MULTIMEDIA NOTEBOOK COMPUTER

USER'S MANUAL

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Third Edition   ©August, 1998

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.

P r e f a c e

*I*MPORTANT *S*AFETY *I*NSTRUCTIONS

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 3-prong grounded plug. This 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.

Attention
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.

Preface

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.

ABOUT THIS MANUAL

This manual is organized so you can easily locate the information you need. The following information is included:

Chapter 1: Introduction	Covers general information about this manual, your system, the location of principal hardware features and controls, and a quick start guide.
Chapter 2: System	Has information about the keyboard, TouchPad, CD-ROM/DVD, video & audio systems, and PC Card.
Chapter 3: Modules	Looks at the removable devices in the HDD, Drive and Power bays.
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: Enhancements	Is about improving the system with additional RAM and utilities. It also covers operating system variations not covered in earlier chapters.
Appendix A & B	Provide information on system specifications and troubleshooting tips.
Glossary & Index	Has definitions for terminology that may be new to you and a quick way to locate specific items.

P r e f a c e

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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Preface

NOTES:

1 Introduction

This manual explains the hardware and essential software you need to operate your notebook computer. Information about "non-essential" or "enhancement" software is also included, but in a separate section. Depending on how your system is configured, some or all of the features described may already be set up.

If you're an "advanced" user, you may want to skip over most of this manual. However, you should still look at the Quick Start guide page 3 of this chapter. Also look at *Chapter 5: Power*. Information that might be of partic ular interest to you is indicated by the "✳" symbol and is found in the gray areas of each chapter.

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.

Introduction

No matter what your level, please pay careful attention to warning and safety information indicated by the "💣" symbol. Also, pay careful attention to the safety information in the *Preface*.

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.

SAMPLE PAGES
FIG. 1 – 1

1. chapter topic
2. general/beginner text
3. chapter tab
4. page #
5. quick key
6. advanced user text
7. chapter icon
8. warning text
9. graphic key
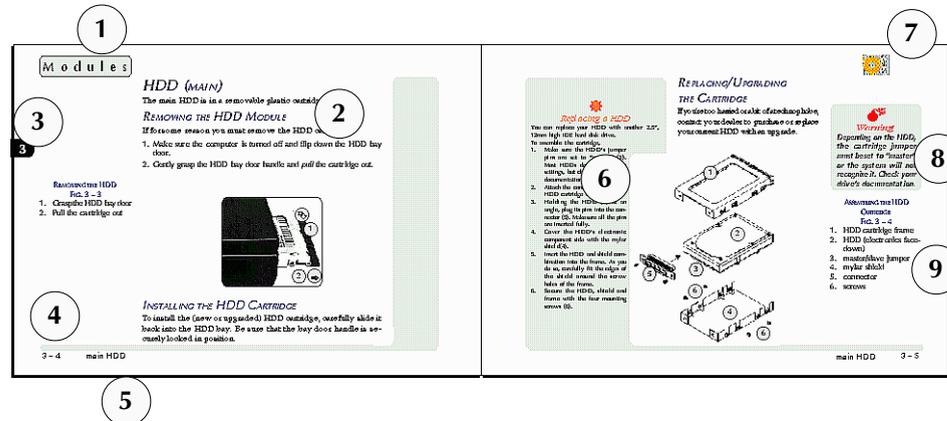
word processing and database programs). If you have questions about those programs, you should consult those manuals.

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 main 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 rear 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 90º angle.
9. Push in the ⏻ button (power switch) to turn "on".

☑
Tip
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 the battery.

☑
Tip
If you plan to use the *Suspend to Disk* option in the future, setup the partition *before* you partition and format your hard disk. Refer to *Chapter 5: Power* for details.

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: WORK PANEL, LCD & CD-ROM BAY

Latch   To open the notebook cover, slide this latch to the right.
TouchPad   *Chapter 2: System* covers basic functions.

WORK PANEL VIEW
FIG. 1 – 2

1. microphone
2. speakers
3. close-cover switch
4. power button
5. power-on light
6. status LEDs
7. keyboard
8. TouchPad & buttons
9. CD-ROM

LCD   Video functions are covered in *Chapter 2: System.*
CD-ROM   *Chapter 2: System* covers basic audio functions. *Chapter 6: Enhancements,* has additional audio utilities.

LEFT VIEW: RESET, IRDA, USB, AUDIO & PC CARD

(**Reset**)   This is like the reset button on a desktop computer. To use it, press in using a probe (e.g. a straightened paper-clip).

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 98* 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.

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

(**Audio**) Setup for this subsystem is covered in *Chapter 2: System*.

(**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: Enhancements,* "PC Cards".
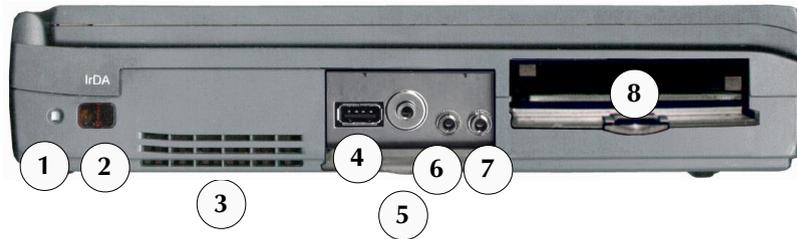
Warning
Pressing the Reset button will cause the computer to reboot. Any data not saved will be lost.

Warning
Do not block the fan. Overheating may cause the system to become unstable.

LEFT PANEL
FIG. 1 – 3

1. reset
2. serial 2 IrDA port
3. system cooling fan
4. USB port
5. phones - using this port disables the speakers.
6. mic-in
7. audio line-in
8. PC Card compartment including PC Card ZV port

Introduction

🧨
Warning

Don't try to remove the hard disk (HDD) while the system is on. This could result in data loss or damage.

Don't try to remove a module in the drive bay (i.e. FDD or Zip) while the system is accessing it. This may cause the system to "crash".

RIGHT VIEW: HDD, DRIVE BAY, POWER BAYS & FAXMODEM (OPTION)

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

Drive Bay   *Chapter 3: Modules*, covers the options available for this bay.

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

🔲   (**Fax-Modem**[+]) Factory installed option. 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.

[+] not immediately available

RIGHT PANEL
FIG. 1 – 4

1. HDD Bay
2. Drive Bay (with FDD)
3. FDD eject button
4. Power Bay
5. fax-modem (option)
6. 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.

REAR PANEL (COVER CLOSED)
FIG. 1 – 5
1. Docking station guides
2. adapter port
3. PS/2 port
4. TV-out
5. expansion port & door (open)

REAR PANEL (COVER OPEN)
FIG. 1 – 6
6. external monitor port
7. LPT1 parallel port
8. COM1 serial port

Introduction

✳️
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.

✳️
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.

Kensington Lock This is a standard security port.

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

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

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

[**Expansion Port**] With the main hinged door closed, connect to this port through the sliding door. The optional docking station's manual has more information.

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

Standard AT (Centronics)
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: Modules* for more on this feature.

[**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".

Introduction

⊘ Warning

Follow the safety in-structions for using modules.

⊘ Warning

Do not block the fan. Overheating may cause the system to become unstable.

BOTTOM PANEL
FIG. 1 – 7

1. Drive bay expansion module release latch
2. CPU compartment fan
3. PPGA CPU view*
4. MMO CPU view*

* These views are provided to satisfy curiosity. Do not attempt to access the CPU compartment. Doing so may violate your warranty.

BOTTOM VIEW: COMPARTMENTS

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

There is nothing user-serviceable in the CPU compartment. Do not open this compartment. Doing so may violate your warranty.
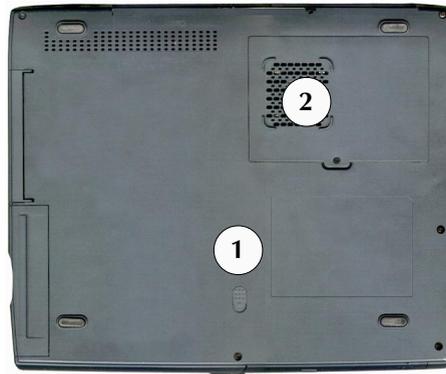
HOT KEY Controls

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

Keys	Control	Comment
Fn + F3	contrast down	reduces LCD image contrast (DSTN display only)
Fn + F4	contrast up	increases LCD image contrast (DSTN display only)
Fn + F5	brightness down	reduces LCD brightness
Fn + F6	brightness up	increases LCD brightness
Fn + F9	CRT/LCD/TV	toggles between display devices: monitor, LCD, TV and combinations. (Refer to video setup information)
Fn + F10	suspend switch	activates "Suspend to Disk" (if that feature is enabled) toggles between suspend function on & off (Suspend To RAM only)
Ctrl + Alt + S	enter *Setup*	If pressed immediately after boot-up, this starts the Setup utility
(**any key**)	resume	This ends power-saving mode including Suspend To RAM (but not Suspend To Disk)

Table 1 – 1
Hot Key Controls

Screen Controls
Active matrix TFT screens have excellent contrast ratios, so the contrast control is not needed.

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.

Introduction

LED *INDICATORS*

Your notebook lets you know what it's doing with the following LED indicators.

Table 1 – 2
LED INDICATORS

LED/Indicator	Name	Variation		Meaning
		System State	Color	
⏻	On/OFF switch	(all states)	no light	system OFF / Suspend to Disk
			ON	system On / Doze / Standby
			flashing	Suspend to RAM
▯	Power Bar	(all states)	ON	system On Doze / Standby /Suspend to RAM
			no light	system OFF Suspend to Disk
⏦	AC-power	(all states)	ON	power from AC adapter
			OFF	battery powered
🔋1 🔋2	Battery Status	AC-in	green	fully charged
			red	battery is charging
		Battery only	no light	battery charge OK
			flashing green	battery Low

LED/Indicator	Name	Meaning
💾	FDD	accessing FDD module
🗄	HDD	accessing HDD
🔒1	NumLock	NumLock is engaged, embedded numeric keypad activated
🔒A	CapsLock	CapsLock is engaged, all alphabetic keys are upper case
🔒↓	ScrollLock	ScrollLock is engaged

Table 1 – 2 (cont.)
LED Indicators

1

NOTES:

2 System

This chapter is about the first parts of the system you're likely to work with:

input	output	communications
keyboard	video & audio	PC Card
TouchPad		USB
CD-ROM/DVD†		Fax/Modem

Advanced users will also find essential driver setup information for the audio and video sub-systems. More specialized driver information for the PC Card subsystem and chipset are in *Chapter 6: Enhancements.*

The driver setup information described in this chapter assumes the software is located on a CD-ROM identified as "drive D:". If the driver is available from another location, please substitute that source in the configuration.

Networking Note: Make sure you've down-loaded the driver from the network source to your hard drive before you begin any installation. In some cases, the operating system must reboot as part of the installation process and must have the driver immediately available.

†not immediately available

S y s t e m

KEYBOARDS

Your computer's keyboard has all the functions of a full-sized AT-compatible keyboard plus a few extras:

Type These keys are like those on a typewriter.

Function Many applications and your operating system use these keys to access special features, so you should consult those manuals.

Hot Keys These keys (and combinations) control some of the hardware. Refer to page 1-11.

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.

TYPE KEYS
FIG. 2 – 1
The embedded numeric keypad (outlined) is activated by pressing **NumLock –** its LED will light).

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, you will still need to use the notebook's keyboard.

This 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 instead, 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

S y s t e m

TOUCHPAD

The system automatically enables the built-in TouchPad. If you're using any version of *Windows* or *OS/2*, you don't have to install a driver for it.

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

✹
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 in the *Drivers/Utilities* CD-ROM which came with the system and is covered in the *Chapter 6: Enhancements*.

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.
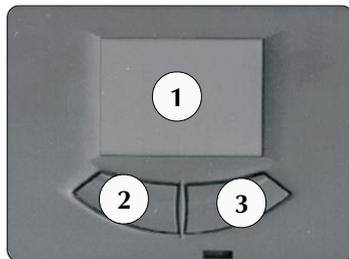
TOUCHPAD & SERIAL DEVICE

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

1. Attach the serial device when the system is off.

2. Turn on the system and allow the operating system 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.

Note: If you want to take advantage of using a Microsoft Intelli Mouse, you must first select **Intelli Mouse** from the **PS/2 Mouse Type** of the **Components** menu in the BIOS *Setup* (see Chapter 4: Firmware).

To switch back to the TouchPad exclusively:

1. Exit the operating system (i.e. *Windows 9x* family or *Windows NT 4.0*).

2. Detach the serial device.

3. Start the operating system. 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.

can only use one pointing device driver at a time, either serial or PS/2. To use a serial device, first enable it by attaching 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 mouse 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.

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

System

INSERTING & REMOVING A CD-ROM

To insert a CD-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-ROM shiny-side down (like an audio CD).
4. Gently push the tray in until it clicks in place. The CD-ROM is ready to play.

To remove the CD-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.

THE CD-ROM

FIG. 2 – 5

CD-ROM Drivers

WINDOWS 9x
WINDOWS NT 4.0
WINDOWS NT 3.51
OS/2 WARP

These operating systems automatically detect and configure an installed CD-ROM module.

DOS & WINDOWS 3.1x

If you're using one of these operating systems, you must manually install the CD-ROM driver:

1. Open the 24X directory on the floppy disk, and type:

    INSTALL.EXE

2. As each page appears, press **Y** or **Enter** to confirm the settings.

    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:\.

    When you get to the "Specify the parameter..." page, make sure the **( )/D [CDROM001]** switch has an asterisk(*). Then press **Enter**.

3. When the installation is complete, remove the floppy disk and reboot your computer.

MULTIMEDIA APPLICATIONS

MPEG

If you want to use the CD-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 material.

2. *ZV-PORT*- The lower PC Card socket supports a ZV card. This card works with the CD-ROM and video subsystems to produce better quality images. However, to use it, you must install these drivers:

   - The CD-ROM driver (covered in this chapter)
   - The audio and video drivers (covered in *this chapter*)
   - *SystemSoft's CardWizard* (refer to *Chapter 6:Enhancements*)
   - VPM driver
   - ZV Card driver (supplied by the ZV Card's manufacturer)

AUDIO CDs

Audio CDs are played using a CD-player application included in your operating system.

S y s t e m

VIDEO

There are three display options: the notebook's LCD, an external monitor (CRT) and a TV. You can select between them with the **Fn**+**F9** 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 - 6

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 (see page A-4).

✳ Video Setup

WINDOWS 9x

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

1. Open **Control Panel** > **Display**.

2. Click on **Settings** > **Advanced Properties** > **Adapter** or **Settings** > **Advanced...**> **Adapter**.

3. Click on the **Change...** (button). For **Windows 98**, you need to click on **Next**, and choose "Display a list of....., so you can select the driver you want". Click on **Next** again.

4. Insert the *Drivers/Utilities* CD-ROM.

5. Select **Have Disk...**.

   Click on **Browse...** and navigate to:
   D:\drivers\win95\video\s3vmx.inf*
   or D:\drivers\win98\video\s3vmx.inf*

   Click on **OK** and then **OK** again.
   * This assumes your CD-ROM is drive "D:".

6. Select "S3 Inc. ViRAGE MX+" and click **OK**.

7. After the installation finishes, it will return to the the **Adapter** panel.

   Click on **Monitor** > **Change...**(button) and choose a "Laptop Display Panel" (any size). Click on **OK** and then **Close** (twice). When prompted, close any other applications and click on **Yes** to allow the system to restart.

WINDOWS NT4.0

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

1. Open **Control Panel** > **Display**.
2. Click on **Settings** > **Display Type...** .
3. Click on the **Change...** (button) in the **vga compatible display adapter** field.
4. Insert the *Drivers/Utilities* CD-ROM.
5. Select **Have Disk...**.

   Click on **Browse...** and navigate to D:\drivers\nt40\video\S3virge.inf*
   Click on **Open** and then on **OK** (twice).

   * This assumes the video driver is on a CD-ROM identified as drive "D:".

6. Select "S3 Incorporated Display Driver..." and click on **OK** or **Yes** to start the installation.
7. After the installation finishes, *Windows NT 4.0* will tell you to close the various screens and reboot. When you restart and return to the **Display** page, you can change the settings. When finished, you must **Apply** the new settings to take effect.

This driver doesn't support "different image" output.

SETUP

The video drivers on the accompanying *Drivers/Utilities* CD_ROM are optimized for specific operating systems. If the driver for your operating system isn't available, 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 (e.g. sound).

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.

S y s t e m

ATTACHING A MONITOR

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

Note: The vertical refresh rate of your monitor is very important. If it's too low and/or you're using fluorescent lighting, the screen will appear to flicker. To reduce flickering on an external monitor, use faster refresh rates (we recommend a refresh rate of 72Hz or more). But first check your monitor's documentation to make sure it can support the rates listed by the video driver. The default refresh rate for VGA monitors (without drivers) is 60Hz. For NTSC and PAL TVs, it's fixed at 60Hz and 50Hz, respectively.

💣
Warning
Both the monitor & computer should be OFF before you connect them.

DISPLAY PROPERTIES CONTROL FIG. 2 - 7
The driver for your operating system may not need additional controls. If it does, use this control panel to adjust screen refresh rates and TV output.

✴
Video Setup (cont.)
The S3 driver adds an additional page to **Display Properties**. This has current display status information. It allows you to select the control system, output devices and image processing:
Single control devotes all video memory to a single display system (the LCD/CRT choice will display exactly the same thing)
Dual control divides the video memory to support 2 devices. It also lets you select the type of external monitor you are using.
Use the on-line help (**?**) to get more information about the various features.

DISPLAY PANEL TV SETTINGS
FIG. 2 – 8
Be sure the NTSC/PAL setting on the TV page is correct.
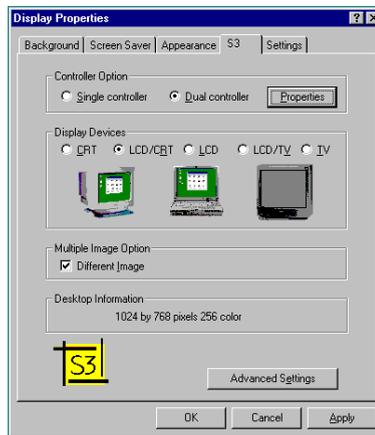
✳
Alternative TV Output

CONFIGURATION

By default, your computer is configured for "S" type video output. If your configuration requires the earlier, "AV" output, be sure to change the TV-Output Signal to "Composit".

CONNECTION

If the Y-cable can't reach the "S" or "Composit" port on your TV, you should be able to get an extension from your local Audio-visual dealer.

TV SETUP IN SYSTEM CONFIGURATION

If you want to use **Fn + F9** to switch to the TV display, you must enable the TV function in the BIOS:

1. Boot the system, then immediately press **Ctrl+ Alt + S** to start the *Setup* utility.

2. Select **Startup**, then **TV Setup**.

3. Click on **Enable TV** option. Then choose the settings for your TV and connector types. Then Click **OK**.

4. Select **Exit**, choose the **Save and Exit** option.
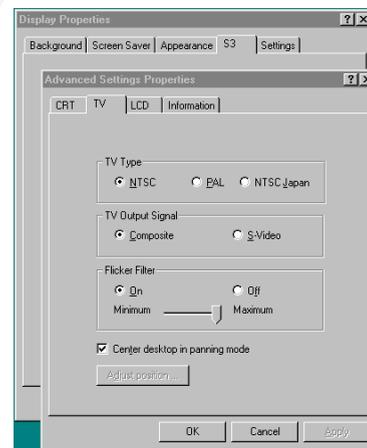
TV

To use a TV display instead of the LCD and/or monitor, connect the Y-cable TV-adapter's mini-din plug to the TV-out port. This cable allows you to use either an "S" type or "Composit" connection to your TV.

But, *before* you use this connector, make sure you have enabled the TV feature in the system's *Setup* (see sidebar for details) and the driver is configured for your TV's standard: NTSC or PAL (use the video driver control panel).

Note: The default refresh rate for NTSC and PAL TVs is fixed at 60Hz and 50Hz, respectively. And to enable TV's speakers, you must use a cable between the computer's headphones port and your TV's audio-in port.

System

SWITCHING

You can switch to the TV display using the video driver control panel or by toggling **Fn + F9**. The toggle sequence is:

TABLE 2 – 1
VIDEO OUTPUT
KEY COMBINATION SEQUENCE

TV Standard	LCD Resolution	Toggle Sequence	Comment
Single Control (same image on all displays)			
NTSC*	640 x 480	LCD > LCD+monitor > monitor > **TV** > LCD	The resolution for NTSC TV is 640 x 400; however, the LCD treats it as VGA (640 x 480)
	800 x 600		All resolutions larger than NTSC are viewed with the panning effect on TV
PAL	640 x 480 800 x 600		PAL supports both VGA and SVGA resolutions
Dual Control (same or different image on all displays)			
NTSC*	640 x 480	LCD > LCD+monitor > monitor > **TV** > LCD + **TV** > LCD	The resolution for NTSC TV is 640 x 400; however, the LCD treats it as VGA (640 x 480)
	800 x 600		All resolutions larger than NTSC are viewed with the panning effect on TV
PAL	640 x 480 800 x 600		PAL supports both VGA and SVGA resolutions

* Since NTSC resolution (640 x 400) is narrower, TV view compensates with the panning effect. And, to make the toggle sequence work, you must enable TV feature in the system's *Setup* (see page 2-11 for details).

AUDIO

The audio subsystem, in combination with the CD-ROM (or DVD), gives the computer 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-bars.

The ports are on the left panel:
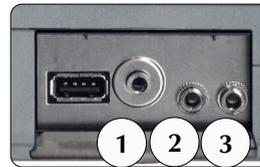
Note: If you are using a TV display, you must use a cable between the computer's headphones port and your TV's audio-in port.

AUDIO SUBSYSTEM PORTS
FIG. 2 – 9

1. headphones /external speakers (disables on-board speakers)
2. microphone (disables internal microphone)
3. line-in
    Volume control is provided by toggling **Fn+F7** and **Fn+F8** to toggle the volume down or up respectively.

S y s t e m

ADDITIONAL AUDIO

The Drivers/Utilities CD-ROM which accompanies your system also includes supplemental audio software for *Windows 95* and *Windows NT 4.0.* Refer to *Chapter 6: Enhancements* for more details.

✳

Audio Setup (cont.)

WINDOWS 98

Your *Windows 98 Setup* utility will detect and install the latest version of the *ESS AudioDrive* utility. However its built-in audio drivers do not support the Zoomed Video Mixer (e.g. MPEGII, ZV card, etc.), and makes the recorder's volume become too low. If you want to use those devices, we recommend you to install the drivers included on the accompying CD-ROM. To install,

1. Open **Control Panel** > **System** > **Device Manager**.

2. Click on **Sound, video and game controllers**, and choose **ES1879 Control Interface**.

3. Click on **Properties** > **Driver** > **Update Driver...**(button) then **Next**, and choose "Display a list of....., so you can select the driver you want". Click on **Next** again.

4. Insert the *Drivers/Utilities* CD-ROM.

5. Select **Have Disk...**.

   Click on **Browse...** and navigate to D:\drivers\win98\audio\0emsetup.inf* Click on **OK** (3 requests) then **Yes**.
   * This assumes your CD-ROM is drive "D:".

6. Click on **Next** to copy the drivers. After the installation finishes, click on **Finish** to return to the **Driver** panel. Click on **Close**.

7. Repeat steps 2 to 6. When prompted, choose **ES1879 Plug and Play AudioDrive** (the older version). When asked for "Driver Disk", repeat step 5 again to complete the installation.

8. Restart your system.

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).

The lower socket is 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 – 10
1. socket 0 (lower) eject button
2. socket 1 (upper) eject button

System

OPERATING SYSTEMS
WINDOWS 95

The PC Card components are newer than the drivers supplied by *Windows 95*, so before you can use this device, you must make some changes (described in the side-bar) to your system. However after you activate them, 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. You can hot swap any PC Card (refer to *Chapter 3: Modules* for a discussion on swapping). If you want to use a ZV card, install the optional SystemSoft CardWorks™ driver (see *Chapter 6: Enhancements*).

The optional SystemSoft drivers which come with your computer take advantage of technical improvements since the release of *Windows 95* and support "legacy" and ZV cards.

✳ PC Card Setup for Windows 95

The PC Card components are newer than the drivers supplied by *Windows 95*, so before you can use this device, you must make some changes to your system:

1. Open **Control Panel** > **System** > **Device Manager** > **Other devices**. Remove the **PCI CardBus Bridge** listings (there are 2).

2. Under **PCMCIA socket,** remove **PCIC or Compatible PCMCIA controller**.

3. Download *TI-1250* driver from the Microsoft web site or talk to your dealer. Copy the files described in steps 4 & 5 to your system.

4. Copy **PCMCIA.INF** to Windows\Inf\ (replacing the existing file).

5. Copy **CBSS.VXD, PCCARD.VXD** and **PCI.VXD** to Windows\System\ (the last two replace existing files).

6. Return to **Control Panel** > **System Properties** > **Device Manager**, and click on **Refresh.**

   When it asks about keeping an exiting file, say **Yes** (4 requests).

7. When return to **Device Manager** panel, Choose "Texas Intrusments PCI-1250 CardBus Controller" (there are 2) under PCMCIA socket. Click on **Properties**... and uncheck **Disable in this hardware profile**. Follow the program's dialog boxes to complete the settings.

   After uncheck both controllers, reboot the system. Till then the sockets won't be ready for use.

WINDOWS 98

The operating system supports the latest PC Card drivers. It automatcially detects and installs the required drivers for your notebook's PC Card socket. The drivers are PCMICIA (rev. 2) compliant. You can also install or remove the card while the system is turned on. If you want to use a ZV card, refer to the side-bar about *Audio Setup* on page 2-14 for further references.

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: Enhancements*).

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 95, Windows 98* and *NT 4.0* prompt you for that card's driver. If your operating system supports Plug n' Play (e.g. *Windows 95 & Windows 98*), PC Cards can be inserted and removed while the system is on.

2

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 computer. Depending on your operating system, the COM ports (I/O) for PC Card devices are reassigned. Some operating systems (e.g. Windows 95 & Windows 98) do not have this limitation.

S y s t e m

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.

USB DEVICES

Like the PC Cards, your computer's USB system uses technologies which are newer than *Windows 95.* These require some modifications to your system described in the side-bar.

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

WINDOWS 9X

To setup the fax/modem drivers for Windows 9x family,

1. Open **Control Panel** > **System** > **Device Manager.**
2. Click on **Other devices**, and remove "LT Win Modem".
3. Click on **Refresh**. When *Add New Hardware Wizard* appears, insert the *Drivers/Utilities* CD-ROM, and click on **Next** .
   (If *Windows 98*, you need to choose "Search for the best driver for your devive", then **Next**.)
4. Click on **Other Locations...** (if *Windows 95*), Choose "Specify a location" (If *Windows 98*), and navigate to:
   d:\drivers\options\modem\win95&98&nt4
5. Follow the program's dialog boxes. When asked for "LT Installation Disk" and/or *Add New Hardware Wizard* reappears, redirect to the same location as specified in step 4.
6. When the installation finishes, click **Modems** icon in the **Control Panel** to continue the setup (the modem should be assigned to COM3).

Note: 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.

FAX/MODEM (OPTIONAL MODULE)

If your system includes the fax/modem module, both *Windows 9x* 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 drivers to take advantage of its full speed.
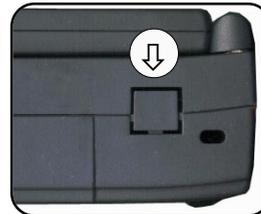
FAX/MODEM PORT
FIG. 2 – 11

S y s t e m

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. **ATdfcom.pdf** file for AT commands) is included with the accompanying *Drivers/Utilities* CD-ROM.

2

3   Modules

This chapter is about how to use and install these "data" modules:

HDD Bay	**Drive Bay**	**Power Bay**
HDD	FDD	(see *Chapter 5: Power*)
	Zip/LS-120	

If you're not sure where these modules are located, refer to *Chapter 1: Introduction*.

Each of these modules interacts with the system differently and so requires different setups.

✳

Drivers & Other Considerations

If your dealer hasn't done so, you must set up both HDD and Zip drives before they can be used for the first time. Please refer to the sidebar tips for instructions on how to do this.

The setup information in this chapter is for *Windows 95* and *Windows NT 4.0* (workstation). Setup information for other operating systems may be found on the Drivers/Utilities CD-ROM, in the relevant "Readme" files.

M o d u l e s

INDICATORS

Whenever a data module is in use, the corresponding indicator lights up:

■   accessing the main HDD.

◧   accessing the FDD.

DRIVE MODULES
FIG. 3 – 1
1. CD-ROM (see *Chapter 2: System*)
2. HDD
3. FDD module
4. Zip module
5. Zip disk

DRIVE INDICATOR LEDS
FIG. 3 – 2
6. HDD
7. Floppy bay

SWAPPING MODULES

"*Hot Swappable*" modules can be removed, reinstalled or replaced with other modules *without* turning off the system.

"*Hot Removable*" modules may be removed *but not reinstalled* while the system is turned on.

"*Cold Swappable*" modules can be removed or replaced *only* when the system is turned off.

In any case, please keep the following rules in mind:

- Before using a module, make sure it is secured in its bay. If a module isn't connected properly, it could fail and/or damage data.
- Though it may be convenient, **hot swapping** is **not** recommended. If possible, turn the system off before making any swaps. Hot-swapping a module risks accidentally "crashing" the machine (and losing unsaved data), or damaging a module if it's in use.
- If you must swap devices, be sure to save your data first and carefully review the section on the module(s) in this chapter.

WHAT'S SWAPPABLE?

Drive bay: The FDD, Zip* and LS-120* are **hot removable** (but not recommended). A battery is **hot swappable** with another battery.

*refer to the Zip/LS-120 section on page 3-11.

Parallel Port: FDD+cable is **hot swappable** with a parallel device.

Power bay: A battery is **hot swappable** with another battery (while the system is powered by an AC adapter).

HDD bay: The main HDD is **cold swappable** with another HDD.

M o d u l e s

HDD

The main HDD is in a removable plastic cartridge.

REMOVING THE HDD MODULE

If for some reason you must remove the HDD cartridge:

1. Make sure the computer is turned off and slide the HDD latches towards each other. The HDD bay handle will pop out.
2. Gently grasp the HDD cartridge handle and *pull* it out.

REMOVING THE HDD
FIG. 3 – 3
1. slide the HDD latches towards each other
2. pull the cartridge out
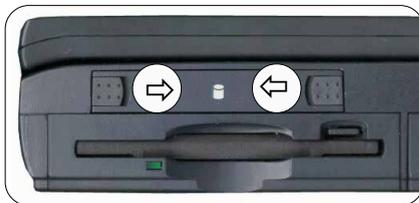
INSTALLING THE HDD CARTRIDGE

To install the (new or upgraded) HDD cartridge, carefully slide it back into the HDD bay. Push the HDD cartridge handle in and slide the latches away from each other into their locked position.

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" or "device 0". Most drives don't require any settings, but check your HDD's documentation to be sure.
2. Holding the HDD (1) at an angle (electronic side up), plug its pins into the connector (2). Make sure all the pins are inserted fully.
3. Cover the HDD's electronic component side with the mylar shield.
4. Insert the HDD and shield combination into the frame (electronic side up). 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 (3)-(6).

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.
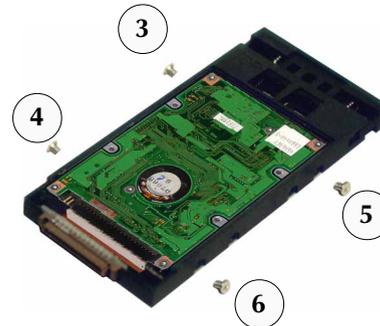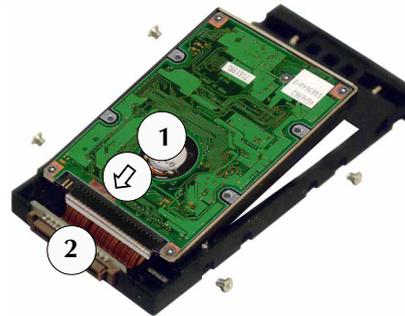
Warning
Depending on the HDD, the cartridge jumper must be set to "master" or the system will not recognize it. Check your drive's documentation.

ASSEMBLING THE HDD
CARTRIDGE
FIG. 3 – 4

Modules

SETTING UP A NEW HDD FOR THE FIRST TIME

Before you can use a new HDD for the first time, two things are required:

- The computer detects the HDD. (this is automatic at boot-up)
- Prepare the HDD to accept data. (refer to your operating system manual)

✳
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.

If you plan to use the Suspend to Disk feature, refer to *Chapter 5: Power*.

After you replace or upgrade the HDD, turn the system on. The computer will automatically detect it.

528MB OR LARGER HDDS & LBA MODE

The computer automatically reads any HDD 528MB or larger as using LBA Mode. We do not recommend using an HDD larger than 528MB from an older system which does not use LBA mode. Doing so may result in problems reading some portions of the HDD.

DRIVE BAY MODULES

You can plug one of three modules into this bay: the FDD, a Zip drive, or a 2nd battery. Refer to page 3-3 for the rules on swapping. The battery module installation is covered in *Chapter 5: Power*.

REMOVING A MODULE

Even though the module may be hot swappable, we recommend making any changes with the system turned OFF.

To release a module:

1. Slide the locking latch on the bottom part of the module to the unlock position and hold it.

2. Grasp the edge of the module and pull it out of the Drive bay and release the latch.

SECURING A MODULE

To secure a module in the Drive bay:

1. Push the module in until its outer edge is flush with the side of the computer.

2. The locking latch will snap into place.

M o d u l e s

⚫ ⁂

Warning

Do not remove the FDD module from the parallel port or Drive bay while it is active. Disconnecting during data access may damage the system, the FDD or result in data loss and/or corruption.

FDD (FLOPPY) MODULE

As mentioned on page 3 of this chapter, the FDD is ***hot-removable***. It can work equally well in either the internal or external position.

STARTUP CONSIDERATIONS

The FDD does not have to be present when you boot-up. If it isn't in the Drive bay or attached to the parallel port, the POST (refer to *Chapter 4: Firmware*), will tell you. This does not affect performance: you can insert the FDD into the Drive bay or connect it to the parallel port at any time.

DRIVE BAY INSTALLATION

If the FDD is not already installed, make sure the bay is empty, then push the FDD module in until its outer edge is flush with the side of the computer. You should hear a "click" from the locking latch on the bottom panel when the module is in place.

PARALLEL CONNECTION

If the Drive bay is occupied (e.g. with a battery), you can connect it to the parallel port with a cable (not provided). To make the connection, attach the FDD to the cable **first** and then attach the other end of the cable to the parallel port.

If you need to use the parallel port for some other purpose (e.g. to print), you can disconnect the parallel adapter and plug in your parallel device without turning off the system.

1. LED lights for FDD access from either position

Drive Bay with FDD
Fig. 3 – 7

2. Floppy disk eject button

3

Warning

The FDD/parallel adapter cable can only be used with the FDD module. It cannot be used with any other module.
If it's connected to the parallel port, the cable must also be connected to the FDD module or the system may halt.

FDD Parallel Connection
Fig. 3 – 8

3. FDD module
4. FDD to Parallel adapter
5. Parallel port

M o d u l e s

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 Floppy 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 ▣ LED 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.

THE ZIP/LS-120 MODULE (OPTION)

As mentioned on page 3 of this chapter, the Zip or LS-120 is **hot-removable**. However, there are some limitations (see "Operation", pages 3-13~14).

STARTUP CONSIDERATIONS

When you install the Zip or LS-120 drive, make sure the bay is empty, then push the module in until its outer edge is flush with the side of the computer. You should hear a "click" from the locking latch on the bottom panel when the module is in place.

The Zip or LS-120 module must be installed *before* you boot-up. If it isn't in the Drive bay when the system boots, the system won't recognize it and won't allocate system resources.

Note: The Zip drive is not a "boot" device whereas the LS-120 drive can become bootable only if you activate its booting function in the BIOS *Setup.*

Warning

Do not remove the Zip/LS-120 module from the Drive bay while it is active. Disconnecting during data access may crash and/or damage the system, the Zip/LS-120 or result in data loss and/or corruption.

DRIVE BAY WITH ZIP
FIG. 3 – 9
1. emergency eject
2. accessing LED (green)
Note: Swappable with LS-120

M o d u l e s

DRIVERS & UTILITIES

The Zip or LS-120 module must be in the Drive bay before you can install their respective tool suite. Although *Windows 9x* and *Windows NT4.0* allocate the resource automatcially, you still need the tools provided with the accompanying *Drivers/Utilities* CD-ROM for many of the necessary controls.

When the Zip or LS-120 installation is complete, the Zip/LS-120 drive pushes the CD-ROM back one letter (i.e. if the CD-ROM is drive "D:", it will become drive "E:", and the Zip/LS-120 will be the new "D:"). If the Zip or LS-120 is not present at the next boot-up, the CD-ROM reverts to its original letter.

To prevent confusion, follow the instructions in the side-bar on page U-10 to fix the CD-ROM to one "letter".

✳
Zip Tools Installation

WINDOWS 9x /WINDOWS NT 4.0

Make sure the Zip drive is installed before you turn on the computer.

When the operating system starts up, it automatically detects, and assigns the Zip drive to the letter after the hard disk drive(s), pushing the CD-ROM back one letter. The default driver recognizes the Zip as a "Removable Disk" but it lacks many necessary utilities provided by Zip tools. To install,

1. Insert the *Drivers/Utilities* CD-ROM.

2. From the **Start** button (on the tool bar), select **Run...**. Click on **Browse**... and navigate to: E:\drivers\options\zip\English\setup*
   *This assumes your CD-ROM is drive "E:" and your operating system is English version.

3. Click **Open**, and follow the program's dialog boxes to install the tools (default installation is recommended).

4. When the installation is complete, the computer will ask to reboot. Do so.

5. When the computer restarts, *Iomega Tools* will be added to the **Start** menu.

OPERATION

The Zip or LS-120 becomes a hot removable device only if it is installed in the system *before* it boots. If it isn't in the Drive bay when the system boots, the system won't recognize it and won't allocate system resources.

WINDOWS 9X CONSIDERATIONS

Removal When the Zip or LS-120 is removed from the Drive bay, the system will freeze all operations and wait for the drive to be reinstalled. Once the Zip or LS-120 drive is back in place, the system takes a little time to free the system resources again.

Tools Highlight the Zip or LS-120 drive and click on the right mouse button to access the various tools. While most functions are self-explanatory, we also recommend reviewing Zip or LS-120 Tool's online help.

3

Modules

WINDOWS NT 4.0 *CONSIDERATIONS*

Removal If you've removed the Zip or LS-120 from the Drive bay, **do not try to access it**. Doing so will alert *Windows NT 4.0* to a change in the system profile and you won't be able to reinstall the Zip or LS-120 drive without rebooting. As long as *Windows NT 4.0* doesn't have to look for the Zip or LS-120, it assumes it is present, and maintains the system resources.

Tools This version of *Iomega Tools for Windows NT* is available through the **Program** list of the **Start** menu. *Iomega Quick Tools for NT* has the most commonly used utilities. However, these tools are not usable if any directory on a Zip disk is open.

We also recommend reviewing *Iomega Tools for Windows NT*'s on-line help.

❈ *Zip/LS-120 Installation (cont.) for Fixing CD-ROM Letter*

WINDOWS 9x

To fix the CD-ROM's new letter assignment so that it stays the same even when the Zip/LS-120 isn't installed:

1. Open **Control Panel** > **System** (**Properties**) > **Device Manager** (tab) > **CDROM**.

2. Highlight the "CDROM" listed (e.g. TOSHIBA) and click on **Properties** > **Settings** (tab).

3. Change the "Start drive letter" to "E:" (if the Zip/LS-120 drive is "D:"). Click **OK**, shutdown the system and reboot.

WINDOWS NT4.0

To fix the CD-ROM's new letter assignment so that it stays the same even when the Zip/LS-120 isn't installed:

1. Open **Start** (menu)> **Programs** > **Administrative Tools (Common)** > **Disk Administrator**>

2. Click on the rectangular area next to CD-ROM0 then **Tools** > **Assign Drive Letter**.

3. Change the "Assign drive letter" to "E:" (if the Zip/LS-120 drive is "D:"). Click **OK**, shutdown the system and reboot.

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. changing the hard disk or 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.

F i r m w a r e

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 announce that it is starting the operating system. Once that message appears, you can no longer get into *Setup*.

SAMPLE STARTUP SCREEN:
THE POST
FIG. 4 – 1

1. BIOS information
2. CPU type
3. main memory status
4. error notice
5. IDE (including HDD) identification notice
6. pause indicator (only appears if there is an error)

```
SystemSoft BIOS for Intel  430TX Version 1.01 (2402-00)
Copyright 1983 - 1997 SystemSoft Corp. All Rights Reserved.  } 1


NoteBook Computer  Model 66 Version PP3.07.01
Build in time (01/09/98  17:50:25)

233 MHz Pentium CPU                                              2
External Cache: 512K installed
SystemSoft Plug-n-Play BIOS Ver 1.17.01

Base Memory              640 KB      }  3
Extended Memory          031 MB
Total Memory             032 MB                             4

WARNING - NO BOOTABLE FLOPPY DRIVE 0 INSTALLED
WARNING - TIME/DATE CORRUPT - RUN SCU
Auto Detecting IDE Devices [Done]                          5

SMB BIOS Version 1.15
SMB SMC958 Services Revision 1.00.00                   6
Copr. 1994-1994 SystemSoft Corp.


<CTRL-ALT-S> to enter System Configuration Utility or Press F1 to Continue
```

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:

<Ctrl-Alt-S> to enter System Configuration Utility or Press F1 to Continue

Press **F1** to see if the boot process can continue. It may work, without the correct configuration.
Press **Ctrl-Alt-S** 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 SystemSoft *Setup Configuration Utility* (or "*Setup*") program tells the system how to configure itself and manage basic features and subsystems (e.g. display and power management).

ENTERING SETUP

To enter *Setup*, turn on the computer and press **Ctrl-Alt-S** 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 **Ctrl-Alt-S** too soon), just press **Ctrl-Alt-S** again.

If the computer is already on, reboot using the **Ctrl** + **Alt** + **Delete** combination and then hold down **Ctrl-Alt-S**. *Setup's* main menu, as shown on the next page, will appear.

4
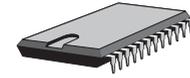
Along the top of the screen is a menu bar with five (5) menu headings. When you select the heading of a menu, its list appears. Use these menus to make any changes.

The help box along the bottom of the screen has useful messages about the menus and the highlighted option. If no option is highlighted, instructions on how to navigate each screen appear.
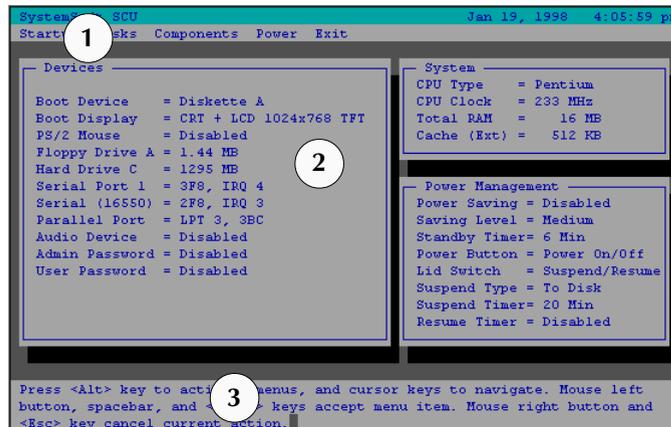
SETUP MAIN MENU
FIG. 4 – 2

The *Setup* screens shown in this chapter are for reference only. Your computer's menus will indicate the configuration appropriate for your model and options.
1. menus
2. system summary
3. help box

MORE ON SETUP

The help box contains most of the information you need to configure each menu. Following is additional advice on portions of *Setup* not covered in the help box.

F i r m w a r e

DATE AND TIME *(STARTUP MENU)*

If you 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.

BOOT DISPLAY *(STARTUP MENU)*

The Video Expansion control allows the system to boot with the LCD resolution set to 640x480 expanded to use the whole LCD. The images in this "Expand" mode may look slightly different from the true 800x600, non-expanded mode. Do not check this setting if the "Expand" mode greatly distorts the images.

TV SETUP *(STARTUP MENU)*

Enable TV   This switch allows you to use the **FN+F9** hot key toggle between displays. (If you start up in TV only, you can use the **FN+F9** toggle to get out of, but not cycle back to TV.)

TV Type*   Your setting must correspond to the standard your TV supports.

> **Note**:   NTSC only supports 640x480 resolution, while PAL also supports 800x600.

TV Connector* Choose to match the type of video connector you're using.

*The video driver cannot override these settings, if there is a conflict, the TV image may be distorted and/or rendered in black & white only.

4

Warning

The TV Type setting must match your TV (NTSC or PAL). An incorrect setting may damage your equipment.

ADMIN PASSWORD (STARTUP MENU)

Only the Administrator can change this password. If you leave the Administrator password blank, both the Administrator and User passwords are disabled and erased.

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

USER PASSWORD (STARTUP MENU)

To set the User password, the Administrator password must be set first. Only the administrator (using the Administrator 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.

The User password won't be effective until you enable one of the options after the verification area. This restricts user access to the system ("Password to Power-On") and/or to Setup Pasword.

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

> the COM ports (including IR)
> the parallel port
> the FDD

Users can change settings on all menus except the Administrative and User passwords, Floppy Controller, Diskette Drive , COM Ports, and LPT Port settings. These items are removed or grayed-out in the menus.

4

Warning
Password protection does not include resuming from **Suspend to RAM***, PC Card slots, Zip drive or Fax/Modem modules.*
However, resuming from **Suspend to Disk** *is included.*

F i r m w a r e

DISKETTE DRIVE *(DISKS MENU)*

The floppy drive used in this system should be set to "1.44MB". The BIOS supports the 3-mode feature to automatically detect and read 512 byte-per-sector, NEC-formatted (1.2MB) diskettes without any special configuration. To format a disk in the NEC format, however, your operating system must also support it.

✳ A Word about HDDs

Setup auto-detects "Hard Drive C:" and lists it in the system summary (see page 4-5).

The system automatically reads any hard disk 528MB or larger as using LBA mode.

If you want to use a 528MB or larger hard disk from an older system which does not support LBA mode, this system cannot read data on it properly. To use that hard disk, you will have to reformat it (losing anything on it).
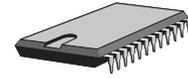
COM PORTS *(COMPONENTS MENU)*

Most serial devices will work on any COM setting.

However, infrared devices communicate in one of several modes. Make sure that the mode you choose for "Infrared Mode Setting" is supported by the device. Fast IR, as the name implies, is the most powerful option followed by IrDA (HPSIR) and then ASK (IR). If you are connecting to the (optional) docking station, choose "Serial" to use the 2nd serial port on that device.

PARALLEL PORT *(COMPONENTS MENU)*

There are several modes available:

Standard AT (Centronics)
Bidirectional (PS-2)
Enhanced Parallel (EPP version 1.7 or 1.9)
Extended Capabilities (ECP)

You should check your parallel device's documentation to see which one it can use. Most devices on the market use Standard mode.

If you don't plan to use this port, you can set it to "None" to conserve power.

PS/2 MOUSE PORT *(COMPONENTS MENU)*

Unchecked, this also disables the TouchPad.

POWER SAVING

In this menu, you can choose among three preset power saving schemes or customize your desired settings.

If you want the system to check for video activity as it does for the keyboard or the mouse, enable the **Monitor Video Activity** field. However, keep the following in mind:

> Enabled, the system will *not* enter a power saving scheme if there is any activity on the screen. This is useful if you want to observe file transfers that are visible on screen, or a screen saver.

> Disabled, the power saving schemes monitor for system activity except the screen. This setting may also be necessary for some operating systems to enter the power saving schemes because they have special refresh requirements (consult your operating system manual).

Before you adjust the settings in this menu, we suggest a review of the power management system in *Chapter 5: Power*.

Note: The **Fn** + **F10** key combination activates *Suspend to RAM* or *Suspend to Disk*.

ENABLE POWER SAVING (POWER MENU)

This is the "master switch" for the power savings system. However, you can make changes to the scheme even if it is not checked.
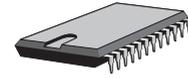
CUSTOMIZE *(POWER MENU)*

Examine this submenu to determine the values for High, Medium and Low Power Savings schemes or to set your preferences.

Note: "Global Timeout" affects the CPU as well as Video and Disk timeout.

SUSPEND CONTROLS *(POWER MENU)*

Use this menu to control the Suspend power management system.

If you want to use the "Suspend to Disk" method, you must have set up a Suspend to Disk partition as described in *Chapter 5: Power*.

The "Suspend Timeout" starts its countdown after "Global Timeout" (see the Customize submenu) has started.

RESUME TIMER (POWER MENU)

This menu controls how the system will be reactivated from *Suspend to RAM* mode. This does not apply to *Suspend to Disk* mode.

If you want to resume from a ring-in (i.e. a modem signal), make sure the COM ports are not set to "None". PC Card ports are monitored only if the driver is set correctly. Refer to PC Card driver's manual for details.

4

Warning

*If you haven't set up the system for **Suspend to Disk**, or if the space reserved for the **Suspend to Disk** partition **isn't large enough**, the system will default to **Suspend** mode and your unsaved data will be lost when power is turned off. Refer to **Chapter 5: Power** on how to setup the **Suspend to Disk** partition.*

NOTES:

4

5   Power

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

Hardware	Software
AC adapter	*Setup* utility parameters
battery pack(s)	power & battery management utilities

The first part covers the battery(ies) and the AC adapter. To see where these fit into the system, review the system layout in *Chapter 1: Introduction.*

The second part is about the power usage and management - how to get the most out of your battery(ies). Part of this involves settings in the *Setup* utility, so you should also refer to *Chapter 4: Firmware.*

P o w e r

ICONS

The LED panel has four icons relating to the Power system:

LED/Indicator	Name	Variation		Meaning
		System State	Color	
⏻	On/OFF switch	(all states)	no light	system OFF / Suspend to Disk
			ON	system On / Doze / Standby
			flashing	Suspend to RAM
▯	Power Bar	(all states)	ON	system On Doze / Standby /Suspend to RAM
			no light	system OFF Suspend to Disk
▭	AC-power	(all states)	ON	power from AC adapter
			OFF	battery powered
1	Battery Status	AC-in	green	fully charged
			red	battery is charging
2		Battery only	no light	battery charge OK
			flashing green	battery Low

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 LED panel lights 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 ▔▔▔ (DC-in) socket on the computer's rear panel.
3. Plug the power cord into a wall outlet.
4. Press the ON/OFF switch for **one second** to turn the system on.

CONNECTING AC ADAPTER
FIG. 5 – 1

Power

BATTERY POWER

The notebook comes with a rechargeable battery. You can get a replacement battery or 2nd pack (pallet & battery) from your dealer.

FIRST-TIME USE & STORAGE

If you don't use battery packs for a long time (about three weeks), they should be discharged completely and then recharged. The battery 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(ies) for a long time. Note that you should follow this procedure regardless of whether or not the AC power source is plugged in during the battery inactivity.

1. Install the battery in its compartment (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 **Ctrl-Alt-S** to enter *Setup*. (If you are not sure how to do this, refer to *Chapter 4: Firmware*.)
3. Open the Power and un-check "Enable Power Saving".
4. Save the setting by choosing "Save and Exit" in the Exit menu.
5. Make sure that your operating system does not activate Advanced Power Management (APM). If you are using *Windows 95*, 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 for each battery, until the system shuts itself down. Ignore any low power warnings.

7. Plug in the AC power source to recharge the battery. Leave the system off while charging. The battery status icon stays red during charging. When the battery is full, the light turns green. The approximate charge time is about two hours (per battery). Refer to the Using & Charging the Battery Pack section in this chapter for details.

8. Turn on the computer and press **Ctrl-Alt-S** to enter *Setup.* Open the Power menu and reset your preference. Save the setting and reboot.

P o w e r

BATTERY POWER

You can install and charge a battery in both the battery and drive bays.

INSTALLING & REMOVING A BATTERY PACK

First, use one of these methods to protect your work

- Use *Save to disk* mode.
- Shut down the system.
- Put the system in *Suspend* mode and make sure power is available from the Power bay or the external adapter module.

INTO THE POWER BAY

Note: The battery pack is packaged separately from the notebook.

1. Open the battery bay door.
2. Remove the used battery if present. Pull it out by its tab (use a paperclip or your fingernail to pull out the tab from the battery's end).
3. Remove the battery from its packaging.
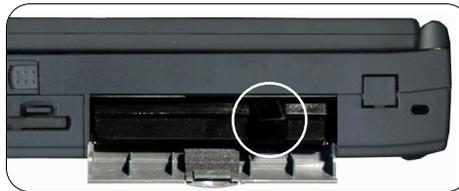
4. Slide the fresh battery into the slot. If there is any resistance as you slide it in, check for and remove any foreign objects that may have gotten into the bay.
Note: The battery's connector must be toward the back of the notebook.

5. Raise and secure the bay door.

INTO THE DRIVE BAY

Before you can install a 2nd battery, you must mount it in a power pallet. The pallet is secured in the Drive bay with the module latch on the bottom of the computer and a latch on the pallet's front.

1. Angle the battery into the battery frame.

2. Unlock the drive module (FDD or Zip) and slide it out (refer to *Chapter 3: Modules*).

3. Slide the battery frame into the Drive bay until it "clicks" into place. Lock it into position with the front latch.

5

2ND BATTERY PACK
FIG. 5 – 3

P o w e r

5

USING & CHARGING THE BATTERY PACK

When the system is using battery power only, the battery status LED is not lit during normal operation. If the LED flashes green, the battery is low. In this case, *save your work immediately* and do one or more of the following:

- Plug in the AC adapter
- Replace the battery pack while connected to the AC adapter or with a 2nd battery present
- Go into Suspend to RAM
- Load a 2nd battery .

When the system receives AC power, the LED glows and the battery status LED(s) displays a steady red light to indicate AC-in and battery charging. When the battery is fully charged, the battery status light turns green. Refer to *Appendix A: Specifications* for guides to battery life and recharging times.

POWER MANAGEMENT

HARDWARE (BATTERY STATUS & WARNINGS)

After the POST finishes, the Battery status LED indicates the battery's charge level. When the battery is low, this icon flashes. *Save your work immediately* and follow the suggestions on page 5-8.

LOW BATTERY & SUSPEND

If you selected *Suspend to RAM* or *Suspend to Disk* in *Setup* for Battery Low, the system enters the selected mode three minutes after the warning starts (if you haven't given the system more power).

If either of these options starts, the battery should be considered "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, you must re-place or enhance the power supply.

If you wish to use *Suspend to Disk*, you need to setup the *Suspend to Disk* partition, which is described in the side-bar on the next page.

P o w e r

5

FIRMWARE (SETUP CONTROLS)

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

SUSPEND TO DISK

This suspend method records system status information to a special partition on the HDD and then turns the system OFF.

Depending on the option you selected in *Setup*, *Suspend to Disk* can be activated by:

- Low battery power
- Pressing **Fn+F10**
- Specified time-out after the *Suspend* (*to RAM*) mode

Once the function is activated, the system makes a starting beep. When system status information is saved, the system shuts down.

Suspend to Disk Setup

When the BIOS instructs the system to "Suspend to Disk", it makes use of a special partition on the HDD. This is created and managed by the *0VMAKFIL* utility.

The Suspend to Disk partition must be setup **before** you install the operating system. For this reason, this partition does not depend on the operating system you use.

SPACE

The size of this partition must be greater than the total size of the memory (DRAM) and the notebook's video RAM. For example, if your notebook has 8 MB of DRAM and 4 MB of video RAM, you should reserve *at least* 13 MB. If you have or plan to have the maximum 128 MB of DRAM and 4 MB of video RAM, you should reserve *at least* 132 MB. The extra MB is for data from other chip registers.

SETTING UP THE PARTITION

The *Suspend to Disk* partition must be setup on an *unpartitioned*, *unformatted* hard disk. If your hard disk already has information you want to keep, make sure it is backed-up because this operation will reconfigure your HDD. Follow these steps to prepare the partition:

1. If you want to install the Suspend to Disk partition on a new (unformatted) hard disk, skip to the next step. Otherwise, back-up everything you need on the HDD and use your operating system's partition utility to remove

all the partition (and thereby all the data) from the hard disk.

2. Boot up the computer from a bootable disk.

3. Insert the *Utility* disk in drive A: (the Floppy)*.

4. Run OVMAKFIL.EXE

    • to create a partition matching your current configuration , type
    a:> **0VMAKFIL~/P** [**Enter**]

    • to make a partition the size you prefer, type
    a:> **0VMAKFIL~/P<Mbytes>** [**Enter**]

    e.g. for a 13MB partition, type
    a:> **0VMAKFIL~/P13** [**Enter**]

Note: Since this method requires you to configure your HDD, you should make your Suspend to Disk *partition large enough to accommodate the largest amount of memory you* **expect** *to have.*

5. When the utility announces that it has finished creating the partition, run your operating system's partition utility (e.g. *MS-DOS*'s *fdisk*). The partition utility will tell you that it has found a "non-DOS" or "unknown" partition. Do not do anything to this partition, but proceed to partition and setup the rest of the hard disk with your operating system. Be careful not to format the "non-DOS" or "unknown" partition.

*   Another copy of 0vmakfil.exe is on the Drivers/Utilities CD-ROM in the "drivers" folder.

To resume work, press the ON/OFF button to turn the system back ON. The system will return to the state before it went into *Suspend to Disk* and turn on all devices.

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

Ring in Note: Since the system is OFF during this mode, a Ring-in or Alarm Resume time will not wake up the system.

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

5

P o w e r

SUSPEND TO RAM

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

Depending on the option you selected in *Setup*, *Suspend* can be activated by:

- low battery power
- pressing **Fn+F10**
- specified time-out after the *Standby* mode

There are several ways to resume from *Suspend*:

Fn+F10   Press **Fn+F10** again.

Alarm Resume   The clock reaches the time set for the Alarm Resume feature in *Setup*.

Ring-in   The system will wake if a ring-in is detected from the (optional) built-in Fax/Modem, a PC Card Fax/Modem or an activated serial port.

close-cover switch   Opening the lid/LCD while the system is in *Suspend to RAM* wakes the system.

Each time you resume from *Suspend*, you risk depleting the battery beyond its safety reserve and losing any data not saved.

Security Note: Password set in *Setup* is not needed to resume from *Suspend to RAM*. If you want password protection, use the *Suspend to Disk* alternative.

SOFTWARE (UTILITIES)

Your system is designed to work with two power management utilities: APM, and a utility from SystemSoft.

APM

Developed by Microsoft and Intel, Advanced Power Management (*APM*) is embedded in *Windows 95/98*. Use the battery icon on *Windows 95/98's* Control Panel to access *APM*. For best results, leave it set to "Advanced".

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

P o w e r

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*.

5

POWERPROFILER
FIG. 5 – 4

6 Enhancements

This chapter is about making improvements to the system in the following areas:

hardware	**software**
memory	PC Card
	IrDA port
	Audio
	TouchPad

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

The PC Card driver is not needed for most *Windows 95* users. However *Windows NT 4.0* users will find it very useful.

The ZV Port drivers are required if you plan on using the PC Card socket for that type of card. It is not necessary for any other type of card.

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.

Enhancements

MEMORY

The notebook comes with no onboard memory. You can up-grade to as much as 128MB. This involves opening the memory compartment and installing one or two DIMMs.

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

Socket requirements:
- 16MB, 32MB or 64MB module size
- 144 pins
- EDO or SDRAM type S.O. DIMMs
- 3.3-volt
- TSOP package
- Rated at 60ns or faster

Make sure you put the correct type in each socket.

6

❈ 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 flat-head screwdriver, press in the keyboard anchor tabs on the top edge of the keyboard(1).

4. Flip the keyboard forward (2) and remove the metal cover plate's anchor screws (3)-(5). Then remove the plate - **Do not disturb the keyboard connection cables!**

5. Insert a DIMM in either slot at about a 20° angle (6). 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.

6. Gently push down on the module 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.

7. Install the second module in the same way.

8. Replace the metal cover plate, screws and the keyboard.

9. After changing the RAM configuration, run *Setup* so the new total can be registered in the CMOS (refer to *Chapter 4: Firmware*).
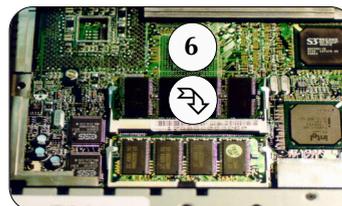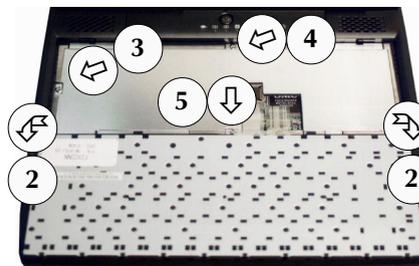
INSERTING THE DIMM
FIG. 6 – 1
Follow the instructions on the opposite side-bar. Modules can be inserted in any order.

6

Enhancements

CARDWIZARD

The *CardWizard* utility is required for *Windows 3.1x* but is only supplemental for *Windows 9x* and *Windows NT 4.0* (though highly recommended for the later).

CARDWIZARD & OPERATING SYSTEMS

CardWizard can give you information about the status of the cards and sockets, troubleshoot card configuration problems, and resolve resource conflicts.

In *Windows 3.1x*, start *CardWizard* by clicking on its icon in the "CardWorks" folder of the Program Manager.

In *Windows 9x* and *Windows NT 4.0*, start *CardWizard* from the taskbar (**Start > Programs > CardWizard**).

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

Installing CardWizard

WINDOWS 9X

The *CardWizard* 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 9x* family. To install,

1. Open **Control Panel** > **Add/Remove Programs** and choose **Install...** (button).

2. Insert the *Drivers/Utilities* CD-ROM and click on **Next**.

3. Click on **Browse...** and navigate to: D:\drivers\win95\pc_card\setup.exe, or D:\drivers\win98\pc_card\setup.exe, click on **open,** then on **Finish**.

4. Follow the program's dialog boxes. The utility will create a "Cardworks" sub-folder in the "Program Files" folder for itself on your C: drive unless you choose otherwise.

5. Choose "Typical" to enable the slots for all types of cards (this will use more system resources).
   Choose "Custom" if you know that you won't need some features.

   When asked for "insert disk 2" or "insert disk 3", click **OK** to continue the installation.

6. When prompted, allow the system to restart.

Note: If you allow SRAM/ATA drive support, it will add removable drive resources before your CD-ROM. This will affect programs which depend on CD-ROM based files. If you don't want to use SRAM/ATA cards, use the "Custom" installation.

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. The latest information about ATA PC Card configuration is included.

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 *Drivers/Utilities* CD-ROM and click **Next**.

3. Browse to DRIVERS\NT40\PC_CARD\SETUP.EXE, click on the **Finish** button. (You can also use the WIN95 directory.)

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.

5. When the installation is complete, allow the system to reboot to complete the setup.

CARDWIZARD & WINDOWS NT 4.0

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

USING CARD WIZARD

Card Wizard 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.

6

Enhancements

POWER MANAGEMENT

CardWizard for *Windows 3.1x* includes a utility to allow it to work with power management systems. To use it, copy the CS_APM.EXE file from the Drivers/Utilities CD-ROM to the CardWizard directory on your HDD. Then using an editor program, modify the CONFIG.SYS file:

install= [drive]:\[path]\cs_apm.exe

e.g. Install=c:\cardwiz\cs_apm.exe

USING REMOVABLE STORAGE CARDS

If you are using removable storage cards (i.e., ATA Hard Disk/ATA Flash Disk cards and SRAM cards), be sure to read the "readme" files which come with CardWizard.

CARDWIZARD UTILITIES

CardWizard's directory in *Windows 3.1x* or *Windows 95* includes utilities to format removable storage cards. You can launch them by clicking their icons in the File Manager.

✳

Installing CardWizard (cont.)

Note: Card Wizard 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.

✳

Formatting in Windows NT 4.0

Windows NT 4.0 has the necessary formatting utilities built in.

6

ATAINIT.EXE

This is a disk partitioning utility that must be used to prepare any ATA card supported by ATADRV. When a new ATA card is inserted into a PC Card socket, it is not recognized since there is no common method to find out its physical parameters (number of sectors, cylinders, etc.). ATAINIT interrogates the card to find the physical parameters to use, then prepares it for use. ATAINIT will only work with devices managed by ATADRV. To use it,

1. Insert an ATA card into either PC Card socket.
2. Switch to the CARDWIZ directory (or the directory where you installed the *CardWizard* software).
3. Type **atainit** ˷(drive letter): and press **Enter**.
      (e.g. **atainit_e:** [**Enter**])

   Follow the prompts on the screen as the utility partitions the PC Card.

   Note: Before you substitute the drive letter, check the system booting message to see which logical drive names are reserved for ATA cards.

MCFORMAT.EXE

This utility partitions and formats flash memory cards (both MS-Flash and FTL). However, if you plan to use the card on another system, make sure it supports the format you use. If it doesn't, you will not be able to access the card. To use it,

1. Insert a flash memory card into either PC Card socket.

2. Switch to the CARDWIZ directory (or the directory where you installed the *CardWizard* software).

3. Type **mcformat** and press **Enter**. (i.e. **mcformat** ̲[**Enter**])
   Follow the prompts on the screen as the utility partitions the PC Card.

SUPPORTED PC CARDS & ZV SOCKET

CardWizard enables your system to work with all "legacy" cards. It also extends ZV card support to *Windows 3.1x* and *Windows 95*. We recommend you read the **readme** file on the *CardWizard* disk to find out if any special conditions apply to a card you are considering buying. If you are interested in a card model and have compatibility questions, call the card manufacturer to check on its compatibility with SystemSoft's *CardWorks* and *CardWizard* utilities.

Note: As this manual goes to press, ZV Card support is only available for *Windows 9x*, *3.1x* and *NT 4.0* users.

6

1. Choose COM2's mode settings as "**Fast IR**" in the BIOS *setup* (see Chapter 4: Firmware).

2. From the **Control Panel,** open **Add New Hardware** > **Next** > choose **"No"** > **Next**.

3. For **Hardware types,** choose **Ports (COM & LPT)** > **Next** > **Have Disk** > **Browse**. Insert the *Drivers/Utilities* CD-ROM, and navigate to: d:\drivers\win95\irda\fir_smc

   When prompted, choose "SMC IrCC (Fast Infrared) Hardware and Driver" from **Model** list. If asked, allow the system to restart.

4. After the system resumes, open **Control Panel**> **System**>**Device Manager**>**Ports (COM & LPT)**, then remove **Generic Ir... (COM2)** and **SMC IrCC...(COM4)**. Click on **Refresh**.

5. Download the driver, **W95ir.exe**, from the Microsoft web site or talk to your dealer.

6. Click **Run...** from the **Start** menu. Locate and double-click the **W95ir.exe** file icon to launch self extracting.

7. Locate and double-click the **setup.exe** file. When prompted, choose "SMC IrCC(Fast Infrared) Hardware and Driver(COM2)", and "use default ports".

8. Using *Windows Explorer* to navigate to: d:\drivers\win95\IrDA\fir_smc\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, the IrDA driver is ready for your use.

IRDA DRIVERS

Your notebook includes an infrared serial port. To use it in *Windows 95*, you must first install its driver. The driver included with the notebook is for Vcomm's FIR (Fast IR) driver. To install the standard serial driver which includes parallel port emulation, first you must download the driver from the Microsoft web site. *Windows 98* automatically detects and installs its drivers whereas *Windows NT 4.0* provides no support of this device.

Follow the instructions in the side-bar to install the *Windows 95* IrDA driver.

6

Enhancements

AUDIO APPLETS

The system also comes with audio applets for *Windows 95* and *Windows NT 4.0*, *AudioRack32* for *Windows 95* and *AudioRack32* for *Windows NT 4.0*. They allow you to use audio functions more conveniently than the OS-built-in applets. The installation procedures for both applets are the same: See the side-bar for instructions.

✳
AudioRack32 Setup

WINDOWS 95/WINDOWS NT 4.0

The AudioRack32 utility supplements the ESS AudioDrive. To install,

1. Insert the *Drivers/Utilities* CD-ROM.

2. Use the **Add/Remove Programs** utility in the **Control Panel**.

3. Click on **Install...** then **Next**.

   Click on **Browse...** and navigate to

   D:\drivers\win95\audio\audrack\setup.exe *

   (if *Windows 95*)

   D:\drivers\nt40\audio\audrack\setup.exe*

   (if *Windows NT 4.0*)

   Click **Open**, then **Finish** to start the installation.

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

4. Follow the program's dialog boxes. The utility will create an "AudioRack" sub-folder in the "Program Files" folder for itself on your C: drive unless you choose otherwise.

5. When complete, reboot the system.

Note: Near the end of the installation, the utility asks if you want to use *AudioRack* as the default (audio) CD player. Choose **Yes** if you want *AudioRack* to launch itself each time you insert an audio CD in the CD-ROM drive.

6

TouchPad Driver Installation

1. Insert the Drivers/Utilities CD-ROM.

2. Use the **Add/Remove Programs** utility in the **Control Panel**.

3. Click on **Install...** then **Next**.

   Click on **Browse...** and navigate to

   D:\drivers\win95\touchpad\setup.exe*

   or :\drivers\win98\touchpad\setup.exe*

   or D:\drivers\nt40\touchpad\setup.exe*

   Click **Open**, then **Finish** to start the installation.

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

4. Choose the "Express Setup", the program will use "C:\MOUSE" as its folder. If you prefer a different location, run the "Custom Setup". When it's finished installing, allow the system to reboot.

5. When the system retarts, the Device Setup Wizard will guide you through some customized settings.

   Note: For normal operations, click on the Mouse button in the Control Panel if you want to change the default settings.

TOUCHPAD

If you want to take full advantage of the TouchPad's capabilities, you need to install the specialized drivers which come with your system. These are on the *Drivers/Utilities* CD-ROM which came with your system.

GESTURES

The software has a default set of TouchPad "gestures":

LOGITECH GESTURE	STANDARD GESTURE	DESCRIPTION/EQUIVALENCE
Slide	**Slide**	Move the cursor across the pad
Tap 2nd Finger (while holding 1st finger down)	**Tap 1 Finger**	Single click the left mouse button
Tap 2 Fingers once at the same time or Double Tap 2nd Finger (while holding 1st finger down)	**Double-Tap 1 Finger**	Double-click the left mouse button
Drag 2 Fingers (slide both fingers at the same time)	**Tap & Drag** (tap once, then tap & hold your finger to the pad as you move it)	Click & drag with the left mouse button
Tap 3 Fingers (tap once with 3 fingers) **or** **Tap 2nd & 3rd Fingers** (while holding 1st finger down)		Single click the right mouse button
Drag 3 Fingers (slide 3 fingers at the same time) **or** **Tap 3 & Drag 1** (tap 3 fingers then drag with one)		Click & drag with the right mouse button

6

TABLE 6-1
DEFAULAT TOUCHPAD GESTURES
The *MouseWare* driver supports both Logitech and Standard gestures.

Enhancements

CUSTOMIZING GESTURES
WINDOW 95 & WINDOWS NT 4.0

To customize TouchPad gestures in *Window 95*, 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.

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.
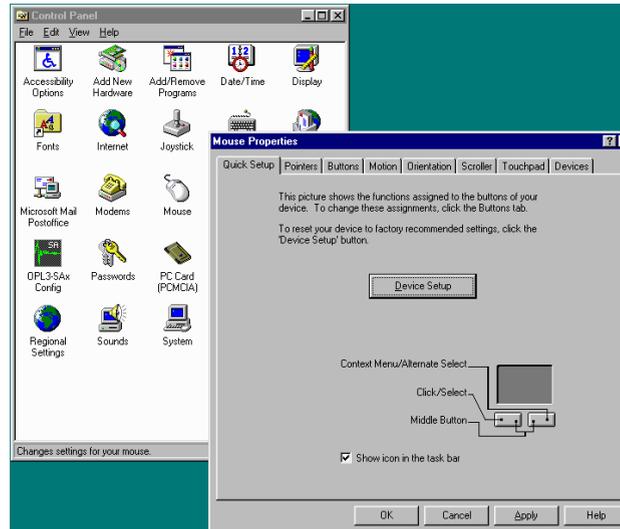
MOUSE PROPERTIES
FIG. 6 - 2

Appendix 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.

A

Specifications

CPU & CHIPSET

CPU

Intel CPUs with MMX™ technology:
 PPGA package
  P55CLM: 133 ~ 166MHz (2.5V)
  P55C: 200/233MHz (2.8V)
 MMO package
  Tillamook: 166 ~ 233MHz (1.8V)
        266MHz (2.0V)

CHIPSET

Core Logic: Intel Mobile Triton
        430TX
BIOS   SystemSoft
        (256KB Flash ROM,
        PnP 1.0a, APM 1.2,
        LBA)

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.

A

More on CPUs

VOLTAGE, SPEED & POWER SAVINGS

Generally, higher voltage or faster CPUs use more power and run "hotter".
So of these options, a 133MHz P55CLM running at 2.5V is the most energy efficient, though the slowest. However, actual power consumption also depends on the amount of "work" the CPU must perform.

PACKAGING

The MMO (Mobile Module Operation) package combines the "Tillamook" type Pentium™ CPU, primary chipset and L2 cache on a single, upgradeable daughterboard.
The "PPGA" format features a removable CPU. The accompanying chipset is hard-wired onto the mainboard.

MEMORY

L1 cache (in CPU):
    16KB code + 16KB data

L2 cache:
    512KB Pipeline Burst SRAM

RAM (base):   0MB EDO (3.3V)
RAM (expansion)*:   128MB maximum using one or both sockets
                          Socket 1 & Socket 2 requirements:
                          • 16MB, 32MB or 64MB modules
                          • 144 pins
                          • 3.3-volt
                          • TSOP package
                          • EDO or SDRAM DIMMs
                          • Rated at 60ns or faster
                          • Small outline

         * User upgradable.

A

Specifications

VIDEO

VGA Controller S3 M5
(with 3D & ZV support/proprietary driver)

Display Memory 4MB, 3.3V SGRAM (non-upgradable)

Video Bandwidth 128bit

LCD options X-TFT: 13.3"/14.1"
S-TFT: 12.1"
HS-DSTN: 12.1"/13.0"

Ports CRT: 15pin VGA
TV-out (NTSC/PAL S-connector support)

AUDIO

Controller ESS1879
(proprietary driver)
PnP, 16-bit stereo, full-duplex
16-bit ADC, 3 DACs for audio, music synthesis and I²S zoom-video
max. record & playback up to 44KHz stereo (WAVE audio)
20-voice FM music (ESFM™ technology)

✳

More on Video Standards

Depending on the OS, the *S3 M5 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 capability per display				
256†	✓	✓	✓	✓
16 bit (HiColor)	✓	✓	✓	✓
24 bit (TruColor)	✓	✓	✓	
Dual Control (same image) capabilities per display				
256†	✓	✓	✓	✓
16 bit (HiColor)	✓	✓	✓	
24 bit (TruColor)	✓	✓		
Dual Control (different images) capabilities per display				
256†	✓	✓	✓	
16 bit (HiColor)	✓	✓		
24 bit (Trucolor)				

* All resolutions larger than the display device can support are covered by panning effect.

** including NTSC

† Maximum colors available for Dual Control in *Windows NT 4.0* (as of this publucation).

✓ resolutions available with 4MB of video RAM.

A

Wavetable	ESS692
Compatibility	Sound Blaster Pro™ 3.01, 16-bit FM, MU401(UART mode), MS Windows Sound System™
Built-in	2 speakers, microphone, 0.5watt stereo amp.
Ports	Line-in, Mic-in, Headphone/speakers-out

DRIVES

Factory-Installed Modules	24X or faster CD-ROM or 2X DVD[†]
HDD Bay Module	2.5", 12.7mm removable 2.1GB or larger
Drive Bay Modules	• 3.5" 1.44MB FDD (3-mode)
	• switchable with ZIP module (option)
	• switchable with LS-120 module[†] (option)
	• switchable with 2nd battery (option)
Power Bay Module	battery
Parallel I/O	alternate FDD interface

[†] not immediately available

Specifications

POWER (MINIMUM REQUIREMENTS)

Power input: 20VDC, 50W

AC Adapter output: 20VDC, 2.5A

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

Battery (form)
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":   3h 30m (NiMH)
                        4h 10m (Li-Ion)
"disabled":   2h 28m (NiMH)
                        2h 43m (Li-Ion)

† 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.

I/O

USB	12MB/s bandwidth, 5V PCI-to-USB, (PC97 spec) complies with Open HCI 1.0, USB 1.0 & PCI 2.1
Parallel/Printer	25-pin, bi-directional SPP, EPP v1.7/1.9, ECP v1.7 /alternate FDD interface
Serial 1	9-pin, 16C550 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 docking station[†] (176 pin, PCI local bus)

[†]Not immediately available

OTHER FEATURES

TouchPad	built-in PS/2 pointing device by Logitech (with proprietary supplemental drivers)
Kensington Lock	standard security interface

ENVIRONMENT

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

Specifications

DIMENSIONS

Height	52mm	(2.04″)
Width	324mm	(12.75″)
Depth	258mm	(10.15″)
Weight	3.6KG	(7.92lbs)
	with battery, FDD, HDD & CD-ROM	

ACCESSORIES/OPTIONS[†]

56Kbps v.34 Fax Modem module[†‡]
24X CD-ROM or DVD module[†‡]
2nd battery module switchable with FDD
ZIP module[†] switchable with FDD
LS-120 module[†] switchable with FDD
Drivers/Utilities
Expansion DRAM module(s): 16MB, 32MB or 64MB
Battery pack: 36 (Ni-MH) / 202 (Li-Ion)
176 pin mini-docking station
Car adapter
Carrying Bag

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

A

Appendix 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.

B

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 <u>on</u> but nothing happened.

possible cause: AC power source missing/incorrectly plugged

indicator: The AC-power status icon, ▬◖ , doesn't appear.

solution: Check if the adapter is connected to a power cord and then to the DC-in socket on the computer's rear panel. Make sure the power cord is plugged into a wall outlet.

possible cause: Battery missing/incorrectly installed

indicator: The battery status icon, ⬜1⬜ or ⬜2⬜, doesn't appear.

solution: Check the power and floppy bays, make sure the battery(s) 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, ⬜1⬜ or ⬜2⬜, is flashing green.

B

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

possible cause:	The startup screen is set to CRT.
indicator:	The various icons appear, but no picture.
solution:	Toggle the **Fn+F9** combination. Wait a few moments before trying this control again.

You are losing battery power too quickly.

possible cause:	The system is using too much power.
indicator:	The battery status icon, 1 or 2, is moving from green to red 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 & Charging the Battery Pack.

B

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 using the correct adapter.

possible cause:	The battery has a defect or has become defective.
indicator:	The battery status icon, ⬜1 or ⬜2, is moving from green to red too quickly.
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 (except *Suspend to Disk*).

indicator: The power switch status icon, ⏻, islit or flashing.

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

possible cause: The system is in the *Suspend-to-Disk* mode.

indicator: The power switch status icon, ⏻, is off.

solution: Turn the system off and then on again to reboot the system. If it still doesn't work, connect the AC power and try again. Leave the computer attached to AC power so that the battery has a chance to recharge. Recharging takes about two hours with the system turned off.

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 *Setup*'s Main menu, Boot Options sub-menu and change the "Display" setting (see *Chapter 4: Firmware*). If an external monitor is connected, turn it on.

Troubleshooting

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.

B

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.
solutions:	(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 Autotype Fixed Disk 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 Fixed Disk 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.

Troubleshooting

The system freezes.

possible cause:	The system's power saving features have timed-out.
indicator:	The power switch indicator is flashing.
solution:	Use the AC adapter, press the suspend (**Fn+F10**) key combination. If the indicator's light is not on, it is in the *Suspend to Disk* mode, then press the power switch button to reboot the system again.

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 *Suspend to Disk* partition.
indicator:	The system retrieves *Suspend 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 *Suspend 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. When one of the above occurs, you must run the *0VMAKFIL* utility as soon as possible. Refer to Setting up for *Suspend to Disk* in *Chapter 5: Power*.

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

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

indicator: When you press the suspend key combination, normal *Suspend to RAM* is activated instead of *Suspend to Disk*.

solution: (1) Check if you have enabled *Suspend to Disk* in the Power Savings menu in *Setup*. Refer to *Chapter 4: Firmware*.
(2) You may not have set up the *Suspend to Disk* partition. Refer to *Chapter 5: Power* to setup the partition.
(3) You installed a different hard disk with a *Suspend to Disk* partition on it or there has been a CMOS or Checksum failure. You must run the *0VMAKFIL* 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 to RAM* or *Suspend 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*.

Troubleshooting

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: Enhancements*).

B

POST MESSAGES

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

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: Modules*)
	2. Check that the FDD is correctly defined in Setup (refer to *Chapter 4: Firmware*).

✳

Faster Repairs

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

Troubleshooting

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: Enhancements*).
2. Run setup to allow the system memory 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: Enhancements*).
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: Enhancements*). 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 and its jumper settings are correct - "master" (refer to *Chapter 3: Modules*).
2. Run *Setup* to make sure the HDD is correctly configured (refer to *Chapter 4: Firmware*).

B

message: **Incorrect Drive A: type - run Setup**
description: The FDD is incorrectly dentified 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.

Troubleshooting

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.
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. 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.

Troubleshooting

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.

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.

Glossary

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.

Glossary

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.

G l o s s a r y

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.

G

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.

Glossary

POST

> **P**ower-**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

> **P**oint-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

> **R**andom **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) In a computer that consists of an assembly of individual computing units, the arrangement of interconnections between the units, and the adjustments needed for the computer to operate.

(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

Glossary

G

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.

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