mouse* icon.

Glidepoint Installation

WINDOWS 95 & NT 4.0

1. From the **Start** menu, select **Settings** > **Control Panel**.
2. Double-click on **Mouse** to open Mouse Properties.
3. Select **General** (tab), and then click on **Change...** (button).
4. The Select Device screen will appear, then Click on **Have Disk...**(button).
5. Insert the *Software & Utilities* CD-ROM, then click on **Browse...** and navigate to:

   d:\drivers\win95\touchpad\apoint.inf*

   or d:\drivers\winNT\touchpad\apoint.inf*

   *This assumes your CD-ROM is in drive "D:".
6. Follow the on-screen instructions. When Alps GlidePoint screen appears, click on **Ok** to copy the driver files to your system.

   Note for NT4.0: *This driver also makes changes to the Keyboard Port driver. When prompted for confirmation, click* ***Yes*** *to continue the installation anyway.*
7. Click on **Close**. When asked for a reboot, do so.
8. After system restarts, you should see the TouchPad icon in your taskbar next to the clock.

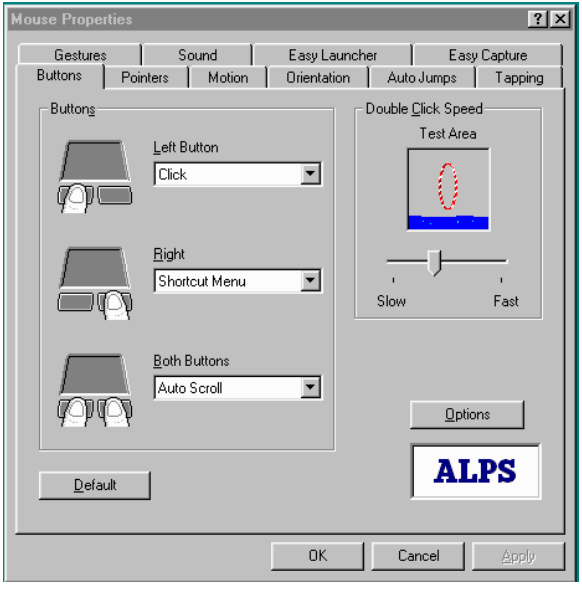
GlidePoint Installation

WINDOWS 98

1. Click on **Control Panel** > **System**, then **Device Manager** (tab).
2. Click the plus sign next to the **Mouse** category, then double-click the current device name (e.g. PS/2 Compatible Mouse Port).
3. Select **Driver** (tab) > **Update Driver...**.
4. The Update Device Driver Wizard screen will appear, click on **Next** and insert *Software & Utilities* CD-ROM.
5. Choose "Display a list of all the drivers...", then click **Next>** (button).
6. Click on **Have Disk...** (button), then click on **Browse...** and navigate to d:\drivers\win98\touchpad\apoint.inf* then click **OK** (twice).

   *This assumes your CD-ROM is in drive "D:".
7. When Alps GlidePoint appears, click on **Next>** (twice) to copy the driver files to your system.
8. Click on **Finish**, and then on **Close** to return to **Device Manager**.
9. Click on **Close** again, you should see the TouchPad icon in your taskbar next to the clock.

When the Mouse Properties page appears, use the on-line help to get information about each feature. To configure other common features, click on other tabs.



MOUSE PROPERTIES
FIG. 6 - 2

FIR FOR THE IRDA

Your notebook includes an infrared serial port. The accompanying *Software & Utilities* CD-ROM also includes a FIR driver for the IrDA port. This driver only works with *Windows 95*, so its included in that operating system's driver folder.

To use it in *Windows 95*, you must also download the **W95ir.exe** driver from the Microsoft web site or talk to your dealer. Then, follow the instructions on the side-bar to perform the installation. *Windows 98* does the resource allocation automatically but *Windows NT 4.0* provides no support of this device.

For more detail information on the installation procedure and system settings, please refer to the RELNOTES.DOC file included in the FIR subfolder on the *Software & Utility* CD-ROM. You can open the file with the *Wordpad* utility included with Windows 95.

Installing FIR for IrDA Drivers

WINDOWS 95/98

1. Choose Serial Port B's mode settings as "**FIR**" in the BIOS *setup* (see *Chapter 4: Firmware*).
2. When the system starts, the *Update Device Driver Wizard* will appear.
3. For *Windows 98*, follow the on-screen instructions. When finished, reboot the system for the changes to take effect.

   For *Windows 95*, click on **Next** > **Other Locations** > **Browse,** and navigate to:

   d:\drivers\win95\fir

   Follow the program's dialog boxed. If asked for "Insert Disk", redirect to

   d:\drivers\win95\fir\smcser.inf
4. Locate and double-click the **W95ir.exe** (download this driver from the Microsoft web site or talk to your dealer) file icon to launch self-extracting. The extracted files will be saved in **MSIR20** folder on drive "C:".
5. Browse to C:\MSIR20 and double-click the **setup.exe** file. When prompted, choose "SMC IrCC(Fast Infrared) Hardware and Driver(COM2)", and "use default ports".
6. Using *Windows Explorer* to navigate to:

   d:\drivers\win95\fir\smcirlap.inf

   Click **right** mouse button and choose **Install**. When asked for **smcirlap.vxd**, redirect to the same location to continue the setup. When finished, reboot the system for the changes to take effect.

Installing CardWorks

WINDOWS 95

The *CardWorks* utility replaces Windows 9x's PC Card utility with enhanced support. However, you should install this *after* you have activated the PC Card utility in Windows 95. To isntall,

1. Make sure your PC Card sockets are empty.
2. Insert your *Software & Utilities* CD-ROM, then use the *Windows Explorer* to navigate to d:\drivers\win95\pcmcia\setup.exe*.

   *This assumes your CD-ROM is drive "D:".
3. Follow the on-screen instructions. When asked, use default (i.e. select either **Next** or **Yes**). When prompted, allow the system to restart. After reboot, the pc cards push the CD-ROM back two letters (i.e. if the CD-ROM is drive "D:", it will become drive "F:", and the pc cards will be the new "D:" and "E:" respectively.)

Note for SRAM/FLASH Card

a. On step 3, you must choose the "**Custom**" setup type instead of "Typical". When asked, say **Yes** to update files. Check "SRAM Cards" and "FLASH Cards" under Mass Storage Device option when prompted.

b. After reboot, insert your SRAM or FLASH card. Please wait for a while (can be a few minutes) for the system to detect the card.

c. Click on **View** > **Properties** > **Drivers** (tab)

d. Choose "Change Card Driver", and select "Use CardSoft Mode" under Card Driver option, then click on **OK**. When asked, **remove** and **reinsert** the card for the changes to take effect.

CARDWIZARD (CARDWORKS)

The *CardWizard* utility is only supplemental for *Windows 95 & Windows NT 4.0* (though highly recommended for the latter). It gives you information about the status of the cards and sockets, troubleshoots card configuration problems, and resolves resource conflicts.

Although *Windows 95* allow hot inserion or removal of PC Cards, the accompanying utility *CardWorks* provides better resource support. In *Windows 95*, start *CardWizard* from the taskbar (**Start** > **Programs** > **CardWorks** > **CardWizard**).

Windows NT 4.0, on its own, won't allow "hot" insertion or removal of PC Cards. *CardWizard* overcomes this deficiency. However, before removing a card, you should click on **Stop** from the *CardWizard's Action* menu. This makes sure no applications are using the card, which might cause a problem if the card is removed.

Formatting in Windows NT4.0

Windows NT 4.0 has the necessary formatting utilities built in.

In *Windows NT 4.0*, start *CardWizard* from the taskbar (**Start** > **Programs** > **CardWizard for Windows NT**).

For more information on *CardWizard* features, you can click on *CardWizard*'s **Help** icon in your taskbar close to the clock or go to the "Help" menu if you have already activated *CardWizard*.

Using Card Wizard

CardWizard can detect a card's installation and "correct" the system resources allocation. Press the **Wizard** button for more information. When you first install an unrecognized card, you'll hear a warning beep. Run *CardWizard* and allow it to configure the system resources. The next time you install that card, *CardWizard* will recognize it and adjust the system automatically.

Installing CardWizard

Windows NT 4.0

The *CardWizard* utility is the same as that for the *Windows 95*. You should install it *after* you have activated the PC Card utility in *Windows NT*. To install,

1. Open **Control Panel** > **Add/Remove Programs** and choose **Install...**
2. Insert the *Software & Utilities* CD-ROM and click **Next>** (button).
3. Browse to

   D:\drivers\nt40\pcmcia\setup.exe*, Click on **Open** then the **Finish** button.

   * This assumes your CD-ROM is drive "D:".
4. Follow the program's dialog boxes. The utility creates a set of sub-directories for itself in the Program Files directory on your C: drive unless you choose otherwise.

   Near the end of the installation, the utility asks if you want to view the "readme" file. We suggest you take a moment to scan it.
5. When the installation is complete, allow the system to reboot to complete the setup.

Note: To activate the PC Card, open **Control Panel** > **Devices**, and choose "Pcmcia" from the listings. Click on **Startup...** then choose "System". Click on **OK**, then on **Close**. Reboot the system for the changes to take effect.

PORT REPLICATOR (OPTIONAL)

The Port Replicator is designed to enable easy, and more permanent peripheral connections with your notebook computer.

These connections, except where noted, exactly replace similar connections on your notebook computer:

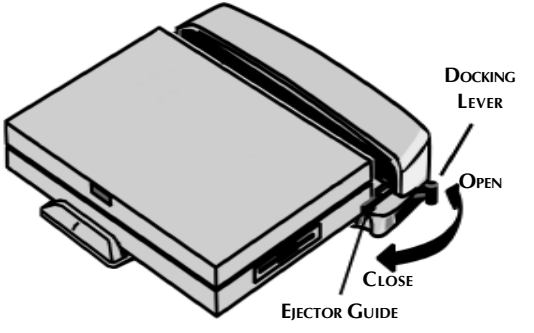
- USB Port (2 ports)
- Serial Port (COM1)
- TV-out Port (S-type).
- VGA Port.
- Parallel Port
- PS/2 Port for a compatible pointing device.
- PS/2 Port for a PS/2 compatible keyboard.
- Power Socket: Depending on your notebook model, this serves as a pass-through connector to the notebook's own DC-in port. If your computer doesn't support this feature, its function is null - you must use the notebook's DC-in port.

Docking Procedures

Make sure the system is OFF before connecting or disconnecting the Port Replicator.

1. Connect your peripherals to the Port Replicator. The connections are marked with icons to help identify their functions.
2. Make sure the **Docking Lever** is all the way back in its *open* position.
   Make sure the **expansion door** on the rear of the notebook is *open*.
3. Position the notebook between the **slide connection** and **ejector guides**.
4. Pull the **docking lever** forward to securely fasten the Port Replicator.
5. Turn on the computer.

Port Replicator Docking
Fig. 6 – 3



Undocking Procedure

1. Shut down your system or put it into Suspend mode.
2. Push the **docking lever** all the way back to the open position and lift the notebook straight up, off of the Port Replicator.
3. Restart the notebook computer.

TROUBLESHOOTING

The monitor screen is blank or the video display dimensions are wrong.

solution:
- Make sure the monitor is turned ON and the notebook's video settings are set to recognize the attached monitor.
- Connect the monitor directly to the notebook's VGA port to make sure it's working. If it still doesn't work, there may be a problem with the monitor. If it does work when connected directly, contact your service provider.

Other peripheral devices attached to the Port Replicator are not functioning.

solution:
- Make sure the cable connections between the Port Replicator and the device(s) in question are undamaged and secured.
- Make sure the peripherals work when connected directly to the notebook computer.
- Confirm the *Setup* settings for the ports.
- Shut down the entire system. Disconnect all peripherals from the notebook. Disconnect all devices from their power supplies. Reestablish all connections. Turn on any peripheral with its own power supply. Lastly, turn on the computer.

REGULATORY INFORMATION

This device complies with Part 15 of the FCC Rules where operation is subject to the following conditions: (1) This device may not cause harmful interference; (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTES:

A Specifications

The information listed in this section is for reference only. It is subject to change at the manufacturer's discretion and without notice.

Unless otherwise indicated, none of the components and/or subsystems can be modified or upgraded.

CPU & CHIPSET

CPU

PGA (Socket 7) package:

Intel® Mobile Pentium™ series

Tillamook: (1.9V)233~266MHz(PPGA)
(2.0V)266~300MHz(TCP to SPGA)

AMD© series

K6-2™:	(2.2V)300~450MHz
K6-ST™ :	(2.2V)400~450MHz
Mobile K6-2™:	(1.8V)266~380MHz
Mobile K6-ST™:	(1.8V)333~400MHz
Mobile K6-2P™:	(2.2V)350~450MHz
Mobile K6-3P™:	(2.2V)350~450MHz

CHIPSET

Core Logic:	Aladdin-5
BIOS	Phoenix (256KB Flash ROM, upgradable to 512KB) supports MMX, PnP 1.0a, APM 1.2, ACPI, PCI 2.1, LBA mode

Warning

The CPU is not user-upgradable. Do not try to upgrade the CPU yourself as doing so will violate the warranty. Upgrading requires additional system adjustments. Any upgrade procedure must be performed by authorized service personnel only.

More on CPUs

VOLTAGE, SPEED & POWER SAVINGS

Generally, higher voltage or faster CPUs use more power and run "hotter".
So of these options, a 233MHz "Tillamook" Pentium™ running at 1.9V is the most energy efficient, though among the slowest. However, actual power consumption also depends on the amount of "work" the CPU must perform.

PACKAGING

The "PGA" format features a removable CPU. The accompanying chipset is hard-wired onto the mainboard.

MMX

As of press-time, all CPU options include MMX™ technology.

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MEMORY

L1 cache (in CPU):

Intel® Mobile Pentium™	16KB code + 16KB data
Other (AMD® series)	32KB code + 32KB data

L2 cache:

Intel Mobile Pentium™/AMD© K6-2™	512KB Pipeline Burst SRAM
AMD® K6-ST™ (on die)	256KB Pipeline Burst SRAM

L3 cache (user upgradable):

AMD® K6-ST™	512KB Pipeline Burst SRAM

RAM *: up to 256MB maximum using one or both sockets

Socket 1 & Socket 2 requirements:

- 16MB, 32MB, 64MB, or 128MB modules
- 144-pin SO-DIMMs
- 3.3-volt
- TSOP package
- SDRAM DIMMs
  – rated at 10ns or faster

* User upgradable.

Specifications

VIDEO

VGA Controller	ATI Rage LT Pro (with 3D, AGP & ZV support/proprietary driver)
Display Memory	4MB, 3.3V SGRAM (upgradable to 8MB)
Video Bandwidth	128bit
LCD options	TFT: 12.1″/13.3″
Ports	CRT: 15pin VGA TV-out (NTSC/PAL)

AUDIO

Controller	ESS Maestro 2E (proprietary driver) PnP, 64-voice dual-audio engine, 20-bit ADC/DAC audio resolution
Compatibility	Sound Blaster Pro™ legacy audio, I²S/Zoomed video, MS Windows Sound System™
Built-in	2 speakers, microphone, 0.5watt stereo amp.
Ports	Line-in, Mic-in, Head phone/speakers-out

More on Video Standards

Depending on the OS, the *ATI Rage LT Pro Controller* supports these resolutions (in pixels).

- NTSC 640 x 400 NTSC TV
- VGA 640 x 480 all LCDs and monitors
- SVGA 800 x 600 LCDs, monitors & PAL TVs
- XGA 1024 x 768 LCDs & monitors
- SXGA 1280 x 1024 monitors

Colors /Resolution*	VGA	SVGA	XGA	SXGA
Single Display				
256²	✓	✓	✓	✓
16 bit (HiColor)	✓	✓	✓	✓
24 bit (TrueColor)	✓	✓	✓	✓
32 bit (TrueColor)	✓	✓	✓	
Dual Display (LCD+Monitor only)				
256²	✓	✓	✓	✓
16 bit (HiColor)	✓	✓	✓	✓
24 bit (TrueColor)	✓	✓	✓	
32 bit (TrueColor)	✓	✓		

✓ resolutions available with 4MB of video RAM.

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DRIVES

Factory-Installed Modules	24X or faster CD-ROM or 2X DVD-ROM
HDD Bay	2.5″, 12.7mm (or lower) removable 2GB or larger PCI local bus IDE Interface
FDD Drive	3.5″ 1.44MB FDD (3-mode option)

I/O

USB	1channel on board (+1 channel extended through port replicator) max output /channel = 500mA complies with PC98 spec. rev.1 sec.7.2
Parallel/Printer	25-pin, bi-directional, SPP, EPP v1.9, ECP v1.7
Serial 1	9-pin, RS232C, NS16C550A compatible
Serial 2	IrDA v1.1 FIR, ASK
TV-out	mini-din
PS/2	mouse or keyboard
PC Card	2x Type II or 1x Type III PC Card (with ZV support)
Expansion	proprietary port replicator (120 pin)

Specifications

Recharge timing

To calculate how long it will take your battery to recharge, first check its capacity (e.g. 4000mA) then divide by the appropriate speed.

For example, a 4000mA Ni-MH* battery should take about 2 hours to fully recharge with the system off, and 10 hours with the system running. However, your time may be faster since under most conditions your battery is rarely completely empty (there's usually a small "reserve" charge left).

*NiMH batteries charge at a constant rate. Li-ion batteries' charge rate slows for about the last 25%.

POWER (MINIMUM REQUIREMENTS)

Power input
19VDC, 55W/60W

AC Adapter output
19VDC, 2.8A

AC Adapter input
100~240VAC, full range, autosensing

Battery (form)
SL-36 (Ni-MH) or 202 (Li-Ion)
"smart" or "dumb"

Battery Charging*

Fast (system off)	2000mA ± 200mA/hr
Slow (system on)	400mA ± 50mA/hr
"Trickle"	<100mA/hr

* See the sidebar for an explanation of limitations.

Estimated Battery Life†

"max. battery life":	2h 38m (NiMH)
	3h 12m (Li-Ion)
"disabled":	2h 21m (NiMH)
	2h 50m (Li-Ion)

"max. battery temperature": 60°C

† These numbers are *very* rough guides for two Setup default configurations.
See the sidebar for an explanation of limitations.

More on Charging

Your system doesn't require a proprietary battery, so to accomodate the widest range of batteries on the market, and still be safe, we've taken a lot of factors into consideration:

TYPE

Different batteries accept charge at different rates. If the system charges faster than the battery can accept, it may damage the battery.

ENVIRONMENT

Removeable batteries' contacts can be contaminated (oils, smoke, etc.), inhibiting current flow.

TEMPERATURE

This is the most important safety consideration. If the temperature gets too high, the system automatically slows the recharging process to reduce heat generation. Too much heat, and your battery could explode!

CONDITION

This is a huge catch-all, which includes the amount of charge already present and how worn your battery is. If the system senses the battery is almost full, it slows the charging so it doesn't overload the battery.

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More on Battery Life

We can't be more specific because performance varies depending on many factors, including battery condition, capacity, environmental conditions, system usage habits, software requirements, and (not least), system configuration. Our extremely artificial examples are based on the following configuration:

Battery: NiMH (SL-36) 4000mA
Li-Ion (ME202BB) 4500mA
CPU: AMD K6-2 300MHz (2.2V)
RAM: 32MB RAM
Video: 4MB Video SGRAM, 12.1 TFT LCD
Ports: All enabled, No USB devices attached
Software test package: ZD BatteryMark 2.0
ambient temperature: 25°C (77°F)

Your system's performance and configuration will be different, so it's possible for you to get much better results.

Other Features

TouchPad	built-in PS/2 pointing device by Alps Inc. (with proprietary supple mental drivers)
Kensington Lock	standard security interface

Environment

Operating Temperature	0°C to 35°C (32°F to 95°F)
Storage Temperature	-10°C to 65°C (14°F to 149°F)
Operating Humidity	20% to 80% non-condensing
Storage Humidity	10% to 90% non-condensing

Dimensions

Hight	45mm	(1.77″)
Width	310mm	(12.20″)
Depth	240mm	(9.45″)
Weight	3.3 KG	(7.26lbs)

with Li-Ion battery, FDD, HDD & CD-ROM

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ACCESSORIES/OPTIONS†

- ‡ 12.1/13.3" TFT SVGA or XGA LCD module
- ‡ 56Kbps v.90 Fax Modem module
- ‡ 24x CD-ROM or 2X DVD-ROM
- ‡ 3.5", 1.44MB FDD

Drivers for hardware, system software, bundled applications
User's manual
Expansion DRAM module(s): 16MB, 32MB, 64MB, or 128MB
TV terminal cable
AC adapter with power cord
Port replicator
Battery pack: SL-36 (Ni-MH) / 202 (Li-Ion)
Car adapter (19VDC, 2.4A output)
Carrying Bag

† Options may not be immediately available and/or may be standard accesories depending on your package.
‡ Optional Factory Installed Modules

B Troubleshooting

This section is about what you should do if something goes wrong with your system. This can't anticipate every possible problem, but you should check here before you panic. If you don't find the answer in these pages, make sure you have followed the instructions carefully and observed the safety precautions in the preface. If all else fails, talk to your dealer. You should also make a record of what happened and what remedies you tried.

Of course, if something goes wrong, it will happen at the most inconvenient time possible, so you should preview this section just in case. If, after you've tried everything, and the system still won't cooperate, try turning it off for a few minutes and then rebooting. You will lose any unsaved data, but it may start working again. Then call your dealer or service representative.

GETTING STARTED

This first group of problems and solutions may seem obvious but you'd be surprised at how many "experienced" users have similar problems.

POWER

You turned the power on but it doesn't work.

possible cause: Battery missing/incorrectly installed

indicator: If the battery status icon,  , doesn't appear, then the battery may be missing or incorrectly installed.

solution: Check the power bay, make sure the battery is present and seated properly (the design of the battery only allows it to go in one way). Make sure there's nothing interfering with the battery contacts.

possible cause: Low battery

indicator: The battery status icon,  , is flashing.

solution: Plug in the AC power source. If the computer doesn't start up immediately, turn it off then on again.

possible cause: **Fn**+  has been toggled or startup screen is set to CRT.

indicator: The various icons appear, but no picture.

solution: Toggle the **Fn**+  combination. Wait a few moments before trying this control again.

With the system off, plug in (and turn on) a CRT to the appropriate port. Reboot, enter *Setup* and reset the startup display.

You are losing battery power too quickly.

possible cause:	The system is using too much power.
indicator:	The battery status icon, cycles too quickly.
solution:	Go into *Setup* (see *Chapter 4: Firmware*), and adjust the controls available in the Power menu. If your operating system has a power management scheme (i.e. *APM*) check its settings. You may also be using a PC Card device which is drawing a lot of power (e.g. a Type III storage device).
possible cause:	The battery does not fully charge due to prolonged inactivity.
indicator:	The battery life per charge is too short.
solution:	Refer to *Chapter 5: Power*, Use & Charge.
possible cause:	The battery is too hot.
indicator:	The battery is warm to the touch.
solution:	Allow the battery to cool. If this problem persists, make sure the vents aren't blocked and the computer isn't sitting on a thermal surface. Make sure you're using the correct adapter.

possible cause: The battery has a defect or has become defective.

indicator: The battery status icon's 5 bars, are flashing.

solution: Replace the battery. The rechargeable batteries available for this computer are manufactured to exact standards so the problem may be in your environment. Heavy air pollution, moisture and other contaminants may make battery leads corrode. If this is the case, don't take chances. Refer to the safety precautions in the *Preface*.

The notebook feels too hot.

possible cause: The system is using too much power.

indicator: The computer feels uncomfortably warm.

solution: Reduce the computer's power consumption (refer to *Chapter 4: Firmware* and *Chapter 5: Power*). Make sure the notebook is properly ventilated and the fan port is not blocked. If this doesn't cool it down, put the system into *Suspend* mode or turn it off for an hour.

DISPLAY

Nothing appears on the screen.

possible cause: The system is in a power saving mode.

indicator: The Suspend icon,  , is flashing.

solution: Press a key on the keyboard. Toggle the suspend key combination (see *Chapter 1: Introduction*, Hot Key Controls).

possible cause: The screen controls need to be adjusted.

solution: Toggle the screen control key combinations (see *Chapter 1: Introduction*, Hot Key Controls).

possible cause: The computer is set for a different display.

solution: Toggle the screen display key combination (see *Chapter 1: Introduction*, Hot Key Controls). If this works, the next time you bootup you should go into **Settings** (button) on the **Display Properties** page and choose the proper output device (see *Chapter 2: System*). If an external monitor or TV is connected, turn it on.

The screen is flickering.

possible cause: The vertical refresh rate is insufficient.

solution: (1) Avoid using the Simultaneous display mode. Use LCD only or CRT only.

(2) Switch to a lower resolution and/or fewer colors.

(3) Adjust the refresh frequency in the display controls

The screen images aren't clear.

possible cause:	The screen controls need to be adjusted.
solution:	Toggle the screen control key combinations (see *Chapter 1: Introduction*, Hot Key Controls).
possible cause:	The viewing angle of the LCD is bad.
indicator:	The screen appears shiny or too dim.
solution:	Adjust the position of the LCD. LCDs are designed to be viewed "straight on". If the angle is wrong, you may see glare from the screen's backlight.
possible cause:	The screen is dirty.
indicator:	The screen images are blurry.
solution:	Clean the screen using a soft, clean dry cloth. Many cleaning solutions can damage the LCD surface so you should follow the precautions outlined in the *Preface*. Try to avoid touching the screen itself. Even the cleanest hands can leave oils which attract contaminants.
possible cause:	The screen is suffering from burn-in.
indicator:	The screen has ghost images, even when it's off.
solution:	This problem is usually associated with monitors. Use power saving options (see *Chapter 4: Firmware* and *Chapter 5: Power*) to turn off the LCD. You can also use a screen-saver which can help protect an attached monitor.

OPERATION

The system gives you garbage when you try to read a hard disk from another computer.

possible cause: The hard disk is not recognized.

indicator: The system cannot boot from the hard disk.

solution:

(a) The BIOS usually automatically detects the parameters of the hard disk. However, it may occasionally detect a different set of parameters. If the system cannot use the hard disk, check the parameters of the hard disk in *Setup*. Use the User option to manually adjust the parameters if they are not the same as the original settings.

(b) The *Setup*'s Auto type Primary Master assumes that any hard disk 528 MB or larger is formatted using "LBA" mode. Some older systems don't use LBA mode. If your hard disk wasn't formatted using LBA mode, you must enter *Setup*'s Primary Master Type section and manually adjust the LBA Mode Control switch to "Disabled". Since LBA mode is the preferred standard, you may want to consider reformatting your hard disk.

The system freezes.

possible cause: The system's power saving features have timed-out.

indicator: The Suspend icon, , has no drops.

solution: Use the AC adapter, press the Suspend key combination or press the Power On button if no icons are visible.

possible cause: The system has "crashed" because of a software conflict.

solution: Consult your operating system manual. As a last resort, since you will lose any unsaved data, try to reboot the system or if that doesn't work, turn the computer off and on again.

possible cause: The system cannot access the *Save to Disk* partition.

indicator: The system retrieves *Save to Disk* information very quickly during bootup and then freezes.

solution: This situation usually happens after one of the following occurs and you activate the *Save to Disk* process: (1) the hard disk has been changed; or (2) there has been a CMOS failure or a Checksum failure and the problem has not been corrected. If one of these occurs, you must run the *PhDisk* utility as soon as possible. Refer to Setting up for *Save to Disk* in *Chapter 5: Power*.

The *Save-to-Disk* function does not work.

possible cause: The system cannot access the *Save to Disk* partition.

indicator: When you press the **Fn** + key combination, normal *Suspend* is activated instead of *Save to Disk*.

solution: (1) Check if you have selected *Save to Disk* in the Power Savings menu in *Setup*. Refer to *Chapter 4: Firmware*.
(2) You may not have set up the *Save to Disk* partition. Refer to *Chapter 5: Power* to setup the partition.
(3) You installed a different hard disk with a *Save to Disk* partition on it or there has been a CMOS or Checksum failure. You must run the *PhDisk* utility after one of the above conditions.

The system never goes into *Suspend* mode.

possible cause: Power management features are not enabled.

solution: Go to the *Setup*'s Power Savings menu and enable the features you prefer. Refer to the Power Management section of *Chapter 5: Power*.

The system does not go into *Suspend (ro RAM)* or *Save to Disk* when the battery is low.

possible cause: Suspend Timeout is disabled.

solution: Use one of the Power Management presets or manually set the Suspend Timeout in the Power Savings menu in *Setup*. Refer to *Chapter 4: Firmware* and *Chapter 5: Power*.

The PC Card does not work.

possible cause: The drivers are not loaded.

indicator: The system cannot access the card after it is installed.

solution: Load the proper drivers (see *Chapter 2: System* and *Chapter 6: Extras*).

How do I get the CD-ROM's auto-run feature to work?

solution: In *Windows 9x*, go into the **Control Panel** > **System** > **Device Manager** (tab) > CDROM, then double-click the item listed. Click on the Settings (tab) and check the box for "Auto insert notification". Click on the **OK** buttons to get out, then restart the system.

POST Messages

Each time you boot up, the computer performs a self-diagnostic check.

Faster Repairs

Keep a record of any warning messages; it may help to reduce repair time.

Warning Messages

If there is an error during the self-diagnosis, a short message will display specifying the error. You can press **F1** to try to continue the boot process, or press **F2** to run *Setup*.

If the following messages occur, press **F2** to run *Setup*.

message: **Diskette drive A error**
description: The floppy drive is present, but fails the BIOS POST.
solution: 1. Make sure the FDD is fully inserted into the Floppy bay or attached to its external adapter and *then* to the parallel port (refer to *Chapter 3: Media*)
2. Check that the FDD is correctly defined in Setup (refer to *Chapter 4: Firmware*).

message: **Extended RAM failed at offset: nnn**
description: The extended memory is not working or not configured properly.
solution: 1. Make sure the expansion memory is seated properly in its socket(s) (refer to *Chapter 6: Extras*).
2. Run Setup to allow the system to recheck the amount of memory present, then save the Setup information and reboot (refer to *Chapter 4: Firmware*).

message: **Failing Bits: nnnn**

description: The hex number, nnnn, is a map of the bits at the RAM address that failed the memory test.

solution: 1. Make sure the expansion memory is seated properly in its socket(s) (refer to *Chapter 6: Extras*).
2. Run Setup to allow the system to recheck the amount of memory present, then save the Setup information and reboot (refer to *Chapter 4: Firmware*).
3. Turn off the system and remove any DIMMs (refer to *Chapter 6: Extras*). Restart the system. If the problem persists, contact your service center. If the problem disappears, replace the DIMMs one at a time to identify the defective module. Replace any defective DIMMs.

message: **Fixed Disk *x* Failure** or **Fixed Disk Controller Failure**

description: The hard disk is not working or is not properly configured.

solution: 1. Check that the HDD is properly attached (refer to *Chapter 3: Media*).
2. Run *Setup* to make sure the HDD is correctly configured (refer to *Chapter 4: Firmware*).
3. Make sure the HDD's jumper settings are correct - "master" for both (refer to *Chapter 3:Media*).

message: **Incorrect Drive A: type - run Setup**

description: The FDD is incorrectly identified in *Setup*.

solution: Run Setup and check the settings for the FDD, usually 1.44MB/3 1/2", (refer to *Chapter 4: Firmware*).

message: **Keyboard controller error**
description: The keyboard controller failed the POST.
solution: 1. Try restarting the system.
2. If you are using an external keyboard, remove it and make sure the onboard keyboard works correctly. If it does, you may have to replace the external keyboard.
3. If you changed the video output, make sure you didn't dislodge the keyboard ribbon connectors (refer to *Chapter 2: System*).
4. If the problem persists, contact your service center.

message: **Keyboard error**
description: The POST doesn't see the keyboard.
solution: 1. Try restarting the system.
2. If you are using an external keyboard, remove it and make sure the onboard keyboard works correctly. If it does, you may have to replace the external keyboard.
3. If you changed the video output, make sure you didn't dislodge the keyboard ribbon connectors (refer to *Chapter 2: System*).
4. If the problem persists, contact your service center.

message: **Keyboard error nn**
description: The BIOS discovered a stuck key and lists its scan code.
solution: 1. Press the keys on the keyboard to loosen the one with a problem.
2. If keys consistently fail to spring up, contact your service representative.

message: **Monitor type does not match CMOS**
description: The CMOS doesn't recognize your monitor (LCD).
solution: Run *Setup* then save and exit. The system will survey itself then update its record (refer to *Chapter 4: Firmware*).

message: **Operating system not found.**
description: The operating system can't be found on either drive A: or drive C:.
solution: 1. Assuming there is an operating system to be found, enter *Setup* and make sure the FDD and/or Fixed Drive 1 are correctly identified (refer to *Chapter 4: Firmware*).

2. Make sure the HDD is properly installed.
3. If your HDD was set up with multiple partitions, make sure drive C: is active (boot up from drive A: and use FDISK.EXE).

message: **Parity check 1 nnnn** or **Parity check 2 nnnn**
description: The BIOS found a parity error in the system bus.
solution: 1. Reboot.
2. If the problem persists, contact your service representative.

message: **Press <F1> to resume, <F2> to Setup**
description: The POST discovered a recoverable error.
solution: 1. Press **F1** to continue and boot up, hoping the system will function without further problem.
2. Press **F2**, enter *Setup*, correct the problem, save & exit.

message: **Previous boot incomplete - Default configuration used**
description: The last POST couldn't be completed so the POST loaded the defaults and gave you a chance to run *Setup*.
solution: Run *Setup* and make sure all the settings are correct.

message: **Real time clock error**
description: The real-time clock failed the BIOS test.
solution: Contact your service representative. The onboard battery may have to be replaced. or this may indicate a deeper problem.

message: **Shadow RAM failed at offset: nnnn**
description: The shadow RAM in the 64K block failed at the "nnnn" address.
solution: 1. Reboot.
2. Contact your service representative.

message: **System battery is dead - Replace and run Setup**
description: The CMOS clock battery indicator shows the battery is dead.
solution: Contact your service representative to replace the onboard battery. Then run Setup to reestablish the correct settings.

message: **System cache error - Cache disabled**
description: The RAM cache failed the BIOS test and was disabled.
solution: 1. Reboot.
2. Continue without the cache, though system performance will be degraded.
3. Contact your service representative.

message: **System CMOS checksum bad - run Setup**
description: The system CMOS has been corrupted or modified incorrectly.
solution: Run *Setup* and reconfigure the system.
Note: This may indicate the CMOS was targeted by a virus. Reboot from an anti-virus program on a write-protected floppy.

message: **System RAM failed at offset: nnnn**
description: The system failed at the "nnnn" address.
solution: 1. Reboot.
2. Contact your service representative.

message: **System timer error**
description: The timer test failed.
solution: Contact your service representative.

OTHER MESSAGES

If your hard disk is disconnected after the *POST* but before the operating system starts to initialize, you may get the following message:

Hard disk failed
Press 'H' to retry Hard Disk, any other key for floppy

You can press **H** to try again or press any other key to boot from a floppy. If you feel that the hard disk is improperly connected, turn off the system before reinserting the hard disk.

G Glossary

A - B

Adapter

(1) A device that allows compatibility between different equipment.
(2) A printed circuit board that connects a system board to a peripheral I/O device (devices) or adds specialized functions to the system.

Address

An identification, such as a label, number, or name that designates a particular location in storage or any other data destination or source.

Application

A program such as a word processor, image editor or database.

ASCII

An acronym for **A**merican **S**tandard **C**ode for **I**nformation **I**nterchange. A 7-bit standard code adopted to facilitate the interchange of data among various types of data processing and data communications equipment.

Backlight

The rear illumination of an LCD screen.

BIOS

An acronym for **B**asic **I**nput/**O**utput **S**ystem. The program that customizes a computer.

Boot

Derives from "bootstrap". To start or restart a computer system by reading instructions from a storage device into the computer's memory. If the computer is already turned on, it's a "warm boot;" if not, it's a "cold boot."

C - D

Cache memory

A small high-speed memory for the temporary storage of information, usually used between a slower large memory and a fast central processing unit.

CD-ROM

Compact **D**isk **R**ead **O**nly **M**emory. This refers to both the disk type and the drive. The disk can hold over 600 MB of

data, text, graphics, sound and video information. Although the form is similar to the audio CD, its formatting is different.

CMOS

Complementary **M**etal-**O**xide **S**emiconductor. This chip keeps track of setup information. The BIOS is located on this chip. The *Setup* utility is used to change it.

Configure

To assemble a selection of hardware or software into a system and to adjust each of the parts so that they all work together.

Configuration

An assembly of machines that are interconnected and are programmed to operate as a system. The layout or design of elements in a hardware or information processing system.

CPU

Central **P**rocessing **U**nit. The component of a computer system with the circuitry to control the interpretation and execution of instructions. This computer has a "Pentium".

Crash

The system suddenly stops working. This usually requires a system reboot.

Disk drive

A device that reads data from a magnetic disk and copies it into the computer's memory so that it can be used by the computer, and that writes data from the computer's memory onto a disk so that it can be stored.

DOS

An acronym for **D**isk **O**perating **S**ystem. A specialized, disk-oriented program that provides an easy-to-use link between the user and a computer's disk drive.

DRAM

Dynamic RAM. Storage that the computer must refresh at frequent intervals.

Driver

A series of instructions the computer follows to reformat data for transfer to and from a particular peripheral device. The electrical and mechanical requirements are different from one kind of device to another, so software drivers are used to standardize the format of data between them and the central processor.

E - F

External option

An device attached to the outside of the system unit which extends and enhances its operation. i.e. printer or mouse.

G - H

Hot

(i.e. a socket/port is hot.) A port is always ready to accept a connection.

Hot Swap

Hot Swappable devices can safely be attached or removed from the computer without turning it off. This procedure

may also include special commands. The operating system, PnP BIOS, hardware and power subsystems, are coordinated to detect the device's presence and status and stop the system from "crashing" during a swap.

I - J

IDE

An abbreviation for **I**ntegrated **D**rive **E**lectronics (or **I**ntelligent **D**evice **E**lectronics). Among IBM-compatible computers, this is the most common type of internally-mounted hard disk controller. External devices usually use SCSI controllers.

Internal option

A part installed inside the system unit cover which enhances operation of the system, such as an adapter and a memory chip.

Interrupt

A signal that, when activated, causes the hardware to transfer the program control to some specific location in main storage, thus breaking the normal flow of the program being executed.

K - L

KB

(Kilobyte) 1024 bytes.

LBA Mode

An abbreviation for **L**ogical **B**lock **A**ddress Mode. This is an alternate way for the BIOS to interpret cylinder, head and

sector information about hard disks. Before LBA mode, the BIOS could not properly support IDE hard disks larger than 528 MB This system allows BIOS support for IDE hard disks up to 8.4 GB.

LCD

An abbreviation for **L**iquid **C**rystal **D**isplay. A way to make images appear by reflecting light on a special crystalline substance. It features high visibility in high illumination levels but no visibility in low illumination levels.

Load

In programming, enter data into storage or working registers.

M - N

MB

(Megabyte) 1,048,576 bytes, 1024KB

Memory

The storage facilities of the computer, capable of storing vast amounts of data.

Microprocessor

The basic arithmetic, logic, and control elements required for processing (generally contained on one integrated circuit chip). Microprocessors are widely used as the control devices for microcomputers, household appliances, and thousands of other devices.

Mode

A method or condition of operation.

Monitor

A video display which comprises a CRT (Cathode Ray Tube) and associated circuitry.

Mouse

A device for moving a cursor or other objects around on the display screen. A typical mouse has one or more buttons on the top of a small box that can be moved around on a flat surface. The mouse's main advantage is that it can move a cursor around on the screen with great precision.

MPEG

Moving **P**icture **E**xperts **G**roup. A video and audio compression standard which allows decompression at 1.2 MB to 1.5 MB/second so CD players can replay color movies at a realistic 30 frames/second.

NTSC

National **T**elevision **S**tandards **C**ommittee. A video broadcast standard of 525 scan lines every 1/30 second. This is accomplished in 2 passes of 1/60 second each (60 Hz). This system is used mostly in North America and East Asia.

Nonvolatile memory

The contents of the memory storage unit are not lost when power is turned off (e.g. floppy, hard disk).

Notebook computer

A small portable computer that uses a flat panel liquid crystal display. It is about the size of a large book.

O - P

PAL/SECAM

Phase **A**lternate **L**ine and **Se**quential **C**olor **a**nd **M**emory. Two video broadcast standards of 625 scan lines every 1/25 second. This is accomplished in 2 passes of 1/50 second each (50 Hz). These systems are used mostly in Europe, Australia and parts of Africa.

Parallel printer

A printer that receives information from the computer one character (letter, number, etc.) at a time through eight wires. Additional wires are needed to exchange control signals.

Parameter

An arbitrary constant. A variable in an algebraic expression that temporarily assumes the properties of a constant.

PC Card

This term has largely replaced the term PCMCIA. See PCMCIA.

PCI

Peripheral **C**omponent **I**nterface. A 32/64-bit local bus architecture widely used in Pentium-based PCs. Developed by DEC, IBM, Intel, and others, a PCI bus provides a high-bandwidth data channel between system-board components such as the CPU and devices such as hard disks and video adapters. The other widely adopted local-bus standard, the VL-Bus, is primarily used in 486 PCs.

PCMCIA

Personal **C**omputer **M**emory **C**ard **I**nternational **A**ssociation. A consortium of computer manufacturers that devised the standard for the credit card-size adapter cards used in many notebook computers. PCMCIA defines three card types: Type I cards can be up to 3.3 mm thick and are generally used for RAM and ROM expansion cards; Type II cards can be as thick as 5.5 mm and typically house modems and fax modems; Type III cards are the largest (up to 10.5 mm thick) and are mostly used for miniature hard disks. Windows 95's Plug and Play architecture provides PCMCIA support, which automatically recognizes when PCMCIA devices are inserted and removed. The simpler term PC Card has largely replaced this acronym to refer to these cards.

PnP

Plug a**n**d **P**lay. The technology that makes Windows 95 automatically detect and configure most of the adapters and peripherals connected to a PC. A fully PnP-enabled PC requires three PnP components: a PnP BIOS, PnP adapters and peripherals, and a PnP operating system. When adding a PnP-compliant device to a PnP PC, the operating system, in conjunction with PnP logic present in the BIOS and in the device itself, handles the IRQ settings, I/O addresses, and other technical aspects of the installation to ensure that the device doesn't conflict with other installed devices.

POST

Power-**O**n-**S**elf-**T**est. A sequence of self-tests automatically run by the computer whenever it is turned on or is reset.

PPP

Point-to-**P**oint **P**rotocol. A protocol that allows a computer to connect to the Internet through a dial-in connection and enjoy most of the benefits of a direct connection, including the ability to run graphical front ends such as Microsoft's *Internet Explorer*, *Mosaic* and Netscape's *Communicator*. PPP is generally considered to be superior to SLIP, because it features error detection, data compression, and other elements of modern communications protocols that SLIP lacks.

Q - R

RAM

Random **A**ccess **M**emory. Memory into which the user can enter information and instructions (write), and from which the user can call up data (read). RAM is the "working memory" of the computer, into which application programs can be loaded from a storage device and then executed.

ROM

An acronym for **R**ead-**O**nly **M**emory. Generally, a solid state storage chip that is programmed at the time of its manufacture and that cannot be reprogrammed by the computer user.

Routine

A short set of program codes that perform a specific task.

S - T

SCSI

An abbreviation for **S**mall **C**omputer **S**ystem **I**nterface. This is a standard for connecting external devices (i.e. scanners and storage devices) to computers.

Serial port

An input/output port in a computer through which data is transmitted and received one bit at a time.

Setup

(1) A utility program which modifies the BIOS.
(2) Assembly and adjustment of a computer's components.
(3) The preparation of a computing system to perform a job or job step. Setup is usually performed by an operator and often involves performing routine functions.
(4) The preparation of the system for normal operation.

Stop clock

A mode in which the CPU effectively shuts down.

Stop grant

A mode in which the CPU stops processing instructions.

TCP/IP

Transmission **C**ontrol **P**rotocol/**I**nternet **P**rotocol. A set of communication protocols developed by the U.S. Department of Defense that allows dissimilar computers to share information over a network. TCP/IP is the glue that binds the Internet.

U - V

Utility

A program that helps the user run, enhance, create, or analyze other programs, programming languages, operating systems, and equipment. Utilities are designed to facilitate or aid the operation and use of the computer for a number of different applications and uses.

VGA

Video **G**raphics **A**dapter. Video system that allows simultaneous display of 256 colors at 640 x 480 graphics resolution and 720 x 400 text resolution.

This standard has been superceded by SVGA (256 colors at 800 x 600 resolution), XVGA (256 colors at 1024 x 768 resolution) and SXVGA (256 colors at 1280 x 1024 resolution)

Volatile memory

The contents of the memory storage unit are lost when the machine is turned off (e.g. cache or RAM).

W - Z

Zoomed Video (ZV) Port

The ZV Port is an enhanced PC Card port which has a direct connection between the PC Card and the notebook's AV subsystems. It allows for a dedicated data path to handle multimedia features.