

**MULTIMEDIA
NOTEBOOK COMPUTER**

Hardware
USER'S MANUAL

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Third Edition
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The company is not liable for damage, lost revenue, lost wages, lost savings, or any other incidental or consequential damages arising from the purchase or use of the product or inability to use it.

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

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

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

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



IMPORTANT SAFETY INSTRUCTIONS

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

1. **Don't drop it.** Make sure it's on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it.** Keep the computer and power supply away from any kind of heating element. Keep the computer out of direct sunlight.
3. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
4. **Keep it dry.** This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power.** The computer has specific power requirements.
 - Only use a power adapter approved for use with this computer.
 - The AC adapter is 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 standard power adapter has a 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).

P r e f a c e



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 of the batteries.

BATTERY PRECAUTIONS

Only use a battery designed for this computer. The wrong battery type may explode, leak or damage the computer.

Recharge the battery 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.



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 in such a way that you can easily locate the information you wish to look up. The following information is included:

Chapter 1, Introduction, provides general information about this manual, your system, what the system includes, and a quick start guide.

Chapter 2, Hardware, covers the location of the principal hardware features and controls.

Chapter 3, Setup, is about the built-in firmware which controls the system and the operation of the *Setup* program.

Chapter 4, Power, describes the notebook's power system, including power management.

Chapter 5, Subsystems, details the main built-in subsystems.

Chapter 6, Ports, looks at possible external connections.

Appendices A & B provide information on system specifications and troubleshooting tips.

Glossary and Index provide definitions for terminology that may be new to you and a quick way to locate specific items.



CONVENTIONS

This manual uses the following typesetting conventions:

	<u>Example</u>
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):	<i>Setup, Windows 95</i>
files (all capitals):	AUTOEXEC.BAT
menu items (initial capitals):	Boot High Speed
variables (quotes):	“Enabled”
text the user must enter (bold):	a:>\ setup
keys to press while in <i>DOS</i> (brackets, bold):	[Enter]
icons/user interface switches (bold):	Continue, Yes
command switches (bold):	format /s
space:	-

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1 Introduction

This manual covers the information you need to operate the hardware part of the your notebook computer. Information about drivers (i.e. video & audio) is found in the companion manual on that subject.

Operating systems (i.e. *DOS 6.2*, *Windows 3.x*, *Windows 95*, *Windows NT*, *OS/2 Warp 3.0*, *UNIX*, etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

Introduction

1

This manual is arranged with two types of users in mind: advanced and novice.

If you are “advanced”, you may be tempted to skip over most of this. However, you should still look at the Quick Start guide at the end of this chapter. You may also want to look at *Chapter 4: Power*. Information that might be of particular interest to advanced users is indicated by the “*” symbol.

If you are new to the wonders of notebook computers, or just feel like a beginner, you should 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.

However, no matter what your level, pay careful attention to warning and safety information indicated by the “⚠” symbol. Also, pay careful attention to the safety information in the *Preface*.



YOUR COMPUTER

This notebook computer combines the power of Intel's Pentium CPU with the convenience of a multimedia notebook computer.

Your system has the following features:

	Configuration
CPU	2.9V P54CSLM-90/100 or 3.1V P54CSLM-120/-133
L2 Cache *	256 KB P.B. SRAM
LCD	10.4", 11.3", or 12.1" S-TFT or 11.3" S-DSTN
Std. / Max. RAM	16 MB/48 MB Fast Page
Upgrade RAM	2 * 72-pin DIMM, 64-bit access
BIOS	Flash ROM, PnP, LBA, APM
VGA Controller	Trident 9385
VGA RAM *	2 MB
Audio Chip	OPTi 930
CD-ROM	6-speed

TABLE 1 - 1
NOTEBOOK CONFIGURATION

* These components are not upgradable.

Introduction

1

TABLE 1 - 1 (CONT.)
NOTEBOOK CONFIGURATIONS

	Configuration
Hard Disk	2.5", removable 810 MB or larger
Floppy Drive	3½" 1.44 MB (3-mode)
TouchPad	Yes
Embedded Numeric Keypad	Yes
Battery	Ni-MH, Duracell or proprietary
Battery Management	Smart & proprietary functions
PC Card Slots	one Type II & one Type III
ZV Port Support	Yes (bottom slot)
IrDA Port	Yes (SIR & ASK)
Game/MIDI Port	Yes
Docking Station Support	Yes
NTSC/PAL TV-out Jack	Yes

* These components are not upgradable.

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 read them over first, *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 *v*, especially the instructions on placement.
2. Remove all packing materials, floppy disks and any PC Cards.
3. Insert the battery pack in its compartment and secure the compartment.
4. Securely attach any peripherals you want to use with the notebook (i.e. mouse, keyboard) to their ports.
5. Attach the power adapter to the port on the rear of the computer.
6. Plug the AC power cord into a grounded outlet.
7. Connect the AC power cord to the power adapter.
8. Raise the lid/LCD to a 90° angle.
9. Push in the  button (power switch) to turn "on".

The next chapter continues with a review of the layout and case-mounted hardware controls.



Warning

When you get your system, the battery may not be fully charged. Follow the procedure in Chapter 4: Power, First-time Use and Storage, to charge the battery.



Tip

If you plan to use the *Suspend-to-HDD* function in the future, you must setup the *Suspend-to-HDD* partition *before* you partition and format your hard disk. Refer to *Chapter 4: Power* for details.

Introduction

NOTES:





2 Hardware

This chapter covers the computer's hardware features and controls. This is mostly about *where* the features are. Explanations of the more complicated features, how and when they operate, are covered in the appropriate chapters later on. Advanced users can probably skip over most of this. But, if you aren't very familiar with notebook computers, use this chapter as a map of your system.

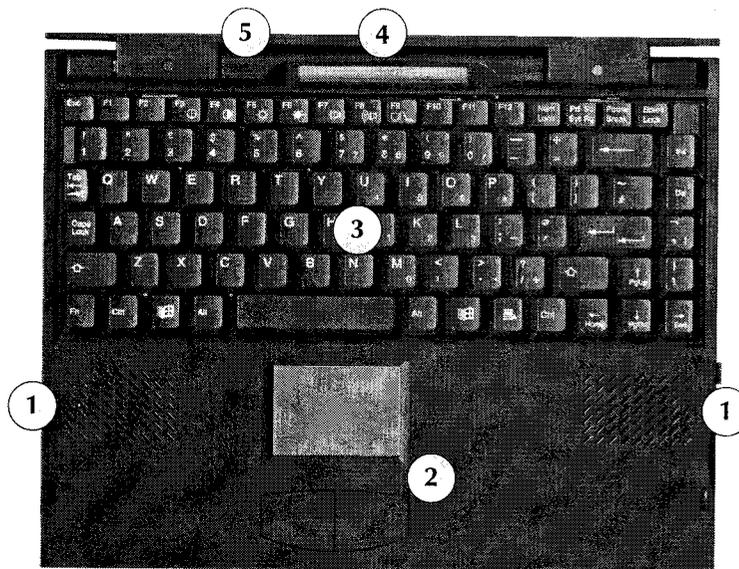
WORK PANEL (LID OPEN)

To open the notebook's cover, slide the cover latches on its edges forward (refer to Left Panel and Right Panel). As you raise the lid/LCD, you will see the work panel with its built-in speakers, TouchPad, keyboard, system status screen, and built-in microphone.

WORK PANEL

FIG. 2 - 1

1. speakers
2. TouchPad & buttons
3. keyboard
4. status screen
5. microphone





SPEAKERS

These are part of the multimedia set. They are auto-disabled if external speakers are connected to the  port. **Fn+**  and **Fn+**  raise and lower volume.

Refer to *Chapter 5: Subsystems*.

TOUCHPAD

This is your built-in pointing device. The two control buttons on the palm rest are equivalent to the left and right buttons of a 2-button mouse.

Refer to *Chapter 3: Setup* and *Chapter 5: Subsystems*.

KEYBOARD

This is an AT-compatible keyboard, with an embedded numeric keypad.

Refer to *Chapter 5: Subsystems*.

STATUS SCREEN

This panel displays the basic information about the status of the system.

Refer to *Chapter 5: Subsystems*.

MICROPHONE

This works with the audio subsystem. It is auto-disabled if an external microphone is connected to the  port.

Refer to *Chapter 5: Subsystems*.

Hardware

THE LID/LCD CONTROLS

All LCD features are managed by **Fn**+key combinations:

Fn +		contrast down	reduces LCD image contrast (DSTN display only)
Fn +		contrast up	increases LCD image contrast (DSTN display only)
Fn +		brightness down	reduces LCD brightness
Fn +		brightness up	increases LCD brightness
Fn +		CRT/LCD	toggles between display devices: CRT, LCD or both



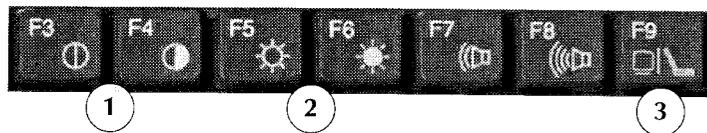
Advanced Users

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

LCD PANEL CONTROLS

FIG. 2 - 2

1. contrast controls (DSTN LCD only)
2. brightness controls (all LCD types)
3. display toggle





LEFT PANEL

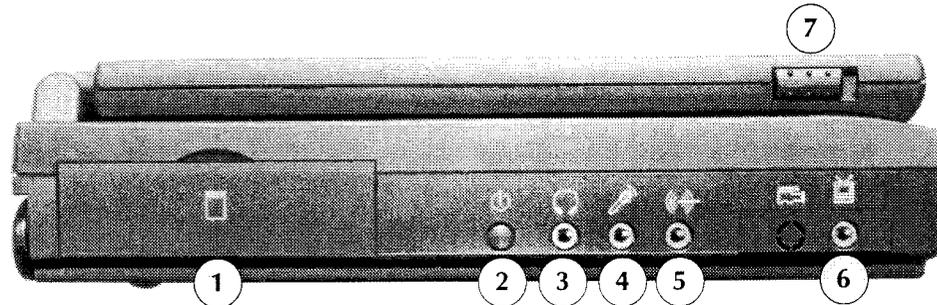
The notebook's left panel has the ■ (PC Card) sockets, the ⏻ (suspend) button, the multimedia jacks, and the TV-out jack. The left cover latch is near the front edge of the notebook cover.

The ■ sockets are described in greater detail in *Chapter 5: Subsystems* and in the *Software Manual*.

The ⏻ (suspend) button is covered in *Chapter 3: Setup* and *Chapter 4: Power*.

The multimedia audio jacks are covered in *Chapter 5: Subsystems*.

The TV-out jack is covered in *Chapter 6: Ports*.



LEFT PANEL

FIG. 2 – 3

1. PC Card sockets (panel closed)
2. suspend button
3. speakers/phones jack (vol. controls on keyboard)
4. microphone input jack
5. line-in jack
6. TV-out jack
7. left cover latch

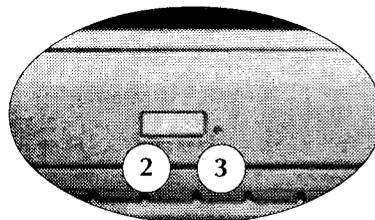
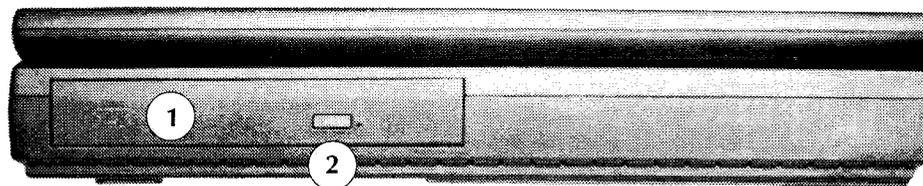
FRONT PANEL

This panel has only one item of interest, the CD-ROM player. Refer to *Chapter 5: Subsystems*.

FRONT PANEL

FIG. 2 - 4

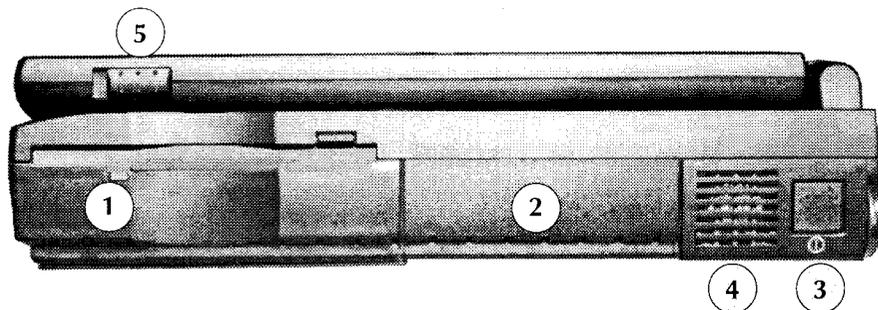
1. CD-ROM player (panel closed)
2. eject button
3. emergency release hole (use a paperclip)



RIGHT PANEL

This side of the computer has four items of interest, the floppy disk drive (FDD), the hard disk module (HDD), the  (on/off) button, and the fan. The release catch for the HDD is on the bottom of the computer. Refer to *Chapter 3: Setup* and *Chapter 5: Subsystems* for the hard disk and floppy disk.

The right cover latch is near the front edge of the notebook cover.



Warning

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



Warning

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

RIGHT PANEL

FIG. 2 - 5

1. floppy disk drive
2. HDD module
3. on/off button
4. fan
5. right cover latch

Hardware



Tip

Use the retractable legs on a level surface. To avoid wrist injuries, try to angle the work panel so that you don't have to bend your wrists to type.

REAR PANEL (COVER CLOSED)

FIG. 2 - 6

1. power adapter port
2. retractable legs (extended)
3. IrDA serial port
4. panels for docking station

REAR PANEL (COVER OPEN)

FIG. 2 - 7

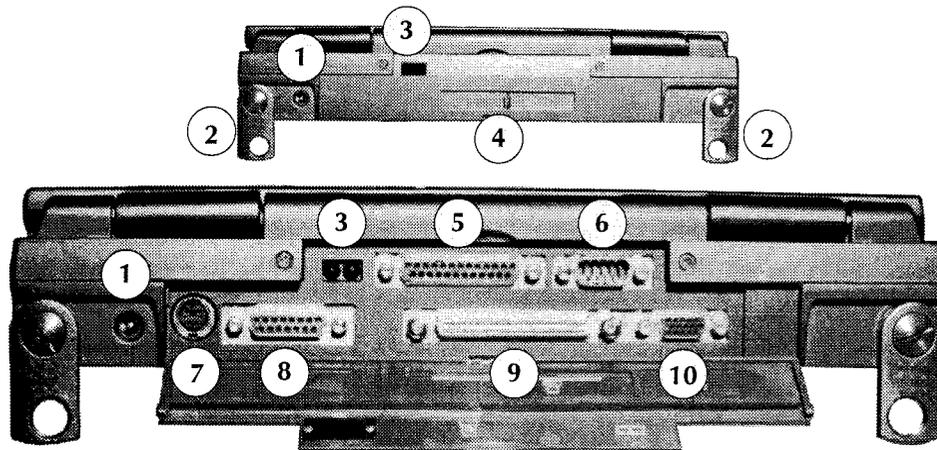
5. parallel port
6. serial 1 port
7. PS/2 port
8. game/MIDI port
9. docking station port
10. external monitor port

REAR PANEL

With the hinged cover closed, you can see the power adapter port, , and a pair of retractable legs similar to a keyboard's. The IrDA port and the panels for docking station are also visible.

With the cover open, you can see the notebook's main expansion ports:  (parallel port),  (serial 1 port),  (PS/2 port),  (game/MIDI port),  (docking station port), and  (external monitor port).

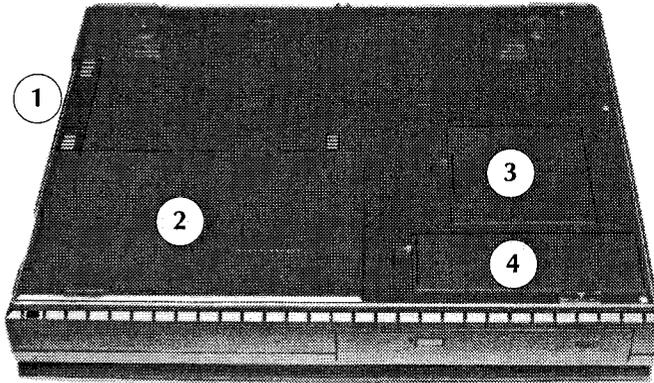
Refer to *Chapter 6: Ports* about these ports, and *Chapter 4: Power* about the power adapter port.



BOTTOM PANEL

The bottom of the computer has panels for three compartments: HDD, battery pack, and memory expansion. Refer to *Chapter 5: Subsystems*.

The AV access panel is also located on the bottom panel. Refer to *Chapter 6: Ports*.



The next chapter continues with what happens when you turn the computer on.



Warning

Follow the safety instructions for using batteries (see page vi).

BOTTOM PANEL

FIG. 2 – 8

1. HDD module
2. battery compartment
3. memory compartment
4. AV access panel



Warning

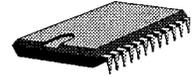
Do not try to remove the hard disk (HDD) while the system is on. This could result in data loss or damage.

Hardware

NOTES:

2





3 Setup

This chapter is about the software part of getting started: the *POST* (Power-On Self Test) and the *Setup* program.

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 the *Setup* program. Even if you are a beginner, note the settings discussed in this chapter. This information could be useful if your system ever needs servicing.

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

THE POWER-ON SELF TEST (POST)

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

- BIOS information flashes on the screen.
- the system takes 3 to 15 seconds to conduct a Power-On Self Test (*POST*), including a quick test of the on-board RAM.

This last item, the *POST*, is an examination of the system and some connected peripherals. When the computer finishes, it will tell you if there is anything wrong. If not, the system will go on to start the operating system (e.g. *MS-DOS*).

PASSING THE POST

If the computer doesn't detect any errors in the way it's setup, it will display a screen message similar to this:

POST MEMORY TEST

FIG. 3 - 1

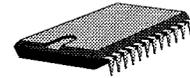
```
SystemSoft BIOS for UMC8890 Version 1.01 (2487-10)
Copyright 1983-1995 SystemSoft Corp. All Rights Reserved.

-----

NoteBook Computer Version 1.00.1.00 04-13-96-01BW
SystemSoft Plug-n-Play BIOS Ver 1.16.00

Base Memory           640 Kb
Extended Memory      15360 Kb

Please wait for the memory test...
```



When the memory test is complete, a screen message similar to this will appear:

```
SystemSoft BIOS for DMC8890 Version 1.01 (2487-10)
Copyright 1983-1995 SystemSoft Corp. All Rights Reserved.

-----
NoteBook Computer Version 1.00.1.00 04-13-96-01BW
SystemSoft Plug-n-Play BIOS Ver 1.16.00

Base Memory          640 Kb
Extended Memory     15360 Kb

<CTRL-ALT-S> to enter System Configuration Utility
```

GETTING INTO THE *SETUP*
FIG. 3 - 2

Press the **Ctrl + Alt + S** key combination *now* if you want to enter the *Setup* program; otherwise, the system will beep once and attempt to boot. When it has done so, you will see another screen similar to the following:

```
100 Mhz Pentium CPU
External Cache: 256K Enabled
Starting MS-DOS...

Current date is Mon 1996-04-22
Enter new date <yy-mm-dd>:
Current time is 11:44:30.30
Enter new time:

Microsoft(R) MS-DOS(R) Version 6.20
(C)Copyright Microsoft Corp 1981-1993.

C:\>
```

STARTING THE OPERATING SYSTEM
FIG. 3 - 3

Depending on how your system is setup, it may not stop at this screen, but continue to the User Interface for your operating system (e.g. *MS-Windows*).

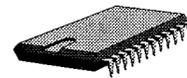
The system may pause along the way to ask you to confirm the date and time. If this happens, press **Enter** to confirm the settings, or type in new settings and then press **Enter**. Either way, your choice will be recorded in *Setup*.

FAILING THE POST

Errors can occur during *POST*. This is usually communicated by audible “beeps” and/or screen messages. There are two categories of errors, “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 will still allow you to boot. However, you will get a message identifying the problem (make a note of this message!) followed by the message:

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

Press **F1** to see if the boot process can continue. The system may work, though it may not have the correct configuration. If you feel more confident, 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

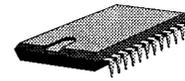
The *SystemSoft Setup Configuration Utility* (or “*Setup*”) program is based in the system’s ROM. It tells the system how to configure itself and manage all of the basic features and subsystems (e.g. display and power management).

ENTERING SETUP

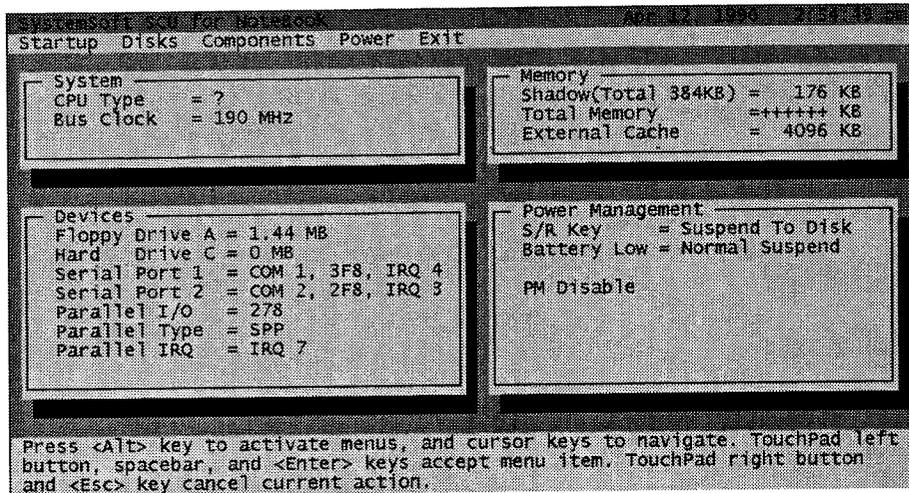
To enter *Setup*, turn on the computer and press the **Ctrl + Alt + S** key combination during the system boot. The prompt seen in Fig. 3–2 usually flashes by so quickly that the easiest way to get into *Setup* is to press the **Ctrl + Alt + S** keys as soon as you turn on the computer. If you get a “Keyboard Error”, just press **F1** to enter *Setup*.

If the computer is already on, reboot by pressing **Ctrl**, **Alt**, and **Delete** simultaneously and then hold down the **Ctrl + Alt + S** keys. *Setup*’s main menu will appear.

The *Setup* interface looks like a “windows” screen. The main part of the screen shows a general summary of the system status.



Along the top of the screen is the menu bar with five (5) menu headings. When you select the heading of a menu, its list appears. You must use these menu lists to make changes.



SETUP MAIN MENU

FIG. 3 - 4

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

The bottom of the screen has useful messages about the options available for each highlighted menu item. The start-up screen of *Setup* tells you how to use the **Alt** key, cursor arrows, or TouchPad to move around the screen. The spacebar, **Enter** key and left TouchPad button accept highlighted options. The **Esc** key and right TouchPad button cancel options.

Setup



Tip

You can change the date and time in *Setup* or from within the operating system. Some applications may alter data files to reflect these changes.

TIME & DATE MENU

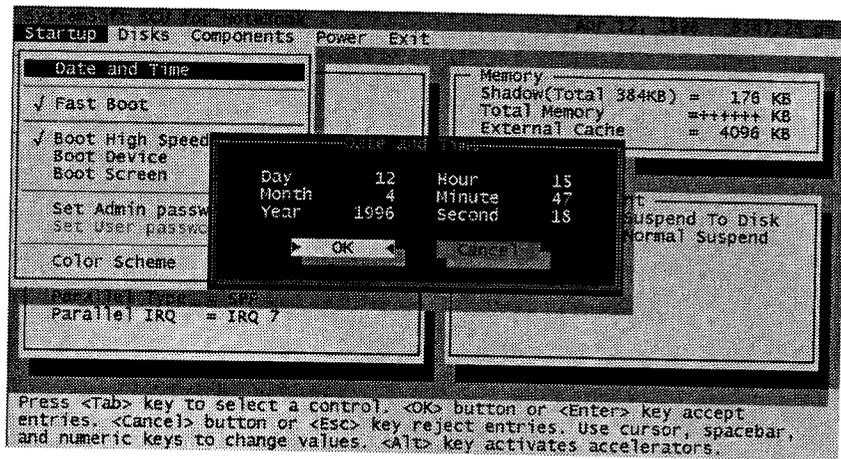
FIG. 3 - 5

STARTUP MENU

The first menu is mostly about the way you interact with the computer itself.

DATE AND TIME

When you select this item, you can set the system's internal calendar and time settings: date, month and year then hours, minutes, and seconds. The hour setting uses the 24-hour system (i.e., 00 = midnight; 13 = 1 pm). Use the **Tab** key or the TouchPad to highlight the part you want to change. Then use either the arrow keys or the number keys to change the settings. When you are finished, select "OK" to confirm your choices and close this item.





FAST BOOT

This item is only an 'on/off' switch. The ✓ or 'on' selection allows the system to skip memory tests and power-up quickly. The 'off' option makes the system perform a complete check each time it is rebooted. Turn Fast Boot 'off' if you suspect a problem and want the system to diagnose itself.

BOOT HIGH SPEED

This item is only an 'on/off' switch. The ✓ or 'on' selection allows the system to boot with the CPU running at its maximum speed. The 'off' option makes the system start with the CPU running at its slow speed. Unless you suspect your applications are incompatible with a high-speed CPU, you should leave this switch turned on.

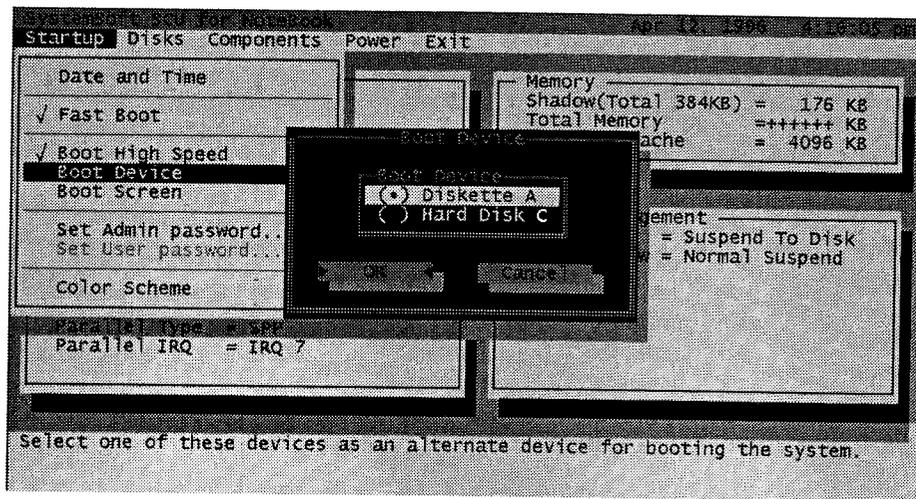
BOOT DEVICE

This tells the system which drive to boot from first. There are two options:

- Diskette A The computer will try to boot from drive A: each time. If it doesn't find a bootable disk in the floppy drive, it will boot from drive C:.. This is the recommended option.
- Hard Disk C The computer will only try to boot from drive C:.. It will ignore any disk in the floppy drive (drive A:).

BOOT DEVICE MENU

FIG. 3 - 6



BOOT SCREEN

This tells the system which display to use when it boots up. There are three options:

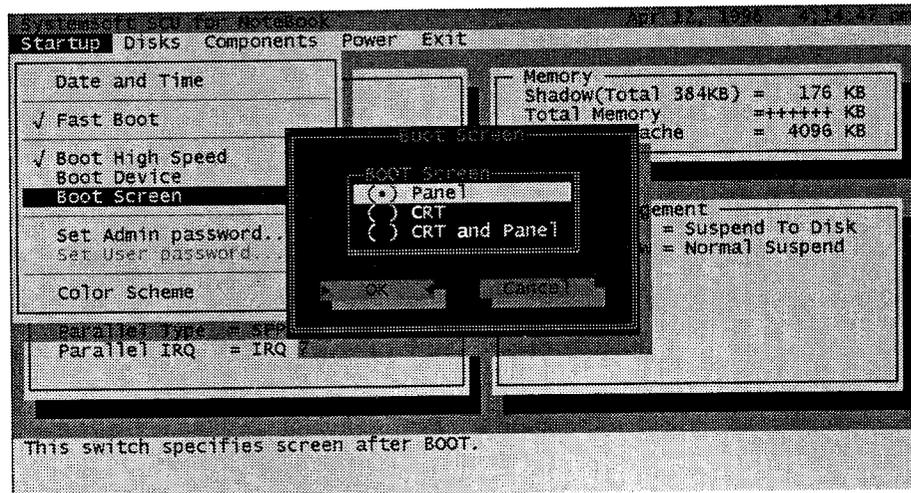
- Panel The system only uses the LCD. It ignores any monitor connected to the port.
- CRT The system only uses an external monitor connected to the port. The system ignores the LCD. Only use this option if a monitor is always connected.
- CRT and Panel The system will use both the LCD and external monitor (if connected).



Tip

If you can't see anything when you boot up, you've probably chosen the wrong display for your configuration. Use the **Fn + ** key combination to toggle to an alternate display.

3



BOOT SCREEN MENU

FIG. 3 - 7

Setup

3

SECURITY

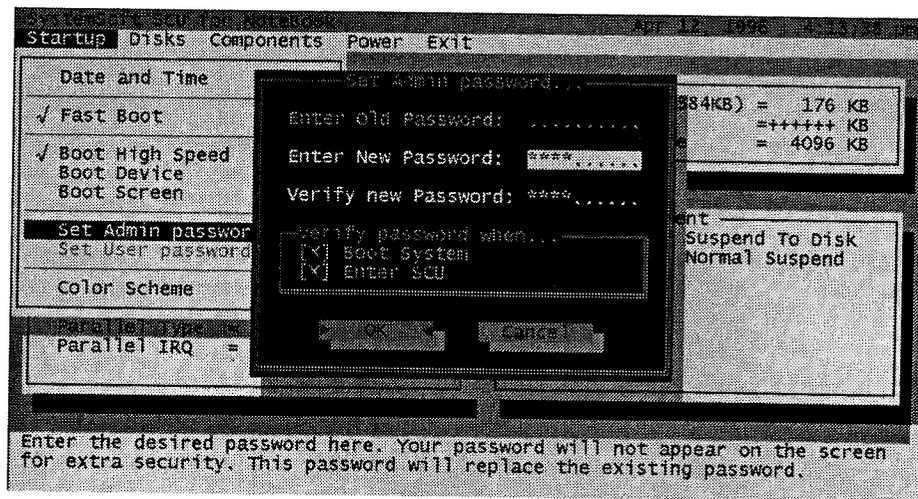
There are two levels of security. Both the Administrative and User passwords can be up to ten (10) characters and/or numbers (but not symbols). When you setup the password for the first time, the system asks you to enter the same password again for confirmation.

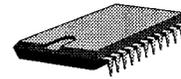
SETTING ADMINISTRATIVE PASSWORD

The administrative password grants unrestricted access to both the system and the *Setup* utility.

SETTING ADMINISTRATIVE PASSWORD

FIG. 3 - 8





SETTING USER PASSWORD

You can open the Set User Password dialog box only if you've already setup an Administrative password. The "administrator" can allow the "user" access to the system (choose "Boot System" in the dialog box), and/or access to the *Setup* utility (choose "Enter SCU").

To prevent unauthorized data transfers, "users" cannot use the parallel port, serial ports, or the floppy drive. To prevent such access, Serial Ports, Parallel Port, Floppy Drive, and both password settings are grayed out in the *Setup* utility. Only the "administrator" has access to these devices.


Tip

Allowing the user access to "Enter SCU" only is not very useful. However, allowing access to "Boot System" is useful for presentations.

3



SETTING USER PASSWORD

FIG. 3 - 9

S e t u p



Warning

Enabling the User "Boot System" setting does not prevent the "user" from deleting or otherwise altering data already in the system. Enabling the "Enter SCU" setting does not prevent the "user" from altering other (non-gayed) Setup options.

3

Once the password has been set and saved (use the "Save and Reboot" option in the Exit menu), the system requires a password when entering either the operating system or *Setup*. Type in the "administrative" password for full access. Type in the "user" password for limited access. If you don't enter the password correctly, the system will not allow you access. Instead it will only tell you the password you entered doesn't match the system's.

To change either password, start the system and enter the "administrative" password. Press the **Ctrl + Alt + S** key combination to enter *Setup*. To change the "administrative" password, go to the "Set Admin Password" dialog box, first enter the old password and then enter the new password. Confirm the new password as requested. To change the "user" password, do the same thing in the "Set User Password" dialog box.

To disable a password, enter the old password. Leave the "Enter New Password" line blank and press **Enter**. Press **Enter** again to verify the "blank".

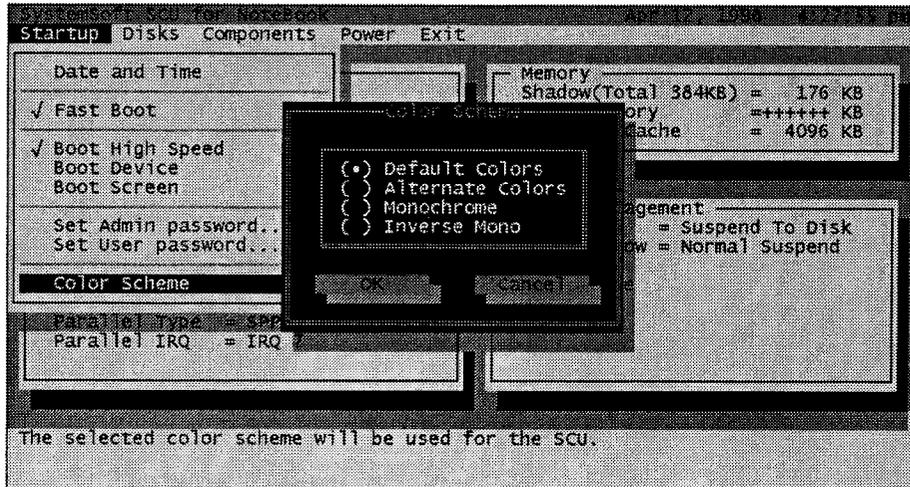
If you forget or lose your password, consult your dealer or service center.



COLOR SCHEME

This menu offers four color configurations for the *Setup* screens:

- Default Colors This is the most comfortable scheme for color displays.
- Alternate Colors This is suitable for color displays.
- Monochrome This is optimized for monochrome displays.
- Inverse Mono This is an alternative scheme for monochrome displays.



COLOR SCHEME

FIG. 3 - 10

Setup



Tip

The FDD version of *Windows 95* should be able to configure the CD-ROM automatically. If you are using the CD-ROM version, use the driver which comes with the system to activate the CD-ROM first.



Tip

To read 1024 bytes per sector NEC-formatted disks, you need a special driver from your operating system. Refer to the operating system manual.

FLOPPY DRIVE

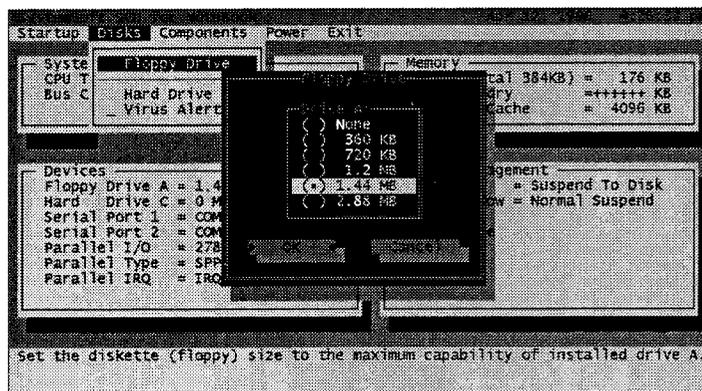
FIG. 3 - 11

DISKS MENU

This menu is about the storage devices in your system. The CD-ROM, an integral part of the system, is not included in this section. That device is controlled by a software driver which must be setup from within your operating system. For more on how to configure the CD-ROM, consult the *Software Manual* and/or your operating system manuals.

FLOPPY DRIVE

The system comes with one floppy drive installed as "Drive A:". The default is "1.44MB". The BIOS also supports the 3-Mode feature to automatically detect and read 512 byte-per-sector, NEC-formatted (1.2MB) disks without any special configuration. However, to format a disk in the NEC format, your operating system must also support this format.



HARD DRIVE

This field lists the configuration information for the IDE hard disk installed in the notebook. *Setup* can use one of several methods to detect the hard disk:

None	No hard disk is installed. If you choose this option, the system will require a floppy disk to supply the bootup information.
Standard	This allows you to choose a drive type from a list of older drives. If you are using an older drive, type in the number in the "Type Code" field in the opposite column and then carefully check the type information for compatibility. Most newer drives don't need this setting.
Custom	This automatically sets the "Type Code" field to "45" (user selectable). You must then fill in the Cylinders, Heads, Sectors/Track, Landing Zone, and Write Precomp fields. The Size (MB) field is automatically calculated based on this information. The information for all these fields should be printed on the hard disk itself, or in its accompanying documentation.
Auto-ID	This is the easiest solution. It allows <i>Setup</i> itself to determine the hard disk's type every time the system is booted and automatically store the information into BIOS.



Warning

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



Warning

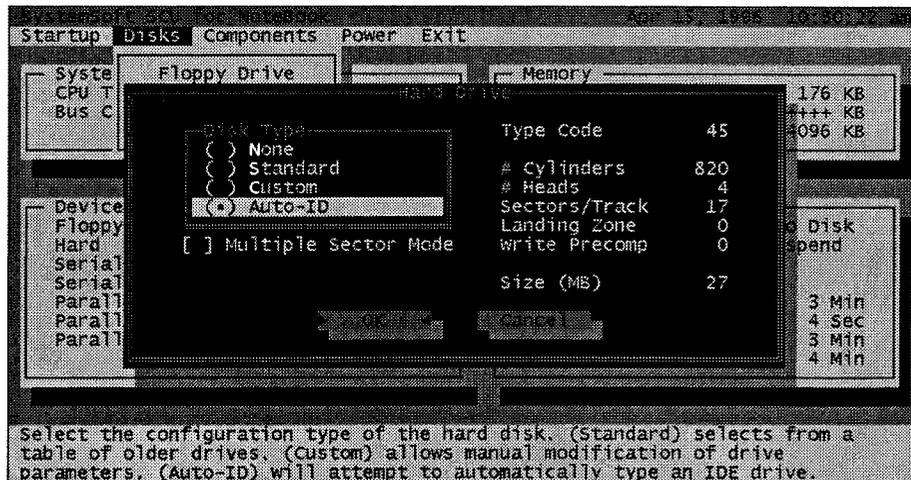
The Auto-ID feature may provide a different set of parameters for the same hard disk at different times. However, it should be reconfigured with the same parameters you got the first time. If you use a different set of parameters, it may be impossible for you to read any data on the hard disk. Make a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

MODES AND FORMATTING

If the computer determines the hard disk is larger than 528MB (unformatted capacity), the system automatically “sees” the hard disk using LBA mode.

HARD DRIVE

FIG. 3 – 12



Advanced Users

Even though Auto-ID detects the parameters of a new hard disk automatically, you should still verify these settings in *Setup*. You can also take this opportunity to activate Multiple Sector Mode.

MULTIPLE SECTOR MODE

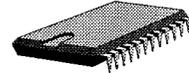
The ✓ indicates data can be transferred in larger batches. Most newer hard disks support this feature.

VIRUS ALERT

When selected, the ✓ indicates the boot sector virus warning system is active. If you get a warning message “Warning - BOOT SECTOR 0 HAS BEEN CHANGED”, use your backup disk to restore the bootup information.

If Virus Alert is active, you will get the warning message when you re-partition or reformat your hard disk. Ignore this message.

The message will also appear when you install a different hard disk if Virus Alert is active. You can ignore this message. However, you should make sure that the new hard disk is not infected with viruses.



Tip

To be safe, you should always check your floppies and hard disk(s) for viruses before you allow your system to read them. There are many virus-checking programs which can constantly scan for viruses and run “invisibly” in the background.

You should also create a backup disk to preserve critical bootup information. There are many utilities on the market which can create a backup disk.

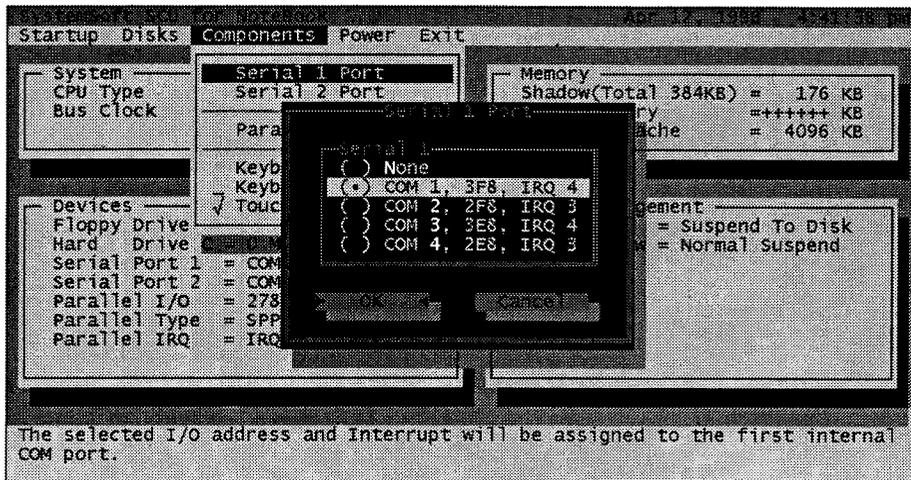
COMPONENTS MENU

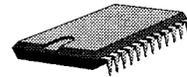
This menu is about the external inputs to your system, the ports along the rear panel, the keyboard and the TouchPad.

SERIAL 1 PORT

The system has a 9-pin serial connection, Serial 1 Port, which can be enabled or disabled. The default settings of this port is as shown below.

SERIAL 1 PORT MENU
FIG. 3 - 13





SERIAL 2 PORT

This computer includes an IrDA port on the rear panel. It is assigned to COM 2 port by default and can be disabled when necessary.

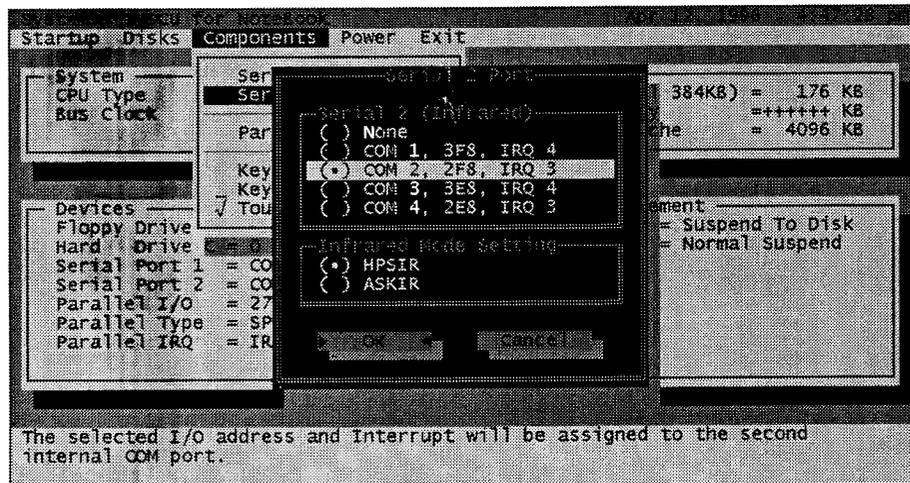
Several different standards of IrDA exist. This system supports two standards: HPSIR and ASKIR. You should select a standard which is supported by the device this system is working with. Refer to the device's **manual** or specification for this information.



Tip

If you are not planning to use the IrDA, you can disable Serial 2 (by choosing None). This way you can assign COM 2 to another device, e.g. a PC Card device.

3



SERIAL 2 PORT MENU

Fig. 3 - 14

Setup



Tip

If you experience a conflict on the parallel port, you may want to try the other settings.

PARALLEL PORT MENU

FIG. 3 - 15



Tip

Most devices on the market use SPP mode.

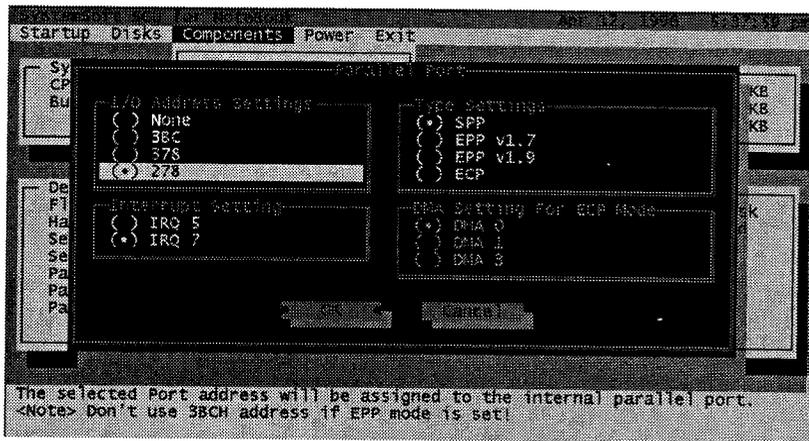


Warning

If you use either of the EPP modes, do not set the I/O Address to 3BC. This may result in a system conflict.

PARALLEL PORT

This menu provides different settings for the parallel port. Generally, the default setting (as shown in Fig 3-16) should be used.



PARALLEL TYPE

There are (4) four modes available:

- | | |
|----------|-------------------------|
| SPP | Standard, bidirectional |
| EPP v1.7 | Enhanced, version 1.7 |
| EPP v1.9 | Enhanced, version 1.9 |
| ECP | Extended Capabilities |

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



KEYBOARD REPEAT

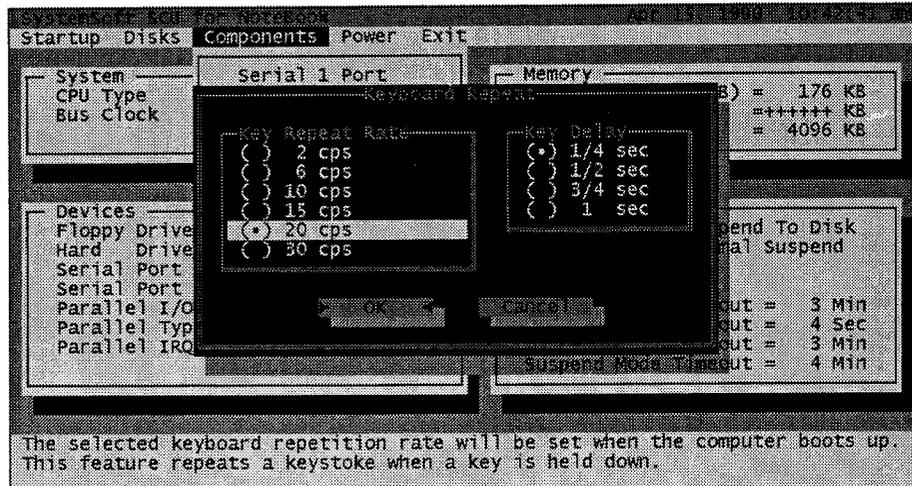
This section has two parts: Key Repeat Rate and Key Delay:

KEY REPEAT RATE

This line sets the rate at which keystrokes are repeated. The options are between 2 and 30 characters/second.

KEY DELAY

This determines how long the system waits before it starts repeating the keystroke of a key being held down. You can set this in increments of $\frac{1}{4}$ second up to 1 second.



KEYBOARD REPEAT

FIG. 3-16

KEYBOARD NUMLOCK

This activates the numeric keypad when the system boots.

TOUCHPAD

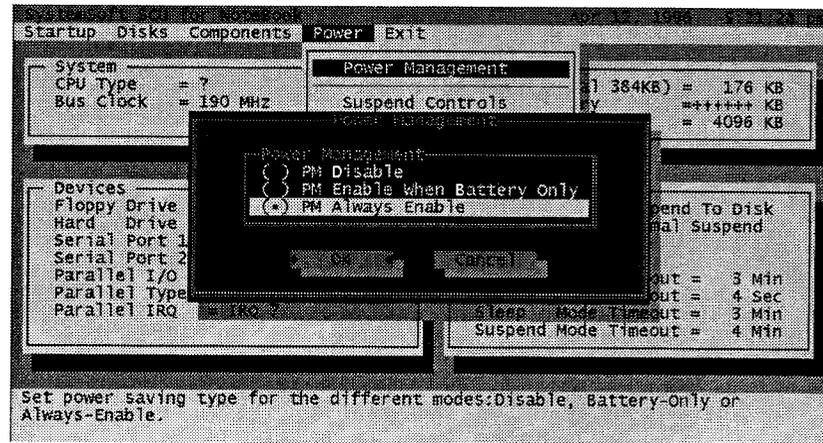
This item enables the onboard PS/2 TouchPad. This must be enabled for PS/2 capable mouse drivers to control the TouchPad. For more information about TouchPad drivers, refer to the *Software Manual* and to *Chapter 5: Subsystems*.

POWER MANAGEMENT

This menu determines the conditions under which the power management scheme (Low, Medium, High or Customize) takes effect.

- PM Disable This disables the power saving features.
- PM Enable When Battery Only This activates the power saving scheme only when the computer is running on battery power. The power saving scheme is disabled if the system is drawing power from a power adapter or docking station. Use this setting if you expect to use the system as a workstation (i.e. with a docking station and/or monitor).
- PM Always Enable This setting activates the power saving scheme regardless of the power source.

POWER MANAGEMENT
FIG. 3 - 18





SUSPEND CONTROLS

This menu affects the *Suspend* power management system and is independent of the power management scheme.

The first section selects the suspend method the computer will use when you press the S/R  button. For a complete description of “normal” *Suspend* and *Suspend-to-Disk*, refer to *Chapter 4: Power*.

The second section selects the suspend method the computer will use when the battery enters the “low battery” level. This control does not take effect if the notebook can draw power from an AC power source or is attached to the docking station.

In addition to “normal” *Suspend* and *Suspend-to-Disk*, the Battery Low section has a third option, Warning Tone Only. Use this option only if you want the computer not to activate either suspend mode when the battery is low. You can also select this option to discharge the battery completely. Refer to *Chapter 4: Power, First-time Use and Storage* for details.

Refer to *Chapter 4: Power* for details of setting up *Suspend-to-HDD*.



Tip

If you want to use the *Suspend-to-HDD* function, you must setup *Suspend-to-HDD* partition *before* you partition and format your hard disk. Refer to *Chapter 4: Power*.



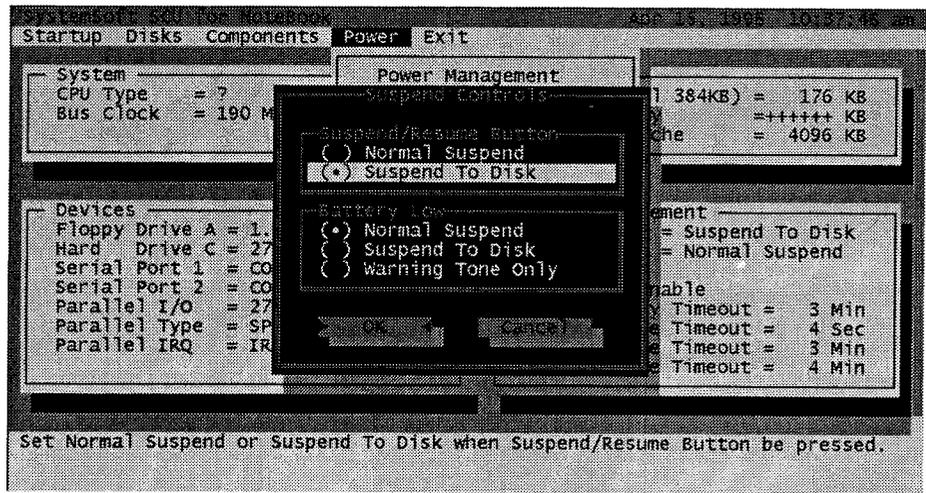
Note

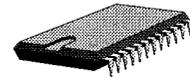
The  button does not work when the system is attached to a docking station.

Setup

3

SUSPEND CONTROLS
FIG. 3 - 19





RESUME CONTROLS

This menu controls how the system will be reactivated during “normal” *Suspend*. Both controls in this menu affect the system only when it is in “normal” *Suspend*, but not in other power saving modes (e.g. *Suspend-to-HDD*).

The Ring-in Resume feature resumes the computer when an incoming call (ring) is detected by an attached modem. When this feature is enabled, the system will monitor for a ring-in even if you deactivate the serial ports from the Components menu.

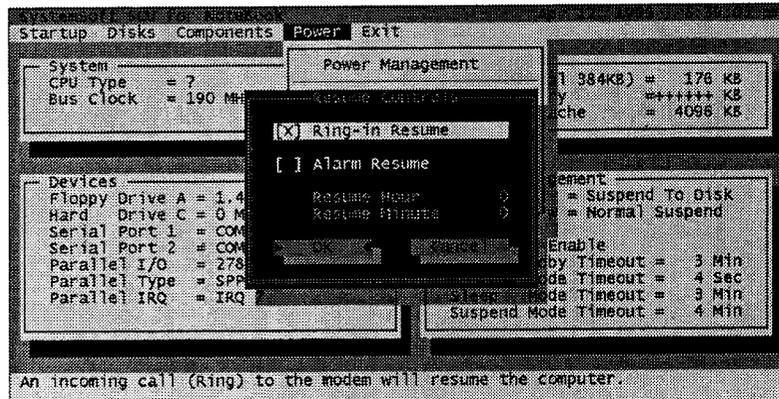
The Alarm Resume feature allows you to configure the computer to “wake-up” at the hour and minute of your choosing. The hour field uses the 24 hour system (e.g. 13 = 1 pm).



Tip

PC Card ports are also monitored if their drivers are set correctly. Refer to the driver’s manual for detail.

3



RESUME CONTROLS
FIG. 3 - 20

Setup



Note

Advanced Power Management's advanced setting will override these settings. Refer to *Chapter 4: Power about APM*.

3

TABLE 3 - 1
POWER SAVING SCHEMES

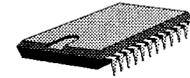
POWER SAVING SCHEMES

The bottom part of the Power menu shows the three preset power saving schemes and gives access to the Customize sub-menu. The following table lists the activation time for the different modes in each scheme.

Preset PM Scheme	Modes			
	Doze (after inactivity)	Sleep (after Doze)	Suspend (after Sleep)	Disk Standby (after HDD inactivity)
Low	4 sec.	5 min.	6 min.	5 min.
Medium	4 sec.	3 min.	4 min.	3 min.
High	4 sec.	1 min.	2 min.	1 min.

These preset schemes monitor for video activity as well as system activity. *HDD Standby* mode occurs after the time indicated unless the system has already gone into *Sleep* or *Suspend* mode.

The information bar along the bottom of the screen shows the values for *Doze*, *Sleep* and *Suspend* modes for each selected option.



POWER SAVING SCHEMES

FIG. 3 – 21

Systemsoft SCS for Notebooks Apr 13, 1996 5:40:43 pm

Startup Disks Components **Power** Exit

System CPU Type = 7 Bus Clock = 190 MHz	Power Management Suspend Controls Resume Controls	RAM (384KB) = 176 KB System Memory = ++++++ KB Cache = 4096 KB
Devices Floppy Drive A = 1.44 MB Hard Drive C = 0 MB Serial Port 1 = COM 1, 3F8, IRQ 4 Serial Port 2 = COM 2, 2F8, IRQ 3 Parallel I/O = 278 Parallel Type = SPP Parallel IRQ = IRQ 7	<input type="radio"/> Low Power Saving <input checked="" type="radio"/> Medium Power Saving <input type="radio"/> High Power Saving <input type="radio"/> Customize	Management PM Always Enable Disk Standby Timeout = 3 Min Doze Mode Timeout = 4 Sec Sleep Mode Timeout = 3 Min Suspend Mode Timeout = 4 Min
[Doze Mode : 4 Sec] [Sleep Mode : 3 Min] [Suspend Mode : 4 Min]	Set power saving to medium settings (moderate performance, moderate battery life)	

Setup



Advanced Users

Doze, Sleep, Suspend modes are activated in this order. If a mode is disabled, the modes after it are also disabled (grayed out). For example, if you disable *Sleep Mode Timeout*, *Suspend Mode Timeout* is also disabled and shown in gray.

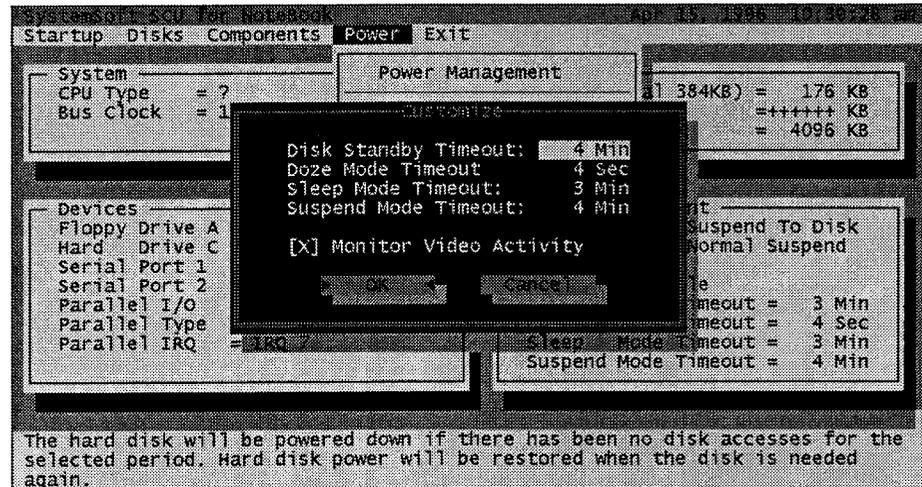
CUSTOMIZING POWER SAVING

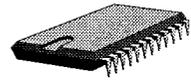
FIG. 3 - 22

POWER SAVING SCHEME - CUSTOMIZE

You can use this menu to change all of the power saving values.

Use **Tab** to highlight each field in turn. Press the spacebar to change a field's setting or view its options. Use the arrow keys to scroll through and select an option. Press **Enter** to confirm your setting.





Monitor Video Activity – If you want the system to check for video activity as it does for the keyboard or the mouse, enable this 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).

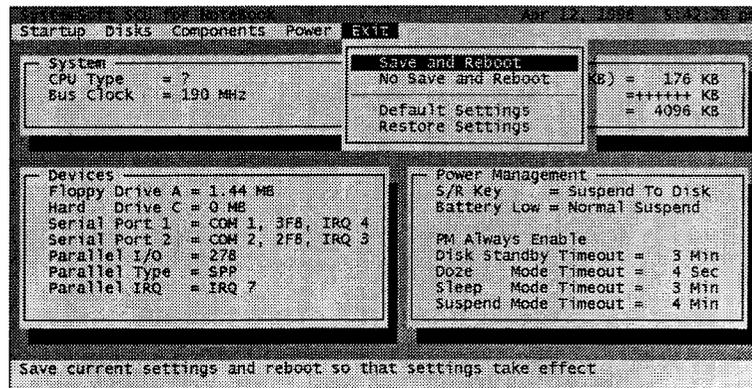
When you are finished, select **OK** to go back to the Power menu.

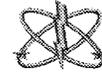
EXIT MENU

This menu has four items:

- Save and Reboot Use this to save all the settings made in the other menus and reboot the computer making the changes (if any). *Setup* will ask you to confirm before it reboots.
- No Save and Reboot Use this to ignore any changes made in the other menus and reboot the computer without making any changes. *Setup* will ask you to confirm before it reboots.
- Default Settings Use this to load the default settings, and undo any changes you might have made in the other menus. *Setup* will ask you to confirm before it wipes out your changes.
- Restore Settings Use this to load the settings you had when you started *Setup*, and undo any changes you might have made in the other menus this time. *Setup* will ask you to confirm before it goes back to the previous settings.

EXIT MENU
FIG. 3 - 23





4 Power

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

The first part is concerned with power supply - the power adapter and battery pack. You should first review the system layout in *Chapter 2: Hardware*.

The second part of this chapter is about the power usage and management - how to get the most out of your battery pack. You should also refer to the power management section in *Chapter 3: Setup*.

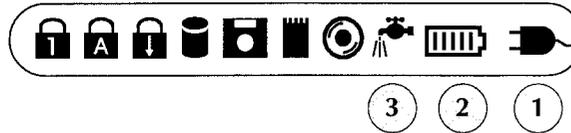
POWER STATUS ICONS

The status screen has three (3) icons to indicate the system's power status:  power adapter,  battery charge, and  power usage (discussed later in this chapter).

STATUS SCREEN ICONS

FIG. 4 – 1

1. power source
2. battery charge
3. power usage





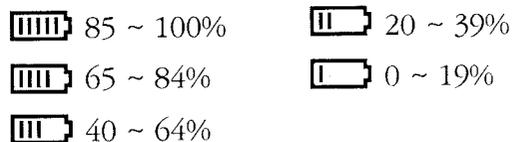
AC POWER ICON

When the  icon is visible, power is coming from the  (power adapter) port and the battery, if installed, is being recharged.

BATTERY CHARGE ICONS

There are two types of battery management functions available (depending on your battery type and notebook configuration).

The “smart” battery function (Notebook Configuration 1 only) has five (5) indications:



The proprietary battery function has three (3) indications:



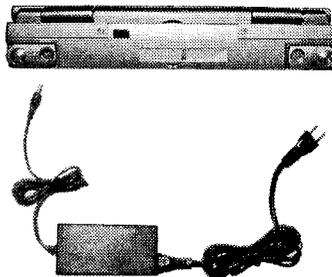


Warning

Only connect an approved adapter to the  connector. The wrong adapter could damage the computer.

CONNECTING POWER ADAPTER

FIG. 4 - 2



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.

USING AC POWER

The notebook comes with an AC power cord and a universal, auto-switching power adapter. You can use the adapter anywhere the power voltage is steady, between 100 and 240 volts. When you plug the power adapter into a power source and connect the power cord, the  icon appears on the status screen to indicate the system is receiving AC power. The proper procedure for connecting the power cords is as follows:

- Step 1. Plug the power cord into the power adapter.
- Step 2. Plug the power adapter into the  (DC-in) socket on the system's rear panel.
- Step 3. Plug the power cord into a grounded wall outlet.
- Step 4. Push in the power switch to turn the system on.

USING BATTERY POWER

The notebook comes with a nickel metal hydride (Ni-MH) battery pack. You can get a replacement pack from your dealer.

To avoid the chance of data-loss, you should save your work and turn the computer off before installing or removing battery packs.

FIRST-TIME USE AND STORAGE

One general property of Ni-MH battery packs is that they need to be discharged completely and then recharged after prolonged inactivity (about three weeks). When you receive your new computer, the battery pack may have been in storage or shipment for some time. We **strongly recommend** that you follow the steps below after you receive this computer or after you have not used the battery pack for a long period of time.

1. Install the battery pack into its compartment (if necessary). Refer to the Installing/Replacing the Battery Pack section in this chapter for details.
2. Make sure that the AC power source is plugged in. Refer to the Using AC Power section in this chapter for details. Turn on the computer and press **Ctrl-Alt-S** to enter *Setup*. (If you are unfamiliar how to do this, refer to *Chapter 3: Setup*.)



Advanced Users

You do not have to turn the notebook off to change the battery *provided* the notebook is already getting its power from the power adapter. Just make sure that power connection is not interrupted.

4

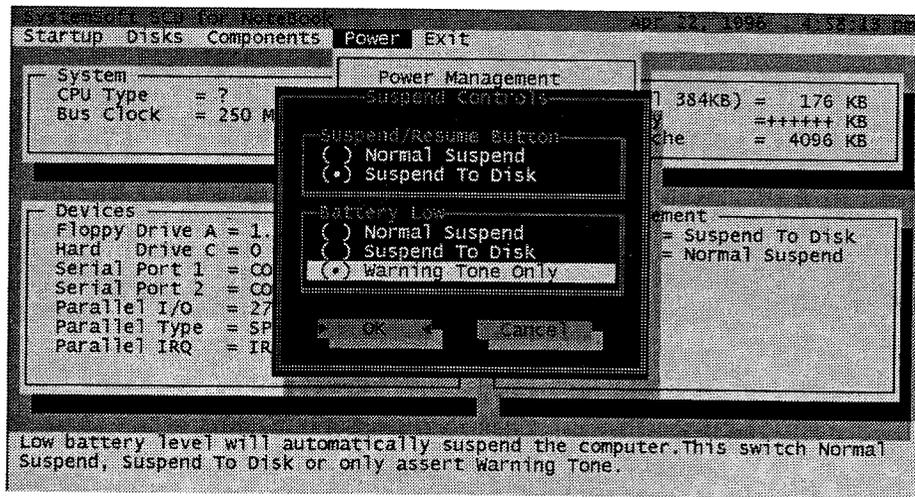


Note

You should follow this procedure regardless of whether or not the AC power source is plugged in during battery inactivity.

4
**DISABLING BATTERY LOW
 SUSPEND**
 FIG. 4 - 3

3. Open the Power menu and the Suspend Controls menu. In the Battery Low section, select the Warning Tone Only option. This prevents automatic *Suspend* when the battery is low.



4. Save the setting by choosing the Save and Reboot option in the Exit menu. Note: if your hard disk is not bootable, insert a bootable floppy disk in drive A: before rebooting.



5. After the system finishes booting, detach the AC power source. Discharge the battery completely by leaving the system on for about two (2) hours, until the system shuts itself down. Toward the end of the battery life, a set of warning beeps will sound for two minutes. Ignore the beeps and let the battery continue to discharge.
6. After the system shuts itself down, charge the battery by plugging in the AC power source. Leave the system off while charging. Charge the battery until the  icon appears on the status screen. The approximate charge time is two (2) hours. Refer to the Charging the Battery Pack section in this chapter for details.
7. Turn on the computer and press **Ctrl-Alt-S** to enter *Setup*. Open the Suspend Controls menu in the Power menu. Re-establish your preferred suspend method in the Battery Low section. Save the setting and reboot.

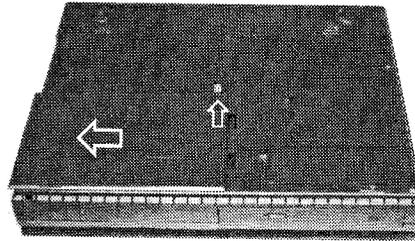
If you have any question regarding a Duracell battery pack, run the DR36.EXE file on the *CD-ROM Driver* disk which came with your system for a list of Duracell service centers.

INSTALLING/REPLACING THE BATTERY PACK

The battery pack is packed separately from the notebook. To install it, follow these steps.

OPENING BATTERY COMPARTMENT

FIG. 4 - 4



Step 1. Turn the notebook upside down and open the battery pack compartment by releasing the latch and sliding the cover to the right.

Step 2. Remove the used battery by pulling the ribbon-tab.

Step 3. Remove the battery from its packaging.

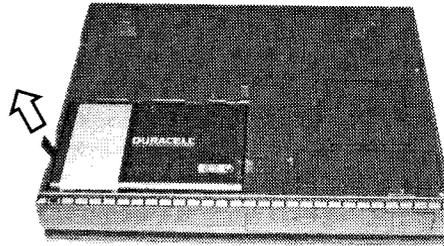
Step 4. Angle the battery into the slot so that the notebook's terminals slide into the slots in the battery pack.

Make sure the battery rests *on top* of the ribbon-tab inside the compartment. You can then take the battery pack out of its compartment by pulling up on the ribbon-tab.

Step 5. Replace the compartment lid and secure its latch.

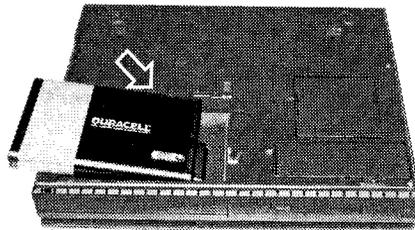
REMOVING THE BATTERY PACK

FIG. 4 - 5



INSERTING A NEW BATTERY PACK

FIG. 4 - 6





CHARGING THE BATTERY PACK

With the battery installed, the lines in the  icon on the status screen will disappear as the battery is exhausted. If only one line remains, *don't wait - save your work immediately* and either plug in the power adapter and/or replace the battery pack.

To charge the battery, plug the system into a power source. The  icon appears to indicate the system is receiving AC power. If you charge the battery with the system off, the  icon appears to show that the battery is charging. When you turn on the system, the icon corresponding to the actual battery charge level appears. If something goes wrong during the charging process, the  icon will blink. If this happens, try another battery pack. If the problem persists, consult your dealer or service center.

For optimal battery performance, you should always charge the battery to full capacity. Partially charging the battery is not recommended.

Generally, the battery charge time from empty to full is about two (2) hours if the computer is off, and four (4) hours when the computer is on.



Advanced Users

Unlike a Ni-Cd battery, a Ni-MH battery does not suffer from the "Memory Effect". Your system comes with a Ni-MH battery.



Tip

If you don't have time to charge the battery fully, to ensure the battery has enough power to complete the *Suspend-to-HDD* process, you must charge the battery to at least the  level.

**Warning**

If you haven't set up the system for Suspend-to-HDD, or if the space reserved for the Suspend-to-HDD isn't large enough, the system will default to "normal" Suspend mode and your unsaved data could be lost when the power is turned off.

LOW BATTERY WARNINGS

When the battery is low, a set of warning beeps will sound. When you hear these low battery beeps, *save your work immediately* and plug in the power adapter. If you don't have access to an AC power source, shut down the system and replace the battery pack.

For the smart battery management function, the beeps start when the battery sends a low-battery signal to the system. For the proprietary battery function, the beeps start when the battery reaches the  level triggered by the low-battery signal. The system enters *Suspend* mode two minutes after the beeps start. The frequency of the beeps increases as the time to suspend approaches. At one minute before suspension, the warning beeps sound every four seconds.

When the beeps stop, the computer goes into *Suspend* mode (if you have not plugged into an AC power source). If you have selected the Suspend to Disk option in the Battery Low section of the Suspend Controls menu in *Setup*, the system will first save the system status information to the HDD and then turn itself off.

POWER USAGE

The status screen indicates four power usage modes with varying power saving schemes:

- | | | |
|--|-----------------------|--|
|  | <i>Full-on</i> | The system is running at full power. |
|  | <i>Doze</i> | System clock slows to 40MHz. CPU enters stop-grant mode.
To activate: use <i>Setup</i> to set the time-out. |
|  | <i>Sleep</i> | System clock slows to 32MHz and the LCD turns off. HDD goes to sleep and CPU enters stop-grant mode.
To activate: use <i>Setup</i> to set the time-out after <i>Doze</i> mode. |
|  | <i>Suspend</i> | CPU clock stops, the LCD turns off, selected peripherals turn off, and the HDD goes to sleep.
To activate: use <i>Setup</i> to set the time-out after <i>Sleep</i> mode, or press the ⏻ button. |
| (no icon) | <i>Suspend-to-HDD</i> | Suspend information is written to the HDD then the system shuts down.
To activate: enable <i>Suspend-to-HDD</i> in <i>Setup</i> and press the ⏻ button. |

Refer to *Chapter 3: Setup* for setting up these modes.



Advanced Users

The Advanced setting in *DOS/Windows APM* does not use the *Doze* mode.



Tip

If *Suspend-to-HDD* is enabled for the ⏻ button and you want to activate it when the system is in *Suspend* mode, you need to press the ⏻ button to deactivate *Suspend* mode and then press the ⏻ button again to activate *Suspend-to-HDD*.



Advanced Users

Suspend-to-HDD is not time-out dependent. It only depends on power status or the ⏻ button.



Advanced Users

The ⏻ (suspend) button does not work when the computer is plugged into a docking station. However, the power management control scheme in the *Setup* program will continue to work.



Warning

If the system is in Suspend mode, a scheduled event, e.g. a scheduled fax session, will not deactivate Suspend mode and, therefore, will not work. To make the scheduled event work, you must setup a Alarm Resume time that wakes up the system before the scheduled event.

SUSPEND MODE

This is the notebook's most efficient power-saving state. The system can enter *Suspend* mode in one of several ways:

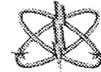
- the system detects low battery power (refer to *Chapter 3: Setup*)
- the system reaches the time-out for all the devices controlled by the *Power Management Setup* (refer to *Chapter 3: Setup*)
- you press ⏻ on the left panel of the computer

Any of the following will deactivate the *Suspend* mode:

- ⏻ Press ⏻ again.
- Resume Alarm The clock reaches the time set for the Alarm Resume feature in *Setup*.
- ==== If the system is operating on battery power, plugging in the AC power supply will also automatically deactivate the *Suspend* mode.

Note that the S/R button is disabled for a few seconds after you press it to resume the system from *Suspend*. This is to allow time for the system to resume and to stabilize.

Refer to *Chapter 3: Setup* for setting up a Alarm Resume time.



SUSPEND-TO-HDD MODE

This is the alternative to the “normal” *Suspend* feature. When activated, it performs all of the same functions *plus* saving your current work by storing it to a specially-reserved area in your hard disk. The suspended work will appear the next time you power-up the system.

This function’s advantage is that you can return to where you left off, and avoid the trouble of re-loading applications and opening files. You are also protected against a total loss of power, which would wipe out the contents of the DRAM.

When *Suspend-to-HDD* is activated by either the low battery signal or the  button, the system starts by sounding a beep to indicate your work is being stored to your hard disk. It ends by turning the system off.

To deactivate *Suspend-to-HDD* mode, press the  (on/off) button to turn the system back on.

Refer to *Chapter 3: Setup* for details on how to set the *Suspend-to-HDD* function.



Warning

If you haven't set up the system for Suspend-to-HDD, or if the space reserved for the Suspend-to-HDD isn't large enough, the system will default to "normal" Suspend mode and your unsaved data could be lost when the power is turned off.



Advanced Users

Suspend-to-HDD does not depend on your operating system. In fact, the *Suspend-to-HDD* partition must be setup *before* you install the operating system.

SETTING UP FOR SUSPEND-TO-HDD

Maximizer's 0VMAKFIL utility is used to reserve a section of your hard disk for the *Suspend-to-HDD* records. The 0VMAKFIL.EXE file is found on the *Suspend to Disk Driver* disk which accompanies your computer. It creates a separate partition on your pre-formatted hard disk to store *Suspend-to-HDD* information.

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 the minimum 16 MB of DRAM and 2 MB of video RAM, you should reserve *at least* 19 MB. If you have or plan to have the maximum 48 MB of DRAM and 2 MB of video RAM, you should reserve *at least* 51 MB. The extra MB is for data from other chip registers.

If you add more RAM to the system, make sure that the *Suspend-to-HDD* partition is large enough to accommodate the additional RAM. Otherwise, you need to repartition your hard disk to redo the *Suspend-to-HDD* partition. Refer to the next subsection. If you are not sure how to do this, contact your dealer.

PREPARING THE PARTITION

The partition for *Suspend-to-HDD* can only 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. If you are setting up a new (unformatted) hard disk, follow these steps:

1. Boot up the computer from a bootable disk.
2. Insert the *Suspend to Disk Driver* disk in drive A:.
3. Run 0VMAKFILE.EXE
for your desired partition size a:> **0vmakfil_/p<Mbytes> [Enter]**
e.g. for a 19 MB size file a:> **0vmakfil_/p19 [Enter]**
4. 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" 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" partition.



Tip

Since this process requires you to re-configure your HDD, you should make your *Suspend-to-HDD* partition large enough to accommodate the largest amount of memory you expect to have.



Warning

If the reserved hard disk space is not large enough, the system will enter the "normal" Suspend mode instead of the Suspend-to-HDD mode .



Warning

You must run the utility `0vmakfil/pw` in order to use Suspend-to-HDD correctly whenever you install a different hard disk that has a Suspend-to-HDD partition on it, or whenever a CMOS failure or Checksum failure has occurred.

If you want to install a *Suspend-to-HDD* partition on an already formatted hard disk, follow these steps:

1. Make sure everything you need on the HDD is backed up.
2. Use your operating system's partition utility to remove all the partitions (and thereby all the data) from the hard disk.
3. Boot up the computer from a bootable disk.
4. Insert the *Suspend to Disk Driver* disk in drive A:.
5. Run `0VMAKFILE.EXE`
for your desired partition size `a:> 0vmakfil/p<Mbytes> [Enter]`
e.g. for a 19 MB size file `a:> 0vmakfil/p19 [Enter]`
6. 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" 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" partition.



SUSPENDING TO HDD

Depending on the option you selected in Setup, Suspend-to-HDD can be activated by either low battery power or pressing the S/R ⏻ button. Once the *Suspend-to-HDD* function is activated, the system will make a starting beep to inform you the current work is being stored into the specially-reserved hard disk area. When it's finished, the system will shut down.

RESUMING FROM SUSPEND-TO-HDD

As soon as you turn the system on, it will return to the application that was running before it went into *Suspend*, and turn on all devices.

NORMAL BOOTING & SECURITY

If the computer is resuming from *Suspend-to-HDD*, it will bypass the normal bootup process, including any security checks.

OTHER POWER SAVING FEATURES

Using the Disk Standby Timeout option in *Setup*, you can set the HDD subsystem to go into a powerdown state. Like the regular *Sleep* mode, any activity will return the HDD to full power. However, if the system goes into *Suspend* mode first, then the HDD is forced to power down.

*Tip*

Use *APM's* "Standard" setting to get the benefits of both systems.

APM FUNCTION

(SOFTWARE-CONTROLLED POWER MANAGEMENT)

Advanced Power Management (*APM*) is the latest generation of power management software. It is designed to integrate power management capabilities to include coordination and cooperation between the operating system, applications, and the BIOS's power management features.

The computer's BIOS is automatically configured to allow *APM* to detect and immediately power down the system's CPU when it is inactive. You can access *APM's* functions from the Power Control icon in your operating system. For the *Windows* operating systems, this is located in the Control Panel menu. The *APM* graphically monitors battery power levels and allows you to select various configurations:

- Advanced *APM* controls and engages all power management functions.
- Standard *APM* supplements *Setup* power management settings.
- OFF All power management functions are disabled.

Refer to your operating system manual for more details on *APM* and to *Chapter 3: Setup* for information on power management schemes.

The next chapter is about hardware subsystems.



5 Subsystems

This chapter is about how to use the main hardware subsystems: keyboard, TouchPad, display (LCD & CRT), status screen, PC Card, hard disk drive (HDD), floppy disk drive (FDD), CD-ROM, and audio system. The locations of these subsystems are covered in *Chapter 2: Hardware*.

Whether you are an advanced user or a beginner, you should review this chapter, particularly before making any changes to the system's configuration. The software part of the setup for some subsystems has already been covered in *Chapter 3: Setup*.

Subsystems

KEYBOARD SUBSYSTEM

The keyboard emulates a full-sized extended AT-compatible keyboard. There are two areas: Type keys and Function keys.

TYPE KEYS

The **Tab**, **CapsLock**, **Shift**, **Backspace** and **Enter** keys, and all of the “light” keys correspond to similar keys on a typewriter.



KEYBOARD TYPE KEYS

FIG. 5 – 1
(the embedded numeric keypad is outlined)

EMBEDDED NUMERIC KEYPAD

This is a group of keys with an additional, numeric character. They form an embedded keypad comparable to the numeric keypad on an extended keyboard.

Press **NumLock** to toggle the embedded numeric keypad on and off. The  icon on the status screen appears when the embedded keypad is active.

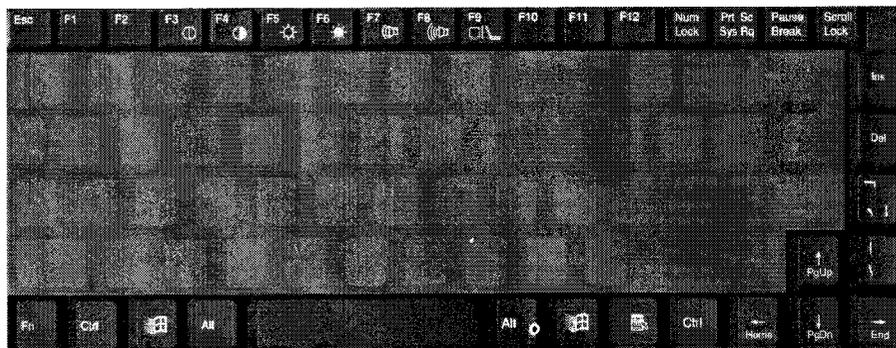
FUNCTION KEYS

The special Function keys are located around the edges of the typewriter keys. Many software packages use these keys for special features. This keyboard also includes the *Windows 95* keys. To find out more about these keys and their functionality, you should consult the manuals for your software applications.



Tip

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 keypad. Regular number keys won't work.



KEYBOARD FUNCTION KEYS

FIG. 5 - 2

Subsystems



Tip

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

TABLE 5 – 1
SPECIAL FUNCTION KEY
COMBINATIONS



Note

If your internal keyboard has the  icon on the **F10** key, ignore it. To manually activate *Suspend* or *Suspend-to-HDD*, you should use the S/R button on the left panel.

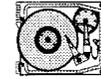
KEY COMBINATIONS

There are a few key combinations which control the notebook system:

Key Combination	Control	Effect
Fn + 	contrast down	reduces LCD image contrast (DSTN display only)
Fn + 	contrast up	increases LCD image contrast (DSTN display only)
Fn + 	brightness down	reduces LCD brightness
Fn + 	brightness up	increases LCD brightness
Fn + 	volume down	reduces notebook & docking station speaker volume
Fn + 	volume up	increases notebook & docking station speaker volume
Fn + 	CRT/LCD/TV	toggles display devices: CRT, LCD, CRT & LCD, TV*
Ctrl+Alt+Del	Reboot	initiates a warm reboot of the system
Ctrl+Alt+S	Setup	opens Setup utility – during the POST only

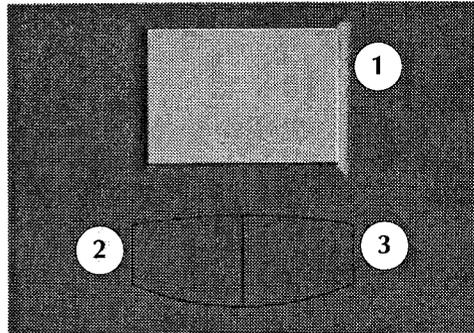
* Refer to the TV-out Jack section in *Chapter 6: Ports* for more details about the TV-out jack.

Note that if you are using an external keyboard, you need to use the **Fn** key on the notebook's keyboard and the function keys on the external keyboard to activate the key combinations.



TOUCHPAD SUBSYSTEM

The built-in TouchPad is a convenient mouse substitute and is software compatible with the IBM PS/2 mouse. It consists of a rectangular sensor pad and two buttons located below it. The left and right buttons function the same way as their counterparts on a 2-button serial mouse.



THE TOUCHPAD

FIG. 5 - 3

1. sensor pad
2. left "mouse" button
3. right "mouse" button

Subsystems



Advanced Users

It is possible that after you install the driver which comes with your serial pointing device the TouchPad is activated rather than the serial device. This is because there are many drivers on the market designed to activate a PS/2 type of pointing device before a serial pointing device. The TouchPad happens to be a PS/2 pointing device. Consult your serial device's documentation to see how to make it the first priority.

CONFIGURING THE TOUCHPAD

The TouchPad uses the PS/2 port which is enabled at the factory. You don't need to install a driver for it for the *Windows* environment. However, you must install a driver (if your dealer hasn't already done this for you) for the *DOS* environment. The TouchPad can use the "Microsoft, or IBM PS/2" mouse driver available with most operating systems. Optimized TouchPad software consisting of drivers for various operating systems is on the *TouchPad Driver for Windows & DOS* disk which came with the system. Refer to the *Software Manual* for more details about this software.

TOUCHPAD AND EXTERNAL POINTING DEVICE

You can use the TouchPad and a mouse connected to the PS/2 port simultaneously. For details refer to the  - PS/2 Port section in *Chapter 6: Ports*.

The  port (serial 1) accommodates a serial pointing device. However, in some operating systems, you cannot use a serial pointing device (for example, a serial mouse) and the TouchPad simultaneously since the TouchPad is a different kind of pointing device. To use an external pointing device, first enable it by attaching it to the  port and then configure it with a suitable driver as described below.



CONFIGURING AN EXTERNAL POINTING DEVICE IN DOS

To make your external pointing device work in the *DOS* environment, do the following:

- Step 1: Attach the serial device to the serial port.
- Step 2: Disable the TouchPad in *Setup*.
- Step 3: Install the driver that comes with your device (refer to the manual for the device).

To switch back to the TouchPad, do the following:

- Step 1: Detach the serial device.
- Step 2: Enable the TouchPad in *Setup*.
- Step 3: Disable the serial driver in the AUTOEXEC.BAT file.
- Step 4: Reboot the system.

CONFIGURING AN EXTERNAL POINTING DEVICE IN WINDOWS 3.1

To configure an external pointing device in *Windows 3.1*, do the following:

- Step 1: Attach the serial device to the serial port.
- Step 2: At *DOS* level, run *Windows'* SETUP.EXE in the Windows directory. Select the Mouse field and note the original PS/2 driver for future reference. Change the setting to the serial driver that comes with your device.
- Step 3: Save the settings and exit the SETUP program. Start *Windows*.
- Step 4: If you encounter a problem with the serial pointing device, disable the TouchPad in BIOS using *Setup*.



Tip

For information on modifying the AUTOEXEC.BAT file, refer to your *DOS* manual.



Tip

You can also use the "Genius serial mouse on COM1" setting.

Subsystems

To switch back to the TouchPad, perform these steps:

- Step 1: Exit *Windows* (if necessary).
- Step 2: Detach the serial device.
- Step 3: Enable the TouchPad in *Setup* (if necessary).
- Step 4: At *DOS* level, run *Windows'* SETUP.EXE in the Windows directory. Change the Mouse field back to the original PS/2 driver.
- Step 5: Save the settings and exit the SETUP program. Start *Windows*.

CONFIGURING AN EXTERNAL POINTING DEVICE IN WINDOWS 95

To configure an external pointing device in *Windows 95*, do the following:

- Step 1: Attach the serial device when the system is off.
- Step 2: Turn on the system and disable the TouchPad in *Setup*.
- Step 3: Start *Windows 95*. *Windows 95* will automatically configure the serial device. Insert the manufacturer drivers disk if required.

To switch back to the TouchPad, perform these steps:

- Step 1: Exit *Windows 95*.
- Step 2: Detach the serial device and enable the TouchPad in *Setup*.
- Step 3: Start *Windows 95*. *Windows 95* will automatically search for an available pointing device. The TouchPad is automatically enabled.

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



Tip

Windows 95 is capable of configuring both the TouchPad and the serial device and make them work simultaneously. To do this, do not disable the TouchPad in Step 2.

DISPLAY SUBSYSTEM

This notebook is equipped with one of two types of SVGA LCD screens: a 10.4", 11.3", or 12.1" active-matrix TFT color LCD, or an 11.3" DualScan (DSTN) passive-matrix color LCD.

These options are supported by a 32-bit video accelerator.

VIEWING ANGLE

To avoid glare and give you a maximum amount of flexibility you can open lid/LCD screen to an angle of approximately 160°.

RESOLUTION

Both TFT and DSTN models have the same display subsystem based on the Trident 9385 video chip from Trident Microsystems.

At system bootup, LCD resolution is automatically set to 640 x 480 pixels. You can use the supplied utility/driver to set the LCD resolution to 800 x 600 in *DOS* and *Windows*. For improved resolution visible only on an external monitor, you also need to install the video driver.



Warning

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

Subsystems



Advanced Users

If you are using a video card in the docking station, be sure to consult your docking station manual before you boot up. You should also consult the video card's documentation about making it the secondary display.

LCD DISPLAY AND EXTERNAL MONITOR

To switch between the LCD, CRT and simultaneous display, use the **Fn** +  key combination after you boot the computer. Refer to the *Software Manual* for information on how to setup the video drivers which come with the notebook.

The *Software Manual* also has information on the video resolutions available.



REDUCING POWER CONSUMPTION

Both the LCD's backlight and an external monitor consume a large amount of power. However, this energy drain can be reduced.

ACTIVATING LCD SLEEP FEATURE

You can configure the system to monitor the LCD for activity. If it's inactive for a specific period of time, the system automatically turns off power to the LCD and suspends the video signal to the external monitor. In the Power menu of the *Setup* utility, you can choose "High", "Medium", "Low", or "Customize" to set the suspend timer for the VGA and other subsystems. If you don't want the power management system to monitor VGA activity, turn off the Monitor Video Activity option in the Customize submenu. Refer to *Chapter 3: Setup* for a detailed description of these features.

CLOSING THE LCD DISPLAY PANEL

The close-cover switch is barely visible between the lid/LCD and the work panel. When the switch is activated (i.e. the lid/LCD closed), the system turns off the LCD backlight. If the switch is deactivated when the system is in *Doze*, *Sleep*, or *Suspend* mode, the system returns to *Full-on* mode. The LCD backlight also turns on if LCD or simultaneous CRT/LCD is used.

STATUS SCREEN SUBSYSTEM

The status screen displays information about the status of the system. It contains the following icons:



This appears when the embedded numeric (**NumLock**) keypad is on. Refer to the Embedded Numeric Keypad subsection.



This appears when the keyboard **CapsLock** is on. Refer to the Type Keys subsection.



This appears when you use **ScrollLock**. This is used by some applications.



This appears whenever the hard disk drive is accessed.



This appears whenever the floppy disk drive is accessed.



This appears whenever an installed PC Card is in operation. Refer to the subsection in this chapter.



This appears whenever a CD-ROM is accessed. The icon does *not* appear if you are playing an audio CD. Refer to the subsection in this chapter.



This icon indicates system status:  = Full on,  = Doze mode,  = Sleep mode and  = Suspend mode. Refer to *Chapter 4: Power*.



This icon indicates the battery's charge. Refer to *Chapter 4: Power*.



This icon appears whenever the system detects power from the adapter. Refer to *Chapter 4: Power*.

Subsystems



Advanced Users

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



Advanced Users

As of this publication, *Windows 95* provides its own socket drivers and recognizes Plug 'n Play PC Cards without additional drivers. Older, "legacy", cards still require their own drivers.

PC CARD SUBSYSTEM

The notebook comes with two (2) PC Card expansion sockets: **socket 0** (the upper socket) and **socket 1** (the lower socket). They are both Type III sockets. The PC Card sockets are backward compatible. For example, a Type III socket can handle a Type I, II, or III card. However, if you put a Type III card in the lower socket, the upper socket will be blocked. Therefore, we recommend putting the Type III card in the upper socket and a Type II card in the lower socket.

The bottom slot also accommodates ZV (Zoomed Video) Port standard cards which tie into the video subsystem to provide MPEG compatibility.

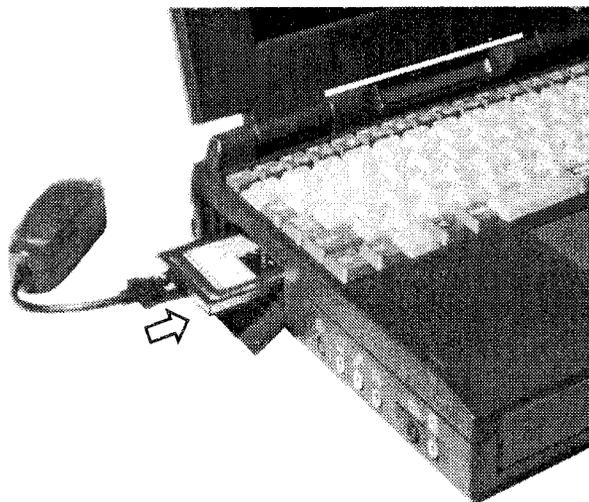
INSERTING A PC CARD

PC Cards require a set of drivers specific to your operating system: a socket driver to activate the PC Card hardware in the notebook, and a card driver specific to the card you're installing. When these are present, PC Cards can be inserted and removed while the system is on.

Depending on your operating system, I/O cards (e.g. a fax/modem) cannot be present in the socket when you want to warm boot the notebook.

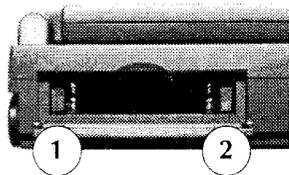
Refer to the *Software Manual* for more information about PC Card drivers.

Insert a PC Card into the socket until it locks in place. When the card is successfully inserted, the  icon on the status screen will flash once and the system will beep once. The icon will also appear as the card is accessed.



REMOVING A PC CARD

Press the eject button to remove the card. The system will beep twice when the card is being ejected.



INSERTING A TYPE I OR II CARD

FIG. 5 - 4



Warning

Some operating systems and PC Card drivers require a software dismount before you can safely remove a PC Card. Refer to their documentation.

5

PC CARD SOCKET EJECT BUTTONS

FIG. 5 - 5

1. socket "0" eject button
2. socket "1" eject button

Subsystems



Advanced Users

If the  icon stays on after you install a PC Card, check if the correct drivers are loaded.



Advanced Users

Windows 95 should automatically install the PC Card drivers and make the sockets "hot".

CONFIGURING A PC CARD

The first time you install a PC Card, the operating system must recognize it and configure the appropriate drivers. The next time you use the PC Card, the system will be ready for it so no additional configuration should be necessary. Refer to the *Software Manual* for a detailed description of the provided PC Card software.

Remember, the notebook conforms to the IBM AT standard so your PC Card must not conflict with the notebook system board IRQ channels and I/O addresses.

ZOOMED VIDEO PORT

The bottom PC Card slot in this notebook is a Zoomed Video (ZV) compliant PC Card socket. The ZV Port is a direct connection between the PC Card and the notebook's VGA and audio subsystems. As such, it works directly with the CD-ROM module to handle MPEG1 and CD-I features.

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



HDD SUBSYSTEM

The notebook's 2.5-inch hard disk comes in a plastic shell. You can remove the module as easily as a battery pack.

FORMATTING THE HARD DISK

A hard disk must be pre-formatted, partitioned, and formatted before use. Use the partitioning utility from your operating system (e.g. *MS-DOS*'s **fdisk** command) to pre-format and partition the hard disk.

To format it, use the formatting 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.



Advanced Users

If you want to use the *Suspend-to-HDD* feature, refer to *Chapter 4: Power* before you pre-format and partition the hard disk.

REPLACING/UPGRADING THE MODULE

Contact your dealer to purchase an additional hard disk drive or replace your current drive with an upgrade.

REMOVING THE HDD MODULE

To remove the hard disk drive module:

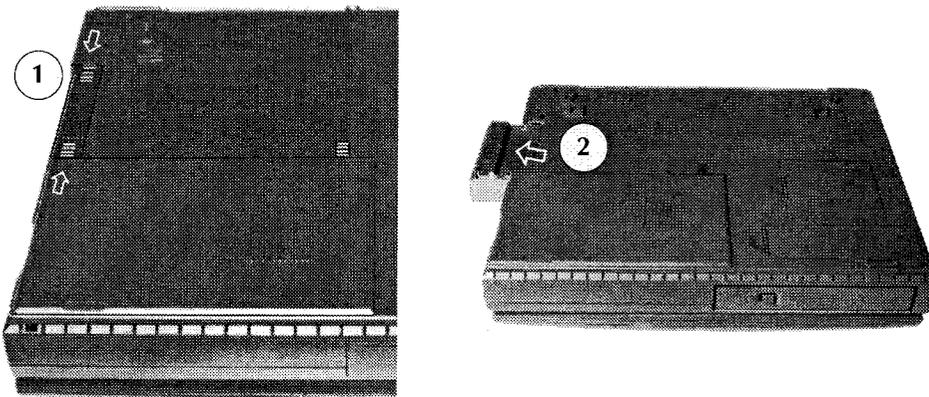
- Step 1. Turn the notebook upside down and place it on a stable surface.
- Step 2. *Slide* the latches *in* to release the module lock.
- Step 3 Gently *pull* the module out.

5

REMOVING THE HDD MODULE

FIG. 5 - 6

1. slide the latches in
2. pull the module out



INSTALLING THE HARD DISK DRIVE MODULE

To install the (new or upgraded) hard disk drive module, carefully slide the module back into the opening. Be sure that the latches are securely locked in position.

CONFIGURING THE UPGRADED HDD

After you replace or upgrade the hard disk, turn the system on and configure the newly-installed hard disk using *Setup*. Refer to *Chapter 3: Setup*.



Warning

Whenever you install a different hard disk that has a Suspend-to-HDD partition on it, you must run the command `0vmakfil _/pw` in order to use Suspend-to-HDD correctly.



Warning

The notebook automatically reads any hard disk 528MB or larger as using LBA Mode. If you are using a 528MB or larger hard disk from an older system which does not support LBA mode, this computer cannot read it properly. You will have to reconfigure Setup and reformat the hard disk.

FLOPPY DISK DRIVE

The notebook has a standard 3.5-inch 1.44MB floppy disk drive.

The system will automatically detect and allow you to read NEC formatted floppies (1.2 MB). Refer to Floppy Drive subsection in *Chapter 3: Setup*.

INSERTING/REMOVING FLOPPY DISKS

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

FDD Care

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

- Store disks away from magnetic fields and extreme temperatures. These conditions can damage your data. It's also a good idea to make backup copies of software and data.
- If a disk label is already on the disk, use a soft-tipped pen to write on the label. This prevents damage to the disk. Don't use a pencil - its carbon particles can rub off inside the drive.
- Do not remove any disk from the drive when the  icon 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.



CD-ROM SUBSYSTEM

The notebook features a built-in multispeed CD-ROM player.

Refer to the *Software Manual* on how to configure the drivers for the CD-ROM.

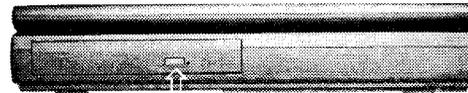
INSERTING/REMOVING A CD-ROM

To insert a CD-ROM, follow these steps:

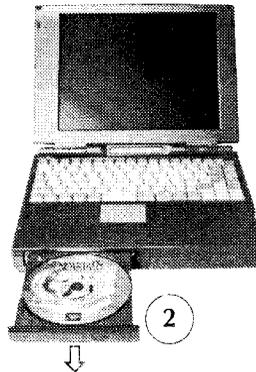
1. Push in the eject button to release the spring-loaded tray.
2. Gently pull the tray out to its fullest extension.
3. Insert your CD-ROM shiny-side down (like an audio CD).
4. Gently push the tray in until it clicks in place.

To remove the CD-ROM, press the eject button to release the tray.

The CD-ROM player uses the spring-loaded tray mechanism, which only opens when the power is on. However, you can use a paperclip to release the door when the power is off.



1



2

INSERTING A CD-ROM

FIG. 5 - 7

1. push in the eject button
2. pull the tray out

AUDIO SUBSYSTEM

The built-in audio subsystem, in combination with the CD-ROM, gives the notebook multimedia capabilities.

The audio subsystem is hardware compatible with all major PC sound standards including: *AdLib™*, *SoundBlaster Pro™*, and *Microsoft Windows Sound System™*.

Before you can use it, you must configure the audio system with the audio driver software included in your system package. Refer to the *Software Manual* for instructions on how to do this.

If you want to use another audio card (installed in the docking station or a PC Card slot), you must configure that card so it doesn't conflict with the built-in audio system's settings. Also note that an external card cannot interface with the built-in CD-ROM unit.

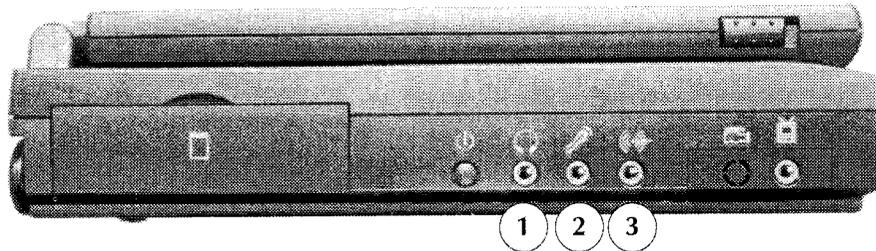
For more information, refer to the *Software User's Manual* and the manuals for the docking station and any external audio card.



PORTS

The  port can be used for a pair of headphones or small speakers. If you use this port, the built-in speakers are automatically disabled. The  port is for an external microphone only. If you use it, the built-in microphone is automatically disabled. The  (line-in) port accepts signals from other audio devices.

The **Fn** +  and **Fn** +  key combinations control the output from the built-in speakers and the  port.



Warning

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

AUDIO SUBSYSTEM PORTS

FIG. 5 - 8

1. speakers
2. microphone
3. line-in

Subsystems



Note

If you are using *Suspend-to-HDD*, make sure that the *Suspend-to-HDD* partition is large enough to accommodate the additional RAM. Otherwise, you need to repartition your hard disk to redo the *Suspend-to-HDD* partition. Refer to *Chapter 4: Power*.

TABLE 5-2
MEMORY OPTIONS



Warning

Some manufacturer's module specifications are not compatible with this system. Consult your dealer or service center before upgrading.

MEMORY

The memory subsystem has 16 MB of RAM built-in. You can upgrade this to as much as 48 MB. Upgrading involves installing DIMMs (Dual In-line Memory Modules) according to the following table:

Base	Addition	Arrangement	Total
16 MB	none		16 MB
16 MB	4 MB	4 MB in socket 1 and socket 2 is empty	20 MB
16 MB	8 MB	4 MB in socket 1 and 4 MB in socket 2 *	24 MB
16 MB	8 MB	8 MB in socket 1 and socket 2 is empty	24 MB
16 MB	16 MB	8 MB in socket 1 and 8 MB in socket 2 *	32 MB
16 MB	16 MB	16 MB in socket 1 and socket 2 is empty	32 MB
16 MB	32 MB	16 MB in socket 1 and 16 MB in socket 2 *	48 MB

* These configurations may run faster.

All additional modules must be:

- 72-pin
- JEDEC standard
- TSOP package
- 5-volt
- rated at 70ns or faster
- fast page mode

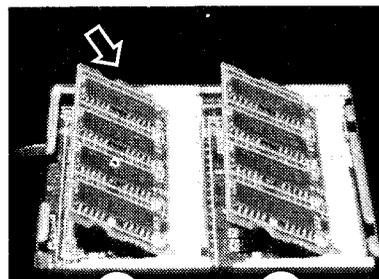
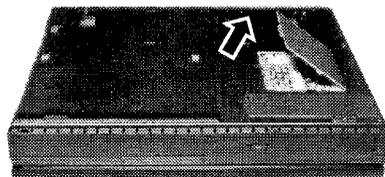
Check with your dealer to make sure installing RAM yourself doesn't violate your warranty.

After changing the RAM configuration, you must run *Setup* and save the setting so the new total can be registered in the CMOS.

INSTALLING DIMMs

If you are upgrading your memory system use the following installation procedure:

1. Make sure the system is turned off and you are wearing an antistatic wrist strap (available from most computer supply dealers) and you are in a dust/smoke-free environment.
2. Turn the computer upside down and place it on a clean, dry, level surface.
3. Remove the memory compartment panel.
4. Starting with the left slot, socket 1, insert the DIMM at about a 10° angle. Grooves on the side of the module allow you to insert it only one way. Make sure it is seated as far into the slot as it will go.
5. Gently push down on the module 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.



1

2



Warning

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

REMOVING THE MEMORY PANEL

FIG. 5 - 9

ANGLING IN THE DIMM

FIG. 5 - 10

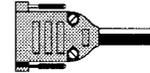
1. socket "1"
2. socket "2"

Subsystems

6. Install the second module in the same way (if necessary).
7. Replace the compartment panel.

The next chapter is about peripheral connections.





6 Ports

This chapter is about the notebook's expansion capabilities: the six ports on the rear panel for standard peripherals and the proprietary expansion port for the optional docking station. The NTSC/PAL TV-out jack on the left panel is also described here.

If you are an advanced user, most of this is familiar territory, but you should still take a look. This system has some unique features.

If you are a beginner, carefully read about each port *before* you attach anything to it. Some connections need additional setup.

To be safe, both the system and peripherals should be turned off before you connect them. Turn them on before you turn on the system.

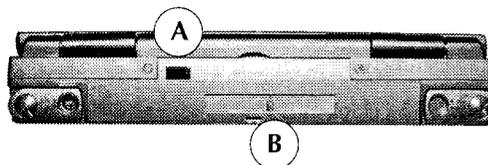
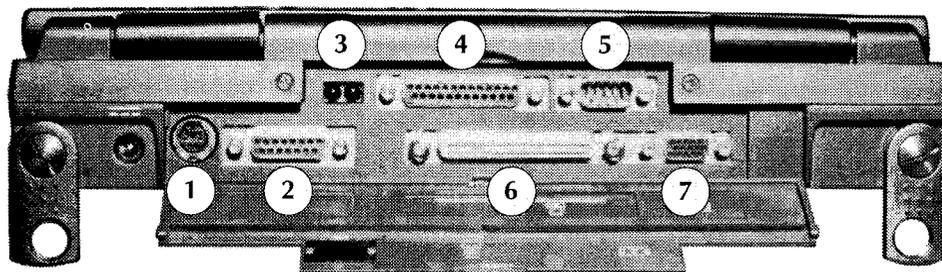
THE PORTS (REAR PANEL)

The notebook has six ports and a docking station connector on the rear panel.

REAR PANEL EXPANSION PORTS

FIG. 6 - 1

1. PS/2 port
2. game/MIDI port
3. IrDA serial port
4. parallel port
5. serial 1 port
6. docking station port
7. external monitor

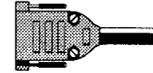


REAR PANEL UP

FIG. 6 - 2

- A. IrDA window
- B. double-doors for expansion port

These ports are concealed behind a hinged door. Flip it down to access them. There is a smaller, double sliding-door in front of the docking station port. When you connect to an optional docking station, you must close the main hinged door and connect through the sliding door.



– Serial 1 Port

The serial port, , uses a 9-pin connector. You can connect any serial device, such as a mouse, serial printer or modem to it. If your device has a 25-pin serial connector, you must use a 25-to-9 pin adapter. Many serial device vendors include an adapter in their packages.

Serial devices require both hardware and software installations. As you do the software installation, you must identify your external serial device as being on COM1. For instructions on software installation, consult the user's guides for the serial device and the software.

If you don't plan to use this port, you can save additional battery power by disabling this port in the Configuration menu of the *Setup*.

EXTERNAL POINTING DEVICE & TOUCHPAD

The TouchPad is a PS/2 device. If you want to use a serial device, you must configure your software to look for a serial device on COM1 or use a driver which only looks for a device on COM1. Refer to *Chapter 5: Subsystems* for instructions on how to do this.



Advanced Users

It is assumed that the default setting is used in *Setup*, where COM1 is assigned to Serial 1 Port.



Tip

Your operating system includes printer drivers for many printer models. You should consult your dealer for the most recent driver, as this can greatly affect the performance of the printer.



– PARALLEL PORT

This is a multimode parallel connection to which you can connect any parallel device. The most common use is with a printer or a LAN (Local Area Network) adapter.

Before you connect your device, check its manual to see which mode it can use. Then check the setting for Parallel Port (normally LPT1) in *Setup*. The notebook offers four:

SPP	Standard, bidirectional
EPP v1.7	Enhanced, version 1.7
EPP v1.9	Enhanced, version 1.9
ECP	Extended Capabilities

If in doubt, use the SPP mode.

You may also have to setup a device driver for the peripheral. You should refer to the peripheral's manual for this information.

If you don't plan to use this port, you can save additional battery power by disabling this port in the Configuration menu of the *Setup*.



IrDA Serial Port

This IrDA serial port allows an infrared connection to any device with a similar port. It conforms to the HPSIR and ASKIR standards for IrDA ports. The most common device using this connection is a serial printer or modem.

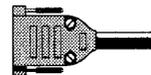
As with , devices using this port require software installations. As you do the software installation, you must identify your serial device on this port as being on COM2. For instructions on software installation, consult the user's guides for the serial device that this port is going to work with, and any software which will use that device.

To save additional battery power or to assign the COM port to a PC Card device, you can disable the IrDA port in the Components menu in *Setup*.

– EXTERNAL MONITOR

This port can be used by any color VGA monitor with a standard VGA connector. Refer to *Chapter 5: Subsystems* and the *Software Manual* for more details on the resolutions supported.

The **Fn** +  key combination cycles through the display types selecting either LCD, CRT, LCD/CRT, or TV. If your screen is dark when you boot up, try toggling the **Fn** +  combination.



Note

The range of the IrDA port depends on the device and application you are using.



Advanced Users

If you connect the system to a docking station, the IrDA port is disabled and routed to the docking station as a regular serial port (COM2).



Advanced Users

It is assumed that the default setting is used in *Setup*, where COM2 is assigned to the IrDA port.



Warning

This system does not support hot docking. Make sure you turn the system off before you connect it to a docking station. You should also read the docking station's manual for the detailed procedure.



– EXPANSION/DOCKING STATION PORT

This port connects to the optional docking station*. When connected, your notebook computer can become the center of a larger and more powerful system. In addition to duplicating the notebook's ports, the docking station may have:

- expansion slots
- additional PC Card slots
- a battery charger

Refer to the optional docking station's user's manual for details on proper connecting and operating procedures.

- * Docking station availability and features are subject to change. Consult your dealer for more information.



– GAME/MIDI PORT

This port is a standard interface for a joystick or for a MIDI connection. With it, you can have full control over interactive games. Used as a MIDI port, this allows the notebook to become the center of a multimedia studio.

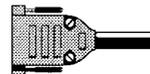


– PS/2 PORT

This is a PS/2 type socket. It can connect to an external keyboard or a mouse. If you don't have a 6-pin keyboard connector, you can use a 5-to-6 pin adapter cable. If you want to use a mouse on this port, you should make sure that it is a PS/2 mouse or a PS/2 compatible mouse with a PS/2 adapter cable. Check your mouse manual for information.

The system automatically detects an attached external keyboard or a mouse and enables it as well as the notebook's own keyboard or TouchPad. However, for those functions requiring the **Fn** key, you will still need to use the notebook's keyboard. If you connect a mouse to this port, it will use the same drivers as the TouchPad.

You should only use one type of device on the PS/2 port per system session. For example, if you connect a PS/2 mouse to this port, you cannot detach the mouse and connect a keyboard to the port during the same system session. Doing so will cause a system conflict. If you want to use a different device, you must shut down and restart the system. However, you can detach and reconnect the same device during a system session.



Warning

The default setting in Setup makes all of the ports "hot" whenever the computer is on. Depending on the peripheral, this could cause a problem when you attach it. You should check with your peripheral's manual before you make a connection.



Warning

Read this section thoroughly before you connect the system to a TV.

TV-OUT JACK (LEFT PANEL)

The TV-out jack on the left panel is NTSC/PAL compatible. With this jack, you can use a regular TV as an alternate display. This can be useful when you play a video CD or give presentations. Included in the package is a cable which you can use to connect this port to your TV. The cable has two output connectors: a standard RCA-type AV connector and an S connector.

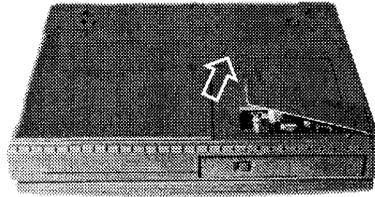
Before you connect the jack to a TV, you should determine the standard, NTSC or PAL, your TV supports, and which connector, AV or S, your TV can use. This information should be available in your TV's manual. The Glossary has brief descriptions of NTSC and PAL standards. If your TV takes both AV and S connectors, use the S connector for better display quality.

In addition to the physical connections described above, you must make sure that you have installed the video driver that comes with the system. This is important because you will use the driver to select between NTSC and PAL standards.

AV/S CONNECTOR SWITCH

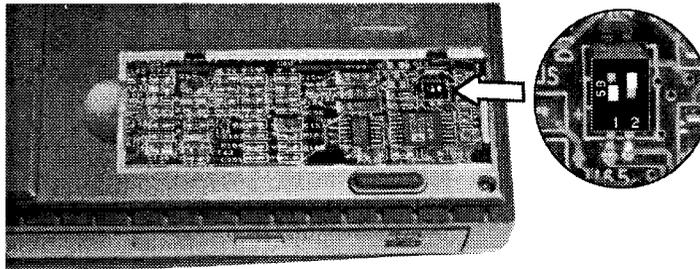
After you decide to use the AV or S connector, you must make an adjustment to the system. This switch is visible when you open the AV access panel on the bottom panel and is located on the right. To adjust the switch, do the following:

1. Make sure the system is turned off and you are in a dust/smoke-free environment.
2. Turn the computer upside down and place it on a clean, dry, level surface.
3. Remove the AV access panel.
4. Locate a small switch on the right side of the compartment.



REMOVING THE AV ACCESS PANEL

FIG. 6 - 3



LOCATING THE SWITCH

FIG. 6 - 4



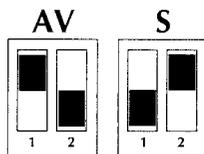
Warning

Do not touch any electronic component. Even the cleanest hands can leave oils which may attract corrosive particles.

Ports

SWITCH SETTINGS

FIG. 6-5



5. Use a paperclip to set the switch according to the diagram.
6. Replace the compartment panel.



Warning

Use these two settings only. Other combinations may damage the system.

When the switches are set, you can proceed to make the connection. Use the video driver to select NTSC or PAL standard. Refer to the *Software Manual* for the video driver.

SWITCHING TO THE TV

There are two ways to switch the display device to your TV: the video driver or the **Fn + ** key combination. Refer to the *Software Manual* for more information on the video driver. The chart below details the key combination's parameters and sequence.

TABLE 6-1
TV-OUT KEY COMBINATION

TV Standard	LCD Resolution	Sequence	Comment
NTSC	640x480	LCD > CRT > LCD+CRT > TV > [LCD+TV]* (back to LCD)	* not available with an SVGA LCD panel
NTSC	800x600	LCD > CRT > LCD+CRT (back to LCD)	TV not supported
PAL	640x480 or 800x600	LCD > CRT > LCD+CRT > TV > [LCD+TV]* (back to LCD)	* not available with a VGA LCD panel



Appendix A

Specifications

NOTICE

The specifications listed in this section are for reference only. They are subject to change at the manufacturer's discretion and without notice.

Specifications



Warning

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

SYSTEM SPECIFICATIONS

CPU

Intel *Pentium*® series (SPGA package)
Pentium 90 or better

MEMORY

cache

L1: CPU
L2: 256 KB synchronous SRAM

RAM base

16 MB standard, 64-bit addressing

RAM expansion

2 small outline DIMM sockets (72 pin)
DIMM sizes: 4 MB, 8 MB, 16 MB
standards: JEDEC, TSOP package, 5-volt
modes: fast page
speed: 70ns or faster
use: singly or identical pairs
maximum expansion: 48 MB

BIOS

256 KB Flash ROM
support: Plug 'n Play, LBA, APM
2-level security password, suspend-to-HDD, virus alert
auto HDD detect, auto 3-mode FDD detect



VIDEO

chipset	Trident 9385 (standard drivers)
memory	2 MB (non-upgradable)
architecture	32-bit PCI local bus with Windows Acceleration
display	TFT (active matrix) LCD, resolution: 800x600 with 256 colors or 640x480 with 256 colors DSTN (passive matrix) LCD, resolution: 800x600 with 256 colors or 640x480 with 256 colors

DRIVES

HDD	2.5", 19mm max. height, PCI local bus IDE interface
FDD	3.5", 1.44 MB, with 3 Mode support (Japanese 1.2 MB)
CD-ROM	multi-speed, full size (5.25", 120 mm) ATAPI interface tray-loading mechanism, access time below 350 ms CD, CD-ROM, MPEG1, CD-I ready

I/O

Serial 1	serial port (9-pin, 16C550 compatible)
Serial 2	serial port (infrared, IrDA 2, SIR, ASK compatible)
game/MIDI	game/MIDI port (15 pin)
printer	parallel port (25-pin, bi-directional) SPP, EPP v1.7/v1.9, ECP v1.7
CRT	external monitor (15-pin VGA)
TV-out	NTSC/PAL switchable, AV and S connectors support
PS/2	external keyboard or mouse

Specifications

expansion proprietary docking station (176-pin, supporting PCI local bus)
PC Card two Type III slots
PC Card 2.1 compliant
ZV (Zoomed Video) Port support (bottom slot only)

AUDIO

chipset OPTi 930 (standard driver)
type 16-bit stereo
16-bit digital-to-analog/analog-to-digital converter
16-bit & 8-bit digitizing in stereo and mono mode
sampling max. record & playback up to 48 KHz stereo (WAVE audio)
synthesizer 20-voice FM music (Yamaha OPL3 FM technology)
compatibility AdLib™, SoundBlaster Pro™, MPU-401,
MS Windows Sound System™
interface speakers (phones), microphone, line-in
built-in: 2 speakers, microphone
0.5 watt/channel stereo power amplifier

INTERFACE

keyboard 86-key with embedded numeric keypad
OADG with embedded numeric keypad (Japanese)
pointing device PS/2 TouchPad (built-in), MS-mouse compatible



POWER SYSTEM

adapter	universal, auto-sensing switching input: 100-240VAC @50- 60Hz output: 19VDC, 2.37A power: 45W
system	rating voltage: 19VDC maximum current: 2.0A
battery pack	Duracell DR-36 Nickel-Metal Hydride type (Ni-MH) “smart battery” with intelligent charging control circuit and battery gauge on battery pack battery capacity: 2400mA/12VDC
charge time	two (2) hours (system off) / four (4) hours (system on)
life per charge	approx. 85 minutes (based on an Intel Pentium 75 MHz CPU, running “ <i>Rundown</i> ” software in the <i>DOS</i> operating system)
management	BIOS control, APM ver 1.1 levels: full-on, doze, sleep, suspend/suspend-to-HDD (0 volt)



Note

Actual battery life per charge may differ from this figure. It will vary depending on the condition of the battery, the environment, setup, and working habits.

A

Specifications

PHYSICAL

dimensions	299mm(w) x 232mm(d) x 54mm(h)
weight	3.6Kg / 7.9 lbs (with battery)

ENVIRONMENT

operating temp.	10°C to 35°C
storage temp.	-10°C to 60°C
operating humidity	20% to 80%, non-condensing
storage humidity	10% to 90%, non-condensing

*ACCESSORIES/OPTIONS**

drivers for: CD-ROM, TouchPad, PC Card, video, audio
user's manuals for hardware, system software, bundled applications
expansion DRAM (DIMM) module(s): 4MB/8MB/16MB
AC power adapter
car adapter
carrying bag

* options may not be immediately available and/or may be standard accessories depending on your package.



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, the system still won't cooperate, try turning it off for a few minutes and then rebooting. You will lose any unsaved data, but it may start working again. Then call your dealer or service representative.

GETTING STARTED

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

POWER

You turned the power on but nothing happened.

possible cause: Battery missing/incorrectly installed

indicator: Check the status screen. If you don't see a battery icon, , then the battery may be missing or incorrectly installed.

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

possible cause: Low battery

indicator: The status screen shows the low battery indicator icon, .

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



- possible cause: *Suspend-to-HDD* is activated
- indicator: The status screen is blank.
- solution: Turn the computer on. 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 fully takes about four (4) hours if the computer is in use, about two (2) hours if it is turned off.

You are losing battery power too quickly.

- possible cause: The system is using too much power.
- indicator: The battery icon is moving from  to  too quickly.
- solution: Go into *Setup* (see *Chapter 3: Setup*), 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 4: Power, First-time Use and Storage*.

Troubleshooting

- possible cause: The battery has a defect or has become defective.
- indicator: The battery icon is moving from  to  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 3: Setup* and *Chapter 4: Power*). Make sure the notebook is properly ventilated and the fan port is not blocked. If this doesn't cool it down, put the system into *Suspend* mode or turn it off for an hour.

DISPLAY

Nothing appears on the screen.

- possible cause: The system is in a power saving mode.
- indicator: The power status icon has two or less drips: , , .
- solution: Press a key on the keyboard. If that doesn't work, press the  (suspend) button.



- possible cause: The screen controls need to be adjusted.
- solution: Toggle the screen control key combinations (see *Chapter 5: Subsystems, Key Combinations*).
- possible cause: The computer is set for a different display.
- solution: Toggle the screen display key combination (see *Chapter 5: Subsystems, Key Combinations*). If this works, the next time you bootup you should go into *Setup's* Startup menu and change the Boot Screen setting. (see *Chapter 3: Setup*). If an external monitor is connected, turn it on.

The screen is flickering.

- possible cause: The vertical refresh rate is insufficient.
- solution: (1) Avoid using the Simultaneous display mode. Use LCD only or CRT only.
- (2) Switch to a lower resolution and/or fewer colors.

The screen images aren't clear.

- possible cause: The screen controls need to be adjusted.
- solution: Toggle the screen control key combinations (see *Chapter 5: Subsystems, Key Combinations*).

Troubleshooting

possible cause: The viewing angle of the LCD is bad.
indicator: The screen appears shiny or too dim.
solution: Adjust the position of the LCD. LCDs are designed to be viewed “straight on”. If the angle is wrong, you may see glare from the screen’s backlight.

possible cause: The screen is dirty.
indicator: The screen images are blurry.
solution: Clean the screen using a soft, clean dry cloth. Many cleaning solutions can damage the LCD surface so you should follow the precautions outlined in the *Preface*. Try to avoid touching the screen itself. Even the cleanest hands can leave oils which attract contaminants.

possible cause: The screen is suffering from burn-in.
indicator: The screen has ghost images, even when it’s off.
solution: This problem is usually associated with monitors. Use power saving options (see *Chapter 3: Setup*) to turn off the LCD. You can also use a screen-saver which can help protect an attached monitor.

possible cause: With the system connected to a TV, the TV does not display or displays garbage.
solution: Check which standard, NTSC or PAL, your TV uses. Also, make sure that you have set the AV/S connector switch correctly. Refer to *Chapter 6: Ports*.



OPERATION

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

- possible cause: The hard disk is not recognized.
- indicator: The system cannot boot from the hard disk.
- solution: 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 Custom option to manually adjust the parameters if they are not the same as the original settings.
- solution: This system automatically assumes that any hard disk 528 MB or larger is formatted using "LBA" mode. Some older systems do not use LBA mode. If you still want to use that hard disk, you must enter *Setup*'s Hard Drive section and identify the hard disk. Next, you will have to reformat. If you need to retrieve data from the hard disk, try using a file transfer utility from an older system.

The system freezes.

- possible cause: The system's power saving features have timed-out.
- indicator: The LCD power status indicator has two or less drips.
- solution: Press the  (suspend) button, or one of the keyboard keys.
- 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.

Troubleshooting

- possible cause: The system cannot access the *Suspend-to-HDD* partition.
- indicator: The system retrieves *Suspend-to-HDD* 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-HDD* 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 utility **Ovmakfil /pw** as soon as possible. Refer to Setting up for Suspend-to-HDD in *Chapter 4: Power*.

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

- possible cause: The system cannot access the *Suspend-to-HDD* partition.
- indicator: When you press the  (suspend) button, normal *Suspend* is activated instead of *Suspend-to-HDD*.
- solution: (1) Check if you have enabled *Suspend-to-HDD* in the Power menu in *Setup*. Refer to *Chapter 3: Setup*. (2) You may not have set up the *Suspend-to-HDD* partition. Refer to *Chapter 4: Power* to setup the partition. (3) You installed a different hard disk with *Suspend-to-HDD* partition on it or there has been a CMOS or Checksum failure. You must run the utility **Ovmakfil /pw** after one of the above conditions.



The system never goes into Suspend mode.

possible cause: Power management features are not enabled.

possible cause: Monitor Video Activity is enabled.

solution: (1) Go to the *Setup's* Power menu and enable the features you prefer. (2) Uncheck the Monitor Video Activity field.
Refer to the Power Management section of *Chapter 3: Setup*.

The system does not go into *Suspend* or *Suspend-to-HDD* when the battery is low.

possible cause: Low Battery Suspend is disabled.

solution: Make sure the Warning Tone Only option is not selected in the Battery Low field in Suspend Controls in the Power menu in *Setup*.
Refer to *Chapter 3: Setup*.

The PC Card does not work.

possible cause: The drivers are not loaded.

indicator: The  icon stays on after the card is installed.

solution: Load the proper drivers.



Tip

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

POST MESSAGES

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

WARNING MESSAGES

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

If the following messages occur, press **Ctrl-Alt-S** to run *Setup*.

- | | |
|--------------|--|
| message: | CLOCK NOT TICKING CORRECTLY |
| description: | The on-board clock is not working. |
| solution: | Try to restart the system. If the problem persists, contact your service center. |
| message: | COLOR/MONO SWITCH INCORRECT |
| description: | The Color/Mono switch on the mainboard is wrong. |
| solution: | Try to restart the system, toggle the Fn + LCD/CRT key combination. If the problem persists, contact your service center. |
| message: | CMOS CHECKSUM INVALID - RUN SCU |
| description: | The CMOS RAM information has been corrupted and needs to be reinitialized via the System Configuration Utility (<i>Setup</i>). |
| solution: | Try to restart the system, Run <i>Setup</i> and re-enter the information. |



message: CMOS FAILURE - RUN SCU
description: The CMOS RAM lost power and needs to be reinitialized via the System Configuration Utility (*Setup*).
solution: Try to restart the system, Run *Setup* and re-enter the information.

message: FLOPPY CONTROLLER FAILED
description: The CMOS RAM information has been corrupted and needs to be reinitialized via the System Configuration Utility (*Setup*).
solution: Try to restart the system, Run *Setup* and re-enter the information.

message: FLOPPY DISK TRACK 0 FAILED
description: The floppy drive cannot read track 0 of the floppy disk in the drive.
solution: Try another disk. If the problem persists you may need to replace the floppy drive.

message: FLOPPY INFORMATION INVALID - RUN SCU
description: The drive parameters stored in the CMOS do not match the floppy drive installed in the system.
solution: Run the *Setup* utility and check the parameters for the Floppy Drive. Make sure it is set to 1.44 MB.

Troubleshooting

message: HARD DISK CONTROLLER ERROR
description: The hard disk controller failed to respond to the reset command.
solution: Run *Setup* and check the parameters for the Hard Drive. If that doesn't work, power down the system, and make sure the hard disk is completely installed. Reboot. If the problem persists, contact your service center.

message: HARDWARE INFO DOES NOT MATCH VIDEO CARD - RUN SCU
description: The video adapter specified in the CMOS RAM does not match the installed hardware.
solution: The system is not seeing the video system correctly. Reboot the computer. If the problem persists, contact your service center.

message: KEYBOARD CONTROLLER FAILURE
description: The keyboard failed the self-test command.
solution: Check to make sure any external keyboard is securely attached. Reboot the computer. If the problem persists, even without an external keyboard, contact your service center.

message: KEYBOARD FAILURE
description: The keyboard failed to respond to the RESET ID Command.
solution: Reboot the computer. If the problem persists, contact your service center.



message: NO BOOTABLE FLOPPY DRIVE 0 INSTALLED
description: No bootable floppy drive was detected.
solution: Run *Setup* to check that the Floppy drive configuration is set to 1.44 MB. Reboot the computer. If the problem persists, contact your service center.

message: NO INTERRUPTS FROM TIMER 0
description: The periodic timer is not occurring.
solution: Reboot the computer. If the problem persists, contact your service center.

message: RAM PARITY ERROR AT LOCATION xxx
description: A RAM parity error occurred at the specified (hexadecimal) location.
solution: Reboot the computer. If that doesn't work, check that any DRAM DIMMs you've installed are securely seated in their expansion slots and that no foreign matter has gotten into the memory module compartment. If that doesn't work, remove the DIMM(s) and reboot. Replace any faulty DIMM(s). If the problem persists, contact your service center.

message: ROM AT xxx (LENGTH yyy) WITH NON-ZERO CHECKSUM (zz)
description: An illegal adapter ROM was located at the specified address.
solution: You may have a conflict with an external adapter (e.g. a video card in the docking station). Remove it.

Troubleshooting

- message: TIME/DATE CORRUPT - RUN SCU
description: The time and date information in the *Setup* have been corrupted.
solution: Run *Setup* and reset the time & date information. This problem sometimes occurs after a sudden power loss.
- message: UNEXPECTED AMOUNT OF MEMORY - RUN SCU
description: The amount of memory detected by the *POST* does not match the amount specified in the CMOS RAM.
solution: Run *Setup* then exit, saving the new configuration. *Setup* will automatically detect the correct amount of memory. This problem occurs whenever you add memory to the system.



FATAL MESSAGES

This group of messages indicate problems that must be repaired at your service center. If you get any of them, try rebooting. Even if you successfully boot up, you should contact your service representative immediately.

- message: CMOS RAM TEST FAILED
beep sequence: short-short-short-pause-long-short-short-pause
- message: DMA CONTROLLER FAULTY
beep sequence: short-short-short-pause-long-short-long-pause
- message: FAULTY DMA PAGE REGISTERS
beep sequence: short-short-short-pause-short-short-long-pause
- message: FAULTY REFRESH CIRCUIT
beep sequence: short-short-short-pause-short-long-short-pause
- message: INTERRUPT CONTROLLER FAILED
beep sequence: short-short-short-pause-long-long-short-pause
- message: ROM CHECKSUM INCORRECT
beep sequence: short-short-short-pause-short-long-long-pause

OTHER MESSAGES

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

Hard disk failed

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

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



Glossary

Adapter

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

Address

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

Application

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

ASCII

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

Glossary

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.”

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”.

Disk drive

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

DOS

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

DRAM

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

Driver

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

Glossary

External option

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

Hot

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

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.

KB

(Kilobyte) 1024 bytes.

LBA Mode

An abbreviation for **L**ogical **B**lock **A**ddress **M**ode. 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 **Liquid Crystal Display**. 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.

MB

(Megabyte) 1,048,576 bytes.

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.

Glossary

MPEG

Moving Picture Experts Group. 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 Television Standards Committee. 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.

PAL/SECAM

Phase Alternate Line and Sequential Color and Memory. Two video broadcast standards of 625 scan lines every 1/25 second. This is accomplished in 2 passes of 1/50 second each (50 Hz). These systems are used mostly in Europe, Australia and parts of Africa.

Parallel printer

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



Parameter

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

PC Card

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

PCI

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

PCMCIA

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

PnP

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

POST

Power-On-Self-Test. A sequence of self-tests automatically run by the computer whenever it is turned on or is reset.

PPP

Point-to-Point Protocol. 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 Mosaic and Netscape Navigator. 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.

RAM

Random Access Memory. 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 **Read-Only Memory**. 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.

SCSI

An abbreviation for **Small Computer System Interface**. 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) 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.
- (2) 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.
- (3) 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.

Glossary

TCP/IP

Transmission Control Protocol/Internet Protocol. A set of communication protocols developed by the U.S. Department of Defense that allows dissimilar computers to share information over a network. TCP/IP is the glue that binds the Internet.

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 Graphics Adapter. Video system that allows simultaneous display of 256 colors in 640 x 480 graphics resolution and 720 x 400 text resolution.

Volatile memory

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

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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