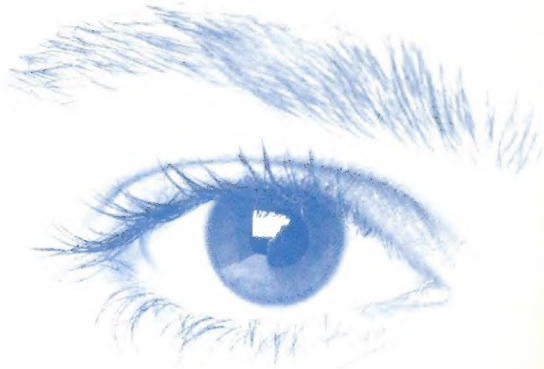
brother®
COMPUTERS



Meritus A53

MULTIMEDIA NOTEBOOK

User Manual

TOTAL COSTROL • TOTAL VALUE

The manual version is updated regularly, you can use *ftp protocol* to access our IP address *ftp.veridata.com.tw* to down load the latest information.

Note: The ENERGY STAR ™ emblem does not represent EPA endorsement of any product or service.

Electronic Emission Notice

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the 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.

NOTICE :

(1) The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canadian Department of Communications Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

European Community Directive Conformance Statement

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electro-magnetic compatibility.

A declaration of Conformity with the requirements of the Directive has been signed by Veridata Electronics Inc., No. 441, Tao Ying Road, Tao Yuan, Taiwan, R.O.C.

Safety Instructions

Computer

1. Follow all warnings and instructions marked on the Notebook PC.
2. Do not open the computer in a vertical position. Always use the computer in a horizontal position.
3. Do not use the Notebook PC near water or in rainy/moist situations.
4. Do not place the Notebook PC on an unstable cart, stand, or table. The Notebook may fall, causing serious damage to the computer.
5. Never push objects of any kind into the Notebook PC through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock.
6. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
7. Do not press on or store any object on the LCD cover when it is closed since it may cause the LCD to break.
8. Do not attempt to service the Notebook PC yourself. Unplug this product from the wall outlet and refer servicing to the authorized dealer.
9. When replacement of components is required, be sure to replace all components recommended by the manufacturer or the authorized dealer. Unauthorized substitutions may result in safety hazards.

Power

1. This electronic device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
2. This computer is shipped with its own AC adapter. Do not use the computer with a different adapter.
3. Do not allow anything to rest on the power cord. Do not place the Notebook PC where people will walk on the cord.
4. If an extension cord is used with this Notebook PC, make sure that the total ampere ratings of the products plugged into the extension cord do not exceed the extension cord ampere rating. Also, make sure that the total current of all products plugged into the wall outlet does not exceed 15 amperes.

The Battery

1. Do not disassemble the battery. The chemicals inside can damage skin and clothing.
2. Keep the battery pack away from fire.
3. Do not soak the battery pack in water or expose it to rain.
4. Replace only with the same or equivalent type of battery recommended by the manufacturer or the authorized dealer.
5. The battery will lose its charge when stored for a long time. Fully charge the battery before you use it again.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions. Don't place the battery contacts near metal objects.

ATTENTION: Il y a danger d'explosion s'il y a remplacement incorrect de la batteries. Remplacer uniquement avec une

batteries du méme type ou d'un type recommandé par le constructeur. Mettre au rébut les batteries usagées conformement aux instructions du fabricant.

Personal Inventory

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

Date of Purchase : _____

Dealer's Name : _____

Phone : _____

Address : _____

Type of LCD screen display *Noted on the outside box

☐ Color Dual Scan LCD
☐ Color TFT LCD
☐ Others : _____

Serial Number : _____

Hard Disk Capacity : _____

Memory Capacity : _____

Optional Equipment : _____

_____

_____

Contents

Chapter 1 Getting Started

Unpacking Your Notebook PC **1-2**
Quick Set Up **1-3**
Opening the Computer 1-3
Connecting the AC Adapter 1-4
Getting Started with Windows 95 ..... **1-5**

Chapter 2 Introduction

Hardware Features **2-2**
Notebook Overview **2-3**
Location 2-3
The Power System **2-8**
The Status Indicator Panel 2-9

Chapter 3 Starting and Configuring Your Computer

Power On **3-2**
Turning Your Computer On 3-2
Power On Self Test (POST) 3-3
Setup Program **3-3**
Accessing the Setup Program 3-4
Restarting Your Computer **3-13**
Warm Reset 3-13
Cold Reset 3-13

Chapter 4 Operating Your Computer

The Display Device **4-2**
Liquid Crystal Display (LCD) 4-2
External CRT Display 4-3
External TV Display 4-3
Keyboard Usage **4-4**
Keyboard Layout 4-4
Keyboard Operation 4-4
Using the TouchPad **4-11**
TouchPad Operation 4-12
TouchPad Care 4-13
The Media Bay Module **4-13**
Inserting and Removing the Media Bay Module 4-13
The Floppy Disk Drive **4-14**
Inserting and Removing the Floppy Disk Drive 4-14
Inserting and Removing Floppy Disks 4-14
Floppy Disk Care 4-15
The CD-ROM **4-15**
CD-ROM Driver 4-15
Inserting CDs 4-15
Reading CDs 4-16
CD Care 4-17
The Hard Disk **4-18**
Inserting and Removing the Hard Disk Pack 4-18
Hard Disk Setup 4-19
Running HDPREPEZ 4-20
Installing Operating Systems 4-20
Installing Other Applications and Utilities 4-22
PCMCIA Use 4-23
How to Use PCMCIA Cards 4-23
Infrared (IrDA) **4-24**
Preparing for Infrared Communications 4-24
Using Infrared 4-25

Using Security Locks **4-26**
Device Security Latch 4-26
Kensington™ Security Lock 4-26

Chapter 5 Power Management

AC Power **5-2**
Setting Up the AC Adapter 5-2
When Accessing AC Power 5-3
The Battery Power **5-4**
The Battery Pack 5-4
Charging the Battery 5-5
Battery Low Warning 5-7
Battery Low Suspend 5-8
Exchanging the Battery 5-9
Exchanging the New Battery 5-10
Power Management **5-11**
Power Management Modes 5-11
BIOS Power Management Options 5-13
Lid Switch 5-14

Chapter 6 Expansion Options

Connecting Peripheral Devices **6-2**
External Serial Mouse and Other Pointing Devices 6-2
Printers 6-3
MIDI Equipment or Joystick 6-4
Audio I/O Jacks 6-5
External PS/2 Keyboard/Mouse 6-6
Television Display 6-6
External CRT Monitor 6-7
Port Replicator 6-8
USB Port 6-8
Upgrading Components **6-9**

CPU 6-9
Hard Disk 6-13
RAM 6-16

Chapter 7 Utilities and Drivers

Installing System Utilities 7-2
Running HDPREPEZ 7-2
Installing Device Drivers 7-3
VGA Driver 7-3
Audio Driver 7-5

Chapter 8 Maintenance & Troubleshooting

Maintenance 8-2
Troubleshooting 8-3

Appendix A Specifications and Features

Appendix B Connector Pin Assignment

Appendix C Glossaries

Index

Chapter 1

Getting Started

Unpacking Your Notebook PC

Carefully remove the Notebook computer and its accessories from the shipping box. Place all the components on a firm, flat surface. If any component is missing or looks damaged, contact your dealer immediately. Your Notebook PC package should contain the following components. (Other accessories may also be included, depending upon the model.)

- ❑ Notebook PC
- ❑ Hard Disk Drive (installed)
- ❑ Media Bay Module (installed)
- ❑ Battery Pack
- ❑ AC Adapter
- ❑ AC Power Cord
- ❑ Utility CD
- ❑ User's Manual
- ❑ Windows™ 95 Operating System

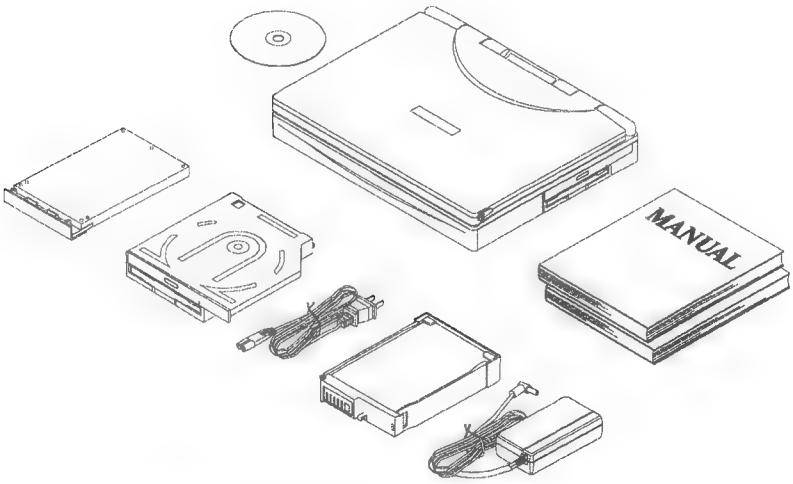


Figure 1-1: Notebook Accessories

Quick Set Up

After checking all the components, you are ready to set up and start your computer.

Opening the Computer

Slide the latches on the sides of the computer forward and lift the LCD screen.

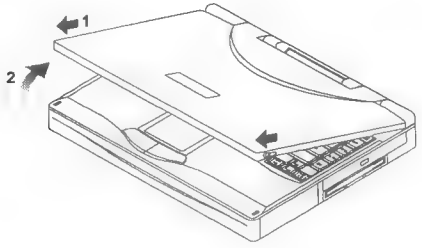


Figure 1-2: Opening the Computer

The opened computer is shown in Figure 1-3 below.

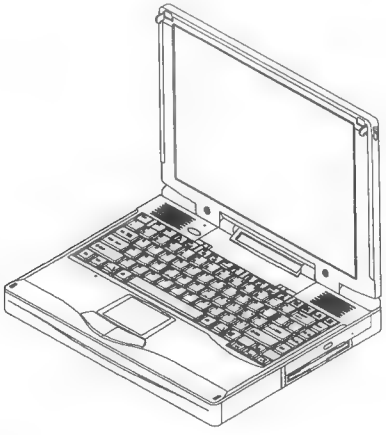


Figure 1-3: The Opened System

Connecting the AC Adapter

The AC adapter is an alternating current to direct current (AC/DC) converter that supplies power to your computer. To connect the AC adapter to your computer, follow the steps below:

1. Connect the power cord to the AC adapter.
2. Connect the other end of the power cord to a grounded outlet.
3. Plug the AC adapter power cable into the DC-IN jack on the left side of the computer.

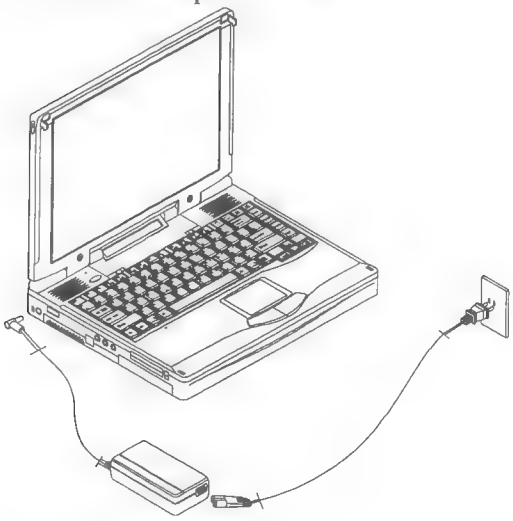


Figure 1-4: Connecting to AC Power

When the AC adapter is set up, the green indicator on the adapter should glow and the **AC-IN** icon (a plug symbol) on the computer status indicator panel comes on. If you have a battery installed, the **Battery** icon will appear to show the battery capacity.

If the **AC-IN** icon is not on, check if the AC adapter is correctly connected to the computer power jack.

Getting Started with Windows™ 95

☞ The information in this section applies only to Notebooks with the Windows 95 operating system already installed.

With Windows 95, you do not need the video, audio, or PCMCIA utility CD as mentioned in this personal computer operation manual. Please refer to the Windows 95 user's manual on how to setup your PCMCIA cards and change display settings.

The following section gives you a step by step procedure to properly set up your Notebook computer and Windows 95.

Windows 95 requires you to go through a series of procedures the first time you use your computer. It may take up to 30 minutes to complete the installation of Windows 95.

☞ You don't need the Windows 95 CD or diskettes. Make sure you remove any CDs or diskettes from the drives before you turn on the computer.

1. Turn on your computer. Press the [Enter] key to continue set up when you see the Welcome to Windows Set up screen.

2. ***Regional Settings***
   Select the Language you would like to use and press [Enter] to continue (default setting is American English).

☞ If you want to change any previous setting, click the <Back button located on the bottom of the set up screen.

3. ***Keyboard Layout***
   Press [Enter] to select United States.

4. ***User information***
   Type your Name and Company name in the boxes. Press [Enter] to Continue.

5. ***Windows 95 License***
   After reading the contents, press [Enter] to continue.

6. ***License Agreement***
   Click "I accept the agreement" and press [Enter] to continue.

7. ***Certificate of Authenticity***
   A certificate of Authenticity is attached to the front page of the Windows 95 User's Manual. Type the Product ID number from the certificate in the box, and press [Enter] to continue. Save this number! A copy of this number should stored in a separate, secure place if you should ever need to re-install Windows 95.

8. ***Configuring the Computer***
   Windows 95 will now start to configure your Notebook computer. Press [Enter] to continue.

9. ***Installing devices***
   You don't need to do anything to install devices. Windows 95 will automatically install all the devices for you. It may take a few minutes.

10. ***Finishing Setup***
    Your system has finished the initial setup process. Press [Enter] to restart the computer.

After the computer restarts itself, Windows 95 will automatically set up all the Windows 95 program Icons. The process will take a few minutes.

11. ***Add Printer Wizard***
    When you see the "Add Printer Wizard" screen, you may choose to install a printer. Click  to set up a printer or *Cancel* to skip the printer installation. Follow the instructions on the screen to select and test your printer. If you choose to skip the printer set up, you can install your printer at a later time.

12. ***Date/Time Properties***
    Select and set up Date & Time and Time Zone. Click *OK* or *Close* to continue.

13. ***Create System Disks***
    Press Next> to create system disks. We encourage you to create a Microsoft Windows 95 Setup Disk and a Windows 95 Startup Disk. You may need the Startup Disk to restore the system if the software is damaged on your computer. Follow the instructions on the screen to create disks or click Cancel to skip to the next screen.

After you finish creating Setup Disks and a Startup Disk, click the Finish button to restart the computer. Make sure you remove the disk in the floppy disk drive before you continue.

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Chapter 2

Introduction

Hardware Features

- Intel Pentium™ with MMX 150 to 266 MHz Processor
- AMI BIOS with Power Management, supports APM 1.2 or ACPI
- PCI Bus with 64-bit GUI Accelerator with MPEG Video Scalar
- 2MB EDO Video RAM
- 16MB EDO RAM standard on board memory, expandable to 80MB
- Synchronous 256K RAM Level 2 Cache
- Removable 2.5/3-inch Hard Disk (1.4GB or above)
- Removable Media Bay (with a 3.5-inch, 1.44MB FDD and a 5.25-inch, ATAPI interface CD-ROM Drive)
- 12.1"/13.3" TFT Active Matrix LCD with XGA (1024x768 resolution), high colors *OR* 13.0" DSTN LCD with XGA (1024x768 resolution), true colors
- Simultaneous LCD & CRT operation
- Built-in I/O ports including one RS-232 Serial Port, one EPP/ECP-compliant Parallel Port, a 15-pin CRT port, a fast IR port supporting the IrDA standard, a 6-pin PS/2 type keyboard connector, a 15-pin MIDI/Game Port, three audio I/O jacks, a 80-pin Replicator port, and an RCA jack TV port and two USB expansion ports
- Two PCMCIA slots with ZV port standard on the first slot and Card Bus standard on the both slots (supporting two Type II or one Type III PC card)
- 87/88-key full function keyboard with Windows™ 95 function keys
- Built-in touch-sensitive TouchPad
- Status LCD indicators with Power on, PM status, PCMCIA, CD-ROM, FDD, HDD, NumLock, CapLock, ScrollLock, Battery Status, (battery in charge, battery fuel gauge, battery-low warning) AC-IN icons and KeyboardLock
- Full SMI power management with Doze, Standby, Global Standby, Suspend and Power Low Audio Warning
- NiMH Battery Pack, Optional Lithium-Ion Smart Battery Pack (DR-36)
- AC Adapter (100~240V AC, 50/60 Hz)
- Full duplex 16-bit stereo Sound System supports internal microphone and speaker
- Kensington™ lock support
- Microsoft Windows™ 95, System Utilities and Drivers

Notebook Overview

Location

Push the latches on both sides of the computer toward the front and then lift the LCD panel (Figure 2-1).

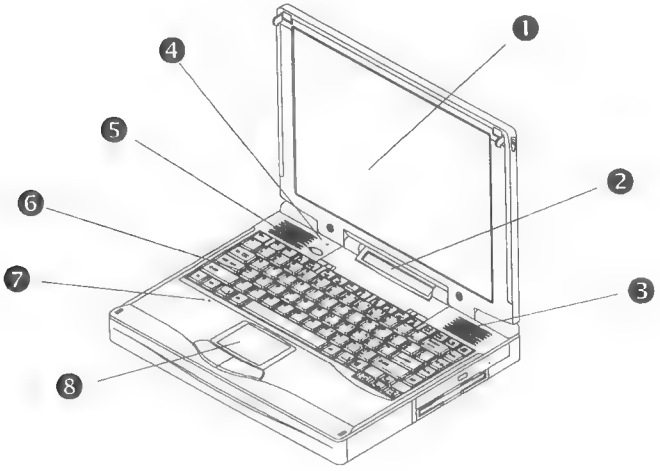

Figure 2-1: Front View

Front View

❶ **LCD Display** which displays the computer output.

❷ **Status Indicator Panel** includes 13 indicator symbols which indicate the computer's operating status. A detailed explanation of these indicators will be given later.

❸ **Stereo Speakers** provide stereo sound for your application programs.

❹ **Lid Switch** is used to enter Suspend mode, either by pressing it, or by closing the Notebook.

❺ **Power Button** is the computer's power switch. To turn on the computer, press the power button and hold it for about 2 seconds.

❻ **87/88-key Keyboard** is a full function keyboard with palm-rest feature, inverse T direction keys, embedded numeric keypad, and Windows 95 function keys.

❼ **Built-in Microphone** is a small internal microphone which provides the audio capture function.

❽ **TouchPad** is a built-in pointing device that provides a function similar to that of a mouse. The TouchPad includes a touch pad and two click buttons below the keyboard.

Right Side View

Viewed from the right side, you can see two removable packs: the Battery Pack and the Media Bay Module (a Floppy Disk Drive and a CD-ROM Drive):

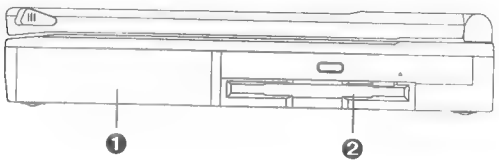

Figure 2-2: Right Side View

❶ **The Battery Pack** can be installed in the battery pack compartment on the right side of the computer.

❷ **The Media Bay Module** is a module with a 5.25" CD-ROM Drive and a standard 3.5-inch 1.44MB floppy disk drive.

Left Side View

Viewed from the left side, you can see the Kensington Security Lock, DC-IN jack, Infrared Port, Fax/Modem jack, Audio jacks, PCMCIA slots and Hard Disk Drive.

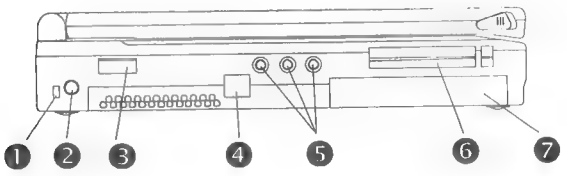

Figure 2-3: Left Side View

❶ **Kensington™ Security Lock** allows you to attach a *Kensington Security System* (or compatible) lock to secure your computer.

❷ **DC-IN Power Input Jack** Plug your AC adapter into this jack.

❸ **Infrared Port** for Infrared (IR) transfers to send and receive data between your Notebook and IR equipped computers, printers or networks.

❹ **Optional Built-in Fax/Modem** allows you to send or receive fax/data, and connect to internet services.(USA model only)

❺ **Three Audio I/O Jacks** The right jack can be connected to the stereo microphone; the middle one to the audio source and the left one to an external earphone or speaker.

❻ **PCMCIA Slots** allow you to plug in PC cards to expand your computer's functionality. The upper slot is a Type II slot which can use a Type I or Type II card. The lower one is a Type III slot which allows Type I, Type II or Type III card insertion.

(However, if a type III device is inserted, you can't use the upper slot)

❼ **Hard Disk Drive** is removable and can be replaced with one of a different capacity.

Rear View

There are several I/O ports inside the rear covers of the computer. Open the cover by pulling the upper latch outwards.

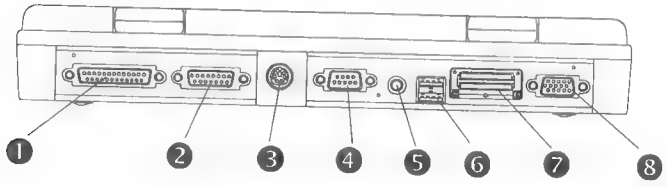

Figure 2-4: Rear View

❶ **Parallel Port** is a 25-pin port with a parallel interface (EPP/ECP compliant) to which you can connect a printer.

❷ **MIDI/Game Port** connects to the MIDI or Joystick connector.

❸ **External Keyboard/Mouse Connector** is a 6-pin PS/2 style connector for an external keyboard or mouse.

❹ **Serial Port** is a standard 9-pin serial port to which you can attach a variety of serial devices, such as a mouse or modem.

❺ **TV display Jack** allows you to connect a TV for use as a secondary display.

❻ **Two USB ports** allow you to connect the USB devices such as keyboards, printers and joysticks.

❼ **Expansion Port** can be connected to a Port Replicator to expand your computer (Optional).

❽ **External CRT Connector** is a 15-pin analog connector which can be connected to any external monitor. (Supports DDC-2.)

Bottom View

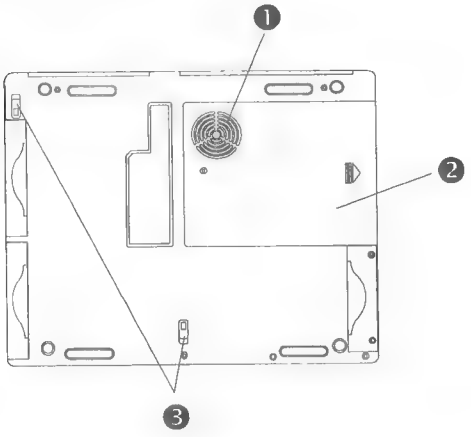

Figure 2-5: Bottom View

❶ **Air Way** is designed to release heat when the computer is running. Do not block the Air Way to prevent the system from being overheated.

❷ **CPU Cover** is designed for CPU or BIOS ROM upgrade purposes.

❸ **Device Security Latch** is used to keep the Media Bay Module or Battery Pack secure.

The Power System

The Notebook PC can run with the supplied AC adapter when an external power source is available. The Notebook PC can also run with the battery pack for mobile operation.

The AC Adapter

The AC adapter automatically senses and adjusts the input AC voltage (100V to 240V) to a suitable voltage and is compatible with almost any international electrical system standard.

☞ AC adapters are designed for specified equipment and are not interchangeable. In other words, you cannot use a different make or different manufacturer's Notebook adapter!

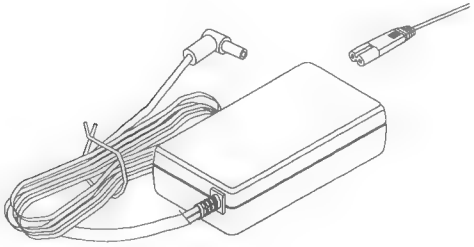

Figure 2-6: The AC Adapter

☞ The LED will glow green when the AC adapter is receiving power from an outside AC source.

The Battery Pack

The battery pack is an internal power source for the computer when the AC adapter is not available. It is a removable (DR-36 type) Nickel Metal Hydride (NiMH) or Lithium-Ion (Li-Ion) battery pack which can be recharged via the AC adapter.

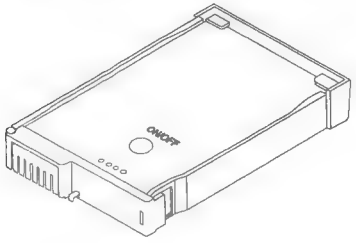

Figure 2-7: The Battery Pack

The Status Indicator Panel

The Status Indicator Panel is a liquid crystal display module which contains a number of symbols which indicate the current status of your computer. Memorize these symbols to better understand your computer:

AC-IN: This symbol appears when AC power is accessed. It shows that your computer is drawing electrical power from the AC adapter. In other words, the battery is not being used as a power source at the moment.

Battery Capacity: This symbol shows the battery's remaining power capacity. Each segment of this symbol represents 20% of the remaining charge. When the battery is low on power, it will flash with an alarm beep (depending on the system setup settings explained later).

Scroll Lock: This icon appears when the scroll lock is engaged which is useful in some applications. With this light on, the Arrow keys are used as screen-scroll function keys and the cursor cannot be moved with the Arrow keys.

Caps Lock: This symbol appears when the Caps Lock function is on. With Caps Lock on, all alphabetic characters (A-Z) are entered in capital letters without pressing the shift key. You can enable and disable Caps Lock mode by pressing the [Caps Lock] key.

Num. Lock: This symbol comes on when the numeric keypad is enabled.

PC Card Insertion: This symbol comes on when a PCMCIA card is inserted.

CD-ROM Activity: This symbol comes on when the CD-ROM is accessed. Never turn off the power when this light is on.

HDD Activity: This symbol comes on when the Hard Disk is accessed. Never turn off the power when this light is on.

FDD Activity: This icon comes on when the FDD is accessed. Never eject the floppy disk when this symbol is on.

Power Management: This icon comes on when the Power Management function is enabled.

Power Consumption: The faucet together with the drip indicate the power usage of your computer. The size of the drip shows the rate of power consumption.

System Suspend: When the system is in Suspend mode, this icon appears.

Power on: This symbol appears to show that the computer's power is turned on.

This concludes Chapter 2. The next chapter covers starting your computer for the first time. There is also detailed information about the Notebook's BIOS setup program.

Chapter 3

Starting and Configuring Your Computer

Power On

Turning Your Computer On

After setting up your computer, you can now turn your computer on. The power button is on the upper left side of the keyboard. Press the power button and hold it for about 2 seconds.

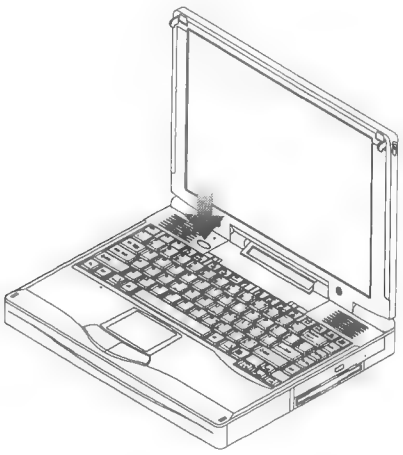

Figure 3-1: Turning the Computer On

☞ After the power is on, the Indicator Panel in the hinge area will show all of the symbols for about one second, and then show the normal status display.

Power On Self Test (POST)

When you turn on your computer, it will first go through a Power On Self Test (POST). This test will check the status of various components of your computer including the Processor, Memory, Interrupt Controller, Keyboard, I/O Ports, DMA Controller, Timer and Video Controller.

This test also checks the existing hardware configurations according to the computer keeps in an internal record. In most cases, the computer record should be correct when you receive the computer. If the POST encounters a discrepancy in the current configuration or an error (but not a fatal error) with the hardware, the computer will give error messages and ask you to resume. If the POST detects fatal errors (errors that can stall your system), the computer will prompt you with a "RUN SETUP" message. You can press the **[Del]** key to access the BIOS setup program.

Setup Program

The BIOS (Basic Input Output System) is a special ROM-resident program that allows you to manipulate the settings of your configuration. It should already be pre-configured to its default values, but you may need to change some settings when you upgrade or expand your equipment. **Normally, you can keep the default values without making any changes. However, if you hope to further customize your computer, read this subject carefully.** In any event, selecting *"Do Not Save Changes And Exit"* is always recommended unless you are very sure you want any changes to take effect.

Warning: Before attempting to configure the BIOS, make sure you have the configuration information supplied by the manufacturer of your peripheral devices. Incorrect settings can cause your system to malfunction.

Accessing the Setup Program

During the Power On Self Test, press the **[Del]** key to enter the Setup Program if you want to access Setup. The Setup Program has 4 main windows: Setup, Security, Utility and Default.

Setup

The Setup windows has 5 icons: Standard, Advanced, Chipset, Power Management and Peripheral.

Standard Setup

Pri Master

Pri Master (Primary Master) refers to your master Hard Disk/ CDROM/Floptical Drive.

Type

Pressing [Enter] allows you to enter a sub-menu to select the proper hard disk type. If you don't know which type your hard disk is, simply choose "Auto" and the system will detect your hard disk or other devices and do the settings automatically.

LBA/Large Mode

LBA (Logical Block Addressing) mode enables your system to access hard disk storage beyond 528MB. The traditional storage mode (prior to LBA) cannot allow access of the data beyond 528MB on a drive. Keep this item enabled for drives larger than 528MB.

Block Mode

Click on Block Mode and choose On to support IDE drives that use Block Mode.

32-Bit I/O

Allows 32 bit input/output data transfers.

PIO Mode
Click on PIO Mode to select the IDE Programmed I/O mode. The default value is Auto, allowing the BIOS to automatically find the PIO mode that the IDE drive being configured uses.

Sec Master
Sec Master (Secondary Master) refers to your second Hard Disk/CDROM/Floptical Drive.

Sec Slave
Sec Master (Secondary Slave) refers to your third Hard Disk/CDROM/Floptical Drive.

For **Sec Master and Sec Slave**, the items contained are the same as Pri Master.

Date / Time
The system has a real-time clock/calendar which is powered by the on-board CMOS battery. If the date and time need changing, select the field by using the touchpad or mouse. Click the [+] [–] keys to change the value.

Floppy
Select the diskette drive type. The Notebook comes with a 1.44MB, 3.5" diskette drive. If you change the diskette drive with one of a different type, change the drive type setting.

Advanced Setup

Plug and Play Aware O/S
Set this option to Yes, if the Windows 95 is installed in the computer.

Quick Boot
Set this option to Enable the BIOS to boot quickly when the computer is powered on.

1st Boot Device
This option sets the boot drive of first priority.

2nd Boot Device
This option sets the boot drive of second priority.

3rd Boot Device
This option sets the boot drive of third priority.

S.M.A.R.T for Hard Disk
When this option is set to Enabled, S.M.A.R.T functions for Hard Disk is enabled. S.M.A.R.T is a system that enables the PC to in some cases predict the future failure of the hard disk. Armed with a failure prediction, the user in some instances has the opportunity to backup key data prior to data loss. S.M.A.R.T is a key component of improving the data integrity and data availability of the PC.

Bootup Num-Lock
Set this option to Off to turn the NumLock key off when the computer is booted .

PS2 Mouse Support
When this option is set to Enabled, the BIOS supports a PS/2 type mouse.

Primary Display
Select the type of display if you have installed a different display which is not of the default XGA display type.

Password Check
This option enables password checking every time the computer is powered on or every time BIOS Setup is executed.

OS/2 Compatible Mode
Set this option to Enable to permit the BIOS to run with IBM OS/2.

Internal Cache
This option specifies the caching algorithm used for L1 internal cache memory.

External Cache
This option specifies the caching algorithm used for L2 internal cache memory.

Chipset Setup

DRAM Speed
This option specifies the speed of DRAM, please consult your dealer for details.

Fan On Temperature
Here you can choose the temperature which will activate the internal fan.

TV Output
This option allows you to select desired TV output format, either NTSC or PAL.

Power Management

Power Management/APM
Set this option to Enabled to enable the power management and APM (Advance Power Management) features.

Power Saving On AC Power
This option is to set the level of power management when the system is connected to AC power. You can choose Disabled or Enabled. When Disabled is selected, the power management is automatically disabled while AC adapter is plugged in.

Power Saving On Battery Power
This option is to set the level of power management when the system is running from battery power. "Minimum' to "Maximum" gives battery life ranging from shortest to longest. "Customized" allows you to setup your own power management strategy.

If "Customized" is selected, several settings will be available for adjustment:

- CPU Auto Doze Mode: Disabled or Enabled.
- Display Time Out: Sets a specified time for the display to power off if no system activity occurs.
- Hard Disk Time Out: Sets a specified time for the Hard Disk to power off if no system activity occurs.
- Standby Time Out: If no system activity occurs during this period of time. BIOS will place the system into the standby low power state.
- Suspend Mode: The Suspend Mode can be defined as Suspend to *DRAM*, *Disk or Auto*. With Suspend to *DRAM* you can press the lid switch (or wait for the suspend time-out) to have the system status saved in DRAM. Pressing the lid switch will bring the system back. With Suspend to *Disk*, the system will save the system status to the Hard Disk and turn the power off. You can't toggle the lid switch to wake up your computer; you should power on your computer again and it will bring you back to the screen where you were working before Suspend to *Disk* was activated. If Suspend Mode is set to *DRAM*, you can change "Suspend to DRAM Type" and specify "Suspend Time Out." If Suspend Mode is set to *Disk*, you can only change Suspend Time Out." If *Auto* is selected in the Suspend Mode, you can specify the "Suspend to DRAM Type", "Suspend Time Out." and "DRAM to Disk Auto Time Out".

☞ The *Suspend to Disk* mode needs space equivalent to your RAM memory size plus 2MB on your hard disk. When you format your hard disk with FDISK, be sure to leave this space un-partitioned for the *Suspend to Disk* section. After leaving the requested un-partitioned space on your hard disk, you need to run a program called HDPREPEZ to recognize this space. Refer to Chapter 7 for more detailed information on the HDPREPEZ program.

Resume Alarm
Enable this option to have an alarm to wake the system from the Suspend Mode.

Resume Alarm Time
You can specify the time of Resume Alarm.

Resume On Modem
Enable this option to wake the system up if modem rings.

Battery Power Low 1
This Notebook has two battery low warnings. This option allows you to turn on/off the warning beeps when the battery reaches to Battery Power Level 1.

Battery Power Low 2 Notification
This option allows you to select what you want to do when the battery reaches to Battery Power Level 2. You can select either Disabled or STR/ STD(Enabled.)

Lid Switch
Allows you to select either turn the LCD off or go into Suspend Mode once the lid switch is pressed.

Power Button
This option allows you to select the function of the power button, you can choose "Legacy" or "ACPI". Choose "Legacy" will make the power button do the normal job of a power button, i.e. power on or off. The "ACPI" function is reserved for Operating System of next generation.

Peripheral

OnBoard Serial Port 1
Enables serial port 1 on the motherboard and specifies the base I/O port address for serial port 1. Normally, you can select "Auto" to let the system choose an address for you. If your applications require a specific address, you should choose one suitable to your application.

OnBoard Serial Port 2
Enables serial port 2 on the motherboard and specifies the base I/O port address for serial port 2. This Notebook PC is equipped with a IR device which is set to use serial port 2. If you enable this serial port 2, you can select "IrDA" or "ASK" from Serial Port2 Mode item in case you have a different type of IR devices; Also you can specify "Full Duplex" or "Half Duplex" from IR Transmission Mode.

OnBoard Parallel Port
This option enables parallel port on the motherboard and specifies the base I/O port address for the parallel port. Enabling this port, lets you specify Parallel Port Mode to either "Normal," "ECP" or "EPP" for both bi-directional data transfer schemes.

OnBoard Audio Device
You can set the option to Disabled or Enabled. Set this option to Enabled, and several settings related to Audio will be available for adjustment:

- Onboard Audio Base Port: Sets I/O address of the audio base port.
- Audio Device DMA for Play: This option allows you to select desired DMA channel for play.
- Audio Device DMA for Record: This option allows you to select desired DMA channel for record.
- Onboard FM Synthesizer: Enabled or Disabled.
- Onboard MIDI Port: This option let you select I/O address of MIDI port.

OnBoard Modem Port
If you have the optional Fax/Modem, you should disable the "OnBoard Serial Port 2" first and then this Modem Port will be available. You can select Disabled to disable this serial port or to select one of the I/O addresses for the serial port 2.

OnBoard Game Port
Permits you to set Joystick Port to Enabled or Disabled.

Security

Supervisor
This option allows you to set the Supervisor's password for this computer. A Supervisor password prevents unauthorized people from accessing the BIOS Setup Program to change the current settings.

User
This option allows you to set the User's password for this computer. This function can only be enabled after the Supervisor's password has been set.

Anti-Virus
When this icon is selected, the BIOS issues a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. If enabled, the following appears when a write is attempted to the boot sector:

Boot Sector Write!!!
Possible VIRUS: Continue (Y/N)? _
OR
Format!!!
Possible VIRUS: Continue (Y/N)? _

You may have to type N several times to prevent the boot sector write.

Utility

Detect IDE
This option will detect the IDE devices for the computer.

Default

Original
Choose this icon to return to the original system configuration values present in the BIOS Setup when you first began this BIOS Setup session.

Optimal
You can load the optimal default setting the BIOS by selecting this Optimal icon. The Optimal default settings are best-case values that should optimize system performance.

Fail-Safe
By selecting Fail-Safe icon, you can load the Fail-Safe settings for the BIOS. The Fail-Safe settings provide far from optimal system performance, but are the most stable settings. Use this option if you find the system is behaving erratically when used with other settings.

Exit

When all configuration settings are confirmed, press the [Esc] key to exit the Setup Program.

Save changes & Exit
If you feel that all the desired changes are correct and you want to save the changes to the system for later usage, choose *Save changes and Exit* and the system will save the settings and exit the BIOS program.

Do not save changes and Exit
If you do not want to change the changes you have made, choose *Do not save changes and Exit* to quit the BIOS program without saving. The previously selected settings will remain.

Continue
If you do not wish to exit BIOS, choose *Continue* to work with BIOS setup again.

Restarting Your Computer

Occasionally it may become necessary to restart (or re-boot) the computer because of problems encountered while running a software program (such as becoming caught in an infinite loop). There are two methods to restart your PC, usually referred to as resetting your computer.

Warm Reset

The warm reset (also called a warm boot) is the preferred method for resetting your computer because it requires less power, takes less time, and does not involve using the power switch. Execute a warm reset by pressing the following key combination simultaneously:

[Ctrl] + [Alt] + [Del]

This command will cause all the Random Access Memory (RAM) to be cleared and will reload the operating system.

Cold Reset

If a warm reset fails, you may employ a cold reset (also called a cold boot) which involves turning the computer off and then back on. The power should be left off for several seconds before turning the computer back on again.

This concludes Chapter 3. The next chapter covers the operation of your Notebook.

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Chapter 4

Operating Your Computer

The Display Device

Liquid Crystal Display (LCD)

The Notebook PC comes with a built-in Dual Scan or TFT LCD display panel with an XGA (1024 x 768) display mode. The LCD screen display quality can be adjusted by changing the LCD panel angle, adjusting the brightness, and on DSTN passive matrix displays, by adjusting the contrast.

☞ To further improve the display resolution for some software applications, refer to Chapter 7 regarding installing VGA drivers.

Adjusting the LCD Screen

▶ **Viewing Angle Control**

The LCD panel is adjustable through an 180-degree angle. You can adjust the LCD screen to get the best viewing results.

▶ **Brightness & Contrast Control**

Screen brightness and contrast can be adjusted by the following key combinations.

- **[Fn]** + [↑] Brightness Increase
- **[Fn]** + [↓] Brightness Decrease
- **[Fn]** + [→] Contrast Increase
- **[Fn]** + [←] Contrast Decrease

You can adjust them to obtain the best view depending on the angle of the screen and the lighting conditions.

☞ If your computer has a TFT LCD, Contrast is fixed.

LCD Care

LCD screens are delicate devices that need careful handling. Please heed the following advice:

- When you are not using the computer, keep the LCD screen closed to prevent dust from damaging the screen.
- If you need to clean your LCD screen, use a soft tissue to wipe the LCD surface gently.
- Do not put your fingers or sharp objects directly on the surface and never spray cleaner directly onto the display.
- Do not press on, or store any object on the cover when it is closed. It may break the LCD.

External CRT Display

You can hook up an external monitor through the 15-pin CRT connector. With the monitor connected, you can toggle [Fn] + [F3] to switch display output from the LCD to the CRT display. For details on connecting an external display, please refer to Chapter 6.

External TV Display

On the rear of the Notebook, there is a TV jack which can change the computer's output signal into a TV input signal (NTSC/PAL). If you connect the system to a TV set via this port you can use your Television as a display device. For details about connecting a Television display, please refer to the Chapter 6 section called "Connecting a Television" and Chapter 3 BIOS setup program.

Keyboard Usage

Keyboard Layout

After lifting your screen to an upright position, the keyboard should be visible directly in front of you. It looks like this:

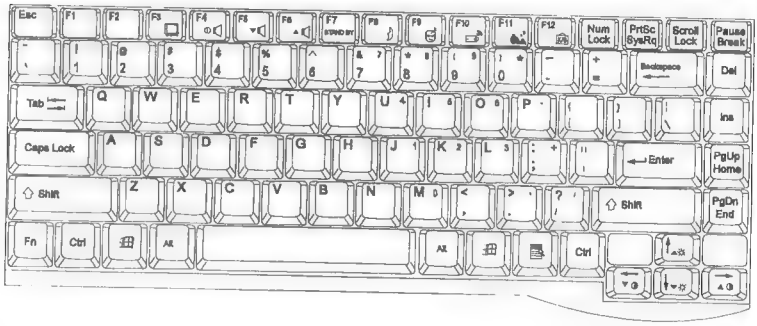


Figure 4-1: The US Version Keyboard Layout

The general layout of the keyboard can be divided by function into four categories as follows:

- alphanumeric (typewriter) keys
- general control keys
- cursor and screen control keys
- function keys

Keyboard Operation

Following is a detailed explanation of your keyboard. If you are already familiar with the operation of standard AT compatible keyboards, you may not need to read this section. However, this keyboard differs from the standard type of desktop computer keyboard in one important respect. Whereas a full-size keyboard

has an independent numeric keypad, the Notebook keyboard uses a numeric keypad integrated into the main keyboard layout.

Typewriter Keys

The typewriter key area preserves the same general appearance and layout as a normal typewriter keyboard. However, there are several important differences which should be noted.

Caps Lock: The [Caps Lock] key is functionally similar to the shift lock key on a typewriter. However, the [Caps Lock] key on the computer only affects the letter keys. The shift key must still be used to access the special symbols above the numbers and various punctuation marks.

Shift: The two [Shift] keys located on either side of the keyboard function similar to typewriter shift keys with one exception. While [Caps Lock] is engaged, holding the [Shift] key and pressing a letter will produce the letter in lower case.

Enter: The [Enter] key is similar to a typewriter's carriage return. Some software may reserve special functions for the [Enter] key. In this case, please consult your software documentation for details.

Backspace: This key is on the right side, second row from the top. When you press this key, you will move back one space and delete whatever was in that space.

The Embedded Numeric Keypad

The keypad, as shown below, allows you to access numeric and cursor functions in a keypad configuration.

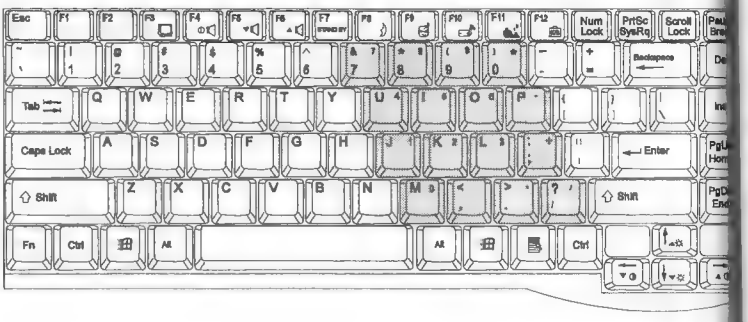


Figure 4-2: The Embedded Numeric Keypad

There are two keys of particular note involved with the use of the embedded keypad:

Num Lock: Located near the upper right side of the keyboard, the Number Lock key is used to activate the embedded keypad function. Activating the embedded keypad will enable you to use the numbers and symbols that are written across the bottom of the keys. To activate the embedded keypad function, you have to press the [Num Lock] key. To deactivate the embedded keypad function, just press it again.

Fn: The [Fn] (Function) key, located in the lower left corner of the keyboard, enables the use of the embedded keypad

General Control Keys

Ctrl & Alt: The [Ctrl] (Control) and [Alt] (Alternate) keys, located on both sides of the space bar, are unique to computer keyboards and have no typing function. They are used in combination with other keys, usually simultaneously, to perform various functions. The specific functions you can accomplish with these keys are usually determined by the program you are currently using. For information on their use, you should consult your application software manuals.

Esc: The [Esc] (Escape) key is used by the system and by software for various functions, often for exiting a program or backing out of a command. It is located in the upper left corner of the keyboard.

Enter: Analogous to a carriage return on a typewriter, pressing this key is useful for creating a new line of text and is often used to send an "OK" signal to the computer.

Num Lock: The Number Lock is used to enable the embedded numeric keypad. When you press the [Num Lock] key, the Num Lock icon lights up on the Status Indicator Panel.

PrtSc/SysRq: The [PrtSc/SysRq] (Print Screen/System Request) key, located to the right of the Num Lock key, has two modes. When used alone, it calls a screen dump to the printer. That is, it causes the contents of the screen to be sent to the printer for print. Some software may use this key in conjunction with the [Alt] key to perform a function similar to a Break. Consult your software manual for details.

Scroll Lock: The [Scroll Lock] key is located at the upper right of the keyboard. When engaged, the Scroll Lock icon on the Status Panel Indicator lights up, the arrow keys become screen-scroll function keys, and the cursor can't be moved with the arrow keys. Pressing the [Scroll Lock] key again will disengage this function.

Pause/Break: The [Pause/Break] key, at the upper right corner of the keyboard, causes a DOS scrolling operation to pause. For example, if you enter "dir" at the prompt (causing a list of files in the current directory of the current drive to be displayed) and the resulting display contains more than one screen of data, the data will scroll up and off the screen. Pressing the [Pause/Break] key pauses the scrolling. Hitting any other key resumes the scrolling. The [Pause/Break] key can be used repeatedly with the same effect. To use Break instead of Pause, ending the current operation, you must press the [Ctrl] key simultaneously ([Ctrl] + [Pause/Break]).

Del: The [Del] (Delete) key, located below the [Pause/Break] key, is similar to the [Ins] key but is used to delete rather than insert text.

Ins: The [Ins] (Insert) key, located below the [Del] key, is software dependent and is usually used by text editing and word processing programs to insert text.

Cursor Control Keys

Arrow keys: The cursor control area is located on the lower right corner of the keyboard. It consists of four keys marked by directional arrows. Pressing one of these keys results in cursor movement in the direction indicated. Holding the key down causes continued movement of the cursor. Some software programs may assign special functions to the cursor control keys. Check your software documentation for more information.

PgUp, PgDn: These two keys allow you to move the cursor on the screen from the page top to the page bottom.

Home, End: These two keys are embedded in the [PgUp], [PgDn] keys, which should be operated together with the [Fn] key. Pressing [Fn] + [Home] will quickly move the cursor to the beginning of a document or a line. In contrast, pressing [Fn] + [End] will quickly move the cursor to the end of a document or a line.

Function Keys

The computer has 12 dedicated function keys across the top of the keyboard. Function keys are software dependent. In other words, they are used in different ways by different software programs and you should consult your software documentation for information on how to use them.

Hot Keys

The system provides some key combinations as a short cut for some specified functions, which can temporarily change the system setup.

Fn + ← : Display Contrast Decrease
Pressing this hot key decreases the LCD contrast level.

Fn + → : Display Contrast Increase
Pressing this hot key increases the LCD contrast level.

☞ The Display Contrast control is available only if your LCD is a Dual Scan model. TFT display lacks this adjustment.

Fn + ↑ : Display Brightness Increase
Pressing this hot key increases the LCD brightness level.

Fn + ↓ : Display Brightness Decrease
Pressing this hot key decreases the LCD brightness level.

Fn + F3: Display Device Switching
If you connect an external CRT monitor, you can use this key combination to switch among LCD, CRT and LCD/CRT both display.

Fn + F4: Volume Mute
Pressing this hot key mutes the system audio output.

Fn + F5: Volume Decrease
Each time this combination is pressed, the system's sound level is decreased by a single increment.

Fn + F6: Volume Increase
Each time this combination is pressed, the system's sound level is increased by a single increment.

Fn + F7: Standby Mode
Pressing this hot key sends the system into Standby mode.

Fn + F8: Suspend to DRAM Mode
Instead of pressing the lid Button or awaiting the timer, you can press this hot key to enter the *Suspend to DRAM* mode. However, pressing this key combination again can NOT resume the computer. You should press the lid Button to resume normal operation.

Fn + F9: Suspend to Disk Mode
Pressing this hot key sets your system to *Suspend to Disk* mode.

☞ If you do not leave the un-partitioned space for HDPREPEZ (described in Chapter 7, "Driver and Utilities") and you do not run the HDPREPEZ program, the *Suspend to Disk* mode won't execute. Every time you try to enter *Suspend to Disk* mode, it will enter *Suspend to DRAM* mode instead.

Fn + F10: Pause Battery Warning Beep
When the main battery capacity is less than 10%, a warning beep begins. You can stop the beep by pressing this hot key. Pressing the hot key again will allow the beep to continue.

Fn + F11: PS2 mouse sleep on/off
Pressing this hot key will disable/enable the PS2 mouse.

Fn + F12: Lock the Keyboard
Pressing this hot key will suspend keyboard data transfers. Setting this function can protect your data from unexpected access when you leave your working machine unattended for a

while. To resume the keyboard function, key in the user's password.

☞ To use this Hotkey (Fn+F12), you need to enable the password and set the user's password first. If you connect an external keyboard, the hot key functions are unavailable on the external keyboard.

Windows Application Keys

Windows logo keys
For the Microsoft Windows 95 operating system, use one of the logo keys in combination with other keys to perform various tasks. In Windows 95, you can press it to launch the task menu instead of clicking the *Start* button.

Application key
This key provides quick access to shortcut menus and help assistants with Windows 95-based applications.

Using the TouchPad

The system is equipped with a TouchPad pointing device, which provides a function similar to that of a mouse.

The TouchPad includes a touch pad and two click buttons. Put one finger tip on the touch pad surface and the cursor on the screen will move concurrently with your finger movement. The two buttons below act just like the left and right buttons of a mouse.

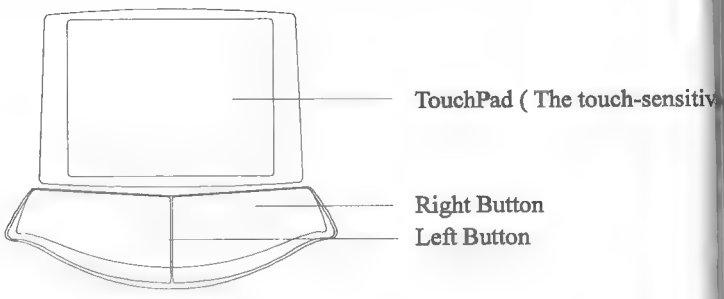
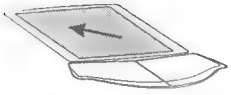


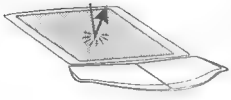
Figure 4-3: The TouchPad

TouchPad Operation

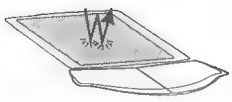
There are four modes of TouchPad operation:



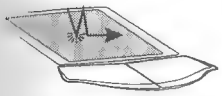
Move and Point
You can move the cursor on the screen by softly moving your finger across the touch pad surface. The cursor will become a pointer when you move it to the item of choice.



Single-Tap
Single-tapping puts an insertion point into your work area. It also can help you to display an optional function or select an item from a display. Move the cursor to the expected workplace or optional item and lightly tap the touch pad surface once. This action can also be accomplished by pressing the left button when you move your cursor to the expected work place or option.



Double-Tap
Double-tapping is generally used when you want to open an icon or to execute a certain item in a list of files. Move your cursor to the desired object and tap the pad twice in rapid succession. The same effect can be achieved by moving the cursor to the desired object and double clicking the left button.



Drag
You can drag an object on the screen by double-tapping, keeping your finger on the pad after the second tap, and moving your finger. This dragging operation can also be done by holding down the left button while you move your finger on the touch pad surface.

TouchPad Care

- Use your finger instead of a pen or other sharp object.
- Make sure your fingers are clean and dry before using the TouchPad.
- Use one finger only. If more than one point on the pad is sensed by the TouchPad, it can cause erratic results.
- Finger movement on the TouchPad should be soft and light. The TouchPad is not pressure-sensitive and requires very little force.

The Media Bay Module

The Media Bay Module consists a Floppy Disk Drive and a CD-ROM Drive.

Inserting and Removing the Media Bay

► **To remove the Media Bay**, do the following:

1. Make sure the computer power is off.
2. Gently place the computer upside down.
3. Slide the security latch to the unlocked position.
4. Keeping the security latch released, pull the Media Bay out.

▶ **To install the Media Bay**, slide the Media Bay into the slot until the security latch locks.

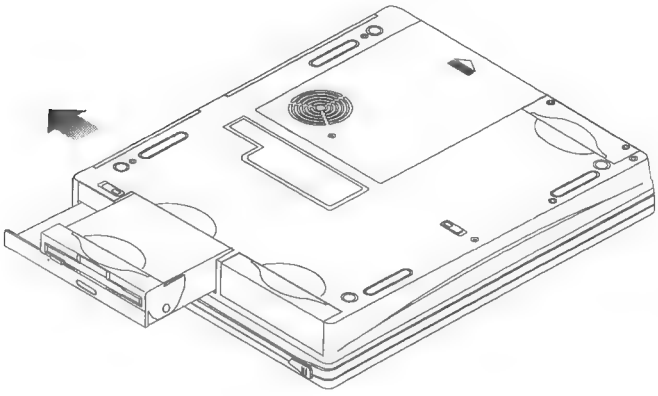


Figure 4-4: The Media Bay

The Floppy Disk Drive

The floppy disk drive in the Media Bay Module is a 3.5" 1.44MB floppy disk drive. When purchasing floppy disks (also called diskettes), we recommend you purchase high quality 3.5" high density type disks sometimes labeled "DSHD" for Double-Side, High Density. These are the 1.44MB capacity type.

Inserting and Removing Floppy Disks

The Floppy Disk Drive is normally set as drive A. To insert a floppy disk, hold the disk with the label facing up and push it into the drive until you hear a click. To remove a floppy disk, make sure the drive is not active and press the eject button to

eject the disk. Do not insert a diskette at an angle since it may cause damage to the front of the diskette drive.

Floppy Disk Care

Normal care when using floppy disks consists of keeping them away from dust, magnetic fields and high humidity. For important data, always keep the disk's protective lock on, so it does not get accidentally erased. Make backup copies regularly.

The CD-ROM

The system is equipped with a 5.25" CD-ROM Drive for reading CDs.

CD-ROM Driver

Unlike hard disks, you cannot read CD data directly. Prior to reading the CD data, you must install a CD-ROM driver. The utility CD provides a CD-ROM driver which can be installed in both DOS and Windows 3.1 environments. If you are using Windows 95, you may not have to install any CD-ROM driver. Click on *Start*, then *Settings*, *Control Panel*, *Add New Hardware*. For other operating systems, please refer to the manual that comes on the CD included in your Notebook package for driver installation as needed.

Inserting CDs

To insert a CD into the CD-ROM Drive, the system's power should be on. Push the CD-ROM eject button. The CD tray will open. Put the CD on the plate with the label side up. Push the CD tray back in. Whether you are inserting or removing a CD, keep your fingers off the CD surface. Handle it by the edges.

The Hard Disk

The Hard Disk, which is removable, is installed on the left side of the computer and can be upgraded. Note that the hard drive is encased in a special housing unique to the system, hence we will refer to the hard drive and its enclosure as the "Hard Disk Pack." If you are ordering a replacement hard drive for your Notebook, consider whether or not you need the drive housing as well.

Inserting & Removing the Hard Disk Pack

▶ **To remove the Hard Disk Pack:**

1. Turn off the computer.
2. Gently place the computer upside down.
3. Remove the two screws, pull the Hard Disk Pack out.

Note: Please refer to Chapter 6, for detail information of removing 2.5" and 3" hard disk.

▶ **To install the Hard Disk Pack:**

1. Make sure the computer power is off.
2. Slide the Hard Disk Pack into the slot.
3. Tighten the two screws.
4. Check to see if the Hard Disk Pack is firmly locked by trying to remove the Hard Disk Pack. If it can't be moved, you have securely installed it.

If you get a new Hard Disk Pack that is a different capacity than the previous one, don't forget to run the BIOS SETUP Program to change the Hard Disk type.

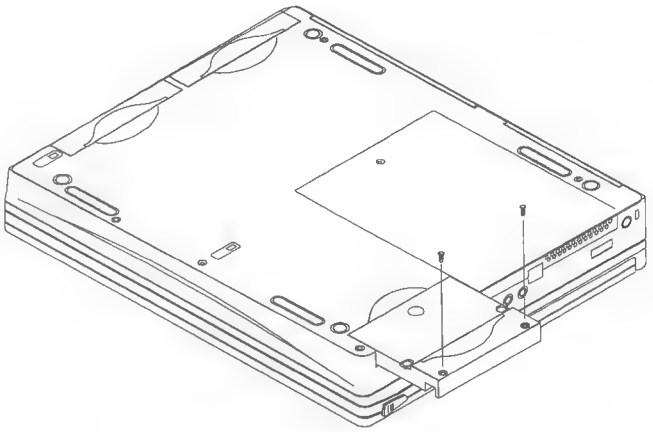


Figure 4-6: The Hard Disk Drive

Hard Disk Setup

The Notebook is completely ready for use out of the box. However, if you want to try an operating system other than the one the system comes with, or if you are starting fresh with a new hard drive, you must first define how the system will use the hard disk. Both Windows 95 and MS-DOS use a program called FDISK to define the partitions and name the logical drives. Check your operating system startup boot disk for the presence of FDISK or a similar partition program. Refer to your software instructions for specific information on how to proceed.

When defining hard drive partitions, you should always make un-partitioned space equivalent to the amount of your system's main RAM memory plus 2 MB. For example, if you have 8 MB RAM, you should at least leave 10 MB free. (Of course, you will want to leave a larger space if you are about to upgrade your RAM.) This space is left for the *Suspend to Disk* mode which is explained in the "Setup Program" section.

Running HDPREPEZ

After leaving the requested un-partitioned space on your hard disk, you need to run a program called HDPREPEZ to recognize this space. If you do not run this program, you will get a nagging error message whenever you boot the system requesting you to run this program. To install the HDPREPEZ Utility, refer to Chapter 7, "Drivers and Utilities."

Installing Operating Systems

An operating system (OS) is resident on the hard disk drive. This computer comes with Windows 95. Since operating systems are commercially competing products whose manufacturers sometimes have little vested interest in making their products work with other manufacturers' products, software manufacturers claims of interoperability should be treated with skepticism. You should never install more than one operating system on the hard disk at the same time. Similarly do not attempt to use an application or file "Cross-platform," that is, between competing operating system/hardware standards.

Windows 95 Help

Windows 95 has fairly good online help built in to the program itself. Access Windows 95 online help by clicking *Start*, then *Help*. Consult user groups, online forums and websites. There are numerous classes, books, study aids, and seminars on Windows 95 and Microsoft products in general. Microsoft maintains a wealth of up-to-date information on their Internet website at *www.microsoft.com*. You may also call an authorized Notebook service center for Windows 95 assistance. For other operating systems, call the manufacturer or consult online forums and user groups.

For help with application software such as word processors, databases, spreadsheets and so on, call the respective program manufacturers. Please do not call your Notebook dealer for assistance with software other than the software your system originally came with.

Starting From Floppy Disk

You often will start the system software installation with a floppy disk (refer to your OS software manual). Insert the bootable disk of the operating system in drive A to start. The computer will boot and load the system files from the floppy disk.

Hard Disk Format

After creating a partition or partitions on the hard disk, you need to format the hard disk. In MS-DOS, you can use the FORMAT program. Then copy the rest of the operating system files to the hard disk.

☞ Your computer probably has Windows 95 installed. If so, you can skip the above procedure and go on to install your other applications directly.

Installing Other Applications & Utilities

Once you have installed an operating system, you may need to install other application programs or utility programs. Most of these programs are installed automatically.

The best way to install programs in Windows 95 is to use the Add/Remove program feature. Installing programs with this method allows Windows 95 to keep track of installed programs for later deletion. Click *Start*, *Settings*, *Control Panel*, and *Add/Remove Programs*.

These days, most programs install automatically. "Automatic installation" means the installation software prompts you to make choices and insert diskettes, you are given a set order in which to insert your diskettes, and each diskette guides you with wizards, offers advice and options, and prompts you to insert subsequent diskettes.

Please check with your software installation manuals for further information about installing and running application software.

PCMCIA Use

PCMCIA Slots

PCMCIA cards (also called "PC cards") provide your Notebook with a wealth of computing capabilities. Popular PCMCIA devices include fax modem cards, network cards, PCMCIA hard disks, SRAM cards and flash memory cards. Your Notebook provides two sockets for PCMCIA card insertion. There are three types of PCMCIA cards, identifiable by their thickness. Type I cards are 3.3 mm thick; Type II cards are 5.0mm thick; Type III cards are 10.5 mm thick. The upper socket on your Notebook is called a "Type II slot," and can be used with Type I and Type II cards. The lower one, called a Type III slot, is available for Type I, Type II or Type III cards.

How to Use PCMCIA Cards

Inserting PCMCIA Cards

There are two sockets (slots) and two eject buttons for PCMCIA cards in the compartment on the left side of your Notebook.

- The lower socket (Socket 0): You can insert a Type I, Type II or Type III PCMCIA card into this socket. This socket supports ZV port compatible PCMCIA cards.

- The upper socket (Socket 1): you can insert a Type I or Type II PCMCIA card into this socket.

When a PCMCIA card is properly inserted, a card symbol will appear in the Status Indicator Panel after 1-second, and an audible beep will sound.

Infrared (IrDA)

Your computer is equipped with a fast infrared communication port that allows point-to-point communication with other computers or devices equipped with an infrared port. The port inlet is a small black square on the left side of the system that looks like an infrared port for controlling a VCR with a hand remote.

Preparing for Infrared Communications

The Infrared Device Driver

Before using the infrared communication feature of your Notebook, you must first install an infrared device driver and an infrared communication program. If you are using Windows 95, this operating system would automatically install a fast Infrared device driver for you. Your IR devices may provide different device drivers. Please refer to the user manual of your IR device to install the driver or consult your IR device dealer for assistance.

Setting the IrDA in Setup

The IR port shares the same address with Serial Port B (COM 2). To enable IR communications or select different types of IrDA, go to the BIOS Setup Program; choose the "PERIPHERALS"; Set the "Onboard Serial Port 2" to "Auto" or choose an address. Thus, "Serial Port2 Mode" and "IR Transmission Mode" will be available. Select different types of IrDA (standard IrDA or ASK IR) in "Serial Port2 Mode" and different type of transmission mode (Full Duplex or Half Duplex) in the "IR Transmission Mode."

Using Infrared

After installing the IrDA device driver and communication program, your computer is equipped for IR communication. IR data transfers use infrared rays instead of connecting cables. When using this feature, please consider the following:

1. Make sure your IR ports **face each other directly** within a maximum communicating distance of 3.3 feet. Avoid placing objects between the two IR ports. Objects between the IR ports will block the signal.
2. Please run the same version of the application software to communicate between your computer and other devices. Note: Infrared communications software technology is still under development at the time of this writing. You may encounter some difficulties.
3. There is a possibility of interference from ambient light. Avoid the use of IR communication during bright sunshine or artificial lighting conditions. Also, avoid using IR remote control devices in the same reason.

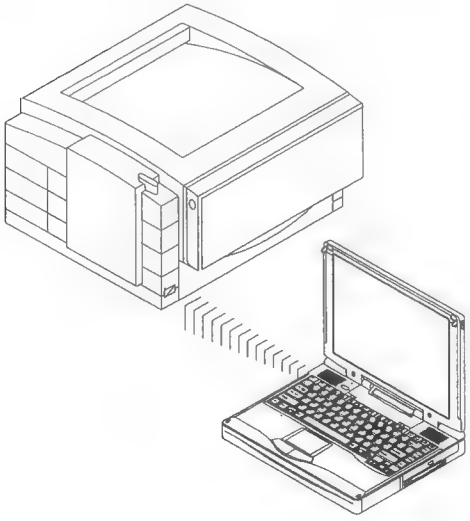


Figure 4-7: Using Infrared

Using Security Locks

Device Security Latch

Use the Device Security Latches to protect removable devices such as the Battery or the Media Bay Module from sliding out of the bays. Two Security Latches on the bottom of the computer are designed to keep component bay devices secure. To remove the device, you should slide the latch to its other end to release the device lock.

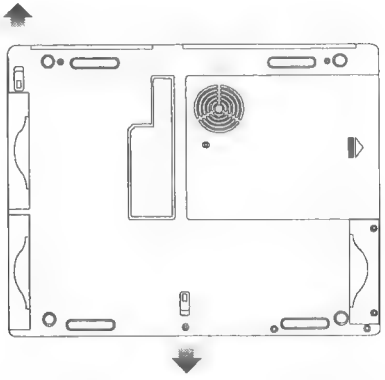


Figure 4-8: The Device Security Latch

Kensington™ Security Lock

To protect your computer against theft, attach a Kensington™ security lock or comparable lock to the Lock keyhole on the left side of the computer; then secure the chain on the lock to a stationary object, like a desk.

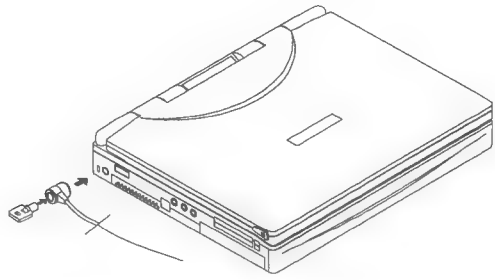


Figure 4-9: The Kensington™ Security Latch

This concludes Chapter 4. Chapter 5 covers Power Management.

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Chapter 5

Power Management

Power is precious. One of the key features that distinguishes Notebook computers from stationary computers is the ability to run under their own power. This power is not generated internally, but comes from a battery, which can be removed and exchanged with another fresh battery. It can be charged with the system off; it can even be charged while the system is running (slow charging) or charged with a special external charger. However, the main battery is not critical for running your system. You can remove the battery and run it straight from the AC power (what the British call "the mains"). With proper care, batteries can last a long time. Keep your battery charged. Never keep a dead or damaged battery in the system, which can cause corrosion and be expensive to repair.

AC Power

You can run your computer with an AC adapter drawing its operating power from any standard electrical outlet. The AC adapter automatically senses the incoming voltage and adjusts it to the suitable voltage accordingly. It serves the dual function of providing power to the system and providing power to the battery pack for charging. If a non-fully charged battery pack is installed, the AC adapter can charge the battery and simultaneously power your computer.

Setting Up the AC Adapter

The AC adapter contains two parts. One is the adapter, which has a cable attached, the other is the power cord. To set up the adapter, connect the power cord to the adapter; then plug the other end of the power cord to a grounded outlet; finally connect the power cable to the DC-IN jack on the left side of the computer.

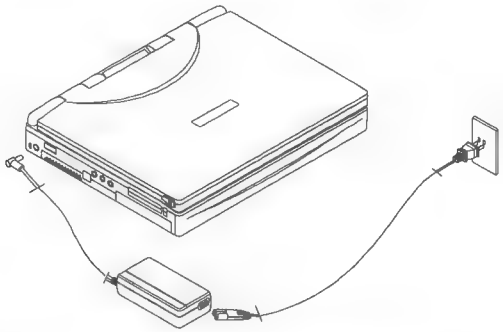

Figure 5-1: Connecting the AC Adapter

☞ To remove the AC adapter cable from your computer, it's better to pull from the connector. Pulling the cable will eventually result in connector damage.

When Accessing AC Power

When you connect the AC power cord to a grounded outlet, you will see the "AC-IN" icon (represented by a plug) light up on the Status Indicator Panel. If the icon doesn't come on, check if you have properly connected the power cable to the computer's power jack.

☞ Some AC adapters have one LED indicator which will glow green when AC power is being drawn.

☞ Use only the power adapter that comes with your Notebook computer. System operation with an incorrect adapter will cause damage to the Notebook and its components.

The Battery Power

If an external power source is not handy, you can run your computer with a battery pack specially designed for it.

The Battery Pack

Nickel Metal Hydride Battery Pack

The computer comes with a removable Nickel Metal Hydride (NiMH) battery pack. A fully charged battery can provide power to your Notebook for at least 90 minutes without any external power source. With the use of additional power saving features, it can provide power for a much longer period of time.

The Optional Battery Pack

Lithium-Ion Battery Pack
The Notebook can use another battery called the Lithium-Ion type battery pack, which is lighter and has a higher capacity than the NiMH battery. For optional battery packs, contact your dealer.

Charging the Battery

Charging via AC Adapter

The battery can be charged via AC adapter regardless of whether the power switch is on or off. Simply keep the empty battery in your Notebook with the AC adapter attached and charging will occur. It takes about two and half hours to fully charge an empty battery with computer power off, and about four hours (depending on how intensively you are using your computer) with the computer on.

You don't need to worry that the battery will over-charge because the charger automatically terminates charging when the battery is fully charged.

Before Charging a New Battery

Before charging a new battery, please verify its power capacity. First check the indicator lights on the battery icon on the Status Indicator Panel to determine the level of any existing charge. If the charge is greater than 25% (and more than one indicator light will be lit if it is), please discharge the battery (the last indicator light will be flashing). This action can help the new battery become charged to maximum capacity on the first charging.

Breaking in a Battery

The first few times you charge a battery, charge and discharge to its fullest capacity. Charging and discharging your battery fully is a good habit, because it will let your battery "remember" its full status and its depleted status for its maximum capacity and usefulness.

Battery Charge Indicator Lights

When the battery is being charged, the frame of the battery icon on the status panel will flash. Also you can check the 4 indicator lights on the battery pack indicating the current battery power level. Each light represents 25% of the whole battery charge capacity. When you take the battery out and press the button on the battery pack, the indicator lights will be lit to the current battery power level.

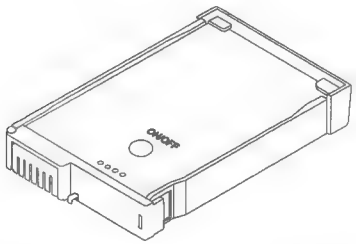

Figure 5-2: Battery Charge Indicator Lights

Recharging an Over-exhausted Battery

When your battery goes to critical low capacity, you should exchange it with a fresh battery immediately to continue your work. If you don't intend to continue your work, save the work and take the low capacity battery out. Never keep a low capacity battery in your Notebook for over two weeks since your system will keep drawing power from the battery until the battery is totally exhausted, and it takes a long time to recharge an over-exhausted battery.

If you have an over-exhausted NiMH battery, follow this sequence to attempt to revive it so that it will accept a charge.

1. Plug in the AC adapter to recharge the battery for at least half an hour.
2. Check to see if at least one of the battery indicator lights flashes.

☞If there is no reaction after a half hour of charging, try it for another half hour. If the battery still doesn't react, you must assume your battery is completely dead, and beyond reviving. Contact your dealer for assistance.

3. If the battery appears to be charging, keep charging the battery to its full capacity, then disconnect the AC adapter.

Battery Low Warning

The Notebook is designed to provide two levels of warning when the battery is low on power. These warnings remind you to stop operating and save your work so you won't lose any of your data. The two levels of warning are explained as follows:

Battery Low Level 1

The first level of warning occurs when there is 10% remaining power left, which can supply the system for 10-15 minutes' more power. When this level is reached, the speaker will beep every 8 seconds. Stop and save your data to your hard disk or floppy disk as soon as possible. Please refer to the Power Management section of the BIOS Setup Program in Chapter 3 for details.

Battery Low Level 2

The second level of warning occurs when critical low power level is reached (about 3%). At this level, the system will give a *Beep* warning, and then enter *Suspend to Disk* mode. At this stage you are forced to stop your work. Insert a fresh battery or use the AC adapter to continue your work.

☞ The battery low warning beep may be distracting when you want to complete the work directly. In this case, you can disable the warning beep by pressing [Fn] + [F10]

Battery Low Suspend

Your Notebook supplies you with two battery low warnings to prompt you to select a new power source or save current data. To further protect data loss by power shut down, you can set Battery Low Suspend [Enabled]. When battery low 2 comes on the system will be forced to enter *Suspend to Disk* mode. Your data will be saved to disk before powering down.

In case you do not partition your Hard Disk for *Suspend to Disk*, when Battery Low 2 is reached, your system will be forced to *enter Suspend to DRAM* instead of *Suspend to Disk*. However you must employ the AC adapter and replace the battery as soon as possible, since the remaining power cannot sustain your computer in *Suspend to DRAM* mode too long. When the last battery power is consumed, the data suspended in DRAM will be lost too.

Exchanging the Battery Pack

When battery power is depleted, you can exchange a fresh battery pack to continue your work. Take a fully charged battery pack and follow the steps below to exchange the battery pack.

1. Save your work and quit the program you are running. Exit your operating system.
2. Turn off the computer.
3. Remove the depleted battery pack.
4. Insert the fully charged battery pack.
5. Turn on the computer to continue.

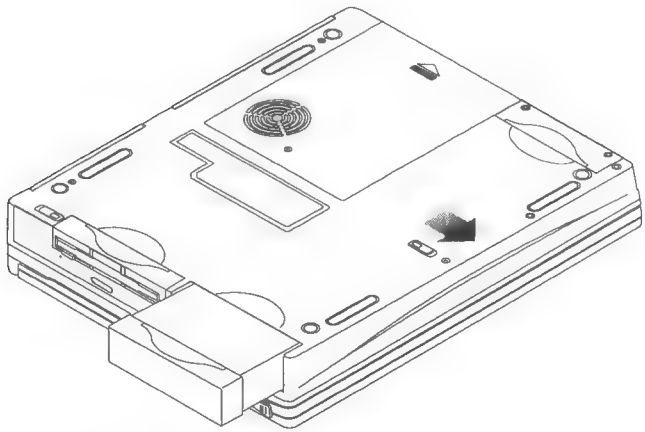

Figure 5-3: Exchanging the Battery Pack

Exchanging the New Battery

If the original battery is no good any more, you can buy a new battery and replace it. Follow the steps below to exchange the new battery:

1. Save your work and quit the program you are running. Exit your operating system.
2. Turn off the computer.
3. Remove the old battery.
4. Remove the cover of the old battery.
5. Put the cover back to the new battery.
6. Insert the new fully charged battery.
7. Turn on the computer to continue.

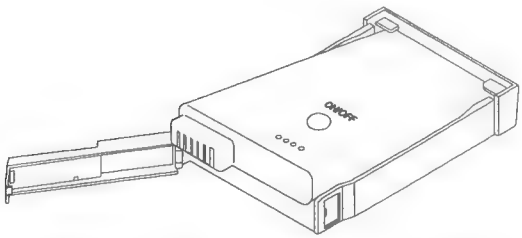

Figure 5-4: Exchanging the New Battery

Power Management

The Notebook has a number of Power Management functions which can be adjusted from within the BIOS Setup Program. You can set the time-out to a specified Power Management mode for some components, or you can set those modes for special situations.

Power Management Modes

There are 5 Power Management modes: Full Power, Doze Mode, Standby Mode, Global Standby Mode, and Suspend Mode. Different situations (such as battery low) and component configurations with those modes will have different power saving effects.

Full Power

In this mode, each component operates on full power.

CPU Auto Doze Mode

When the doze mode is enabled, the CPU runs at full frequency for a pre-defined time period and then stops for a pre-defined time period. Any system break event will reload the timer and resume the system back to full power status.

Standby

The LCD panel or hard disk can be set to power down after they have been inactive for a specified time.
When any of these devices are re-accessed, they will resume full power operation immediately.

Global Standby Mode

In Standby mode, your hard disk stops and the LCD turns off. When any key is pressed, it will resume to full power operation.

You can enter Standby mode by

- setting the Standby timer
- pressing hot keys [Fn] + [F7]

Suspend Mode

There are two types of Suspend mode that the user can select in the BIOS Setup program.

Suspend to DRAM
When this mode is entered, all tasks are stopped and stored in DRAM and most devices are turned off. Pressing the lid switch will restore the computer to full power mode and all tasks will be restored immediately.

Suspend to Disk
In *Suspend to Disk* mode, the system saves the current tasks to the hard disk and powers down. To restore your system you must turn on your computer again. When you turn your computer on, all tasks you were working on before the system entered Suspend to Disk will be restored from the hard disk. Remember to create the *Suspend to Disk* file space before using this mode (see "*Suspend to Disk* Mode" on the following pages).

You can enter the Suspend Mode by:

- Setting the Suspend timer
- Pressing the lid switch
- Pressing [Fn] + [F8] to enter "*Suspend to DRAM*"
- Pressing [Fn] + [F9] to enter "*Suspend to Disk*"
- Setting Battery Low Suspend to enabled

BIOS Power Management Options

With the aforementioned power management modes, you can set the computer to enter power saving mode automatically when the computer is inactive for a specified period of time. You can also choose which Suspend mode your computer will enter when the specified time-out is reached. The system is already pre-set with one standard power-saving mode for your convenience. You can also choose *Customize* to set the timer for each feature independently as you prefer.

- **Disable**

  All above power management time-outs and responses are disabled.

- **Minimum**
- **Medium**
- **Maximum**
- **Customized**

  You can set the above time-out to customize your own power-saving mode.

Lid Switch

Function as Button Switch

To maximize power savings when you want to leave the system alone for a short while, press the lid switch to launch the power-saving mode immediately. If you want your computer to take a break whenever you take a break, you can set up your Notebook so that depressing this switch causes the system to enter *Suspend to DRAM* mode. When you are ready to use your Notebook again, just press the lid switch. Everything will return to the previous state in about 2 seconds.

If you want to turn off your computer whenever you are away, you can set this switch to *Suspend to Disk.* In *Suspend to Disk* mode, when you press the lid switch the system will save your present data to the hard disk and power off. Unlike the *Suspend to DRAM* mode, you can't simply toggle the lid switch to resume your computer; you must turn on the power again. Doing this will bring you back to the screen where you were working before entering *Suspend to Disk.*

If you prefer, instead of pressing the lid switch, you can use hot keys to enter *Suspend to DRAM* mode or *Suspend to Disk* mode.

- [Fn] + [F8] Enters *Suspend to DRAM* Mode
- [Fn] + [F9] Enters *Suspend to Disk* Mode

Function as Cover Switch

When you close the Notebook cover (or press the lid switch for over 3 seconds) your system will enter Suspend mode or Panel Off status.

In Panel Off status, the LCD panel turns off and the CRT display turns on. When you re-open the Notebook cover, the LCD display comes back. This function is convenient when you operate the Notebook with an external monitor. You can close the cover to save space.

For "Suspend to Disk" Mode

Leaving Un-partitioned Space

For more information about FDISK, please refer to the user's manual of your Operating System

The use of *Suspend to Disk* mode requires space on the hard disk. Figure on allowing space on the hard disk equal to the amount of RAM in your system plus 2MB on your hard disk. When you format your hard disk with FDISK, be sure to leave this space un-partitioned for the *Suspend to Disk* function. Remember this easy formula:

MBs of RAM + 2MB= Megabytes of hard disk space needed.

e.g.,
Using the above formula with 16MB RAM

16MB + 2MB= 18MB

☞ Remember to reserve more space if you are going to upgrade the Notebook's memory capacity. Use the same formula.

Running HDPREPEZ

This program is used to recognize the un-partitioned space for the *Suspend to Disk* power savings function mentioned above. If this program has not been run on your system, an error will always occur to request you to run this program whenever re-booting. To install the HDPREPEZ Utility, refer to Chapter 7 "Utilities and Drivers."

☞ If you didn't leave the un-partitioned space and didn't run HDPREPEZ, the *Suspend to Disk* mode won't execute. Every time you try to enter *Suspend to Disk* mode, it will enter *Suspend to DRAM* mode instead.

This concludes Chapter 5. Chapter 6 covers the Notebook's expansion options.

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Chapter 6

Expansion Options

Connecting Peripheral Devices

External Serial Mouse or Other Pointing Devices

Some people prefer to use a traditional mouse instead of the built-in TouchPad. In some graphics applications, you may need other pointing devices. The Notebooks allow you to connect an external serial mouse/pointing device to the serial port. The connecting procedure is as follows:

1. Connect the external mouse/pointing device to the serial port on the rear of the Notebook.
2. Reboot your computer. The computer will activate the external pointing device.

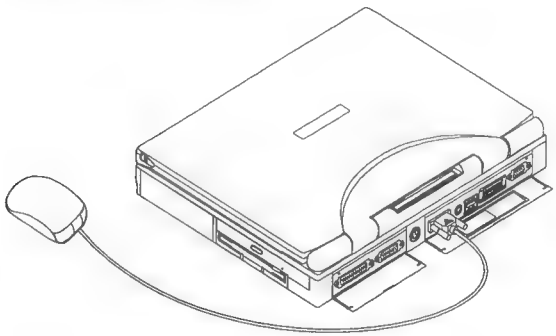

Figure 6-1: Connecting an External Mouse

Printers

Almost any parallel printer with the standard Centronics interface can be connected to the 25-pin parallel port at the rear of the computer.

1. Turn off the computer.
2. Connect the printer's parallel male connector to the 25-pin parallel port at the rear of the computer.
3. Turn on the computer and the printer.

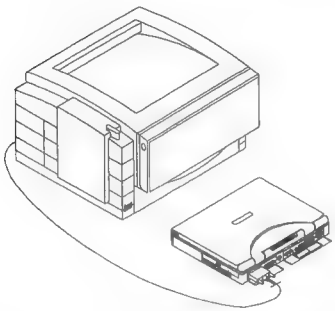

Figure 6-2: Connecting a Printer

If your printer has an IrDA port, you can use Infrared communication instead of a cable connection to do transfer data for printing. For more details about IrDA, refer to Chapter 4.

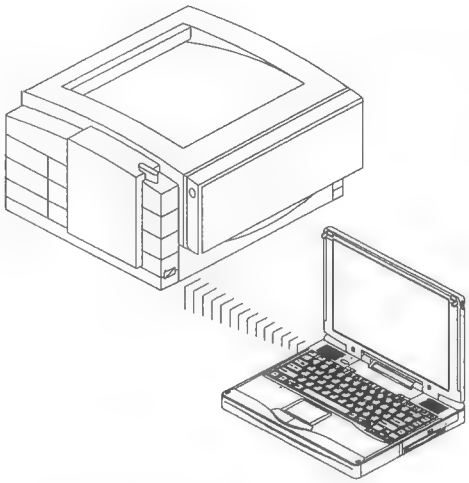

Figure 6-3: Using IrDA

MIDI Equipment or Joystick

Turn off the computer and connect the Joystick to the MIDI/Game port. MIDI equipment needs a MIDI connector to connect musical instruments to the MIDI/Game port.

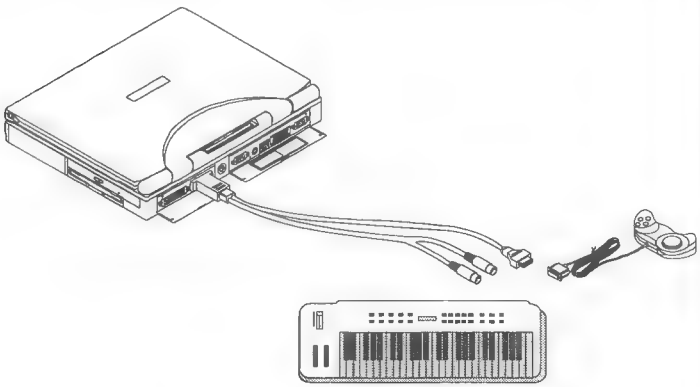

Figure 6-4: Using MIDI Equipment

Audio I/O Jacks

Three audio jacks are located at the left side of the computer. The left one is for an earphone or external speaker. The jack in the right is for an external microphone. The jack on the middle is for audio input which can be connected with an audio player or other audio devices.

The internal speaker will be disabled whenever an external output device is connected to the earphone jack.

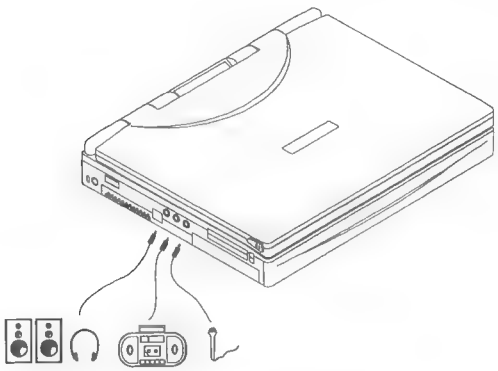

Figure 6-5: The Audio I/O Jacks

External PS/2 Keyboard/Mouse

A 6-pin connector on the rear of the Notebook is available for an external PS/2 keyboard/mouse. You can connect the external keyboard/mouse to the port and the computer will automatically detect the system to activate the device.

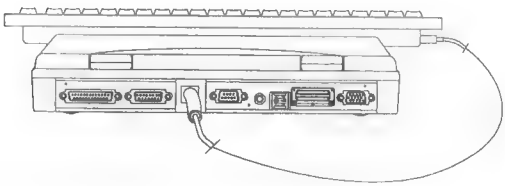

Figure 6-6: The External PS/2 Keyboard

Television Display

To use the TV jack for connecting a Television set for use as an auxiliary computer output device, do the following:

1. Turn off the computer.
2. Connect the video in/out cable to the Notebook TV jack; then connect the other end to the video input of your television.
3. Turn on the computer.
4. Install the VGA driver to activate the TV display.

External CRT Monitor

You can connect virtually any external VGA, SVGA or XGA PC monitor to this computer. The port you use is a standard 15-pin analog connector located at the rear of the computer. To connect a desktop monitor, follow these instructions:

1. Position the monitor on the desk beside your Notebook PC.
2. Connect the monitor's 15-pin male connector via the monitor's video cable to the CRT connector on the Notebook.
3. Connect the monitor to a suitable power source and turn it on.
4. Turn the Notebook power on. The system will detect and select the CRT display. You can use the Display switch keys [Fn] + [F3] to toggle between the LCD display and the CRT display or LCD/CRT both display.

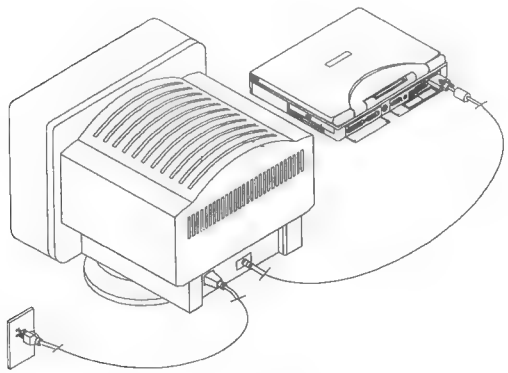

Figure 6-7: Connecting an External Monitor

Port Replicator

Port Replicator

Combine the words "replace" and "duplicate" and you get "replicate." With a port replicator, you don't need to remove attached devices like printers and monitors one by one. The Port Replicator duplicates all the device ports on the Notebook and replaces them with a centralized unit that you can detach from the Notebook, saving the user from having to contend with a Gordian knot of wires. Attach all the device cables to the ports on the Replicator and the Replicator attaches to your computer through an expansion port. To remove all the attached devices, simply detach the Notebook from the Port Replicator. Very convenient.

☞ If you are interested in a Port Replicator, consult your dealer for further information.

Universal Serial Bus (USB) Port

The two USB ports are located on the rear of the computer. The USB ports can be used to connect many USB devices such as USB monitor, USB keyboard, USB mouse and USB PC camera. For detailed information at using specified USB devices, please refer to the user's manual for detailed information on that product.

Upgrading Components

CPU

To improve your computer's performance, you can replace the CPU with a faster one. Since the CPU is an expensive and easily damaged part of a computer, we suggest that it be removed by experienced technicians of your dealer only. Call your dealer for assistance.

Warning: Never force anything. Damage to your system caused by replacing your CPU will void your system's warranty. Read the follow section fully before attempting a CPU upgrade.

Removing the CPU (IMM type)

1. Loosen the screw on the CPU cover and remove the CPU cover.
2. Loosen the screws on the heat sink and remove the heat sink.
3. Locate the CPU IMM module position and remove the old IMM module.
4. Replace with new IMM module and then assemble the heat sink and cover.

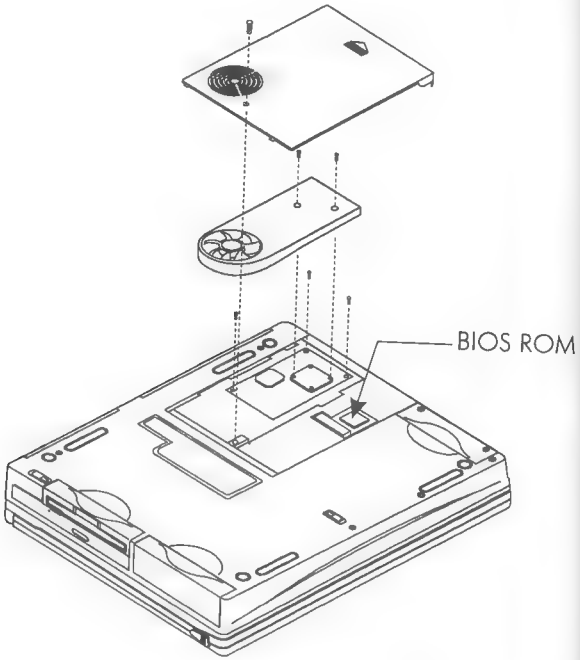

Figure 6-8: Removing the Heat Sink (IMM type)

Removing the CPU (Socket 7 type)

1. Slide the keyboard latches outwards and lift the keyboard panel. (Figure 6-9)
2. Remove the heat sink.(Figure 6-10)
3. Locate the CPU position.
4. The CPU is installed in a CPU socket. The socket has two notches marked OPEN and CLOSE respectively.
5. Remove the white stopper out of CLOSE notch.
6. Insert a screwdriver into the OPEN notch and push it towards the left.

7. A quiet popping sound is heard when the CPU is released from the socket.

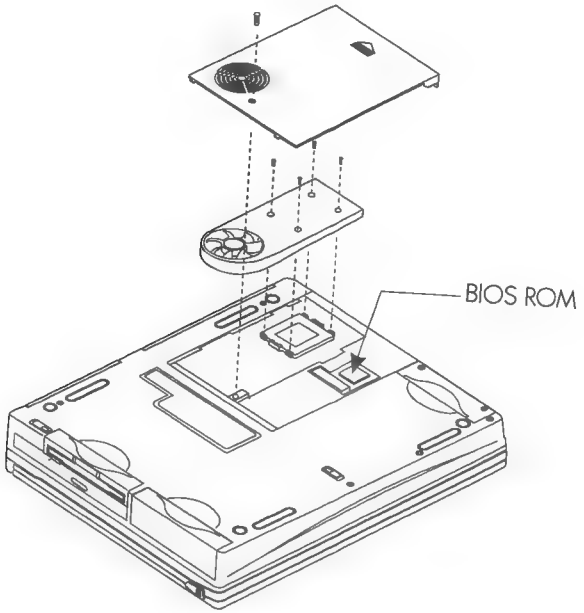

Figure 6-9: Removing the Heat Sink (Socket 7 type)

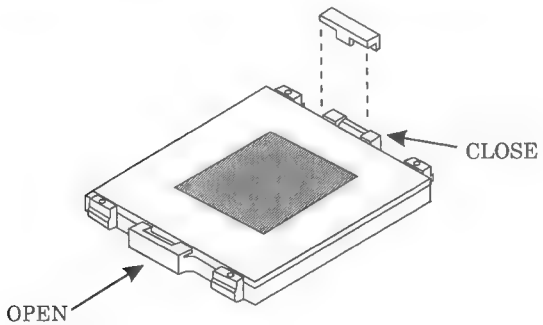

Figure 6-10: Removing the CPU

Inserting the CPU

1. Place the CPU on the socket with the notched edge on the lower left side.
2. Insert a screwdriver into the CLOSE notch and push it towards the left.
3. Make sure the CPU is firmly installed.
4. Restore the white stopper into CLOSE notch.
5. Adjust the two DIP switches, according to the new CPU's specifications.

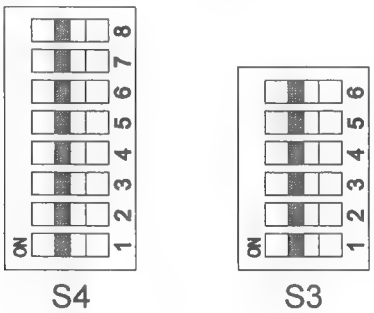

Figure 6-11: CPU switches

CPU DIP Switch Adjusting Table

Switch-3

CPU Type	Position	
	1	2
166 MHz 66 x 2 5	ON	ON
200 MHz 66 x 3	-	ON
133 MHz 66 x 2	ON	-
233 MHz	-	-

Switch-3

Bus Clock	Position
	4
60 MHz	ON
66 MHz	-

CPU DIP Switch Adjusting Table

Switch-3 and 4

CPU I/O Power	Switch/Position	
	3/5	4/8
3.3V	-	ON
2.5V	ON	-

Switch-4

CPU Voltage	Position						
	1	2	3	4	5	6	7
3.3V	ON	-	-	-	-	-	-
2.9V	-	ON	-	-	-	-	-
2.8V	-	-	ON	-	-	-	-
2.5V	-	-	-	ON	-	-	-
2.35V	-	-	-	-	ON	-	-
2.2V	-	-	-	-	-	ON	-
1.8V	-	-	-	-	-	-	ON

Hard Disk

You may find that you need a higher capacity hard disk. Your Notebook provides an easy way to replace the hard disk. You can replace your hard disk by following these instructions

For 2.5" Hard Disk:

1. Be sure the computer power is off. Remove the battery. Disconnect the system from any power source.
2. Take the hard disk pack out.
3. Loosen the two screws 1 and 2 to separate the front cover case.
4. Loosen the four screws 3, 4, 5 and 6 on both sides of the hard disk to separate the metal plate from the hard disk.
5. Loosen the two screws 7 and 8 on the connector. Remove the interface connector from the hard disk.
6. Reconnect the interface connector to the new hard disk and then tighten those 8 screws up in reverse order.
7. Place the new hard disk pack back to the computer.

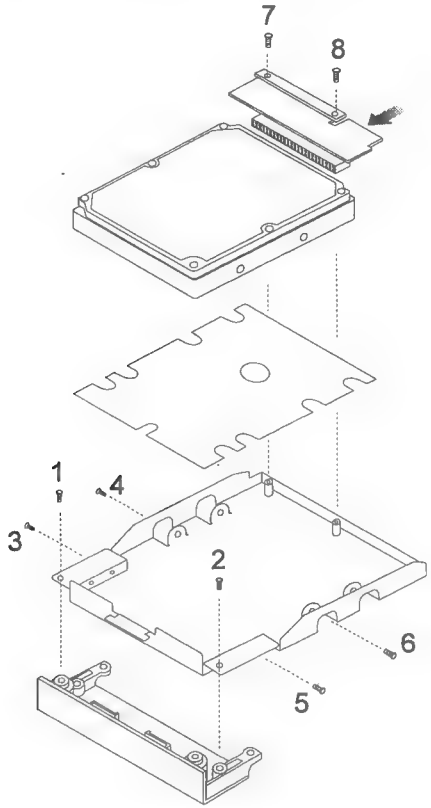

Figure 6-12: Replacing the 2.5" Hard Disk Drive

For 3.0" Hard Disk:

1. Be sure the computer power is off. Remove the battery. Disconnect the system from any power source.
2. Take the hard disk pack out.
3. Loosen the two screws 1 and 2 to separate the front cover case.
4. Remove the interface connector from the hard disk.
5. Reconnect the interface connector to the new hard disk and then tighten those 2 screws up.

6. Place the new hard disk pack back to the computer.

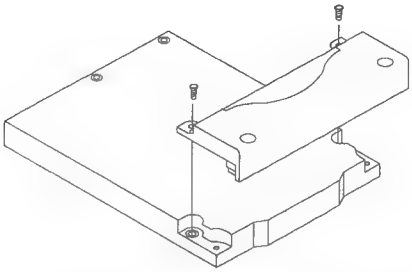

Figure 6-13: Replacing the 3.0" Hard Disk Drive

Note: Before you can use your new hard disk you may need to go to BIOS SETUP program to let the system detect the new hard disk setting and install the operating system. Please refer to Chapter three for details.

RAM

You may need to add to your system's RAM (Random Access) memory. To add more memory, you can simply plug in RAM cards which are available in 8, 16, 32, 64MB capacities. If you are an experienced computer user, refer to the following procedures to install a memory card.

Warning: Never force anything. Damage to your Notebook caused by replacing your memory will void your system's warranty. Read the following section fully before attempting a memory upgrade.

Removing the RAM Cards

1. First of all, make sure the computer power is off. Remove the battery. Disconnect the computer from any power source.
2. Open the keyboard panel.

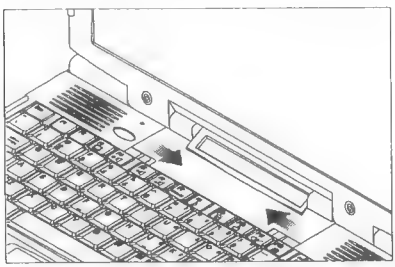

Figure 6-14: Opening the Keyboard Panel

3. Locate the RAM socket.
4. Press the edges of the slot outwards until the front of the card pops up. Then the RAM card can be taken out by sliding it towards you.

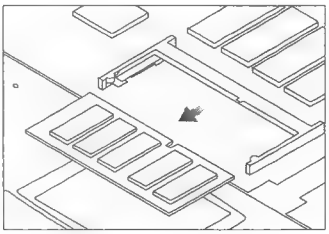

Figure 6-15: Removing a RAM Card

Installing RAM Cards

1. Hold the new RAM card with the gold pins towards the socket.

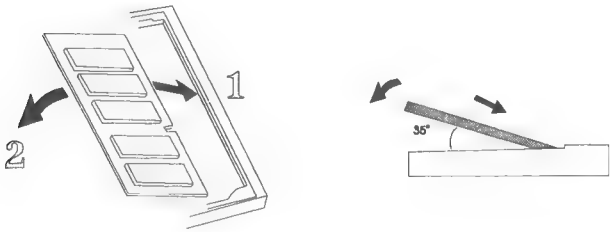

Figure 6-16: Installing a RAM Card

2. Insert the card into the connector of the slot at an angle (approximately 35 degrees from horizontal) and then push it down into the slot.

This concludes Chapter 6. Chapter 7 covers the Notebook's Utilities and Drivers.

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Chapter 7

Utilities & Drivers

Installing System Utilities

Running HDPREPEZ

After leaving the required un-partitioned space on your hard disk, you need to run a program called HDPREPEZ to recognize this space. If you don't run this program, an error message <Invalid Hibernation Partition/File.....Run HDPREZ.....> will always occur on boot up requesting that you run this program.

To install the HDPREPEZ Utility, follow these steps:

1. Go to the DOS prompt. (Windows 95—Click *Start* move the cursor to *Programs*, then click the MS DOS Prompt icon.)
2. Insert the utility CD into the CD-ROM drive.
3. Your CD-ROM drive is normally defined as drive D. If that is the case, then change the directory to **D:\Utility.**
4. Type HDPREPEZ and press [Enter]. It will prepare the disk according to your HDPREP.CFG file. The system should be restarted after running this utility to make the changes take effect.

   For Example:
   If you want to Create a Save to Disk partition, type

   HDPREPEZ /C

   A file called HDPREPEZ.CFG should be generated. You can use text editor to fine tune the partition settings.

   If you want to get on-line help for Save to Disk partition information, type

   HDPREPEZ /H

Note: If you have changed the size of RAM, you have to run HDPREPEZ again, and maybe you need to change the size of un-partitioned space on your hard disk. Please refer to "Leaving the un-partitioned space" in Chapter 5 for details.

nstalling Device Drivers

For complete information on installing device drivers, please refer to the user's manual located on the CD-ROM that comes with the Notebook computer.

VGA Drivers

For Windows 95
These drivers are designed to work with MS Windows 95. You must install these drivers through the Windows 95 operating system.

Note: This VGA driver should have been installed before shipping.

Step 1: Install Windows 95 as you normally would for a VGA display. Click the **Start** button, go to **Settings** and click on **Control Panel**. Choose the **Display** icon and double click on the icon. In the ***Display Properties*** window, click on the **Settings** tab. Then click on **Advanced Properties**. In the **Advanced Display Properties** window, click on the **Change** button under ***Adapters***. This will bring up the ***Select Device*** window.

Step 2: Place the Windows 95 Display Driver CD in drive D. In the Select Device window, click on **Have Disk**. Press **<Enter>** and then select D:\VGA\chips95.inf, the name of the *Chips and Technologies, Inc. Video Controller* driver will appear highlighted in the Models list box. Click **OK** to install the selected driver.

Step 3: Once the installation is complete, the **Advanced Display Properties** window will reappear. Click on **Close** to close the window. Then the ***Display Properties*** window will reappear. Click on **Apply**. Restart the system for a new settings to take effect.

For Windows NT 4.0
These drivers are designed to work with MS Windows NT 4.0.

Step 1: Install Windows NT as you normally would for a VGA display. Click the **Start** button, go to **Settings** and click on **Control Panel**. Choose the **Display** icon and double click on the icon. In the ***Display Properties*** window, click on the **Settings** tab. Then click on **Display Type**. In the **Display Type** window, click on the **Change** button under ***Adapter Type***. This will bring up the ***Select Device*** window.

Step 2: Place the Windows NT display driver CD in drive D. In **Change Display** windows, Select Manufactures Chips & Technologies Display: Chips & Technologies Video accelerator click on **Have Disk** and press **<Enter>**. Then Click on **Browse** button, select drive D. Select the file name: OEMSETUP, and then Click **OK**. The Chips Video Accelerator driver will be heighted in display list box, click **OK** to install the driver.

Step 3: Once the installation is complete. Select **OK**. The **Change Display Type** window will reappear. Click on **Close** to close the window. Then the ***Display Properties*** window will reappear. Click on **Apply**. Restart the system for new settings to take effect.

Step 4: Upon restart, at the *Invalid Display Selection* message, click on OK and select the desired display settings from the Display Settings dialog box. Click on **Test** to test the newly selected graphics mode. A color test screen should appear, followed by the **Testing Mode** window. Click on **Yes** to continue. The **Display Settings Change** window will appear. Click on **Restart Now** for the new settings to take effect.

Audio Drivers

For Windows 95
This Audio Driver (Yamaha OPL3-SA3 Driver) is designed to work with MS Windows 95.

Note: This Audio driver should have installed before shipping.

Step 1: This driver supports Windows 95 Plug-and-Play. When you start Windows 95, the automatic search option for the Add New Hardware. Then a "**New Hardware Found**" window will appear. Select "*Sound Video & Game Controller*", then click "**Have Disk**."

Step 2: Place the utility CD with Yamaha OPL3-SA3 Sound Driver into the drive D, then click **OK** or identify appropriate directory and file (D:\Sound\Sacom.inf) on the CD-ROM drive. The drivers are going to be installed into your hard disk drive.

Step 3: Once the installation is complete. Click the **Start** button, go to **Settings** and click on **Control Panel**. Choose the **System** icon and double click on the icon. In the ***System Properties*** window, click on the **Device Manager** tab. Then check if Yamaha OPL3-SA3 Sound System exists. If Yes, the installation is successful. Restart the system for new settings to take effect.

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Chapter 8

Maintenance & Troubleshooting

Maintenance

Follow these steps and you will increase the working lifetime of your Notebook. You will also reduce the chance of damage to your computer and personal injury to yourself.

- Make sure the computer is turned off before unplugging it.
- When you disconnect cords, remember to pull them by the plugs and not by the cords themselves. This will prevent damage to the cords, plugs, ports, and jacks.
- If possible, use a high-quality electrical surge protector when your computer is powered by the AC adapter. It is also a good idea to unplug your computer when it is not in use.
- Do not operate your computer near a source of high heat or in direct sunlight.
- Do not use the computer in a wet or damp environment.
- Do not use the computer in a potentially flammable work area.
- Do not use the computer in a dusty or dirty work area. Dust can cause contamination of the unit which can result in malfunction or damage.
- Do not use your computer on an unstable working surface. This will prevent your computer from falling or being knocked over and damaged.
- Do not store objects on the top of your computer. Do not exert pressure on the computer. It may damage the LCD display.
- If you spill liquid into your computer, turn it off and take it to your dealer for inspection.
- Ensure that your hands are clean when you use the TouchPad to prevent oil and dirt build-up which can impair TouchPad operation.

- Clean your computer's exterior casing occasionally with a soft cloth. If you use a cleanser, make sure that it is only a mild detergent. Never use solvents like thinner or benzine, or abrasive cleanser because these may damage the cabinet. Make sure that the computer's power is off when you clean it. After cleaning, allow 30 minutes drying time.
- Remember to clean your display at regular intervals. Spray window cleanser onto a soft cloth and then wipe the display. Do not spray the cleanser directly onto the display.
- Clean your keyboard when needed. This can be done with a soft cloth as well with as a keyboard vacuum cleaner.
- If you are traveling with your computer, remember to carry your computer as hand luggage. Do not check it in as baggage.

Troubleshooting

What follows are some helpful tips to solve common problems that you may encounter while using your Notebook. Skim these frequently asked questions to find a solution for the problem you are encountering. If you still need help, contact your dealer. An updated FAQ is available from our web site:

www.veridata.com.tw

Q : My computer won't start when I turn on the power.

A : 1. Ensure your battery is installed correctly and that it is fully charged.

2. If you are using an AC adapter, make sure it is hooked up correctly to your computer and plugged into the electrical outlet.

3. If the problem persists, take your computer to your dealer for help.

Q : When I turn on the computer, I can hear it working, but there is no display on the LCD screen.

A : 1. If your computer has a Dual Scan LCD display, try adjusting the hot keys [Fn] + [↑] and [Fn] + [↓] to get the best display result.

2. Press the hot keys [Fn] + [F3] to change the display mode if your computer is set to CRT display

3. Consult your dealer for help if the problem persists.

Q : I cannot boot from my hard disk.

A : 1. Check if the hard disk drive is securely installed in the computer.

2. Enter the setup menu to auto detect your hard disk type.

3. Boot from a floppy disk, use FDISK.EXE to check if your Hard Disk Drive partition parameters are set up correctly.

4. If the problem persists, consult your dealer for help.

Q : I cannot boot from my CD-ROM.

A : 1. Check if the Media Bay is securely installed in the computer.

2. Ensure that your CD is a bootable CD by trying it in another system's CD-ROM drive.

3. Turn on the computer and enter the BIOS Advanced Setup menu, then check if your "First boot device" is set to CD-ROM.

4. If the problem persists, consult your dealer for help.

Q : I cannot use the CD-ROM as a specified disk drive.

A : 1. Check to ensure the Media Bay is correctly installed in your computer.

2. Ensure the CD-ROM device driver is installed in your system.

3. If the problem persists, consult your dealer for help.

Q : The System does not recognize the CD-ROM drive and displays the error message "Not enough drive letters"

A : 1. Check the last drive statement in the CONFIG.SYS file

device=c:\dos\lastdrive=z

2. If the problem persists, consult your dealer for help.

Q : I couldn't record any sound with my computer.

A : 1. Ensure your microphone volume setting in the mixer is set to a high enough volume.

2. If you are using an external microphone, ensure it is hooked up correctly at the microphone jack on your computer.

3. If you hear a loud noise after replaying the sound you recorded, try turning down the volume of the microphone via mixer program. (Some recording programs provide a monitor function when recording a sound, however, we strongly suggest you disable it.)

4. If the problem persists, consult your dealer for help.

Q : I hear nothing from my computer while running sound programs.

A : 1. Ensure the sound card driver has been installed.

2. Try adjusting the volume hot key (Fn+F4, Fn+F5 or Fn+F6) until you can hear digital sounds or music from your computer.

3. If you are using an external speaker, ensure that your speaker is hooked up correctly to the jack on the computer.

4. Ensure your software and hardware volume and mixer settings are set up correctly.

5. If you are running under a Windows 95-based program, go to **Control Panel**, double-click the **System** icon to show the **System Properties** dialog box. Select the **Device Manager** tab in the **System Properties** dialog box. Click the CDROM to check available drivers.

6. If the problem persists, consult your dealer for help.

Q : I cannot read from or write to floppy disks with my floppy disk drive.

A : 1. Make sure that the Media Bay is correctly installed in your computer.

2. Turn on the computer, enter the setup menu, and check to see if the floppy disk drive setting is correct.

3. Consult your dealer for help if the problem persists.

Q : After installing RAM Card, I can not turn on my computer.

A : 1. Make sure the RAM Card is correctly installed in your computer.

2. Consult your dealer for help if the problem persists.

Q : The computer cannot communicate with other IR devices using the infrared port on the computer.

A : 1. Turn on the computer, enter the setup menu, and check if the "Onboard serial port 2" is set to IrDA mode.

2. Ensure there are no cables or electrical devices between the computer and the communicating device.

3. Ensure the distance and angle between the computer and the communicating device are correct.

4. Consult your dealer for help if the problem persists.

Q : After one hour of power-off charging, the discharged NiMH battery pack gives no response at all.

A : 1. Your battery pack may be over-discharged. Refer to "Recharging an Over-exhausted Battery" in Chapter 5 to recharge the battery.

2. If the problem persists, your battery may be completely dead. Consult your dealer for help or to purchase a new battery.

Q : The printer does not work.

A : 1. Check that the printer is turned on and ready to print.

2. Check that the printer cable is connected to the correct connector on the computer. Refer to "Connecting a Printer" in Chapter 6.

3. Ensure that the proper printer driver for your printer has been selected.

4. If the problem persists, consult your printer dealer or manufacturer for help. If new drivers are available, download them or request that they be mailed to you.

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Appendix A

Specifications & Features

Specifications

Physical Dimensions

- Depth: 12.60" (320mm)
- Length: 10.04" (255mm)
- Height: 1.97" (50mm)

Weight

- 3.7 kg (8.lb) max

Environment Requirements

- Temperature
  - Operating: 5° to 35° C
  - Non-operating: -20° to 60° C
  - Wet Bulb: 25 ° C
- Relative Humidity
  - Operating: 20% to 80%
  - Non-operating: 20% to 80%

Power Requirements

- AC Adapter: 100~240V AC, 50/60 hertz
- DC Jack IN: 20V DC, 3 A
- Battery IN: 12V (1.2V per cell), 3500~4000mAH

Specifications subject to change without notice

Features

Processor

- Intel Pentium™ CPU with MMX

ROM

- 256KB for BIOS

RAM

- 16MB Standard on board (built-in) memory
- Optional memory expansion to 24/32/48/80 MB

Cache

- Synchronous 256K L2 Cache

Mass Storage

- 2.5 or 3 inch removable hard disk drive
- 3.5-inch removable floppy diskette drive
- 5.25-inch removable CD-ROM drive

Display

- Dual Scan or TFT LCD
- XGA (1024 by 768 resolution), supporting True Colors (Dual Scan) or High Colors (TFT)
- Simultaneous CRT/LCD display at 1024 x 768

Keyboard

- 87/88-key, full function, with embedded numeric keypad.
- System Function keys
- Windows™ 95 Function keys

Pointing Device

- Built-in TouchPad

Status LCD

- AC IN
- Battery Capacity
- Scroll Lock
- Cap Lock
- Num Lock
- PC Card Insertion
- CD-ROM Activity
- HDD Activity
- FDD Activity
- Power Management
- System Suspend
- Power On

Interface Ports

- 9-pin RS-232 serial port
- 25-pin parallel port
- 15-pin CRT output port
- Infrared port supporting IrDA standard
- One PCMCIA 2.0 type III slot or two type II slots
- 6-pin mini-DIN connector

- 80-pin Replicator port
- 15-pin MIDI/Game port
- DC-IN power input jack
- RCA TV jack
- 3 Audio jacks
- 2 USB ports

Power Supply Unit

- Battery
  - Removable NiMH battery pack
  - Optional Lithium Ion battery pack
- AC Adapter

Software

- Microsoft Windows 95
- BIOS Setup program
- Hot-key function
- Power Management
  - Built-in BIOS support SMI power management
  - LCD, HDD and peripheral power down control
  - CPU doze mode control
  - Suspend mode control
  - Battery low audio warning
- Utilities and Drivers
  - System utilities
  - Mouse driver
  - CD-ROM driver
  - Display drivers
  - Sound Card drivers
  - PCMCIA device drivers

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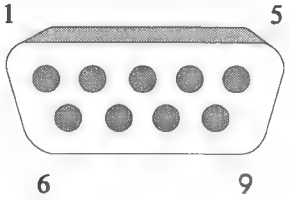
Appendix B

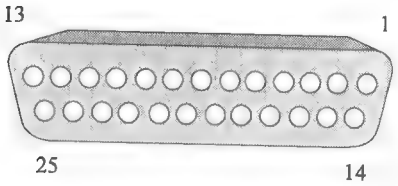
Connector Pin Assignment

RS-232 Serial Port Connector



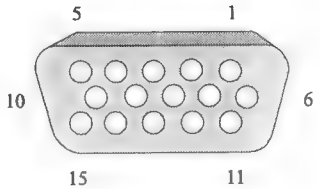
PIN	SIGNAL	I/O	PIN	SIGNAL	I/O
1	DCD	I	6	DSR	I
2	SIN	I	7	RTS	O
3	SOUT	O	8	CTS	I
4	DTR	O	9	RI	I
5	GND	GND			

Printer Connector



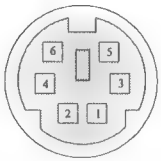
PIN	SIGNAL	I/O	PIN	SIGNAL	I/O
1	-STROBE	O	14	AUTO FD-	O
2	PD0	I/O	15	ERROR-	I
3	PD1	I/O	16	INIT-	O
4	PD2	I/O	17	SLCTIN-	I
5	PD3	I/O	18	GND	GND
6	PD4	I/O	19	GND	GND
7	PD5	I/O	20	GND	GND
8	PD 6	I/O	21	GND	GND
9	PD 7	I/O	22	GND	GND
10	ACK-	I	23	GND	GND
11	BUSY	I	24	GND	GND
12	PE	I	25	GND	GND
13	SLCT	I			

External CRT Connector



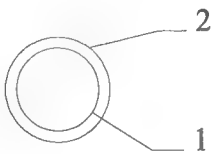
PIN	SIGNAL	I/O	PIN	SIGNAL	I/O
1	Red Video	O	9	NC	NC
2	Green Video	O	10	GND	I
3	Blue Video	O	11	CRTSENSE	I
4	NC	NC	12	DDCDATA	I
5	GND	GND	13	HSync	O
6	GND	GND	14	VSync	O
7	GND	GND	15	DDCCLK	I
8	GND	GND			

External Keyboard Connector



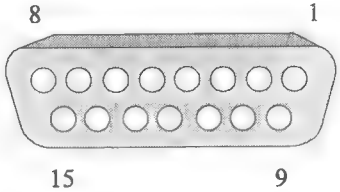
PIN	SIGNAL	I/O	PIN	SIGNAL	I/O
1	KBDATA	I/O	4	VCC55	PWR
2	MCLK	I/O	5	KBCLK	I/O
3	GND	GND	6	MDATA	I/O

DC Power Cord Connector



PIN	SIGNAL	I/O
1	DC-IN	I
2	GND	GND

MIDI/Game Port



PIN	SIGNAL	I/O	PIN	SIGNAL	I/O
1	VCC5A1	PWR	9	VCC5A1	PWR
2	JOYF0	I/O	10	JOYF2	I/O
3	JRC0	I/O	11	JRC2	I/O
4	GND	GND	12	MIDIOUT	O
5	GND	GND	13	JRC3	I/O
6	JRC1	I/O	14	JOYF3	I/O
7	JOYF1	I/O	15	MIDIIN	I
8	VCC5A1	PWR			

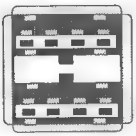
PCMCIA Device Card Connector

PIN	SIGNAL	I/O	PIN	SIGNAL	I/O
1	GND	GND	21	A12	O
2	D3	I/O	22	A7	O
3	D4	I/O	23	A6	O
4	D5	I/O	24	A5	O
5	D6	I/O	25	A4	O
6	D7	I/O	26	A3	O
7	CE1-	O	27	A2	O
8	A10	O	28	A1	O
9	OE-	O	29	A0	O
10	A11	O	30	D0	I/O
11	A9	O	31	D1	I/O
12	A8	O	32	D2	I/O
13	A13	O	33	WP	
14	A14	O	34	GND	GND
15	WE-	O	35	GND	GND
16	RDY-IRQ	I	36	CD1-	I
17	VCCSLOT	PWR	37	D11	I/O
18	VPP	PWR	38	D12	I/O
19	A16	O	39	D13	I/O
20	A15	O	40	D14	I/O

PCMCIA Device Card Connector (cont.)

PIN	SIGNAL	I/O	PIN	SIGNAL	I/O
41	D15	I/O	55	A24	O
42	CE2-	O	56	A25	O
43	VS1	I	57	5VDET-	I
44	IORD	I	58	RESET	O
45	IOWR	O	59	WAIT-	I
46	A17	O	60	INPACK	I
47	A18	O	61	REG-	O
48	A19	O	62	BVD2	I
49	A20	O	63	BVD1	I
50	A21	O	64	D8	I/O
51	VCCSLOT	PWR	65	D9	I/O
52	VPP	PWR	66	D10	I/O
53	A22	O	67	CD2-	I
54	A23	O	68	GND	GND

USB (Universal Serial Bus)Connector



PIN	SIGNAL	I/O
1	VCC	PWR
2	DATA-	I/O
3	DATA+	I/O
4	GND	GND
5	VCC	PWR
6	DATA-	I/O
7	DATA+	I/O
8	GND	GND

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INDEX

A

AC Adapter, 1-2, 1-4, 2-8
AC Power, 5-2
AC-IN, 1-4, 2-9
Advanced Setup, 3-5
Air Way, 2-7
Angle, 4-2
Anti-Virus, 3-11
Applications, 4-22
Audio, 2-5, 6-5
Audio CD, 4-17
Audio Drivers, 7-5

B

Battery Capacity, 2-9
Battery Low Suspend, 5-8
Battery Low Warning, 5-7
Battery Pack, 1-2, 2-4, 2-9
Battery Power, 5-4
Battery Warning Beep, 4-10
Block Mode, 3-4
Bottom View, 2-7
Brightness, 4-2

C

Caps Lock, 2-10
CD Care, 4-17
CD-ROM, 2-10
CD-ROM Drive, 4-15
CD-ROM Driver, 4-15
Chipset Setup, 3-7
Cold Reset, 3-13
Contrast, 4-2
Cover Switch, 5-14
CPU, 6-9
CPU Cover, 2-7
CPU switches, 6-12

D

Device Security, 2-7
Display Device, 4-2
Doze Mode, 5-11
Drivers, 7-1

E

Embedded Numeric Keypad, 4-5
Exchanging the Battery, 5-9
Exchanging the New Battery, 5-10
Expansion Options, 6-1
Expansion Port, 2-6
External CRT Display, 4-3
External TV Display, 4-3

F

Fail-Safe, 3-12
Fax/Modem, 2-5
FDD Activity, 2-10
Floppy Disk Care, 4-15
Floppy Disk Drive, 4-14
Front View, 2-3
Full Power, 5-11

G

Global Standby, 5-12

H

Hard Disk, 4-18, 6-13
Hard Disk Drive, 2-5
HDD Activity, 2-10
HDPREPEZ, 3-9, 4-20, 5-15, 7-2
Hot Keys, 4-9

I

IMM, 6-9
Indicator, 5-6
Infrared, 2-5
Infrared Device Driver, 4-24
infrared port, 8-8
IrDA, 2-2, 4-24, 6-3

J

Joystick, 6-4

K

Kensington, 2-2, 2-5, 4-26
Keyboard, 4-4, 6-6

L

LBA/Large Mode, 3-4
LCD, 4-2
LCD Care, 4-3
LCD Display, 2-3
LED, 2-8
Left Side View, 2-5
Lithium-Ion Battery Pack, 5-4

M

Maintenance, 8-2
Media Bay Module, 1-2, 2-4, 4-13
Microphone, 2-4
MIDI, 2-2, 2-6, 6-4
MMX, 2-2
Monitor, 6-7
Mouse, 6-2

N

NiMH battery, 8-8
NiMH Battery Pack, 5-4
NTSC, 3-7, 4-3
Num. Lock, 2-10

O

Operating Systems, 4-20

P

PAL, 3-7, 4-3
Parallel Port, 2-6
PC Card, 2-10
PCMCIA, 2-2, 2-5, 2-10, 4-23
Peripheral, 3-10, 6-2
PIO Mode, 3-5
Port Replicator, 2-6, 6-8
Power Button, 2-4
Power Consumption, 2-10
Power Management, 2-10, 3-7, 5-11
Power on, 2-10, 3-2
Power On Self Test (POST), 3-3
Power System, 2-8
Pri Master, 3-4
Printers, 6-3

R

RAM, 6-16
RAM Cards, 6-16
Rear View, 2-6
Right Side View, 2-4

S

S.M.A.R.T, 3-6
Scroll Lock, 2-9
Security, 3-11
Security Locks, 4-26
Serial Port, 2-6
Setup Program, 3-3, 3-4, 3-11, 3-12
Socket 7, 6-10
Standard Setup, 3-4
Standby, 5-11
Status Indicator Panel, 2-3, 2-9
Stereo Speakers, 2-3
Suspend mode, 2-4, 5-12
SVGA, 6-7
System Suspend, 2-10

T

Television Display, 6-6
TouchPad, 2-4, 4-11
TouchPad Care, 4-13
Troubleshooting, 8-3
TV display, 2-6
TV Output, 3-7

U

Upgrading, 6-9
USB, 2-2, 2-6
Utilities, 7-1
Utility, 3-12

V

VGA Drivers, 7-3
Video CD, 4-17

W

Warm Reset, 3-13

X

XGA, 2-2, 6-7

Z

ZV port, 2-2, 4-23

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Appendix C

Glossaries

A

Acceleration--See mouse acceleration.

Access time--The time it takes for a computer to get data from a disk. A hard drive with 11ms access time is fast. A CD-ROM drive with 280ms access time is fast. Compare seek time.

Active matrix display--Single scan color LCD that utilizes over 900,000 thin film transistors (TFT's) to drive individual pixels. Better quality and more expensive than passive matrix displays.adapterAn expansion card, especially one that communicates with peripherals. A

Address--A hexadecimal number that represents a location in storage or memory. Also used to identify communication ports. To communicate with a storage device. algorithm Any set of instructions to be followed in order. See process.

Alt key--One of three shift keys on a computer keyboard. The effect, or meaning, of a key pressed with the Alt key held down may vary depending on what software is running.

ADC--Analog-to-Digital Converter qv.analog-to-digital converter A device that converts analog information such as sound or voltage into digital signals that can be dealt with by a computer. Commonly found on cards that record sound in a digital format. See sample.

Analog--Anything whose behavior corresponds with the behavior of something else, especially if the correspondence varies continuously rather than in steps. For example, the height of the liquid in a thermometer is an analog of the temperature. The signals that go from a computer to a composite monitor are analog voltages.

ANSI.SYS (anssy dot sis) A system file that allows you to control the appearance of the screen and the functions of the keys on your keyboard. ANSI stands for American National Standards Institute.

Answering machine--A fax/modem card that can be set up to act as an answering machine for your phone, answering it and storing the messages on its hard drive.

anti-aliasing--Making jagged edges look smoother by filling in the jags with an intermediate color. Usually used in reference to the edges of shapes, especially letters, on a computer screen.

Application--A software program designed to perform a specific task or group of tasks, such as word processing, communications, or database management.

Architecture--A general term for the design and construction of computer systems, particularly hardware, but also operating systems and networks. The circuitry within a chip is called its architecture; for example, Intel architecture refers to a computer based on the Intel 80x86 CPU chip.

Archive--Long-term data storage, especially for backup and security purposes. Also to store data in an archive.

Arrow key--Any of four to eight keys on a keyboard with arrows imprinted on them. Generally used for moving the cursor.

Artificial intelligence--Using computers in the attempt to imitate human intelligence. This field has shown more success in specialized areas, such as engine diagnosis or chemical analysis, than in general areas, such as common sense or natural language. Usually called AI (ay-eye).

ASCII (ask-ee)--American Standard Code for Information Interchange. A standard code or protocol for displaying characters and transferring data between computers and associated equipment. ASCII codes are numbers from 0 to 255. The first 32 numbers are nonprinting control codes (such as line feed, carriage return, and bell); the numbers 33 to 127 are for letters and punctuation; and the remaining 128 numbers called extended characters, can vary. They are usually used for accented letters, graphic, and other special characters.

ASIC (ay-sick)--Application Specific Integrated Circuit. A chip designed for use on a particular circuit board, or for a very narrow range of use. The digital signal processor chip on a modem is an ASIC.

Asynchronous cache--The slowest, most inexpensive type of secondary SRAM cache, running at speeds of 15 to 20 ns.

ATAPI Advanced Technology Attachment Packet Interface. A standard for IDE CD-ROMs. AT bus (ay-tee bus) A 16-bit expansion bus found in IBM AT and compatible computers. See expansion bus.

AT command--One of a set of modem control commands in common use developed by Hayes Microcomputer Products. They all start with the letters AT (for ATtention), except if two or more such commands appear on a single line, the AT only has to appear once, at the beginning of the line.

Asterisk--The * symbol. Also called dot and splat. In DOS, it means any string of characters. See wildcard. For example, the command dir *.exe lists all the files that end in .exe.

Asynchronous--Refers to operations that do not require the clocks of communicating devices to be coordinated. Instead, the devices send signals to each other indicating readiness to receive or send. Compare synchronous.

Attenuation--The tendency for signals to become weaker and more distorted the farther they travel. This is why cables should be as short as possible. Sometimes signals are deliberately attenuated to prevent reflection, as with a SCSI terminator.

Audio--Relating to or capable of producing sound. Multimedia computers make extensive use of audio.

AUTOEXEC.BAT--A batch file that a DOS/Windows 3.X system looks for when it first boots up. The file contains instructions or procedures for the computer to carry out. when it starts up. To see an AUTOEXEC.BAT file, enter sysedit in the

Run command in the program managers File menu. A window appears that displays this and three other important system files.

B

Back door--A way of getting into a password-protected system without using the password. Usually a carefully guarded secret to prevent misuse.

Backbone--A central network that connects two or more less powerful networks.

Backup--To store data in an archive, especially a duplicate copy of a program. Also the archive itself.

Bad sector--Part of a hard or floppy disk storage medium that doesn't hold data. Formatting generally detects and marks these areas so they won't be used. Certain utility programs do, too, and it is a good idea to run this type of utility occasionally to prevent data loss if the condition of the disk changes.

Bandwidth--A measure of how much information something can carry. Specifically, data path times frequency. For example, the ISA bus has a data path of 16 bits (it can send 16 bits at a time) and typically operates at 8.33MHz, so it has a bandwidth of 133.28 megabits per second.

Bank--A row of similar components used as a single device. They must be installed or removed together.
Also a convenient section of memory. See bank switching.

Bank switching--A way to expand the useful amount of RAM in a computer by switching (the data in) banks of memory to addresses that are accessible to the microprocessor. DOS is able to address only 640K of memory. Computers with more memory use bank switching to access the extra memory. See expanded memory.

Base memory --The first 640K of computer memory.

BASIC--Beginner's All-purpose Symbolic Instruction Code. A widespread programming language. A version of BASIC is included with DOS. The filenames of programs written in BASIC frequently end in .BAS.

BAT--See batch file. batch file A file that contains a series of DOS commands. Batch files have the extension .bat. If you execute a batch file, DOS attempts to carry out all the commands in the file, in order.

Baud--A unit of measure for modem speed. Literally, the number of voltage transitions per second. Phone line limitations limit the actual baud rate of modems to 2400 baud, although the data transmission rate (bps) may be higher because of data compression. (The term baud comes from the name of a French inventor, J. M. E. Baudot.)

Bay--An opening in the chassis to hold mass storage devices such as hard disks, floppy disks, CD-ROM drives, and tape backup units.

BBS--Short for Bulletin Board System. Software that serves as a communication and information source for computers that communicate by modem.

Benchmark--A program or procedure which tests or evaluates the relative performance characteristics of computer systems or peripherals. Some benchmarks are Winbench, Whetstone, and Dhrystone.

Benefit The reason why a feature is attractive. For example, the benefit of a notebook computer's light weight is that it is easy to carry. See feature.

Binary--A number system that uses only two digits, 0 and 1. Called a base 2 number system. Place value indicates powers of 2. (In the decimal system, place value indicates powers of 10.) Since computers use bits, which have only two states, binary is a convenient number system for representing computer information at its most basic level.

BIOS (by-ose) Basic Input/Output System. A program or set of programs permanently stored in ROM chips installed on the system board. The BIOS contains functions that enable the CPU to communicate with the outside world. For example, the Setup utility setup program is contained in the BIOS, and when you change the drive type, you change the BIOS.

Bit--Binary Digit. A single digital piece of information, generally represented by the numeral 0 or 1. The smallest piece of information that a computer deals with. Usually the transition between the states of +5V and -5V within a desktop computer, the charge of a transistor in an integrated circuit, or the change in polarity of a magnetic region on a disk. See byte. Data compression schemes can enable the transmission of more than one bit per voltage transition.

Bit block transfer—To move part of a screen image as a single block rather than moving a pixel at a time. Bit block transfers are much faster than moving the same pixels individually, and it is common in accelerated video cards.

BitBLT--(bit blit) Bit Block Transfer.

Bitmap--Any situation in which a single location in memory and a single pixel correspond. Usually applies to screen or printer output.

.BMP--bitmapped graphics files.

Bitmapped font--A font whose characters are described in terms of the locations of bits on the screen (or on paper) that show the shapes of the characters. Since bitmapped fonts are constructed at specific sizes, you frequently see jagged shapes if you display the letters at a different size. For example, a bitmapped 12 point font looks terrible at 17 points. Compare outline font.

Block--A contiguous section of bits considered as a whole, especially in memory. On a disk, the data in one sector; in modem data transfer, the bits between checksums.

.BMP--The usual extension for the filename of a certain high resolution bitmap graphics file usualy found in the Windows environment. .BMP files can be used as wallpaper in Windows.

Bomb--When a computer fails to operate, usually due to a failure in software. Used especially if the screen shows conspicuously incorrect behavior, such as rapid blinking. Usually requires rebooting the computer.

Boolean--The type of logical operation that computers perform. When you see AND, OR, XOR, IF, or NOT, they're referring to Boolean functions. Everything a computer does can be described in Boolean statements. Named after George Boole, who invented the branch of mathematics called Boolean algebra.

Boot--To start the computer system. Your computer is generally booted in one of three ways: by turning on the power switch, by pressing the reset switch, or by simultaneously pressing the Ctrl, Alt, and Del keys. Booting the system after it has already been powered up and booted is referred to as rebooting. Also the process of booting itself. Boot is from "bootstrap;" a reference to a computer's ability to set itself up, or pull itself up by its own "bootstraps.

Boot block--The part of a disk that contains the software (such as the operating system loader) that enables the computer to start.

Boot sector--The part of the boot block that contains the operating system loader, a program that starts by itself and loads the operating system.

Bps--Bits Per Second. The number of bits of data that can be transmitted in one second. Because data compression schemes enable more than one bit per voltage transition, bps is equivalent to baud (qv) only if no compression is used.break A special signal that interrupts and terminates the execution of a program or command. Frequently ^C (Ctrl+C) or the signal sent by the Break key on the keyboard. Also, to cause software to

malfunction, especially deliberately, as when testing the software.

Bridge--A device that connects two or more similar local area networks. Compare gateway.
Brown out--A period of time during which line voltage drops seriously, usually because of unusually high demands on the power utility. A computer exposed to a brown out can suffer data loss and physical damage.

Buffer--A place, especially in RAM, for the temporary storage of data for the purpose of speeding up an operation such as printing or disk access. Data from a buffer is available more quickly than data from where the buffer got it. Typically buffers get data before it is needed so it will be ready quickly when it is needed. Similar to cache (qv).

Bug--An unintentional error in programming that makes a program malfunction. Said to originate from a moth caught in a relay in an early computer.

Burst mode--When a device seizes control of the bus, sends data, then relinquishes control of the bus. Any time a device sends data without interruption instead of taking turns with other devices.

Burst speed--With reference to dot matrix printers, burst speed refers to the speed of the printer without taking into account any function (such as carriage returns) that slows down actual printing. This gives the highest possible speed for the printer.

Bus--A parallel electrical pathway, usually part of the circuit board, connecting and shared by the parts of a computer system, especially the CPU, its support circuitry, memory, and expansion cards. Typically the lines in a bus are dedicated to specific functions, such as control lines, address lines, and data lines. Different bus architectures have different numbers and arrangements of these lines, and different names (e.g. NuBus, IEEE, ISA, EISA). The most useful way of distinguishing bus architectures is by the number of simultaneous data bits they can

carry. The old PC bus could transmit 8 bits at once; the AT bus (ISA) is a 16-bit bus, and therefore is twice as fast, other things being equal. bus clock speed The frequency at which a bus runs The AT bus found in many computers runs at 8.33MHz.

Bus master--The ability of an expansion card to control the bus without needing intervention from the CPU.

Bus topology--A network in which all the nodes are connected as branches from a single main line. A network in which all the nodes are connected as branches from a single main line, like the teeth of a comb. Compare Token Ring.

Byte--(bite) Eight bits. See bit. The basic "word" of digital signals. Frequently written as an eight-digit binary number or a two-digit hexadecimal number. One letter of the alphabet in ASCII code takes one byte.

C

Cable--A collection of bundled wires with a connector on each end. Cables electrically connect a computer to its peripherals. Some cables are flat, called ribbon cables.

Cache--(cash) A special block of fast memory used for temporary storage of data for quick retrieval. Compare buffer. (Think of a buffer as a temporary holding place between two devices, and a cache as a temporary holding place for one device.) See disk cache and "RAM cache.

CAD--(cad) Computer Aided Design. Using microcomputer-based software to produce architectural and mechanical engineering drawings. Usually requires a fast computer with powerful graphics and mathematical capability, a large screen, and lots of memory. CAD-CAM When CAD computers are connected to CAM equipment; you design the part on a CAD system, the CAD system tells the CAM system what to make, the CAM computer directs the milling machine as it makes the part.

CAM--Computer Aided Manufacturing. Using microcomputers to control manufacturing equipment such as milling machines.

Caps Lock key--A toggle key on the keyboard that makes all letters type uppercase, but does not affect the numeral, punctuation, or function keys.

Card--See expansion card. Cards are smaller than boards.

Caret--The ^ symbol. Frequently used to represent the Control (Ctrl) key on the keyboard. For example, ^C means to hold down the Control key while you type the letter C. Also used to represent exponential notation on printers or fonts that can't show superscript. For example, 12^2 = 144. carriage return A printer command to move the printhead to the beginning of the line. Usually goes with a line feed. Named after the carriage return lever on a typewriter. case sensitive Making a distinction between uppercase and lowercase. DOS commands and filenames are not case sensitive. Passwords frequently are case sensitive.

CD--Compact Disc. The plastic, optically-read medium used in CD-ROM drives. Note the spelling of disc.

CD-ROM--Compact Disc Read Only Memory. An information (data) storage device that uses compact disc technology. CD's can store over 650MB, but they cannot be written to, hence the appellation read only.

CD-ROM drive--The device that reads CD-ROM discs.

Centronics port--The most common parallel interface in microcomputing, used especially for printing. The company Centronics is no longer in existence.

CGA --Color Graphics Adapter. IBM's first microcomputer color standard. CGA allowed a maximum of four colors at a resolution of 320 x 200 or two colors at 640 x 200.

Character--Any letter, punctuation mark, or one of about a hundred special shapes called graphics characters, especially if generated by the character generator chip. See ASCII.

Character generator--A chip or circuitry that takes a byte that represents a character and sends the bitmap of it to the monitor. Usually able to send only a limited number of characters.

Character mode See text mode.

Chassis--The metal frame to which the electronic components of the computer (such as the system board, power supply, and drive bays) are attached. The chassis goes inside the part you see, which is variously called the lid, enclosure, or system unit cover.

Checksum--A number calculated from a block of data, used to verify the integrity of that data. For example, a modem could send a block of data and include the number of 1's that occur in the block. The receiving modem could count the number of 1's it receives and compare its own number with the transmitted number. If the numbers are the same, the transmission was probably OK.

Chip--The square or rectangular piece of plastic or metal that contains an integrated circuit. Most chips have thin metal legs that connect to the integrated circuit inside. See integrated circuit.

Circuit board--An arrangement of electronic components wired together on a thin sheet of non-conductive material. The wiring is almost always printed on and within the card. Also the system board.

Circuit card--A small circuit board, especially an expansion card.

CISC--Complex Instruction Set Computer. Refers to microprocessor architectures with many instructions built in so as to have as many functions as possible on one chip. The benefit is easier assembly language programming. The Intel 80x86 family are CISC chips. Compare RISC.clamping voltage The voltage at which a surge protector begins to surge-protect. A good surge protector has a clamping voltage of about 135

volts. Damage to equipment can occur as low as 160 volts.

Click--To press and release the mouse button without moving the mouse. To click on something means to position the pointer on an object on the screen, then click.

Client Between slave and peer. A system that is able to operate independently, but has some degree of dependence on another system. Frequently refers to computers on a local area network. Compare peer, slave.

Clock--The oscillator that generates the timing pulses that coordinate the parts of and enable the flow of data within a digital device. Also a circuit powered by battery that keeps track of the date and time for human and various system requirements.

Clock doubling—a system whose internal CPU clock runs twice as fast as the clock for the rest of the computer. This has the effect of increasing computing speed without the expense of high-speed hardware. clock speed The frequency at which a clock oscillates. In microcomputers, measured in MHz. The faster the clock, the faster the computer can compute.

CMOS (see-moss) Complementary Metal-Oxide Semiconductor. A material from which some IC's are made. CMOS chips are fast, consume very little power, and cost a lot. CMOS chips store setup information used by the boot program. The setup program is often called the CMOS Setup program.

Coaxial cable--A type of cable used in networks. Has a single conductor in the center surrounded by a thick plastic sheath, which in turn is covered by a braided wire mesh shielding, then a final protective layer of plastic. Also called coax. (coe-axe) code Anything in a computer language, either on paper or in the computer itself. Also to write instructions in a computer language.

Code page--A table (written and electronic) that relates the characters in a program to the keys on a keyboard and to the characters that display on the screen. Particularly useful with

foreign alphabets.

Cold boot--Switching a computer completely off, then switching it back on again. See warm boot.

Collision--When two signals on a network interfere with each other.

Collision avoidance--The ability of a node on a network to detect that a collision will not happen if the node transmits a signal. See Token Ring.

Collision detection--The ability to tell when a collision in a network has occurred in order to know that retransmission is necessary.

.COM--A type of executable program identified by the .com extension on the filename. COM files are always shorter than 64K. Also (without the leading period) a name to identify a serial port.COM port One of up to four serial ports allowable in DOS. Identified by number: COM1, COM2, COM3, COM4. Normally only two COM ports can be used at one time, and they must have consecutive numbers.

Command--An instruction, usually typed from the keyboard or chosen from a menu, that tells the computer or the program it is running to do something. command interpreter The operating system program that controls the shell (qv). The command interpreter for DOS is COMMAND.COM. The command interpreter for Windows is WIN.COM.

Command line--The line on the screen, in DOS, where the cursor is. Where you enter DOS commands. Also the text of the command itself.

Command line interfac-A way for humans to communicate with a computer by means of a command line. Once you know the commands, this interface can be very efficient. Compare GUI.

Command prompt--See DOS prompt. An indicator at the

beginning of the command line that indicates that the system is ready to receive a command. COMMAND.COM The program that carries out DOS commands. The generic term for this program is command interpreter.

Communications software--See terminal software.

Compact disc--A plastic disk that uses optical technology to store information. Usually called a CD. Note the spelling of disc.

Composite--Refers to a type of color monitor in which the color signals all come in on the same line and are separated electronically inside the monitor. Compare RGB.

Compression--Any scheme for recording data with fewer bits. For example, stating how many times something occurs can be shorter than stating each occurrence. It is shorter to say print a million white pixels than to say "print white pixel number one, print white pixel number two . . ."

Computer--Any device that takes input, applies rules to (processes) the input, and outputs the result. Typical analog computers may use a mechanical system of cams, gears, and levers to produce output in the form of the position of a mechanism, or a system of variable electrical circuits to produce output as a trace on an oscilloscope. A slide rule is a simple analog computer. At the most fundamental level, all digital computers use discrete electrical signals (bits) as input and output, and Boolean algebra to process the input. A calculator is a simple digital computer. CON DOS's device name for console, the monitor and keyboard.

Condition--To completely discharge, then fully recharge a NiCad battery in order to remove its memory, thus increasing its useful service life. Also the use of special equipment to make a phone line work better for digital transmission.

CONFIG.SY--A text file that determines certain settings and device drivers within the DOS operating environment. When you boot the computer system, MS-DOS looks for this file in the

root directory of the disk you are booting from, and configures itself according to the settings in this file.

Configuration--The way in which a computer and its peripherals are connected as a system, especially the firmware settings of its internal components, such as memory size and video mode. Also the basic settings of how software is set up. For example, Windows is configured with a driver for the printer you use. Configuration is often used interchangeably with "setup."

Console--The part of a computer that interfaces with humans: the keyboard and monitor. Originally, the console was the control unit (a keyboard and monitor in a single enclosure) to a large computer.

Contention--In networking, when two stations try to use a network resource simultaneously, especially when they send a signal on the same line simultaneously.

Context sensitiv--Help that varies depending where you are in a program. See help. For example, if you have the File Menu down and press the help command, help about the file menu would appear

Control key--Usually shown as Ctrl. One of three shift keys on a computer keyboard. The meaning of a key pressed while the Control key is held down may depend on what software is running. See control key combination.

Control key combination--Pressing and releasing a key while holding down the Ctrl key. Shown, for example, as Ctrl+C. Control key combinations frequently send commands rather than characters. For example, Ctrl+C frequently sends a "break" command.

Control panel--A small utility, seen as a window with mouse-operated controls, that affects the appearance or operation of a GUI (qv). Control panels are usually kept together in a group called Control Panels.

Controller--A device that enables another device to communicate with a computer, especially the expansion card on the bottom of a disk drive.

Conventional memory--Random access memory (RAM) with addresses below 640KB; DOS can directly address only conventional memory.

Coprocessor--A chip whose function is to support the CPU by performing certain functions for it. A math coprocessor, for example, performs floating point calculations for the CPU much faster than the CPU itself can. core memory An old term for main memory. From when RAM was physical frameworks of donut-shaped magnets called cores. CPU Central Processing Unit. In a microcomputer, a processor on an IC chip (called a microprocessor) that serves as the heart of the computer. It interprets and carries out instructions, performs numeric computations, and controls the peripherals connected to it. Often the entire system unit is called the CPU.

CPU clock--A clock circuit, or oscillator, contained in the CPU chip that controls the speed at which it operates. Traditionally the CPU and system clocks operate at the same frequency, however some CPU chips operate at a multiple of the system frequency. CPU clock speed The frequency (measured in MHz) at which the internal CPU clock operates. Systems with higher CPU clock speeds perform many tasks faster and require more power than identical systems with slower CPU clocks. For example, other things being equal, a system that operates at 33 MHz is faster than a system that operates at 25 MHz. Systems with clock-doubling technology have a CPU clock speed twice as fast as the system clock.

Crash--When a computer system fails suddenly. Same as hang, "lock up," and "bomb." Usually requires rebooting the computer. Crashes almost always originate in software (qv) or firmware (qv) and very seldom cause actual damage to the hardware (qv).

CRLF--Carriage Return with Line F eed. A printer command

that moves the printhead to the left (the beginning of the line) while the paper advances one line, thus enabling the printer to print a new line of text.

CRT--Cathode Ray Tube. Generally used to refer to the entire monitor.

CSA--Canadian Standards Association. They test product safety. Ctrl The label on the Control key (qv)

CUA--Common User Access. The policy of using the same command for a given function in all software. This makes the software easier to learn and use because you only have to learn one set of commands. Windows has a set of CUA guidelines which many Windows programs follow. For example, Ctrl+F4 always means close this window.

Cursor--The indicator on the screen that shows where the next character will appear when you type. In DOS, the cursor is usually a blinking underline character. In Windows, it is usually a blinking vertical bar. Cursor is derived from the Latin word meaning to run, and has nothing to do with one's choice of vocabulary when the computer malfunctions.

D

DAC--(dack) Digital-to-Analog Converter, qv.

Data--Plural of datum, a piece of information. Generally, information of any type, but especially any information in a computer. data processing A general term for any work done on a computer, especially work done by the computer. Often applies especially to database work, as distinguished from desktop publishing, word processing, programming, or spreadsheet calculation.

Date--The day, month, and year displayed by a computer with a battery-powered clock circuit. Also the DOS command for setting the date.

Daughterboard--A printed circuit board that adds functionality

to another board or card. Usually mounted parallel to the card it supports. Compare expansion card.

DB connector--Data Bus connector. Usually shown with a number that represents the number of conductors in the connector, for example, DB-25.

Decimal--The numbering system in common use by humans, in which place value indicates powers of ten. Also the decimal point.

Default--The option that the software or system chooses when you don't indicate a choice yourself. For example, Windows uses a default set of colors unless you choose other colors in the Desktop control panel.

Delimiter--A character that separates the parts of a DOS command. For example, a backslash is the delimiter between subdirectory names. Also, the character (typically a comma or tab) that separates field items in a database.

Desktop--The main working area on the screen when running Windows. Contains icons and windows. See GUI.

Desktop publishing--See DTP.

Device--Any identifiable subsystem of a computer. Identifiable to the computer. Drives, video circuitry, printers, the keyboard, the mouse, and ports are devices.

Device driver--Software that enables a computer to communicate with a specific device, especially a peripheral.

Device name--The label used by DOS to identify a component. LPT1, COM2, and CON are device names.

Dhrystone--(dry stone) A popular benchmark (qv). Measures string operations.

Digital--Operating in discrete units or steps. Not continuous.

Since microcomputers operate using discrete voltages and timing pulses, they are said to be digital. Usually contrasted with analog.

Digital-to-analog converter--A device that converts digital signals into their equivalent analog signals, usually sound or monitor electron gun voltages.

DIN connector--(For Deutsch Industrie Norm.) A round multipin connector.

DIP switch--(dip switch) Dual Inline Package switch. A bank of switches in a single housing. Used to change configurations or parameters.

DIR--(dir) The DOS command to list filenames. This command accepts several switches and parameters. For example, dir/w lists filenames in five columns across the screen. Type "help dir" at a DOS prompt to see a list of the switches and parameters.

Directory A list of the files in a disk or logical division of a disk. Also, the logical division itself.

Disc--A compact disc, or CD. Note the spelling.

Disk--A random access data storage medium that uses disks of mylar or aluminum coated with a material that can be magnetized. See floppy disk and "hard disk."

Disk cache--RAM that holds data that is frequently read from or written to a disk. This is faster than getting the data from the disk. Some hard disk controller cards are equipped with their own on-board cache. disk controller Circuitry that manages the physical activity of a disk drive, such as moving the drive heads and creating the actual signals recorded on the disks. The controller is usually a card on the underside of the drive itself. The expansion card that connects to the drive by a ribbon cable enables communication between the disk drive and the computer and is called an adapter or host adapter. (Sometimes the adapter circuitry is directly on the system board.) Older hard drives had

two ribbon cables to the expansion card because one part of the card held controller circuitry and another part held the adapter circuitry.

Disk directory--See directory

Disk drive--The mechanism that spins, writes data to, and reads data from a disk (qv.)

Disk operating system--Originally, an operating system loaded from disk in contrast to memory-resident operating systems and operating systems loaded from paper tape. See operating system.

Disk partition--See partition.

Diskette--See floppy disk. It's redundant to say floppy diskette.

Display--The monitor screen. Also what shows on the screen.

Display adapter--Display board, -card, -controller See video controller.

Distributed network--A network architecture in which each node has equal function and precedence, as if every node were a file server. Same as peer-to-peer.

DMA--Direct Memory Access. A method for transferring data, usually between memory and a disk drive, without going through the CPU.

Dpi--Dots Per Inch. A measure of resolution. A high resolution monitor has about 95dpi resolution; a typical laser printer has about 300dpi. The human eye can see at about 1200dpi.

DOS Disk Operating System. See operating system.

DOS prompt--An indicator on the display that indicates that MS-DOS is ready to receive a command. The default prompt is the current drive letter followed by a greater-than sign (>): C:> Most AUTOEXEC.BAT files include a PROMPT command

(prompt=pg) that modifies the DOS prompt to display the current directory, too.

Dot--The period. Called dot in computer parlance because it is easier to say.

Dot-matrix A type of printer that prints by driving a set of pins onto an inked ribbon, pressing small portions of the ribbon against the paper so dots of ink appear on the paper. The dots are close together and appear to be letters or graphic shapes.

Double-click To press and release the mouse button twice quickly without moving the mouse between clicks.

Dot pitch The amount of space between pixels in a monitor. The lower the number, the higher the monitor quality.

Double-density disk A 5.25" diskette that holds up to 360K bytes of information, or a 3.5" diskette that holds 720K.

Down--Non-functional, especially when something is wrong, such as a system failure. Compare up.

Download--To copy a file from a storage device (especially another computer) into your computer, or to send something from a computer to a printer.

Downsize--To update a company computer system by retiring the mini or mainframe and using a system of distributed, smaller CPUs, such as networked microcomputers.

Downward compatiblity—(Backward compatibility). A characteristic of software that runs correctly on old versions of a current operating system. Compare upward compatibility.

Draft quality--Printer output that is readable, but doesn't look good enough to use in business correspondence.

Drag--To hold down the mouse button and move the mouse while the button is down. Also the movement of an object on the

screen when the mouse is moved this way.

DRAM--(dee-ram) Dynamic Random Access Memory. RAM that requires external refresh circuitry and a minimum clock speed to retain its state. If dynamic RAM loses power, all its little capacitors discharge and it forgets everything. Compare static RAM.

Drive--See disk drive.

Drive array--Two or more hard disk drives used to store data simultaneously in order to enhance speed and reliability.

Drive letter The single-letter DOS name that designates a drive. Always followed by a colon.

Driver--A software routine that controls or regulates a hardware device.

DSVD--Digital Simultaneous Voice & Data. New modem technology that allows you to transmit data and talk over the same phone line using a dual-processor system: one for data transmission, one for voice. However, you can only talk to the person who is receiving the data, and the two computers must have identical modems for this technology to work.

DTP--Desktop Publishing. Producing finished or camera-ready written documents using microcomputer-based page layout software and a high resolution printer. Usually requires a fast computer with a large screen, lots of memory, large storage capacity, and many typefaces.

Dual scan display--Color LCD display where the screen is divided in half and has two refreshes. DX Suffix on the name of an 80x86 CPU chip that means the chip has a floating point unit, 32-bit internal data path, and internal cache. DX/2 Suffix on the name of an 80486DX CPU that means the clock rate inside the chip is twice the clock rate of the circuit board on which the chip resides.

Dynalink--(error) Occurs when one of the following conditions exist: More than one version of a *.dll is running or the *.dll is corrupt or missing. dynamic Refers to microcircuitry that requires a clock to maintain its state. Compare static.

E

ECP--Enhanced Communication Port [Microsoft]. Also referred to as Extended Capabilities Port. Improves I/O performance for LPT ports, IRQs and/or DMA settings.

ECC Memory--Error Checking and Correcting Memory. Advanced type of memory that can find and correct certain types of single-bit memory errors, providing greater data integrity. Advanced ECC can correct some double-bit errors.

ECU--EISA Configuration Utility. The ROM-based setup program for EISA computers.

Edge Connector--The connector along the bottom edge of an expansion card, that fits into the expansion slot.

Edge-triggered interrupt--An interrupt that is triggered by a transition between high and low voltage, regardless of the direction of the transition. Compare level sensitive.

EDO memory—Extended Data Out memory. A newer, faster type of computer memory that holds its last-requested data in a cache after releasing it. Now becoming standard on personal computers.

EEMS Enhanced Extended Memory Specification. An improved version of EMS. The improvements are now part of EMS version 4.0. See expanded memory.

EEPROM (ee-prom) Electrically Erasable Programmable Read Only Memory. Can be erased while still on the circuit board. See EPROM.

EGA--Enhanced Graphics Adapter. Maximum resolution: 640 350 16.

EIDE--Extended Integrated Drive Electronics. The EIDE specification is an enhanced version of IDE that allows for faster transfer rates and supports larger hard drive sizes.

EISA--(eesah) Extended Industry Standard Architecture. Compatible with the earlier ISA architecture and has a 32-bit data path. See bus, ISA.

EISA configuration utility--The ROM-based setup program for EISA computers.

EMS--Expanded Memory Specification. A method for accessing memory beyond the 640K DOS limit. See expanded memory.

End user--A person who uses a computer as a tool to do something else. i.e. not a computer programmer or computer designer.

Enter--The key immediately right of the apostrophe key. Also called the Return key and the Carriage Return. A similar key is at the lower right corner of the keyboard.

EPP--Enhanced Parallel Port. Parallel port standard that supports data-transfer rates of up to 500 Kb per second compared to 150 Kb per second for the standard parallel interface.

EPROM--(ep-rom) Erasable Programmable Read Only Memory. A type of ROM chip that can be programmed, then erased prior to reprogramming. Usually erased by exposing the circuitry in the chip to ultraviolet light. See PROM..

EPS--(ehps) The usual extension for an extended PostScript filename.

Esc key--Escape key. Located near the upper left corner of the keyboard. Its use depends on the software being run, but frequently used for backing out of what you were just doing.

Escape character--ASCII 27. Commonly used as a prefix for printer commands.

Ethernet--A local area network architecture.

ESDI--(ehzdee) Enhanced Small Device Interface. A high speed (10 - 20 Mb/sec) communication architecture for disk and tape drives.

Even parity--In data transmission, setting a bit in each block of data so that every block has an even number of 1's.

EXE--The DOS file extension for an executable program. To run an .exe program, type its filename (but not the .exe) and press Enter. Similar to .com.

Execute--To run something on a computer, especially a command or program.

Exit--To quit running a program.

Expanded memory--RAM above 1MB accessed on an alternating basis (using bank switching) so that addresses appear to be below 1MB. Software must be written for compatibility with EMS in order to use expanded memory. Applications running under OS/2 cannot access expanded memory. They use extended memory (qv).

Expanded memory manager--A device driver that manages expanded memory for software not itself written to use expanded memory.

Expansion bus--The pathway by which a CPU and other components of the system board communicate with cards in the computer's expansion slots. Also called the bus and the system bus.

Expansion card--A printed circuit card that plugs into an expansion slot and adds functionality to the computer system.

Expansion slot--A connector on the system board that can hold an expansion card such as a display adaptor, disk drive controller, I/O card, memory expansion.

Extended memory--RAM above 1MB, with addresses above 1MB that some applications can address directly. 80286 processors can access this memory when running in protected mode, and 80386 and 80486 can access it when running in virtual real mode. However, DOS programs cannot generally use these modes. Extended memory can be used to emulate expanded memory. Applications running under OS/2 can access extended memory.

Extended memory manager--A device driver that enables the use of extended memory for those programs written to take advantage of it. Microsoft's version of this driver is called HIMEM.SYS.

Extension--The part of a file's DOS identifier that comes after the filename. Extensions appear in the second column when you execute a DIR command. Can be as long as three characters. Separated from the filename by a period. Extensions frequently indicate the type of file. For example, .exe indicates an executable program, ".pm5" indicates a file created by PageMaker version 5.

External--Outside the computer case. Printers are usually external. Modems and hard drives are commonly available internal or external. Compare remote.

F

Facsimile--See fax.

Fan--A blower that circulates air and keeps components from overheating.

FAT File Allocation Table. A table near the beginning of a disk that identifies the location of everything on the disk.

Fax Short for facsimile. A means of transmitting paper (and

sometimes electronic) documents over phone lines. The output is usually a paper document. The output document itself is also called a fax. Also used as a verb meaning to use facsimile transmission.

Fax modem A modem able to send or receive faxes without the need to convert the document in the computer to paper.

FCC--Federal Communications Commission. FCC Class B certification means that the device emits so little radio frequency energy that it is suitable for home use. FDD Floppy Disk Drive.

Feature--A (desirable) characteristic. For example, a feature of notebook computers is that they are lightweight. See benefit.

Field--An area in a database or database entry form for a single type of information, especially a single instance of the field. For example; name, address, and phone number are fields. Compare record.

File--Any single collection of stored information, typically on floppy or hard disks. A file may be a part of the operating system, an application, or data (such as word processing, graphics, or spreadsheet documents). Anything on a disk that has a filename.

File locking--Preventing more than one person or application from simultaneously being able to change a file.

File server--A computer on a network that has the main hard disk storage for the other stations on the network. The file server usually also runs the network operating system.

File sharing--When more than one person or application has access a to file, especially to read the file. Usually the file is on a file server.

File size--The information in the third column on the screen when you execute a DIR command. Shows the length of a file in bytes. Since space on a disk is allocated in blocks of bytes, a file

may take up more room on the disk than its file size indicates.

File transfer software--Software to transmit files between computers, especially using direct connection with a serial cable rather than a modem and phone lines.

Filename--The DOS identifier for a collection of information on a disk. Filenames may be as long as eleven characters, including a three-character extension. Within a directory, filenames, counting the extension, must be unique. When you execute a DIR command, filenames appear in the first column and extensions appear in the second column. See extension.

Film--Transparent plastic sheets upon which printers may print as if on paper. Frequently used to make overhead transparencies.

Filter--A program or part of a program that converts files from one format to another. For example, PageMaker has a filter that converts Microsoft Word documents into a form readable by PageMaker. Firmware--Same as software, but written in ROM or some other nonvolatile medium. Software that is made of hardware. fixed disk Old name for hard disk.

Floating point--Using an exponent with numbers in order to indicate the location of the decimal point. More precise than integer (qv) but slower.

FLOP--(flop) Floating-point Operation. Performing an operation on a floating point number. One measure of microprocessor speed is millions of FLOPs per second (MFLOPS).

Floppy disk--A 3.5" or 5.25" removable magnetic medium used for storing programs and other files. See disk.

Floppy disk controller--See controller.

Floppy disk drive--See disk drive. font A set of all the characters of a single size and weight for a given typeface. For example, 12pt bold Palatino. Compare typeface.

Footprint--The area on a desk or the floor that a computer covers. Usually specified simply as small or large.

Form factor--The physical shape of an item, especially as a reference to some standard shape. form feed To advance the paper in a printer to the top of the next page. Compare linefeed.

Format--A process which prepares a disk (floppy or hard) to hold data. For hard disks, there are two formatting processes-low-level formatting and high-level formatting. Both types of formatting must be done before a hard disk can be used. See low level format. Also the way data is arranged in its medium, for example, the choice of font and alignment of the contents of a cell in a spreadsheet.

Frame--An HTML format invented by Netscape to divide a browser up into different pieces, or "frames". These frames support independent movement between them, allowing for more information to be displayed in a smaller space.

FTP--File Transfer Protocol. A method of transferring file between two computers on a TCP/IP network (such as the Internet). "Anonymous FTP" (the most common usage on the Internet) allows a user to download files without having an account at the remote computer. full duplex When two communicating terminals send their received transmission back to the sending terminal, and this returned signal is what the sending terminal displays on its screen. Both terminals are able to transmit simultaneously. Compare half duplex, "simplex."

Function key Any of several keys on a computer keyboard labeled F1 through F10 or F12. These keys have uses that depend on the software being run.

G

Giga--(giga, not jiga) A prefix meaning billion.

GB--Gigabytegarbage Meaningless, apparently random characters.

Gateway--A device that connects unlike local area networks so stations on the networks can communicate. Compare bridge.

GHz--Gigahertz..

GIF--(jif) Graphics Interchange Format. The filename extension for graphic files in a format developed by CompuServe.

Gigabyte--Either 1,000 megabytes or 1024 megabytes. See K.

Gigaflops--A billion floating point operations per second. gigahertz A billion cycles per second.

GIGO (guy-go) Garbage In, Garbage Out. The principle that incorrect or illegal input produces meaningless or invalid output.

Glitch--An error in the reception of a signal that creates a small error in data without affecting the transmission. For example, a glitch might make a printer print a single incorrect character. graphic character Any character identified by the computer as a shape rather than as a byte. Compare text character.

Graphics character--Any character, usually from the upper 128 ASCII codes, that can produce lines and rectilinear shapes when entered next to each other.

Graphics controller--A general term for any video card that is not limited to text characters but can also produce graphics. See video controller.

Graphics mode--When the screen is drawn directly by the computer. The computer is able to put any shape it wants on the screen, limited only by the size, color, and number of pixels. Not limited to a set of characters. See text mode. Also one of a choice of resolutions.

Gray scale--Refers to a monitor that shows four or more shades of gray. Also a sample by which to evaluate shades of gray, usually printed on paper. (This kind of gray scale looks like a rectangle that is white on one end and gets progressively darker

until it reaches black at the other end.)

Group--In Windows, a window containing related files.

GUI--(gooey) Graphical User Interface. A way for humans to communicate with a computer that typically uses graphics mode instead of character mode. Usually involves a mouse. Compare command line interface and menu driven.

Guru--A person with advanced computer skills willing to help others with their computer problems.

H

Hack--Fixing specific software weaknesses by making changes to the actual code, especially if done without finesse. Also the change itself. See kludge, patch.

Hacker--Originally, a computer hobbyist. Now, someone with antisocial intent who attempts to invade remote systems.

Half duplex When two communicating terminals take turns transmitting. Each terminal displays the signal it is sending on its screen. Compare full duplex, simplex.

Half-height Refers to drive mechanisms that are about 2" high. Can be applied to any similarly-sized device.

Hand-held--Same as a palm-top computer, or smaller.

Handshake--Preliminary signals between devices that indicate readiness to send or receive data.

Hang When a computer stops operating, usually because something went wrong in the software. Same as " bomb", "crash", and "lock up". Although these terms are used interchangeably, "hang" and "lock up" are used more often when the screen appears normal. Usually requires rebooting the computer.

Hard copy--Output printed on paper.

Hard disk--A disk drive which has larger capacity and is faster than floppy disks. The storage medium is one or more aluminum disks with a thin magnetizable coating and permanently sealed in a dust-proof housing. Some companies make removable hard drives, from which the entire disk housing can be removed. hard disk partition See partition.

Hardware--Refers to the parts of a computer system that are physical objects. hardwired Any function physically built into the computer, and therefore not subject to change, or physically connected, such as with a cable. Compare firmware and software.

Hayes compatible--modems that use the same commands as modems manufactured by Hayes Microcomputer Products. See AT command.

Head--The part of a drive mechanism that reads and writes data onto the disk. Looks somewhat like a phonograph needle. Also called read/write head.

Head crash--When the read/write head in a hard disk drive touches the platter, damaging that part of the platter.

Help--A system of providing information about a program directly on the screen, usually accessed by the press of a special key or key combination, frequently F1 or Ctrl + ?. See context sensitive.

Hercules--An early monochrome graphics standard. 720 348 resolution.

Hertz--Cycles per second. A measure of frequency. Named after Heinrich Hertz.

hex Short for hexadecimal.

Hexadecimal--A number system that uses 16 as the base. (Place value indicates powers of 16.) It uses the digits 0-9 and A-F.

Used around computers because a byte (eight binary digits) easily converts to a two digit hexadecimal number. Hexadecimal numbers are often indicated with the letter H, a dollar sign, or a subscripted 16 after the number. Compare binary, decimal.

HDD--Hard Disk Drive—Also known as Hard Drive, Fixed Disk, Winchester Drive.

High density--5.25" diskettes that hold 1.2MB, and 3.5" diskettes that hold 1.44MB. Compare double density. The magnetic characteristics of double density and high density disks differ. Therefore, do not attempt to format a double density disk as a high density one. high memory Addresses in main memory between 640K and 1MB.

High res--High resolution.

High resolution--Finely detailed screen or printer output. Generally anything as fine or finer than about 640 480 on a screen or 300 dpi on a printer.

Highlight--To make conspicuous on a computer screen by changing the color of an area, especially characters and their immediate background. Often the colors are the reverse of the non-highlighted area. Also the highlighted area itself.

Home--The upper left corner of the display, especially in text mode. There is some variation from this in some software. Wherever the Home key places the cursor. Home key A key on the keyboard that moves the cursor to a location the software defines as home, usually the beginning of a document or the screen.

Host adapter--An expansion card that serves as a controller for SCSI devices.

Hub--Any device to which several other devices are attached, especially the central unit in a star network. See star topology.

Hz--See Hertz.

I

IC--Integrated Circuit. Also called chip.

Icon--A picture on the screen that represents a file (data, application, or command) or a directory. Found only in GUI's. Usually the picture suggests the purpose or identity of the file it represents. For example, the icon for a popular utilities package is an image of a Swiss army knife. Many feel that manipulating icons is easier than entering commands on a command line.

IDE--Integrated Device Electronics. A protocol and circuitry for communication between a computer and a hard disk drive.

IEEE--(eye-triple E) Institute of Electrical and Electronic Engineers. An organization that sets many computer- related communication standards. illegal Input that is not acceptable because it does not fit the intended parameters. For example, a ZIP code field would consider a 6-digit number illegal. Compare invalid.

Indicator--A light that lights or blinks to show the state of something. For example, most monitors have a light that shows when the monitor is turned on.

Inline plug-in--An application that, when inserted into a browser that supports it (through an installation procedure), allows greater functionality and flexibility of the browser to view multimedia that would otherwise require an outside application.

Install--To load software or hardware into a computer system. Many programs use a program called INSTALL.EXE to install themselves. See setup.

Instruction--Any command sent to a microprocessor, especially assembly language instructions.

Integer--Refers to computations done without decimals. Compare floating point.

Integrated circuit--A (usually complex) circuit consisting of a

large number of electronic components placed on a single silicon chip by a photolithographic process. The individual components are microscopic, or nearly so.

Intelligent--Anything that has function-enhancing microcircuitry in it, especially if traditionally it has not had this circuitry.

Interface--The place where, or means by which, any two things connect so they can communicate. Can be as concrete as a plug or as abstract as a set of rules.

Interlaced--Refers to monitors whose electron beam scans every other line each time it scans the screen. Each time it scans the screen, it scans the lines it didn't scan the last time.

Interleave--The storing of data in non-consecutive sectors on a hard disk. This gives slow computers time to absorb data before the next stream of data is available. See interleave ratio.

Interleave ratio--A ratio representing the number of sectors skipped on an interleaved hard disk. For example, a 1:3 interleave means data is written on every third sector.

Interleaved memory--An option on some system boards that increases processing speed by assigning memory locations on an alternating basis to two banks of RAM. The computer has to wait one cycle between accesses to a single bank of memory, but it can access a different bank without having to wait.

Internal--Located inside, a part of.

Interrupt A signal from part of a system asking to use the CPU. Interrupts are hierarchical, which prevents interrupts from interrupting each other. (Whichever interrupt has higher priority makes the other interrupt wait.) When the CPU receives an interrupt signal, it saves what it is doing, processes the routine associated with the interrupt, then returns to what it was doing.

Invalid Output that is meaningless because of an error in logic or processing. A database program that made 6-digit ZIP codes

would produce invalid addresses. Compare illegal. I/O address Input-Output address. How the CPU sees an I/O port. It puts data into this address or reads the data in it. The device at the other end of the I/O port gets the data from that address or puts the data there, respectively. I/O port Input-Output port. A connector that allows you to connect peripherals to a computer system. The two most common types of I/O ports are serial and parallel. IRQ Interrupt Request. A signal, that when received by the CPU, makes it stop what it is doing to do something else. ISDN Integrated Services Digital Network. A digital standard for telephony that enables, among other things, telephone, television, and computer signals on the same lines. This system may someday replace our existing telephone lines. ISA (eye-sah) Industry Standard Architecture. The bus architecture used in most MS-DOS microcomputers. Also called the AT bus.

J

Joke--See trick.

Joystick--A pointing device popular in computer games. Named after a similarly shaped control in many airplanes.

Jumper--An electrically-conductive part that is used to connect two or more points on a circuit board. Commonly used to select among options or turn an option on or off.

K

Kilo--Informally, 1,000. Technically, 210, or 1024, so 64K is actually 65,536. K is often used for kilobyte. k Kilo-; the prefix in the metric system for 1,000.

KB--Kilobyte; 1024 bytes. Equivalent to half a sheet of paper's worth of typing, double spaced.

Kb--Kilobit; 1024 bits.

Kermit--A communication protocol, used mainly for file transfers by modem.

Keyboard--The part of a computer system you type on.

Keyboard buffer--A buffer that holds keystrokes signals. If you press the keys faster than the computer can accept the keystrokes the buffer will hold the command until the computer is ready for it.

Keyboard speed--a keyboard's repeat rate and repeat delay.

KHz--Kilohertz. 1,000 cycles per second (not 1,024).

Kludge--(kloodge) Hardware or software that works, but is inelegant. Something thrown together quickly to meet a specific need.

L

LAN--(rhymes with pan) Local Area Network. Two or more computers connected by cable and using a suitable operating system and application software so they can directly share hard disks, printers, other peripherals, and files.

Laptop A portable computer bigger than a notebook computer but still light enough to use on your lap. Usually somewhat larger than a sheet of paper, and at least two inches thick.

Laser--An electronic device that produces coherent light. Used in fiber optic communication, laser printers, magneto-optical devices, and CD-ROM.

Laser printer--A xerographic printer that uses a laser to draw the image of the page to be printed on the photosensitive drum.

LCD--Liquid Crystal Diode, Also Liquid Crystal Display

LCD printer--A printer similar to a laser printer except that light shines through LCD shutters which open and close so light falls on the photosensitive drum to produce the page image.

LED--(led, elly-dee) Light Emitting Diode. A diode that emits light when electricity is run through it. LEDs are frequently used

as indicator lights. LED printer A printer similar to a laser printer except the light source is an array of LEDs.

Legacy card--An expansion card that utilizes jumpers for setting changes. Compare to Plug and Play. letter quality Printer output good enough to be used in business letters.

Level-sensitive interrupt--An interrupt triggered by the actual state of the interrupt signal rather than by its transition from one state to the other. Two devices triggered by opposite states can share the same interrupt.

LF--Linefeed. What you get when you press the Return key in a word processing program. Causes the cursor to move down one line. Also a printer command that causes the printer to advance the paper one line. Frequently used with the carriage return command (qv).

Line--Any solid whose purpose is to conduct electricity or electrical signals. Usually a wire or printed circuit board conductor. Also a row of characters on paper or a computer screen.

Linefeed--See LF. line printer A type of printer that prints a line at a time. Usually used in high speed data processing applications. Dot matrix printers print a character at a time, laser printers print a page at a time. line voltage The electricity coming in from the wall outlet. 110VAC.

Linefeed--See LF.

Local--Attached to or happening within your computer. Compare remote.

Lock up--When a computer fails to respond to the keyboard, usually because something went wrong in software. See "crash", "bomb", and "hang". Usually requires restarting the computer.

Logic--The intent of the programming commands that determine what a program finally does. Also generic term for Boolean

operations.

Logic chip--A chip that performs logical operations on data. Compare memory chip.

Logic circuit--A circuit that performs the electronic equivalent of Boolean operations. See Boolean. login A series of commands that allows a person to begin using a network. Usually one of the commands involves identifying yourself as a user, and there is frequently a password.

Logon--Same as login.

Logoff--The reverse of login. The steps you take to stop using a network, also called terminating a session. logout Same as logoff.

Low level format--A preliminary formatting process for hard disks that finds bad sectors. This format is done at the factory; you should avoid performing a low level format yourself. low memory The first MB of RAM in a DOS computer. Same as standard memory, main memory, and primary storage.

LPT--Originally, Line Printer. Now, the logical device name for a parallel port.

LSI--Large Scale Integration. An integrated circuit chip containing 100 to 5000 components.

Luggable A portable computer weighing more than about 15 lbs.

M

Mega-. The prefix in the metric system for million. In computers, 220, or 1,048,576.

Milli-. One thousandth. Also sometimes, micro- (millionth). (The lowercase m is used if the more correct Greek letter mu is unavailable for micro.)

Macro--A series of commands and procedures that are carried

out in response to a single command or keystroke, or identified by a single name.

Magnetic storage--Disks or tape instead of RAM or optical media to store data.

Magneto-optical--Refers to disks and drives that record data on magnetic tracks, but use optical technology (a laser) to align the read/write head with the tracks. Also refers to disks and drives that directly influence the magnetic signals on the disk with light emitted from lasers.

Mailbox--Term generally relating to how your fax/modem card stores voice mail. One computer can have many mailboxes, each designated for a different purpose or user.

Main memory The main RAM used by a CPU. The first megabyte of memory in a DOS computer.

Mainframe--A very large, fast, multiuser computer. Usually at least as big as a refrigerator.

Mark--In data transmission, setting the parity bit to always be 1. Also called mark parity.

Maskable interrupt--An interrupt that can be interrupted by another interrupt. mass storage Any device used to store large amounts of data. Usually refers to hard disks and tape backup units. math coprocessor A coprocessor that performs floating-point operations for the CPU.

MB--Megabyte. 220 or 1,048,576 bytes. Informally, a million bytes. A unit of memory and data storage size. Two Scientific American magazines total about a megabyte.

Mb--Megabit. 220 or 1,048,576 bits. Informally, a million bits. Mb/s Megabits per second. A unit for speed of transfer of data between a hard disk and RAM.

Media--Physical materials for storing any kind of information.

Media is plural; "medium" is the singular.

Meg--Informal for megabyte.

Megabyte--See MB.

Megaflops--See MFLOPS.memory A place in computer circuitry that stores data. See RAM, ROM, buffer, cache. Also the tendency in NiCad batteries to retain their charge and lose their ability to be recharged.

Memory chip--A chip that stores data. Compare logic chip.

Menu--A list of choices on a computer screen. Usually the user picks a choice by typing the desired item number or by highlighting the desired item and pressing Enter.

Menu bar--A list of menu headings arranged horizontally, usually at or near the top of the screen. Commonly found in GUIs.

Menu-driven--Software whose commands are menu choices, frequently arranged hierarchically. Compare command-line and GUI.

Menu item--choice in a menu.

Mesh topology--A network topology that has more than one path to each node.

MFLOPS--(megaflops) Million Floating Point Operations Per Second. Used to measure of the speed of a CPU or computer.

MFM--Modified Frequency Modulation encoding. A way of recording data on a hard disk. Compare RLL.

Micro--Literally, one millionth. Also A prefix for almost anything having to do with microcomputers. In measurements, usually abbreviated with m if the character is available.

Micro Channel Architecture--A 32-bit bus architecture found in some IBM PS/2 computers. See bus. microcomputer A computer small enough to fit on a desktop, with a single-chip CPU.

Microelectronics--Electronic circuits on chips.

Microfloppy--A 3.5" floppy disk.microprocessor The main logic chip in a microcomputer. The CPU.

MIDI--(middy) Musical Instrument Digital Interface. An interface for connecting suitably equipped musical instruments to suitably equipped computers.

Mini--Minicomputer.minicomputer A computer about the size of a two-drawer filing cabinet, between a micro and mainframe in power.

MIPS--(mips) Million Instructions Per Second. A measure of processor speed.

MIS--Management Information Services. The department in a company that operates and maintains the computers.

MMU--Memory Management Unit. Circuitry that manages the swapping of blocks of memory.

Modem (moe-dem) Short for modulator-demodulator. A device that enables a computer to communicate with other computers over telephone lines.

Monitor--The part of a computer that looks like a TV. The video display of a computer.

Motherboard--See system board.

Mouse--A hand-held device for moving the cursor or pointer on the screen. Movements of the mouse produce analogous movements of the pointer.

Mouse acceleration--The ratio of mouse speed to the distance

the pointer travels. Compare mouse tracking, mouse sensitivity.

Mouse sensitivity--The inverse of mouse tracking. Low sensitivity equals fast tracking. The larger the mouse movement for a given pointer distance, the greater the sensitivity.

Mouse tracking--The ratio of mouse movement (distance) to pointer movement. Fast tracking means that a small mouse movement results in a large pointer movement. Compare mouse acceleration, mouse sensitivity.

MPC--Multimedia Personal Computer. A computer capable of performing multimedia functions. Generally defined as at least a 386/16 system with 4MB RAM, a 40MB HDD, a sound card, a mouse, and a CD-ROM that used less than 40% of CPU power. The standard is defined in detail by the MPC Advertising Council.

MPEG--Moving Pictures Expert Group. Audio/Video technology that allows for better than VHS quality video and almost CD quality audio by utilizing advanced compression techniques.

MS-DOS--Microsoft Disk Operating System. See operating system.

Ms--Millisecond. A measure of hard disk access time.

MSI Medium Scale Integration--A chip that has 10 to 100 components on it.

MTBF--Mean Time Between Failures. A measure of hardware reliability.

Multifunction board--An expansion card that performs more than one function.

Multimedia--Combining static media (such as text and pictures) with dynamic media (such as sound, video, and animation) on the same system.

Multisynch monitor--A monitor able to display output within a range of different horizontal and vertical scan frequencies, enabling it to work with a variety of video cards.

Multitasking--The ability of a computer, operating system, or application to perform more than one task or operation at the same time. For example, a multitasking operating system might let you simultaneously use your computer system to download information from a remote computer with a modem, print out a word processing file, and sort a data base.

N

Nano-. One billionth.

Nerd--A person with limited social, but advanced technological, skills and interests.

NetWare--A network operating system developed by Novell, Inc. network See local area network, wide area network.

Network adapter--An expansion card that connects a computer to the cables of a network and transmits the type of signals used throughout the network. On some computers, mainly portables, the adapter may be an external device, not a card.

Network administrator--The person who manages the operation of a network, such as adding and removing user IDs, adding peripherals, and making backups of the data on the network.

Network architecture--The entire structure of a network, including protocols, operating system, hardware, type of cabling, topology, interfaces, and adapter cards.

Network interface card--See network adapter.

Network operating system--An operating system able to handle the many tasks associated with a network, such as file locking, resource allocation, and error control.

Network server--See file server.

NFS--Network File System. A method of allowing users to view drivers/directories on another computer as being on their computer.

NIC--Network Interface Card (qv).

NiCad--(nye-cad) Nickel-Cadmium. A rechargeable battery chemistry. Must be conditioned occasionally to retain its ability to receive a charge.

NiMH Nickel Metal Hydride--A rechargeable battery chemistry. Does not have memory, costs more than NiCad.

Node--Any device visible to a network. A printer accessible by all stations on a network is a node, but a printer attached to one of the stations and usable only by that station is not a node. Literally, anywhere a connection occurs.

Noninterlaced--Refers to monitors whose electron gun scans the entire screen without skipping any scan lines. Compare interlaced.

Nonmaskable interrupt--An interrupt that cannot be disabled by another interrupt.

Nonvolatile--Does not disappear when the power is shut off, especially when referring to memory. Compare volatile.

Notebook computer--A portable computer about the size of a piece of paper and usually less than two inches thick. Fits in an attaché case.

Ns--Nanosecond. A billionth of a second. Used as a measure of RAM speed. Light travels not quite a foot in one nanosecond.

NTSC--National Television System Committee. Refers to the signals received and displayed in broadcast television.

Numeric keypad--Number keys on the right of the keyboard arranged calculator-style, including the math operation keys.

Num Lock key--Short for numeric lock. A toggle key that switches the numeric keypad keys between their numeric function and arrow key functions.

O

OCR--Optical Character Recognition. The technology of computers being able to convert printed text into actual data, rather than just a graphic image.

Odd parity--In data transmission, setting a bit in each block of data so that every block has an odd number of 1's.

OEM--Original Equipment Manufacturer. A company that makes assemblies that manufacturers use. For example, a hard disk company is an OEM to a computer company.

Offline--When a device is not electrically connected, even though the physical connection may still exist. A user logged off a network is offline. Compare online.

Online--Able to communicate with another device. Compare offline.

Open architecture An architecture with expansion slots or otherwise able to be added to. Specifically, one whose specifications have been published.

Open circuit A circuit that is not complete. Usually refers to removing a jumper from two pins on the system board.

Open file A file that is being or is able to be added to, modified, or read. In effect, a file loaded into RAM.

Operating system Software which allows the user and whatever application programs are installed to communicate with the computer hardware. Your computer system is supplied with the MS-DOS operating system. Other operating systems (which may

or may not work with your system) include Novell NetWare, XENIX, and OS/2.

Optical media Any storage medium that uses lasers to read or write information. OS See operating system. OS/2 A graphical, windowing operating system for microcomputers, developed by IBM.

Outline font A font described in terms of formulas describing the shapes of the letters. Compare bitmapped font.

Output Any result of any process, but especially something sent to the screen, disk, or printer. Overdrive A CPU chip similar to the DX/2 available to consumers. It may have a pinout for replacing a DX chip or a pinout for insertion into an upgrade socket.

Overhead The space taken up by software functions that are necessary but that are not part of the main purpose of the program. For example, the printing functions in a program are overhead.

P

Pico--A trillionth.packet A discrete bundle of data sent over a network.

Packet switching--When a network sends packets between stations by routes that may vary depending on which route is the best available at the time.

Page--A block of memory of predetermined size, used in memory management schemes. Also one full screen image, stored in memory. Expanded memory switches pages of memory 64K at a time into locations below the DOS 640K limit as a way for DOS to have acces to more than 640K of memory. See bank switching.

Page printer--Any printer that prints a page at a time. Page printers store an entire page in their memory before printing it.

Palette--In GUIs, a menu that stays visible and can be moved about on the screen. Also the choice of colors available on the screen.

Palmtop--A portable computer small enough to hold in one hand while you enter data with the other. Too small for serious typing. Same as hand-held computer.

Parallel--Side-by-side data transmission. In 8-bit parallel, all the bits in a byte arrive simultaneously. Compare serial.

Parallel interface--The specification and hardware for parallel transmission of data. The Centronics parallel interface is popular for printing; SCSI is popular for other devices. parallel port The connector used for parallel transmission. Also the logical device LPT.

Parallel printer--A printer that uses a parallel interface.

Parameter--Literally, a boundary. Any command, setting, or circumstance whose effect is to define a limit. For example, on our highways, the speed limit and the rule to drive on the right side of the road are parameters. For another example, if you type the parameter *.doc after a "dir" command, the computer will list only files ending in ".doc". parity Literally, equivalence. A method of checking for errors in data transmission or recording by specifying some indicator (usually one or more bits) that indicates some kind of equivalence to the correctly transmitted data. See even parity, odd parity.

Parity bit--The bit that is used in data transmission to indicate whether the data is correct. For example, a modem could transmit an extra bit (the parity bit) at the end of a byte of data-a 1 if the byte contained an even number of 1's and a 0 if it contained an odd number of 1μs. The receiving modem could count the number of 1μs in the byte. As long as the number of 1μs was odd (including that extra bit) it could assume the transmission was OK. partition A way of logically dividing a disk so that DOS treats the divisions as separate disks.

Passive matrix display--Color LCD display that scans one line of pixels at a time. About half the cost of an active matrix display.

Password--A secret string of characters used to gain access to anything that requires the password for access. Used to prevent unauthorized access to files, computer systems, or the information therein. Passwords do not appear on the screen when you type them.

Patch--A modification to program code done somewhat more carefully than a hack (qv), usually to fix a problem discovered after the software is complete.

Path--A list of the names of the subdirectories between the root and the file in question. Any similar list of subdirectories. pathname The name of a file including its path. The name of each subdirectory is separated from the others by a backslash. For example:C:\DOS\MOUSE\MOUSE.COM pause A key or command that temporarily halts an operation (such as scrolling). When the pause is over (usually accomplished by repeating the command or keystroke), the operation resumes. Compare break.

Payload--The activity carried out by a computer virus when it is activated by a triggering event. Depending on the virus, the payload may be as benign as putting a message on your screen or as destructive as erasing your hard disk or scrambling your data. See virus.

PC--Personal Computer. Any microcomputer, regardless of operating system or manufacturer, but used especially in reference to computers that run DOS. The name comes from the idea that the computer is self-contained, and normally used by one person, in contrast to large computers that had several terminals attached.

PCI--Peripheral Component Interface/Interconnect. A self-configuring personal computer local bus designed by Intel. It runs at 33MHz and is technically superior to the VESA local bus. Mostly used on Pentium based computers but will work with other architectures.

PDL--Page Description Language. A computer language for describing what to print on a page to suitably equipped printers. PostScript and HPGL (Hewlett Packard Graphics Language) are PDLs.

Peer--A station in a network with equal amount of access or control on the network as another station. Compare client, slave.

Peer-to-peer network--Same as distributed network (qv).

Pen computer--A portable computer whose main input device is a stylus shaped like a pen used to write directly on the screen.

Performance--enhanced memory See EDO memory.

Peripheral--Any device which is attached to or installed in the system unit. Examples include printers, modems, scanners, and CD-ROM drives.

Pico--One trillionth.

Piggyback board--A daughterboard on an expansion card. See daughterboard.

Pin--Any of the legs on a chip. Also, any of the wires projecting from a male connector.

Pipe--A connection between two processes so that the output from one immediately becomes the input for the other. Indicated by the | character.

Pipeline burst cache--Secondary synchronous SRAM cache with speeds as fast as 9ns. It uses "burst" data transfers rather than a steady stream in order to take advantage of the faster bus cycles and CPU's available on today's systems. Data is moved through the SRAM core in an assembly line fashion -- as if going through a "pipe".

Pirate--To make and distribute illegal copies of commercial

software. Also a person who pirates software.

Pixel--Picture Element. The smallest spot on the screen that a computer can address.

Platform--Refers to a specific combination of hardware, operating system, and/or other software, as in "This program has been tested on both Windows NT and UNIX platforms".

Platter--The disk in a hard disk drive. Usually there are two to eight in a drive. They are made of aluminum and have a very thin magnetizable coating.

Plotter A printing device that draws its output with a pen directly on paper or film. Plug and Play A computer specification that allows components (modem, sound cards, network interface cards, etc.) to be added to a computer without manual configuration (a.k.a. "Plug-n-Pray").

PMMU--Paged Memory Management Unit. Circuitry that swaps memory. This type of circuitry is built into many CPU chips.

Pointer--An image on the screen, usually an arrow, whose location is controlled by a mouse or other pointing device. pointing device Usually a mouse or trackball, used to control the movement of a pointer on the screen. Graphics tablets, lightpens, and joysticks are also pointing devices.

Populate--To put chips into the sockets on a printed circuit board.

Port--Any connection by which data can enter or leave a computer or peripheral. You plug cables into ports.

Portable computer--Any computer with a handle, or small enough to be carried about. Frequently have design features appropriate for portability, such as battery power or a carrying case. PostScript A popular page description language. Many fonts, graphics programs, screen drivers, and printer drivers use PostScript.

Power--The electricity that makes a computer go. Also a general term for computing speed.power down To shut off the power to a computer.

Power supply--The device in a computer that converts ordinary 110 VAC to the DC voltages used by the computer. If you look inside your desktop system unit, it's the metal box with the fan and on-off switch on its sides.

Power up--To switch on the power to a computer. PPM Pages Per Minute. A measure of the speed of a printer. Usually tells how many times the printer can print the same page in a minute. primary storage The main RAM used by a CPU, especially the first megabyte. Same as main memory. print job A single item to be printed. Usually used when there are two or more items, and one or more is waiting to be printed. print queue One or more print jobs waiting to be printed.

Print server--A node on a network that manages the print jobs sent to network printers.

Print spooler--Software that manages print jobs, generally by organizing them into a queue and determining parameters such as in what order the jobs print. Spool is from Simultaneous Print Operations On Line.

Printed circuit--A (usually complex) electronic circuit printed on a piece of nonconducting material, onto which electronic components are soldered. Same as printed circuit board and circuit board.

Printer--A device that outputs text or graphics onto paper or film. Dot-matrix printers look rather like a typewriter without a keyboard. Laser printers look somewhat like photocopiers that don't have a place to put the original.

Printer driver--Software that enables the computer to control a printer and use its features.

Printhead--The part of a dot matrix or inkjet printer that makes the marks on the paper.

Printout--The output from a printer. Same as hard copy.

PRN--The DOS logical device name for printer. Usually communicates with the parallel port LPT1. process A series of related steps. See algorithm. Also to carry out these steps. See processing.

Processing--What a computer does to data that has been input. See computer.

Processor--See CPU, microprocessor.

Program--A set of instructions written in a computer language which instructs a computer to perform a task. See application, operating system, software.

Programmable--Frequently refers to keys that can be assigned to start a series of steps called a macro.

PROM--(prom) Programmable Read Only Memory. Chips whose circuits can be programmed, but not changed thereafter. See EPROM.

Prompt--See DOS prompt.

Protocol--A set of rules or parameters for communications between computer systems or parts of a computer system.

Pseudo-static--RAM or other chips that are functionally equivalent to static chips. They have their own internal refresh circuitry, so they appear to the system to not need refreshing.

Purge--To delete in a manner that prevents recovery. Same as zap.

Q

Queue--One or more print jobs waiting to be printed.

Qv---Short for quod vide, which is Latin for "else see," meaning, defined elsewhere.

QWERTY--A keyboard whose top row of letter keys starts with the letters Q, W, E, R, T, Y.

R

RAID--Redundant Array of Inexpensive Drives. Typically used on a network file server. A method of combining several relatively cheap hard disk drives to make one large drive.

RAM--Random Access Memory. Computer memory used to temporarily hold programs and data. RAM is stored in ICs that plug into the system board, or into an expansion card which in turn plugs into slots on the system board. There are two basic types of RAM chips: Static RAM (SRAM) and dynamic RAM (DRAM). SRAM chips are faster, but are also more expensive than DRAM. RAM cache A method of storing frequently-accessed data in static RAM that is much faster than the system's main memory, resulting in a significant increase in system speed.

RAMDAC--(ram-dack) RAM Digital-to-Analog Converter. A chip on a video controller that converts the digital data in video memory into the analog voltages used by the monitor's electron guns. The chip also contains a section of RAM that contains a color look-up table.

Random access--Able to read any location directly; without having to read sequentially to the location. read-only You can get the information, but you can't change it. For example, the contents of a ROM chip. read/write head The part of a disk drive that detects and writes bits on the disk. reboot To restart a computer, usually because of a crash. See boot.

Record--In a database, the data from the same single instance of each field. For example, one person's name, address, and phone

number. Compare field.

Record locking A procedure for allowing only one user at a time to be able to change a record. recover To return to normal after a minor crash.

Refresh cycle--A pulse of electricity necessary for dynamic circuitry to maintain its state. remote Attached to another computer (or the other computer itself), but accessible in some way to the computer you are using.

Repeat rate--How fast a character repeats itself on the screen when you hold down the key.

Repeat delay--How long you have to hold down a key before the repeating starts.

Resolution--How fine the detail is on a screen or printout. Screen resolution is measured in pixels across, pixels down, and number of colors. Printer resolution is measured in dpi (qv) or with vague terms like draft, letter quality, and near letter quality.

Restore--To replace damaged data with undamaged data from a backup.

Revert--To return to the last version of work that you saved. Any changes you made since that last save are lost.

RF--Radio Frequency. When someone runs the vacuum cleaner and it makes a lot of snow on the TV, the snow is caused by RF radiation. See shielding. RGB Red Green Blue. Refers to a type of color monitor in which the three color signals come in on separate lines. Compare composite.

Ribbon cable--A cable in which all the wires are side by side, producing a flat, flexible cable. Frequently wire #1 is identified by a stripe on its insulation. ring topology A network whose nodes are connected in a continuous loop.

RISC--(risk) Reduced Instruction Set Computer. Refers to a

microprocessor design that uses a relatively simple architecture, with fewer built-in commands than a CISC chip. The benefit is a significant increase in speed, enough to make up for not having as many instructions. Compare CISC.

RLL--Run Length Limited. A way of recording data on a hard disk that requires about half the space, but more precise timing, than MFM (qv).

ROM--Read-Only Memory. Computer memory used to permanently store parts of the computer's or expansion cardµs operating system. ROM chips can contain instructions and data. Informally means any storage which can be read but not changed. See Also BIOS.

Root--See root directory.

Root directory--The main directory on a hard disk. All other directories are subdirectories.

Route--A network device that sends messages by the best route, especially over large networks.

Routine--A program or part of a program that does one thing.

S

Safe mode--A state in which Windows 95 loads in VGA without 32-bit drivers or network support. Usually occurs when there's a hardware or driver conflict.

Sag--The opposite of surge. When the line voltage drops far enough to affect the operation of a computer.

Sample--A very small piece of an analog signal; small enough that it can be treated as having a single value, which can be recorded as a digital number Also Converting analog signals (such as sound waves) into digital signals by recording many samples of the signal.

Sampling rate--How many samples are taken per second. The more samples, the more accurate the recording. 44.1MHz is a standard sampling rate for high-fidelity music.

Save--To store data on a floppy or hard disk so it will not be lost when the power is off. scanner A peripheral that converts a physical object (usually something printed on paper) into a digital graphics file. Also used as the first step in OCR (qv).

Screen--Literally, the front surface of the monitor. By extension, what you see on the screen.

Screen dump--A reasonably exact copy of what's on the screen printed out or saved as a file.

Scroll Lock key--When used with software that supports it, pressing an arrow key when the Scroll Lock key is toggled on causes the screen to move while the cursor stays in one place.

SCSI--(scuzzy) Small Computer System Interface. A high speed parallel interface.SCSI chain Devices connected on a single SCSI bus.sector The smallest logical division into which a disk is divided. Part of a track.

Seek time The time it takes to move a disk drive's read/write head to a given track. Compare access time.

Selection--The information on a screen that is highlighted. See highlight.

Sensitivity--See mouse sensitivity.

Serial--One after another. The transmission of data one bit (or one signal) at a time. Compare parallel.

Serial port--A connection on a device for serial communication. Identified in DOS as COM1 - COM4.

Server--See file server.

Session--The time you spend logged onto a network.

Set up--To assemble a system. Compare install.

Setup--The physical arrangement of parts in a system. Setup is often used interchangeably with "configuration.

Setup program--Used to inform the computer about the peripherals attached to it, the amount of memory installed, the date and time, and so forth. The setup program is stored in ROM on the system board. Many large application programs run a program called SETUP.EXE to install themselves and enable you to set details about their configuration.

Shadow RAM--A method of relocating the system and/or video BIOS from slower ROM chips to faster RAM to improve system performance.

Shell--A program that helps or enables a user to use the operating system.

Shielding--A metal or screened enclosure that prevents RF radiation from being emitted. The FCC standards for computers include limits on how much radiation may be emitted.

Shift key--A key that, when used with another key, produces an alternative meaning for the other key. Shift, Ctrl, and Alt, are shift keys. You must hold down a shift key for it to take effect. Most people consider the Caps Lock key to be a shift key. Compare toggle key.

Short--An intentional or unintentional completion of an electrical circuit. Generally refers to installing a jumper between two pins. See also open and jumper.

Sign off--Same as logoff.

Sign on--Same as logon.

SIMM--(sim) Single Inline Memory Module. A way of packaging RAM chips that combines several compact chips on a small circuit board. SIMMs are available in large memory sizes, usually 4 or 16MB.

Simplex--One-way transmission of data. Wire service terminals down in the news room are simplex devices.

Slave--Any device controlled by another device. Compare peer, client.

Sleep--To partially suspend operation in order to save battery power. Usually less in degree than suspend (qv).

Slot--See expansion slot.

Software--A general term for computer program or programs.

Sound Blaster--A popular expansion card for producing sound. Made by Creative Labs Inc. of Santa Clara.

Sound card--An expansion card designed for sound input and output. Sound cards can record and play back digital audio. Most also have a MIDI synthesizer, which means they can play MIDI files; some also have MIDI inputs and outputs.

Space parity--In data transmission, setting the parity bit so it is always zero. Compare mark parity.

Spike--A very short but very strong pulse of electricity. Can damage computers and data. See surge protector.

Spool--What a print spooler does. See print spooler.

SRAM (es-ram) Static Random Access Memory. Requires less power than DRAM, and is usually faster, but costs more. See dynamic.

Standard memory--The first megabyte of memory in a DOS

computer.

Star--Computerese for asterisk (qv), (*), also sometimes called splat.

Star topology--A network arrangement in which all nodes are connected to a central computer, called a hub.

Static--A type of integrated circuit that maintains its state without a clock (refresh circuitry), which allows it to use very little power. Usually faster and more expensive than dynamic. See dynamic, pseudo-static. Also short for static electricity.

Static electricity--An electrical charge that can build up on certain nonconductors. Discharge of static electricity can damage computer components and data.

Station--A computer on a network. See workstation.

Stop bit--A signal used in asynchronous data transmission that indicates the end of a character.

Storage--Any device that can store data; usually refers to disks, but includes CD-ROM and tape backup units. string Any sequence of characters.

Subdirectory--A logical subdivision of the files on a disk. Compare root directory.

Sub-notebook computer--A portable computer between palmtop and notebook in size. Just big enough to type on.

Super VGA--See SVGA.

Surge--A sudden increase in the strength of the electricity powering a computer. See spike.

Surge protector--A device designed to filter unwanted electrical pulses from the power to a computer or other electronic device.

Suspend--To shut down almost completely in order to conserve battery power.

SVGA Super Video Graphics Array. 800 600 or 1024 768 resolution. In practice, almost any resolution or color depth better than VGA. SVGA can support millions of colors, more colors than a monitor has pixels. switch In DOS, a modification to a command that starts with a slash. For example, the command format/s, is the format command with a "/s" switch. SX Suffix on the name of an 80386 or 80486 CPU chip that means the chip does not have a floating point unit. On 80386 chips it also means the chip has only a 16-bit internal data path and no internal cache.

Synchronous--Refers to protocols that require the clocks of the communicating machines to be coordinated.

Synchronous cache--A popular type of secondary SRAM cache used in most Pentium systems. Very fast, running at speeds of up to 9ns, making it approximately 60% faster than asynchronous cache.

Sysop--(sis-op) The person who operates a BBS. See BBS.

System--Common synonym for computer.

System administrator See network administrator.

System board The large circuit board that covers most of the bottom of the chassis. It is the heart of your computer system, containing the CPU, the expansion slots, and often, the system's random access memory (RAM). Frequently called the motherboard.

System clock The oscillator that controls the timing of signals on a circuit board. system failure Polite term for hang, crash, lock up, and bomb.

System prompt See DOS prompt.

System unit The chassis containing the system board, expansion cards, disk drives, power supply, and cover.

T

Tape backup unit--A large-capacity storage device used mainly to back up hard disks. They store data on magnetic tape contained in cassettes that are superficially similar to audio cassettes. TBU See tape backup unit.

techie (tekky)--A person with advanced technological skills and interests.

Terminal--A combination of monitor and keyboard used to communicate with a remote computer. Terminals are generally unable to do processing; they are communications devices.

Terminal software--Software that enables a computer to communicate via modem as if it were a terminal.

Terminator--A resistor at the end of a SCSI chain that prevents the signal from reflecting back along the chain.

Text character--A character whose shape comes from a character generator rather than directly from software.

Text mode--When only pre-defined characters (letters, punctuation, and graphics characters) can appear on a computer screen. Characters are represented in the computer by single bytes, and the computer thinks in terms of the bytes, not in terms of the shape. Since graphics mode uses more than one byte to describe a character, text mode is faster, especially on slow computers. See graphics mode, character generator.

TFT--Thin Film Ttransistor. Used in active matrix displays to drive individual pixels using a type of silicon.

.TIF--Tag Image File. The customary filename extension for a popular bit-map graphic file format. toggle key A key that changes its state each time you press it. The Caps Lock key is a toggle. Compare shift key.

Token--A signal used in a token ring (and token bus) network that coordinates the transmission of data among the nodes. The token travels around the network, and a node can transmit data only when it has the token.

Token Ring--A network communication architecture developed by IBM in which nodes are connected in a closed loop. Data travels in one direction around the loop.

Toner--The powdered ink used in laser printers.

Topology--The physical arrangement of cable connections in a network.

Tpi--Tracks Per Inch. A measure of storage capacity on disks.

Track--Any of many concentric circular regions on a disk for storing data. Tracks are divided into sectors. One measure of storage density of a disk is TPI.

Trackball--A stationary pointing device that uses a rotating ball to control the location of the pointer. Looks somewhat like an upside down mouse.

tracking See mouse tracking.

traffic Data being communicated, especially on a network. Traveling weight The combined weight of a portable computer, its battery, and its charger.

trick See joke.

TSR Terminate and Stay Resident. A type of software, usually a utility and usually simple, that is usually loaded automatically at boot time, but doesn't run until you activate it by pressing a key combination. For example, you might have a TSR that puts a simple calculator on the screen when you press Shift + Alt + C. twisted pair A type of network cable that consists of two thin

wires wrapped around each other to keep them together.

type family A--type style including all related sizes and weights. For example, Palatino. typeface A particular style of character, regardless of the size. For example, Palatino bold. See font.

U

UART(you-art) Universal Asynchronous Receiver-Transmitter. The chip that controls the serial ports.UL Underwriters Laboratories. They test product safety.

ULSI Ultra Large Scale Integration. IC's that have more than 100,000 components. The components are definitely microscopic. ultralight computer A small, lightweight computer. Smaller than a notebook computer.

UNIX A multiuser operating system developed at AT&T in 1969. up Functional. When your system is powered on and ready to use. Compare down. UPS (ups)

Uninterruptable Power Supply. A device that supplies power to your computer if the power goes off, allowing you time to shut down your computer normally, without losing data.

upload To copy a file from your computer onto a storage device, especially if the device is another computer. Compare download.

upward compatibility Software that is expected to operate correctly on future systems. Compare downward compatibility.

user-friendly An overused term that means easy to learn and use.

V

VAC-Volts Alternating Current.

Vaporware--Software that has been announced but doesn't exist yet.

VESA (veesa)--Video Electronics Standards Association. The

source of a Super VGA standard used on many video boards.

VGA Video Graphics Array--640x480 16 color resolution. Can have more colors if there is enough video RAM.

video adapter--See video controller.

video card--See video controller.

video controller--An expansion card whose function is to convert signals in the computer into signals the monitor can display.

video RAM--Memory on a video card that enables or speeds up drawing to the screen or increases resolution. Not the same as VRAM (q.v.)

Virtual memory--Memory addresses and data that appear to the CPU to be in RAM but actually are on a hard disk. Special software manages this memory and gives the CPU access to it.

Virus—Software that copies itself onto hard drives and floppies without user intervention, usually when a floppy is placed into the drive of a computer. Viruses usually carry a payload (qv), triggered by some preset condition. Viruses are frequently written with antisocial intent.

Virus checker--Software whose purpose is to detect and remove viruses from a system.

VLSI--Very Large Scale Integration. IC's that have 5,000 to 50,000 components. Single components are microscopic.

VOC--The usual extension for a Sound Blaster sound file filename.

voice mail--A technical term used to describe a phone message left on an answering machine or audix.

Volatile--IC's that loose their state when the power is shut off.

Compare nonvolatile.

volume label--An 11-character electronic label that can be created for hard or floppy disks. Labels are created with the LABEL command in DOS, and read with the VOL command.

VRAM--(vee-ram) Video Random Access Memory. Utilizes a dual port design, allowing the accelerator chip and RAMDAC to access the frame buffer simultaneously. In other words, it's cooler than DRAM, but not as cool as WRAM.

W

wait state--When a system's memory is slower than the CPU, the system's CPU delays, or waits for one or more processing cycles until the data from memory arrives.

Wallpaper--A picture or pattern that serves as the background on the Windows desktop. Wallpaper must be a .BMP or .RLE graphics file.

WAN—Wide Area Network. (qv.)

warm boot--Holding down the Ctrl and Alt keys while pressing, then releasing, the Del key.

.WAV--The usual extension for a Microsoft sound file filename.

Whetstone--A benchmark to measure the speed of floating point operations. Compare Dhrystone. wide area network Generally, a network that spans two or more buildings.

Wildcard--A character that stands for one or more characters. In DOS, the asterisk and the question mark are wildcards. The asterisk stands for any string of characters, and the question mark stands for ·any single character.° window A rectangular area on the screen that contains its own data.

Word--Two bytes.

Word nerd--A tech writer, especially one who corrects your

grammar.

Workstation--A terminal connected to a network.

WRAM--Windows Random Access Memory. Ultra high performance memory for video (up to 50% faster than VRAM).

write precompensation--Varying the timing of the read/write head current on inner tracks of a hard disk to maintain a constant signal.

write protect-- To cover a notch or move a tab on a floppy disk so the contents of the disk cannot be changed.

write to--To send data to a storage device. Literally, to record the data on the disk.
WYSIWYG (wizzy-wig) What You See Is What You Get. When what appears on the screen looks the same as what comes out of the printer.

X

XA--protocol that enables CD-ROMs to play audio and video simultaneously.

XENIX--(zee-nix) A version of UNIX (qv).

Xmodem--A file-transfer protocol used most commonly with modems.

Y

Ymodem--A file-transfer protocol that contains enhancements to Xmodem.

Z

Zap--To delete in a manner that cannot be undone. Same as purge.

.ZIP--The usual filename extension for files generated by the

popular PKZIP file compression utility.

Zmodem--A file-transfer protocol that contains enhancements to Ymodem.

Zone--A subgroup of users in a network.

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This document provides last-minute modifications to the User's Manual for your reference. For best performance of your notebook computer, please read on.

Chapter 2-2, point 5, point 6, point 9 and the last point

- 16/32/64 MB EDO RAM optional on board memory, expandable to 128MB.
- Synchronous 512K RAM Level 2 Cache.
- 12.1"/13.3 TFT Active Matrix LCD with XGA(1024x768 resolution), true colors *OR* 13.0" DSTN LCD with XGA(1024x768 resolution), true colors.
- Microsoft Windows™ 98, System Utilities and Drivers.

Chapter 3-4, paragraph 2

Setup

The Setup windows has 5 icons : Standard, Advanced, Chipset, Power Management, PCI/PnP and Peripheral.

Chapter 3-4, paragraph 3

Pri Master/Pri Slave

Pri Master (Primary Master) refers to your master Hard Disk/CD-ROM/Floptical Drive.

Chapter 3-5, paragraph 5

Floppy A/B

Select the diskette drive type. The Notebook comes with a 1.44MB, 3.5" diskette drive. If you change the diskette drive with one of a different type, change the drive type setting.

Chapter 3-6, paragraph 5, adding :

Floppy Access Control : Read-Write or Read-Only.

Hard Disk Access Control : Read-Write or Read-Only.

Chapter 3-9, paragraph 2, adding :

DRAM to Disk Auto Time Out : If no system activity occurs during this period of time, the system will enter Save to Disk mode.

Chapter 3-9, the last paragraph

Power Button

Sets the function of the power button to "Legacy" or "Suspend". Being set to "Legacy" the power button functions as power-on and power-off. Setting the power button to "Suspend", the system will enter Suspend mode when the power button is pressed. Press power button again to resume the system.

Chapter 3-10, the 1st paragraph, adding :

PnP/PCI

IDE Bus Master : Disabled/Enabled.

Chapter 6-12 & 6-13, CPU DIP Switch Adjustment Table for Intel CPU Settings

Switch 3

CPU Type	Position		
	1	2	3
166MHz 66x2.5	ON	ON	ON
200MHz 66x3	-	ON	ON
133MHz 66x2	ON	-	ON
233MHz 66x3.5	-	-	ON
266MHz 66x4	ON	ON	-

Switch 3

Bus Clock	Position
	4
60 MHz	ON
66 MHz	-

Switch 3 and 4

CPU I/O Power	Switch/Position	
	Switch3 - 5th pin	Switch 4 - 8th pin
3.3V	-	ON
2.5V	ON	-

Switch 4

CPU Voltage	Position						
	1	2	3	4	5	6	7
3.3V	ON	-	-	-	-	-	-
2.9V	-	ON	-	-	-	-	-
2.8V	-	-	ON	-	-	-	-
2.5V	-	-	-	ON	-	-	-
2.35V	-	-	-	-	ON	-	-
2.0V	-	-	-	-	-	ON	-
1.8V	-	-	-	-	-	-	ON

Install Drivers in Windows 98

Windows® 98 will locate most drivers automatically for your notebook computer. Please refer to the following section about IR driver installation.

IR Driver

Please note that BIOS needs to be correctly set up before you install IR drivers. Follow procedures below to confirm BIOS settings.
Restart your computer.

1. Press **[Del]** to enter BIOS setup.
2. In the ***Setup*** window choose **Peripheral**.
3. Make sure **Onboard Serial Ports** is set to **2F8h**. If not, click on the item and change

the value.

4. Press **[Esc]** and select **Save Changes and Exit** to exit BIOS setup.
5. The computer will install IR driver on start-up.
6. Click on **Start, Settings** and choose **Control Panel**. In the ***Control Panel*** window double click on the **System** icon.
7. In the ***System Properties*** window click on the **Device Manager** tab.
8. Double click on **Network adapters** and you will see **SMC IrCC[Interface Communication Controller]** appears on the screen as a sub-item. Double click on **Ports[COM&LPT]** and you will see **Virtual Infrared Com Port** and **Virtual Infrared LPT Port** appear on the screen as sub-items.
9. Double click on the **Infrared** icon appears at the lower right corner of the screen. In the ***Infrared Monitor*** window click on the **Options** tab. Click at **Enable infrared communication** and the **Limit connection speed to** can be set to **4Mbps**.

Install Drivers in Windows 95

The following sections will guide you step-by-step to install device drivers if you are using Windows® 95 as the Operating System.

VGA Driver

1. Click on **Start, Settings, Control Panel** and choose the **Display** icon.
2. In ***Display Properties*** window click on **Settings**. Click on the **Advanced Properties** tab.
3. In ***Advanced Display Properties*** window click on the **Change** tab.
4. In ***Select Device*** window click on **Have Disk** tab.
5. Place the Utility CD-ROM in the CD-ROM drive.
6. In ***Install From Disk*** window click on **Browse**. Select file at **D:\VGA\win95** and click **OK**.
7. Click **OK** in ***Install From Disk*** window and click **OK** in ***Select Device*** window.

8. The system will start copying files from the Utility CD-ROM. When it completes, click **Close** to exit *Advanced Display Properties* window. Click **Close** again to exit ***Display Properties*** window.

9. The system will prompt you with **"Do you want to restart your computer now?"**, click **Yes** to restart the system and allow changes taking effects.

10. After the system restart itself, click on **Start, Settings, Control Panel** and choose the **Display** icon. Click on the **Settings** tab. Adjust the resolution in both ***Desktop area*** and ***Screen area*** to **1024x768**. Then click **OK** to complete the installation. Choose **Yes** to allow changes taking effect.

Audio Driver

1. Click on **Start, Settings, Control Panel** and choose the **System** icon.

2. In ***System Properties*** window click on the **Device Manager** tab. Double click on **Sound, video and game controller** and remove all items being marked with [!]. Click on **Yes** to confirm the deletion.

3. Double click on **Other Devices** and remove all items being marked with [?]. Click on **Yes** to confirm deletion.

4. Close the ***System Properties*** window.

5. In the *Control Panel* window choose **Add New Hardware**. In the ***Add New Hardware Wizard*** window click **Next** to proceed. When the system asks you **"Do you want Windows to search for your new hardware?"**, choose **No** and click **Next** to continue.

6. From the list of **Hardware types**, double click on **Sound, video and game controller**. Then click on the **Have Disk** tab and place your Utility CD in the CD-ROM drive.

7. Use Browse to select the driver file located at **D:\Sound\Win 95\notebook** and click **OK** to continue.

8. In the ***Select Device*** window, select **YAMAHA OPL3- SAx Sound System** from the list and click **OK** to proceed. Click **Finish** to start the installation.

9. Insert Windows 95 CD-ROM in the CD-ROM drive and use **Browse** to select the right path.

10. The system will ask you **"Do you want to restart your computer now?"**. Choose **Yes**.

11. In the ***Control Panel*** window choose **System**. In the ***System Properties*** window click

on the **Device Manager** tab.

12. Double click on **Sound video and game controller** and remove all items being marked with [!].
13. Restart the system to allow changes taking effect.

TX Driver

1. Click on the **Start** button and choose **Run**.
2. Place the Utility CD in the CD-ROM drive.
3. Use **Browse** to select TX driver at the path **D:\Txchip\setup**.
4. Click **OK** to proceed the installation and follow on-line instructions to go through the installation procedures. When the installation is completed, the system will automatically restart.
5. The system will asks you again **"Do you want to restart your system?"**. Click **Yes** to restart.
6. After the system restarts, the installation of TX drivers is finished.

IR Driver

Please note that BIOS needs to be correctly set up before you install IR drivers. Follow procedures below to confirm BIOS settings.

1. Restart your computer.
2. Press **[Del]** to enter BIOS setup
3. In the ***Setup*** window choose **Peripheral**.
4. Make sure **Onboard Serial Ports** is set to **2F8h**. If not, click on the item and change the value.
5. Press **[Esc]** and select **Save Changes and Exit** to exit BIOS setup.
6. After the system restart, click on **Start, Settings, Control Panel** and choose **System**. In the ***System Properties*** window click on **Device Manager** tab. Double click **Ports[COM & LPT]** and remove all items. Close the ***System Properties*** window.
7. In the ***Control Panel*** window, choose **Add New Hardware**.

8. In the *Add New Hardware Wizard* window, click **Next** to commence installation. Tick **No** and click **Next** to continue. Double click on **Ports[COM & LPT]** from the list of *Hardware types* and then click on the **Have Disk** tab.

9. Insert the Utility CD in the CD-ROM drive.

10. Use **Browse** to select **D:\ir** and click **OK** twice to confirm.

11. In the *Add New Hardware Wizard* window click **Next** twice to proceed the installation. Click **Finish** to complete the installation.

12. The system will be shut down. Power on the system again. The system will then ask you to insert Windows 95 CD-ROM.

13. Click on **Start, Settings** and choose **Control Panel**. In the *Control Panel* window double click on the **System** icon.

14. In the *System Properties* window click on the **Device Manager** tab. Double click on **Ports[COM & LPT]** and use the **Remove** button locate at the bottom of the window to remove all items until there is no item listed under **Ports[COM & LPT]**. Click on **OK** to exit the *System Properties* window. In the Control Panel window double click on **Add New Hardware**. In the *Add New Hardware* window click **Next** to commence the installation. When the system asks you **"Do you want Windows to search for your new hardware?"**, choose **No** and click **Next** to proceed.

15. Choose **Ports[COM & LPT]**from the list of *Hardware types* and click **Next** to continue. Click **Have Disk** and insert the Utility CD in the CD-ROM drive. Use **Browse** to select the driver file at **D:\ir**. Choose **OK** and the system will start copying files from the CD-ROM. When the copying is finished, choose **OK** to shut down the system. Then power on your system again.

16. Click on **Start, Settings** and choose **Control Panel**. In the *Control Panel* window double click on the **System** icon.

17. In the *System Properties* window click on **Device Manager** and double click on **Ports[COM&LPT]**. Check if under this item **Communications Port [COM1]**, **Printer Port [LPT1]**, and **SMC IrCC [Fast Infrared] Hardware and Driver [COM2]** are listed.

18. If it shows **SMC IrCC [Fast Infrared] Hardware and Driver [COM4]** is listed, highlight **SMCIrCC[Fast Infrared] Hardware and Driver[COM4]** and click on the **Properties** tab. In the *SMCIrCC[Fast Infrared] Hardware and Driver Properties* window click on the **Resources** tab. Highlight **Input/Output Range** and click on **Change Setting** tab to modify the **Value** to **02F8-02FF** and click **Yes** to restart the system. Click **Finish** to exit *Add Infrared Device Wizard* window.

19. In the *Add New Hardware* window click **Next** to commence the installation. When the

system asks you **"Do you want Windows to search for your new hardware?"**, choose **No** and click **Next** to proceed. In the next window double click on **Infrared**. Set **Manufacturers** to **[Standard infrared devices]** and set **Models** as **Built-in Infrared port on laptop or desktop** and click on **Next** to proceed. Then from the list select **SMC IrCC [Fast Infrared] Hardware and Driver [COM2]** and click on **Next** to continue. Follow on-line instructions until the system asks you to restart the system.

20. After the system restarts, you will see the **Infrared** icon appears in the ***Control Panel*** window. In the ***Infrared Monitor*** window click on the **Options** tab. Clicking on **Limit connection speed to** and you will see the highest speed available is 115.2Kbps. Click on **OK** to exit the window and return to the desktop.

21. Click on the **Start, Programs** and choose **Windows Explorer**. Place the Utility CD in the CD-ROM drive. In the ***Exploring*** window click on the CD-ROM drive and select the driver file at **D:\ir\smcirfr**. Click on the right button of the mouse and choose **Install**. Use **Browse** to set the path to **D:** and select **OK** to allow the system start copying files from the Utility CD. Then restart the system to allow changes taking effect.

22. After the system restarts itself, click on **Start, Settings, Control Panel** and choose **Infrared**. Click on the **Options** tab and the **Limit connection speed to** should be set to **4Mbps**.

PCMCIA Driver

1. Click on **Start, Settings, Control Panel** and choose **System**. In the ***System Properties*** window click on the **Device Manager** tab. Double click on **PCMCIA** and remove all listed items. Then click on **OK** to exit the ***System Properties*** window.

2. In the ***Control Panel*** window choose Add New Hardware. In the ***Add New Hardware Wizard*** window click on **Next** to proceed. When the system asks you **"Do you want windows to search for your new hardware?"**, choose **No**.

3. Select **PCMCIA socket** from the list of **Hardware types** and click **Next** to continue. Then click on the **Have Disk** tab and place the Utility CD in the CD-ROM drive.

4. Use **Browse** to select the driver file at **D:\pcmcia\cardbus** and click OK to confirm. Click **Next** to proceed. When the system prompt you to insert Windows 95 CD, place Windows 95 CD in the CD-ROM drive.

5. When the installation completes and the system shuts down.

6. Restart the system to allow changes taking effect.