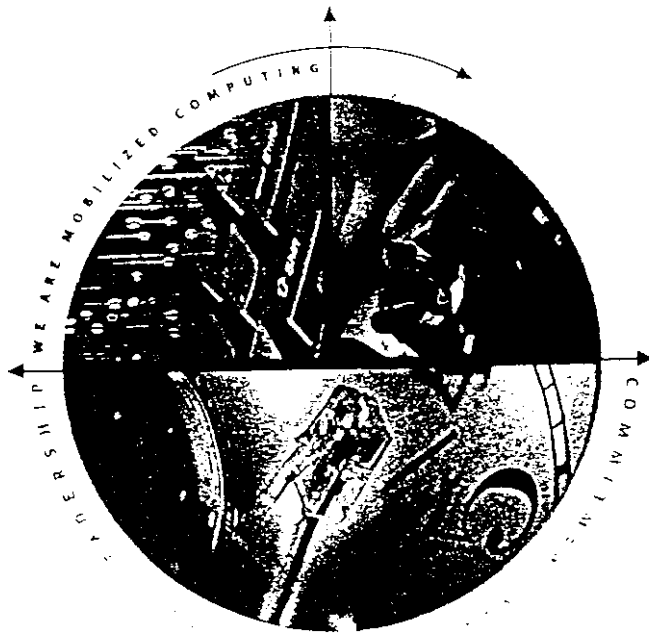


HITACHI
VisionBook PRO™



USER'S MANUAL

Federal Communications Commission (FCC) Statement

RADIO FREQUENCY INTERFERENCE STATEMENT

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

- Reorient 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.

Any special accessories needed for compliance must be specified in the instruction manual.

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

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

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

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Contents

Figures	ix
About This Guide	xi
Conventions	xii
1 Introduction	3
Welcome to the Notebook	3
Features Overview	3
Optional Features	4
Identifying Components	5
Front View	5
Right View	7
Rear View	8
Left View	9
Bottom View	10
Notebook Status Indicators	11
Visual Status Indicators	11
Visual Indicators	15
Multimedia Sound System	16
2 Getting Started	19
Connecting to AC Power	19
Turning Your Notebook On	21
Turning Your Notebook Off	22
Resetting Your System	22
3 Using Your Notebook	27
Keyboard Operations	27
Keyboard Layout	27
Hot Keys and Keyboard Controls	32
Touchpad Operations	35
Using the Touchpad	35
Click and Double-Click	35
Tap and Double-Tap	36
Drag and Drop	36

Tap and Drop	36
Customizing Your Notebook With Windows 95	36
Using the Control Panel	37
Data Storage and Retrieval	40
Using the Floppy Disk Drive	40
Using the CD-ROM Drive	45
Using the Hard Disk Drive	46
Using the Hitachi PC Recovery CD	46
Using the Serial Infrared Port	47
Disabling IR to Use the Modem	48
Connecting and Installing Optional Devices	51
Windows 95 Plug and Play Support	51
Connecting Optional Peripheral Devices	52
Notebook Port Overview	52
Connecting an External Pointing Device	54
Connecting an External Keyboard	55
Connecting an External Monitor	55
Connecting a Printer	56
Connecting the Modem	57
Connecting to a Network	58
Connecting USB Devices	58
Connecting a Cellular Phone to the Cellular Phone Port	59
Connecting Headphones	59
Connecting an External Audio Input Device	60
Connecting the Advanced Port Replicator	60
Exchanging Peripheral Bay Modules	62
Removing and Replacing the Hard Disk Drive	63
Installing Optional Internal Devices	64
Installing PCMCIA Expansion Cards	64
Installing Expansion Memory Modules	66
The Power System	71
AC Adapter	71
Battery Pack	72
Battery Pack Overview	72
Charging the Battery Pack	73
Battery Status Indicators	75
Maximizing Battery Pack Life	77
Power Management	78
Full Power Mode	78

Devices Power Down Mode	78
System Standby Mode	79
Suspend Mode	80
Resume to Full Power Mode	81
The Intel-Microsoft APM Interface	82
A Maintenance and Troubleshooting	87
Operating Environment	87
Temperature	87
Relative Humidity (Non-condensing)	87
Travel Recommendations	88
Maintenance	88
The LCD Display	88
Cleaning the Notebook	89
Troubleshooting	89
Common Error Messages	94
Power On Self Test Error Messages	97
B Using the BIOS Setup Program	99
Setup Introduction	99
When to Run the Setup Program	100
Accessing the Setup Program	101
Navigating the Setup Program	101
Setup Help	103
Main Menu	103
Boot Sequence	113
Quick Boot	114
Advanced Menu	114
Security Menu	115
Security Levels	115
Password Options	116
Setting or Changing a Password	118
Deleting a Password	119
Power Menu	120
Exit menu	127
C Technical Data	131
Upper Memory Address Map	131
DMA Channels	132
System Interrupts	133
I/O Address Map	134
Notebook Technical Specifications	135

Technical Support.....	137
World Wide Web Site	137
Customer Service Representatives	137
Technical Support Representatives	138
Safety and Regulatory Information.....	139
FCC PART 15 COMPLIANCE STATEMENT	139
Canadian EMI Compliance Statement	140
FCC Warning	140
FCC Notice Part 68	140
Industry Canada (CS-03)	142
About the Telephone Consumer Protection Act of 1991	143
Precautions	144
General Safety	144
Battery Safety	146
Glossary	149
Index.....	157

Figures

Figure 1 Front View of the Hitachi VisionBook Pro notebook	5
Figure 2 Right View of the Hitachi VisionBook Pro notebook	7
Figure 3 Rear View of the Hitachi VisionBook Pro notebook	8
Figure 4 Left View of the Hitachi VisionBook Pro notebook	9
Figure 5 Bottom View of the Hitachi VisionBook Pro notebook	10
Figure 6 LCD Status Window	11
Figure 7 Battery Charge LED Indicator	14
Figure 8 Power LED Indicator	15
Figure 9 Plugging in the AC Adapter	20
Figure 10 Opening the LCD Cover	20
Figure 11 Power Button	21
Figure 12 Keyboard Layout	27
Figure 13 Alphanumeric Keys	28
Figure 14 Function Keys	28
Figure 15 Editing Keys	29
Figure 16 Numeric Keypad	30
Figure 17 Miscellaneous Keys	30
Figure 18 Touchpad	35
Figure 19 Exchanging Peripheral Bay Modules	41
Figure 20 Removing a Floppy Disk	43
Figure 21 Write Protecting a Disk	44
Figure 22 Inserting a CD-ROM Disk	45
Figure 23 The Serial Infrared Port	47
Figure 24 The Serial Port	52
Figure 25 The Parallel Port	53
Figure 26 Connecting an External Pointing Device	54
Figure 27 Connecting an External Keyboard	55
Figure 28 Connecting an External Monitor	56
Figure 29 Connecting a Printer	56
Figure 30 Connecting the Modem	57
Figure 31 Connecting to a Network	58
Figure 32 Connecting USB Devices	58
Figure 33 Connecting Headphones	59
Figure 34 Connecting an External Audio Input Device	60
Figure 35 Advanced Port Replicator Port	60
Figure 36 Front View of Advanced Port Replicator	61
Figure 37 Rear View of Advanced Port Replicator	61
Figure 38 Exchanging Peripheral Bay Modules	62

Figure 39	Removing and Replacing the Hard Disk Drive.....	63
Figure 40	Inserting a PCMCIA Card.....	65
Figure 41	Removing the Memory Module Cover.....	67
Figure 42	Battery Wake-up Button.....	73
Figure 43	Battery Adapter Cartridge.....	73
Figure 44	Inserting the Battery.....	74
Figure 45	Battery Meter.....	75
Figure 46	Battery Power Meter.....	76
Figure 47	Setup Main Menu.....	104
Figure 48	Setup Fixed Disk Type Submenu.....	105
Figure 49	Setup Integrated Peripherals Submenu.....	108
Figure 50	Setup Advanced Menu.....	114
Figure 51	Setup Security Menu.....	115
Figure 52	Setup Power Menu.....	120
Figure 53	Setup Exit Menu.....	127

About This Guide

This guide contains all the information you need to set up and use your new Hitachi PC VisionBook Pro notebook computer.

Chapter 1 Introduction

Read Chapter 1 for a general introduction to your notebook. This chapter contains illustrations that show you the notebook's main parts. It also summarizes the computer's main functions.

Chapter 2 Getting Started

Read Chapter 2 for instructions on starting and shutting down your notebook, and creating your system disks.

Chapter 3 Using Your Notebook

Read Chapter 3 to learn basic information about using your notebook. This chapter describes how to use the keyboard, hot-key functions, and the Touchpad.

Chapter 4 Connecting and Installing Optional Devices

Read Chapter 4 for instructions on connecting optional peripheral devices, such as a mouse, a printer, or an external keyboard. This chapter also includes information about installing optional internal devices such as expansion memory modules.

Chapter 5 The Power System

Read Chapter 5 for information about the notebook's power system. This chapter covers the AC adapter, the battery system and the notebook's power management features.

Appendixes

The appendixes provide advice on the routine care and maintenance of the notebook, a guide to troubleshooting problems that may arise in the use of the notebook, a guide to using the BIOS setup program, detailed specifications on your notebook, and safety and regulatory information.

Glossary

Refer to the glossary for the definitions of unfamiliar terms.

Conventions

The following conventions are used throughout this manual.

NOTE:	Information notes call attention to important features or instructions.
	Cautions alert you to something that may cause problems or damage to hardware, software, or data.
<KEY1>	Indicates a single-key input.
<KEY1 + KEY2>	Indicates a key input that requires you to hold down KEY1 as you press KEY2.
<KEY1 + KEY2 + KEY3>	Indicates a key input that requires you to hold down KEY1 and KEY2 as you press KEY3.
HDISK	References to commands, utilities, device drivers, directory names, and file names are printed in uppercase.
A: Install	This font is used to represent displays that appear on your LCD screen.

INTRODUCTION

CHAPTER

1

1 Introduction

Congratulations on your purchase of the Hitachi VisionBook Pro notebook. This chapter is designed to acquaint you with the features of your notebook. Illustrations showing the main parts of the notebook will help you become familiar with the computer before you begin using it.

Welcome to the Notebook

Welcome to your Hitachi VisionBook Pro notebook computer. Hitachi PC has thoughtfully designed your notebook to make it ergonomic and easy to use. Your new notebook features the most innovative advances in portable computing technology. Designed for a wide range of general business and personal productivity applications, this notebook is an ideal choice for your computing needs in your office, at home, and on the road.

Features Overview

The Hitachi VisionBook Pro notebook is designed to provide you with a portable computer that is compact, convenient, and powerful. Your notebook's state-of-the-art features include:

- A powerful Intel-Pentium MMX processor
- A flexible and user-upgradable memory architecture supporting up to 144MB of RAM
- Built-in expansion slots that accept industry standard Type II and Type III PCMCIA compatible cards including cards using CardBus interface and Zoomed Video
- A removable hard disk drive featuring an enhanced IDE interface

Identifying Components

The figures in this section (Figures 1 through 5) identify the external components and accessories of your Hitachi VisionBook Pro notebook.

Front View

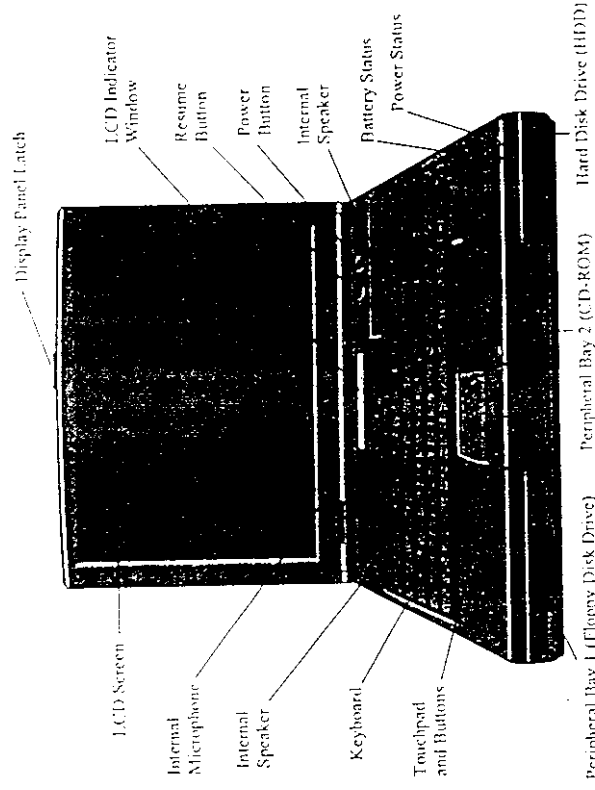


Figure 1 Front View of the Hitachi VisionBook Pro notebook

Display Panel Latch

Releases the display panel from its locked position.

LCD Screen

The color 12.1" SVGA TFT LCD panel supports resolutions up to 800 x 600 x 64K colors or internal 1024x768 in virtual mode, true 1024x768 on an External CRT. The 13.3" XGA TFT LCD panel supports resolutions up to 1024 x 768 x 64K colors or 1280 x 1024 x 256 colors on an external CRT.

Two peripheral bay modules; one bay supports a 3.5 inch floppy disk drive and the other bay supports a CD-ROM drive. A battery pack can be used in either bay or both.

A removable and rechargeable Duracell DR202 Lithium Ion or optional NiMH battery pack

I/O (input/output) support for IrDA serial infrared (SIR) wireless communications, a serial device, a parallel device, a USB device, an external keyboard or mouse, and an external monitor

A sensitive Alps Touchpad that is ergonomically placed to facilitate left or right hand use

Advanced power management capabilities, including support for the Intel-Microsoft Advanced Power Management (APM) Interface, version 1.2, that conserve battery power

An integrated audio system which includes two built-in stereo speakers, an internal microphone, and audio input and output ports, compatible with Sound Blaster Pro™

An integrated US Robotics high-speed modem with built-in fax features and an integrated cellular connector for fast Internet connectivity and direct cellular connections

Integrated LAN for network-ready use

Intelligent management features supporting the system's power management mode built into the BIOS Setup program

Windows 95 and other pre-installed software that enables you to begin working with a minimum of setup and preparation

A security setup for protecting your data

For your notebook's precise technical specifications, see Notebook Technical Specifications" on page 135.

Optional Features

- Second battery pack that can be used with the primary battery or alone in either of the peripheral bay modules
- Memory upgrade modules
- Advanced port replicator

Battery Status

Indicates the charging status of the battery. Refer to Chapter 5, "The Power System," for detailed information on the LED battery indicators.

Power Status

Indicates that the Hitachi VisionBook Pro notebook is on and flashes when the system is in Suspend mode. See "Power LED Indicator" on page 15 for more information.

LCD Indicator Window

Displays icons that show the status of the Hard Disk Drive (HDD), the Floppy Disk Drive (FDD), CD-ROM, Num Lock, Caps Lock, Scroll Lock, Battery Charge, Battery, AC Power, System Suspend, and System Power On. See "LCD Status Window" on page 11 for more information.

Power Button

Press this button to turn the computer on. To turn the computer off, press this button again and hold for four seconds. See "Turning Your Notebook On" on page 21 for more information.

Resume Button

Press this button to bring your computer back to full operation after placing your notebook in a suspend state.

Keyboard

Supports all functions of an enhanced keyboard including Windows 95 keys. See "Keyboard Operations" on page 27 for more information.

Peripheral Bay 1

This bay is designed to house the floppy disk drive or a battery pack with an FDD Bay adapter cartridge included with your system. See "Exchanging Peripheral Bay Modules" on page 62 for more information.

Peripheral Bay 2

This bay is designed to house the CD-ROM drive, or a battery pack with a CD-ROM Bay adapter cartridge included with your system. See "Exchanging Peripheral Bay Modules" on page 62 for more information.

Hard Disk Drive Compartment

You can remove and replace your hard disk drive. See "Removing and Replacing the Hard Disk Drive" on page 63 for more information.

Touchpad

The Alps GlidePoint Touchpad uses a PS/2 interface. Its two buttons correspond to the two buttons of a mouse. See "Touchpad Operations" on page 35 for more information.

Internal Speakers

These speakers are connected internally to the notebook's integrated audio system. See "Multimedia Sound System" on page 16 for more information.

Internal Condenser Microphone

Use this to record sounds and music.

Right View

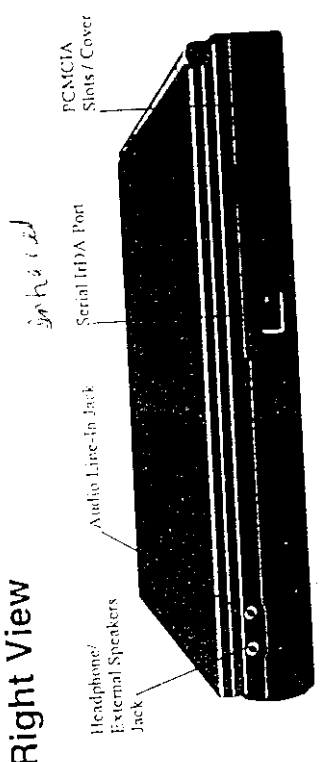


Figure 2 Right View of the Hitachi VisionBook Pro notebook

Headphone/External Speakers Jack

You can connect external speakers or a headset to this jack.

Audio Line-In Jack

You can connect an external audio source such as a stereo or a tape player to this jack.

Serial IrDA Port (SIR Port)

The IrDA Infrared Port allows serial, wireless communications between the Hitachi VisionBook Pro notebook and other devices such as a printer or another computer. See "Using the Serial Infrared Port" on page 47 for more information.

PCMCIA Slots/Cover

Open the small door to access the notebook's two PCMCIA slots. The upper slot is slot 0 and the lower slot is slot 1. See "Installing PCMCIA Expansion Cards" on page 64 for more information.

Rear View

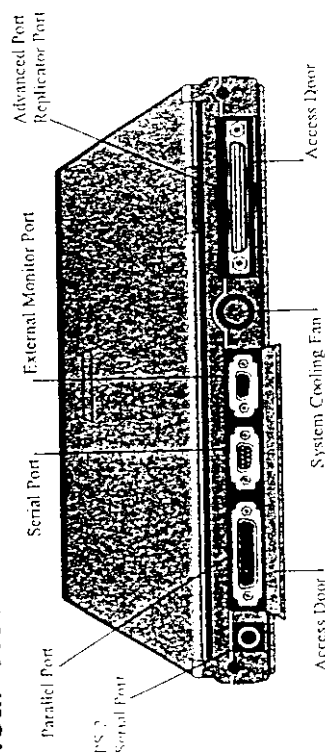


Figure 3 Rear View of the Hitachi VisionBook Pro notebook

PS/2 Serial Port

You can connect an external keyboard or a PS/2 pointing device to this port. This port automatically detects which one is connected. See "Connecting an External Keyboard" on page 55 for more information.

Parallel Port

You can connect a printer to this port. See "Connecting a Printer" on page 56 for more information.

Serial Port

You can connect an RS-232 serial device (for example, a mouse or a graphics tablet) to this port. See "Connecting an External Pointing Device" on page 54.

External Monitor Port

You can connect an external monitor (CRT) to this port. See "Connecting an External Monitor" on page 55.

System Cooling Fan

This internal fan keeps your notebook from overheating.



Do not obstruct the cooling fan intake or overheating of internal components may occur.

Advanced Port Replicator Port

You can connect an Advanced port replicator to this port.

Left View

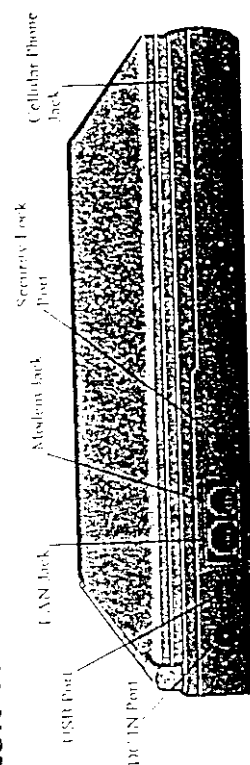


Figure 4 Left View of the Hitachi VisionBook Pro notebook

DC IN Port

Connect the AC adapter power cord to this port. See "Connecting to AC Power" on page 19 for more information.

USB Port

You can connect a device that meets USB specifications to this jack. See "Connecting USB Devices" on page 58 for more information.

LAN Jack

You can connect your 10BaseT Ethernet LAN cable to this port. See "Connecting to a Network" on page 58 for more information.

Modem Jack

Use this to connect a phone line to the Hitachi VisionBook Pro notebook's internal modem. See "Connecting the Modem" on page 57 for more information or refer to the online Modem Manual (from Windows 95 Start Menu, go to Programs/Modem Age Books/Hitachi 56K Modem User Guide).

Security Lock Port

This opening is for a security device such as the Kensington lock for securing your notebook to your workspace.

Cellular Phone Jack

You can connect a cellular phone from Motorola or Nokia to your computer via cellular direct cable. These cables can be purchased from U.S. Robotics. Refer to the online Modem Manual (from Windows 95 Start Menu, go to Programs/Modem Age Books/Hitachi 56K Modem User Guide).

Bottom View

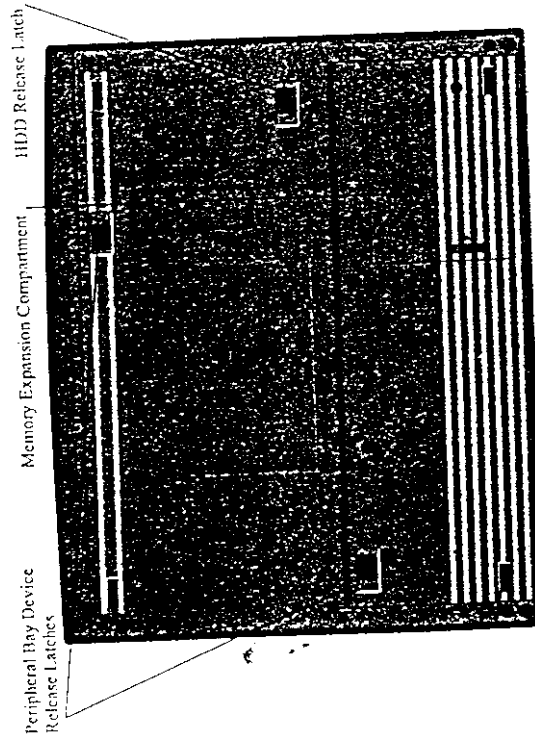


Figure 5 Bottom View of the Hitachi VisionBook Pro notebook

Hitachi VisionBook Pro

Removable Hard Disk Drive Compartment Release Latch

Slide the latch in the direction of the arrow to release the hard disk drive module. After inserting the module, make sure this latch clicks shut. See "Removing and Replacing the Hard Disk Drive" on page 63 for more information.

Memory Expansion Compartment

This compartment houses the Hitachi VisionBook Pro notebook's RAM modules. See "Installing Expansion Memory Modules" on page 66 for more information.

Peripheral Bay (1 and 2) Release Latches

Slide the latch in the direction of the arrow to release the module in the bay. After inserting the module, make sure this latch clicks shut. See "Exchanging Peripheral Bay Modules" on page 62 for more information.

Notebook Status Indicators

The Hitachi VisionBook Pro notebook uses indicators to inform you of your system's status. These indicators convey warnings and important system status information.

Visual Status Indicators

Your notebook uses the LCD Status Window, the Battery indicator, and the Power LED indicator to visually communicate the status of your notebook.

LCD Status Window

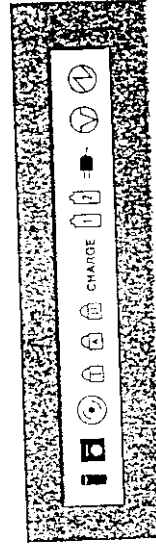


Figure 6 LCD Status Window

Hitachi VisionBook Pro

Your notebook is equipped with eleven LED indicators that are displayed in the LCD Status Window. The LCD Status Window is located just below the notebook's LCD display panel. See Figure 6 for details. The LCD Status Window provides you with the following indicators:

- Hard Disk Drive (HDD) Status
- Floppy Disk Drive (FDD) Status
- CD-ROM Drive Status
- Num Lock Status
- Caps Lock Status
- Scroll Lock Status
- Battery Charge Status
- Battery Status
- AC Power Status
- System Suspend Status
- System Power On Status

The meanings of these indicators are summarized in the following table:

LCD Status Window Indicators	
ICON	Meaning
	HDD Status: When this icon is lit, the notebook is accessing the hard disk drive (HDD).
	FDD Status: When this icon is lit, the notebook is accessing the floppy disk drive (FDD). Do not remove the floppy disk if this icon is shown.
	CD-ROM Drive Status: When this icon is lit, the CD-ROM is in use. Do not remove the CD if this icon is shown.
	Num Lock Status: When this icon is lit, Num Lock is activated.
	Caps Lock Status: When this icon is lit, Caps Lock is activated. All alphabetic characters typed will be in upper case.
	Scroll Lock Status: When this icon is lit, Scroll Lock is activated.
CHARGE	Battery Charge Status: When this word appears, the battery is charging.
	Battery Status: When this icon is lit, a battery pack is connected. The "1" indicates that the battery is in Peripheral Bay 1, and the "2" indicates the battery is in Peripheral Bay 2.
	AC Power Status: When this icon is lit, the notebook is using AC power, and the battery is being charged.
	Suspend Status: When a V appears in this position, the system is in Suspend Mode.
	System Status: When a lightening bolt appears in this position, the system is on.

Battery Charge LED Indicator

Your notebook's Battery Charge LED indicator is located on the right front corner of the notebook.

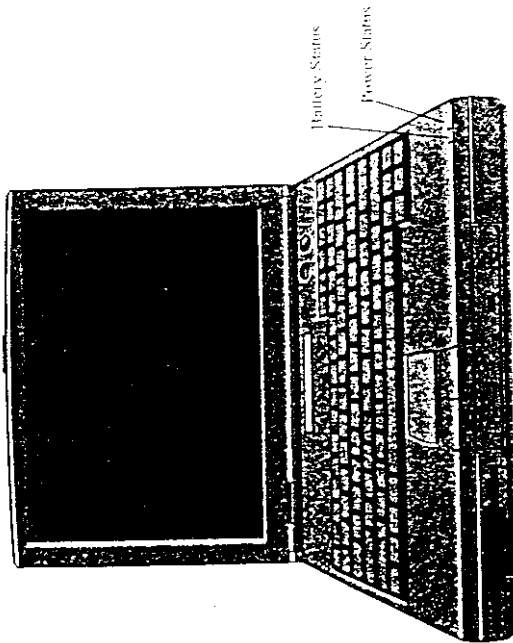


Figure 7 Battery Charge LED Indicator

The five states of the Battery Charge LED indicator are summarized in the following table:

Battery Charge LED Indicators		
State	Meaning	Note
OFF	Battery Full	AC IN
ON	Battery Charging	AC IN
OFF	Battery Normal	Battery Only
Once per second	Battery Warning 10% Power Remaining	Battery Only
Twice per second	Battery Low 5% Power Remaining	Battery Only

Power LED Indicator

Your notebook's Power LED indicator is located on the right front corner of the notebook.



Figure 8 Power LED Indicator

The Power LED lights when the notebook is turned on and operating in Full Power mode. The Power LED flashes when the notebook is in Suspend mode.

LED Indicator Color	Meaning
Green	Normal AC Operation
Orange	Using Battery Power
Red	Battery Power Low

Visual Indicators

Your Hitachi VisionBook Pro notebook uses the following indicators to inform you of its status:

Visual Status Indicators	
Mode/Condition	Visual Indicator
Battery Warning	Battery Charge LED flashes once per second
Battery Low	Battery Charge LED flashes twice per second
Battery Inoperative	Battery Charge LED flashes once per second
Resume Failure	Battery Charge LED flashes once per second
Memory Suspend	Power LED flashes once every 7 seconds

Multimedia Sound System

Your Hitachi VisionBook Pro notebook has a built-in multimedia sound system that enables you to take advantage of a wide range of education and entertainment multimedia software without the additional costs of add-on cards and peripheral hardware. For example, your notebook is equipped with an on-board FM sound generator that produces realistic music and human voice sounds in 16-bit stereo.

Your notebook's sound system features internal stereo speakers and an internal condenser microphone. You can connect external stereo speakers or headphones to the headphone/external speakers jack. See page 59, "Connecting Headphones" and page 60, "Connecting an External Audio Input Device."

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GETTING STARTED

CHAPTER

2

2 Getting Started

Your Hitachi VisionBook Pro notebook is designed and pre-configured for easy setup and use. This chapter describes the steps you should follow to get your notebook up and running. For information on using your battery pack, see Chapter 5, "The Power System" beginning on page 71. If you want to install optional devices such as a mouse or a printer, follow the instructions in Chapter 4, "Connecting and Installing Optional Devices" on page 51. If you are an advanced user and familiar with the BIOS setup, consult Appendix B, "Using the BIOS Setup Program" on page 99.

Connecting to AC Power

You can power your notebook with either one or two rechargeable battery packs or the AC adapter. You will find detailed information on using both power sources in Chapter 5, "The Power System."

Because Hitachi PC ships batteries in an uncharged "sleep" state, you will need to connect the notebook to AC power to get it up and running for the first time. Follow these steps to connect your notebook to AC power.

1. Connect the adapter's power cord to the Hitachi VisionBook Pro notebook's DC IN Port. See Figure 9 on page 20 for details. Make sure the connector sheath locks firmly into the slot.
2. Plug one end of the power cable into the AC adapter and the other end into an electrical outlet.

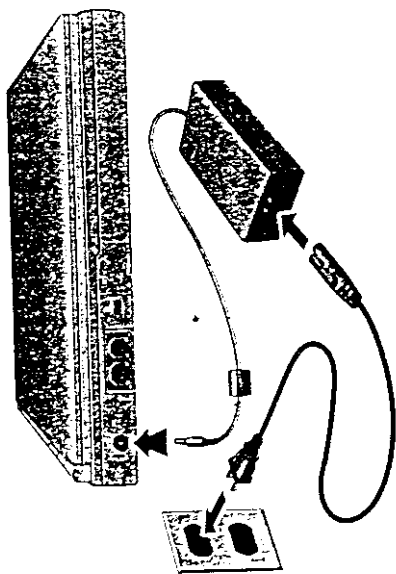


Figure 9 Plugging in the AC Adapter

Your notebook comes with its own special AC Adapter.

- Do not use a different AC adapter to power the computer! This can seriously damage your notebook!
- Do not use the notebook's AC adapter to power other electrical devices.



3. Open the LCD cover by first pushing the latch on the front of the notebook to the right. Gently lift the LCD cover to open the display.

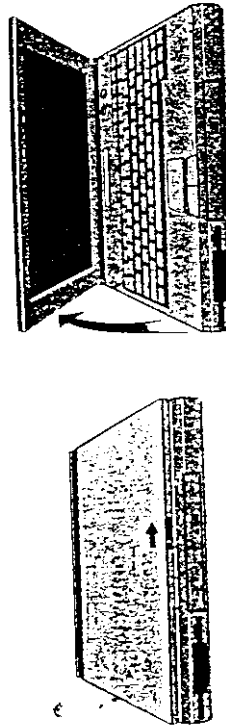


Figure 10 Opening the LCD Cover

4. Check the Hitachi VisionBook Pro notebook's Power LED indicator. The light displays green when the power is on.

5. If the Power LED indicator does not light, check all connections to make sure they are secure. If there is still a problem, unplug the adapter and contact your dealer. See "Charging the Battery Pack" on page 73 for more information on charging your notebook's battery.

Turning Your Notebook On

1. Connect the notebook to an AC power source and open the LCD cover as described in the preceding section.
2. Press and hold down the power button for at least one second. The Hitachi VisionBook Pro notebook's sign-on message should appear on the screen. You may have to adjust the brightness controls for a clear display. See "LCD Display Controls" on page 34.

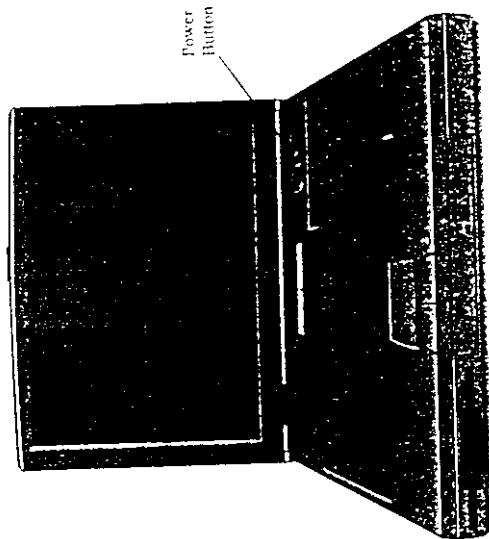


Figure 11 Power Button

3. To adjust the volume, see "Audio and Tone Controls" on page 34.
4. If you need to run the BIOS Setup program to setup or modify your system's configuration, refer to "B Using the BIOS Setup Program" on page 99.

Turning Your Notebook Off



- Never turn your notebook off suddenly! Instead, close all programs and use the Windows 95 Shut Down command (or exit to the DOS prompt) before turning your notebook off.
- Always wait at least 5 seconds after turning the notebook off before turning it back on!

1. To turn the notebook off, click on the Windows 95 *Start* button (at the lower left corner of the screen) and point to *Shut Down*. A dialog box displays giving you these options:
 - Shut down the computer? (Default)
 - Restart the computer?
 - Restart the computer in MS-DOS mode?
2. Click *Yes* to shut down the notebook.
3. Wait until the system powers down, and then lower the display. Gently press the top of the notebook to fasten the open/close catch.

Resetting Your System

Occasionally, you may need to reset your system if you encounter a hardware or software problem that locks up your notebook.

Follow these instructions to reset your system:

1. From Windows 95, press <Ctrl+Alt+Del>.
2. The Close Programs dialog box displays. You have several options:
 - You can end specific programs you are running. Highlight the programs you want to close and click on *End Task*. You will lose any unsaved information in the programs you choose to close.
 - You can shut down the entire system. Click on *Shut Down*, and Windows 95 begins its normal shut down procedure.

- You can press <Ctrl+Alt+Del> to reboot the system. This shuts down all programs you have running and restarts your notebook. You will lose any unsaved information in all programs that are running.

For more information on resetting your system, see your Windows 95 documentation.

USING YOUR NOTEBOOK

CHAPTER

3

3 Using Your Notebook

This chapter describes the basics of notebook operations. Topics covered include keyboard use, hot-key functions, basic Touchpad techniques, using the floppy disk drive, and using the hard disk drive.

Keyboard Operations

Your Hitachi VisionBook Pro notebook computer is equipped with a full-size, low-profile Windows 95 keyboard. This keyboard features an embedded numeric keypad and a full array of special function keys.

For your convenience, Hitachi PC also gives you the option of connecting a full-size keyboard to your notebook. See "Connecting an External Keyboard" on page 55 for more information.

Keyboard Layout

Figure 12 shows your notebook's keyboard layout. The keyboard consists of five main groups of keys: alphanumeric keys, function keys, editing keys, the embedded numeric keypad, and various miscellaneous keys.

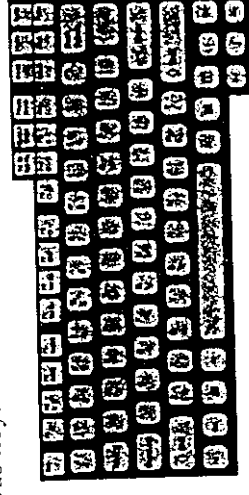


Figure 12 Keyboard Layout

Alphanumeric Keys

Your notebook's alphanumeric keys consist of alphabetic keys (A-Z), numeric keys (0-9), and keys with printable symbols that are found on most typewriters.

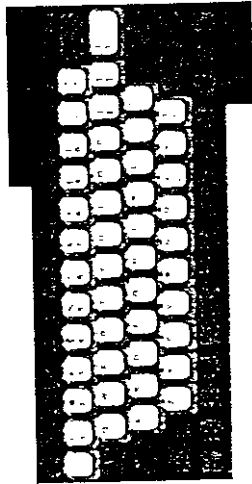


Figure 13 Alphanumeric Keys

Function Keys

The function keys are the smaller keys in the top row of the keyboard labeled F1 through F12. See Figure 14. Although function keys generally send instructions to your notebook's software, their precise functions vary with respect to the operating system and software you are using. Refer to the appropriate documentation for your software and operating system for precise function key definitions.

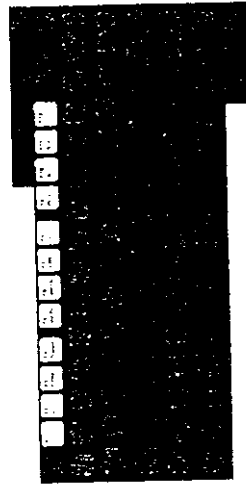


Figure 14 Function Keys

Editing Keys

Use the notebook's editing keys to edit text. See Figure 15. Some editing keys also have software-specific functions. Refer to the appropriate software documentation for the precise definitions of these keys.

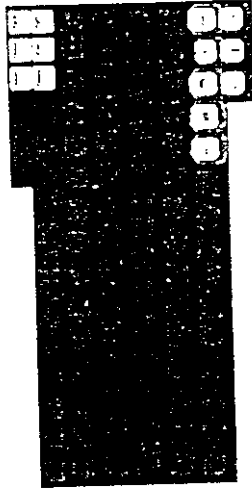


Figure 15 Editing Keys

Ins (Insert) key

Press this key to insert text and other data into a passage of text.

Del (Delete) key

Press this key to delete the character at the cursor's position.

Cursor and Page keys

Press these keys to move the cursor.

The colored lettering on the cursor and page keys indicates their page functions. Press <Fn+PgUp> to display the previous page and <Fn+PgDn> to display the next page. The functions of the <Home> and <End> keys depend on the software you are using.

Embedded Numeric Keypad

The embedded numeric keypad, shown in Figure 16, consists of a set of keys that make number-intensive input more convenient. These keys have numeric functions labeled in blue on the front edge of each keycap. Press <Fn+NumLk> to activate this keypad.

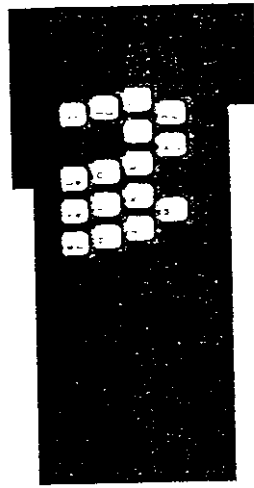


Figure 16 Numeric Keypad

Miscellaneous Keys

Most of your notebook's miscellaneous keys, which are shown in Figure 17, have software-specific functions. For more detailed information on these keys, refer to the documentation for the appropriate software you are using.

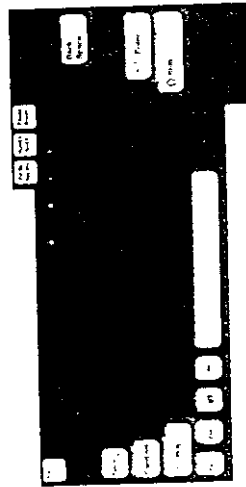


Figure 17 Miscellaneous Keys

Esc (Escape) key

Although this key is software specific, it generally functions as an all-purpose abort key.

Tab key

Press this key to set a tab or to make the cursor jump to a preset tab position.

Caps Lock key

Press this key to activate Caps Lock and type letters in uppercase only. Number keys and function keys are not affected when you activate Caps Lock. (You must still press <Shift> to generate the symbols and punctuation marks above the number keys when Caps Lock is activated.) Press <CapsLock> again to turn off the Caps Lock function.

Pressing <Shift> and a letter key when Caps Lock is activated generates a lowercase letter instead of an uppercase letter. An icon appears in the LCD display when this feature is activated.

Shift key

Press this key with an alphanumeric key to generate either uppercase letters or the symbols at the top of the key.

Fn (Function) key

Press this key to invoke the functions identified in pink on top of certain keys.

Ctrl (Control) & Alt (Alternate) keys

These keys are software specific and are usually used with other keys.

Space bar

Press the space bar to enter a blank space.

PrtSc (Print Screen)/Sys Rq (System Request) key

This is a software-specific key. In most programs, whatever is displayed on the screen when you press this key is printed.

Press <SysRq> to access the function of a software application.

NumLk (NumLock) key

This key activates the numeric function of the keypad. Hold down <Fn> when using the NumLk key. An icon (insert icon) appears in the LCD display when this feature is activated.

Scroll Lock key

This is a software-specific key. Scroll Lock affects cursor movement and text scrolling in some applications. Press this key to activate up or down directional scrolling of information. An icon appears in the LCD display when this feature is activated.

Pause/Break key

Press this key to halt the scrolling of information being displayed on the screen.

Backspace key

Press this key to delete text and symbols to the left of the cursor.

Enter key

Press this key to end a line of characters, data, or commands and begin a new line at the left margin. Most operating systems use <Enter> to enter commands typed at the command line prompt.

Windows 95 Start menu key

This key opens the Windows 95 Start menu. You can use this menu to start programs, open documents, and change your operating system settings. Consult your Windows 95 documentation for information on using the Start menu.

**Windows 95 shortcut menu key**

This key opens a shortcut menu. The options on the menu vary depending on where the cursor is located when you press this key. Pressing this key is the equivalent of clicking the right button on the Touchpad. Consult your Windows 95 documentation for more information about shortcut menus.

**Hot Keys and Keyboard Controls**

One of the most convenient features of the Hitachi VisionBook Pro notebook is its host of keyboard controls. You can change many notebook settings simply by pressing a combination of keys. Hot key refers to the key or key combination you use to activate a control.

Some hot keys implement permanent settings. These settings are retained in your notebook's nonvolatile memory even when you turn your notebook off. Hot key <Fn+F9> (Increase Brightness), for example, is a permanent setting. If you press <Fn+F9> to increase your display's brightness, your notebook retains this setting (even when you turn the computer off) until you change this setting again.

Other hot keys implement temporary settings. These settings are not retained when you turn your notebook off and affect only your current notebook session. <NumLk> (numeric keypad control), for example, is a temporary setting.

Power Management and Communications Controls

Following are descriptions of your notebook's power management and communications controls and the keys you use to activate them.

Fn + F2**Toggles Infrared Communications Switch**

When you press this key combination, you activate your notebook's infrared communications feature and toggle between the IrDA and the Com 2 port. Please read the entire "Using the Serial Infrared Port" on page 47 prior to using this feature.

Fn + F3**Toggles Serial Interface 2 Switch**

When you press this key combination, you activate your notebook's modem communications feature. You must have an internal modem installed to use this control.

Fn + F4**System Suspend Mode Switch**

When you press this key combination, your system emits one short beep and enters Suspend mode. This is the most advanced power saving feature. In Suspend mode, almost all devices are powered off.

Audio and Tone Controls

Listed next are descriptions of your notebook's audio controls and the keys you use to activate them.

Fn + F5 Decrease Volume

Decreases the volume and saves the new setting.

Fn + F6 Increase Volume

Increases the volume and saves the new setting.

LCD Display Controls

This section lists descriptions of your notebook's display controls and the keys you press to activate them.

Fn + F7 Toggles LCD/CRT Display

Toggles the LCD and CRT display on and off. When you press this key combination, your system changes the active display. You have a choice of three active settings: LCD only, both LCD and CRT monitor, and CRT monitor.

Fn + F8 Decrease Brightness

Decreases the display brightness and saves the new setting.

Fn + F9 Increase Brightness

Increases the display brightness and saves the new setting.

***Fn + F10 Decrease Contrast**

Decreases the display contrast and saves the new setting.

***Fn + F11 Increase Contrast**

Increases the display contrast and saves the new setting.

Note: When set at CRT monitor only and no external monitor is connected, the video DOES NOT display on the LCD screen.

* Not applicable with TFT screens

Touchpad Operations

Your notebook's Touchpad is a pressure-sensitive pointing device that provides all the functionality of a mouse or a trackball. The two "click" buttons on the Touchpad have the same functions as the right and left buttons on a standard mouse.

Your Hitachi VisionBook Pro notebook also allows you to attach an external pointing device such as a mouse. For more information, see "Connecting an External Pointing Device" on page 54.

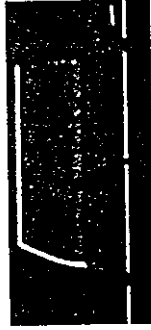


Figure 18 Touchpad

Using the Touchpad

Place your left or right hand next to the Touchpad and rest your wrist naturally in a relaxed manner. Place your thumb or forefinger on the Touchpad. Move your finger across the pad.

The rectangular Touchpad acts like a miniature duplicate of your built-in display. To move the cursor, slide your finger over the pad. The Touchpad is very sensitive. You do not need to exert much pressure on the pad.

Click and Double-Click

Click to select or initiate an operation. Double-click to start applications or open documents and folders.

Use the track pointer to move the cursor to the desired item on the screen. Quickly press and release the left button either once to click or twice to double-click.

Tap and Double-Tap

On the Touchpad, you can point and click even more rapidly. Instead of clicking by pressing the left button, you can just tap gently anywhere on the rectangular pad of the Touchpad. Tap twice rapidly to double-click.

Drag and Drop

Drag to select or move an item.

Use the Touchpad to move the cursor to the desired item on the screen. Press and hold down the left click button to select the item.

You can then drag the active file around the screen by moving your finger around the pad. When you have placed the item where you want it, release the left button. The item will drop into the new location.

Tap and Drop

You can also drag and drop using the Touchpad as a large left button. To do this, position the cursor over the item you want to drag. Gently tap twice on the pad. On the second tap, keep your finger in contact with the pad. You can then drag the selected object around the screen by moving your fingertip across the pad. When you lift your fingertip from the pad, the selected object will drop into place.

Customizing Your Notebook With Windows 95

All of the required settings for your Hitachi VisionBook Pro have been set at the factory before shipment. Windows 95 includes system utilities that enable you to adjust your notebook settings. These utilities are accessed through the Control Panel. You can use the Control Panel to adjust your notebook settings including:

- Date and time
- Display

- Mouse
- Keyboard
- Password
- System
- Power

If you need to adjust these settings, add new hardware to your notebook, or add and remove programs on your notebook, read the following section. For information on adjusting your notebook's BIOS settings, see Appendix B, "Using the BIOS Setup Program" on page 99.

Using the Control Panel

By double-clicking an icon in the Control Panel, you can access a dialog box with the settings associated with that icon. Follow these steps to access the Control Panel:

1. Click on the *Start* button and then point to *Settings*.
2. Click on *Control Panel*.
3. Double-click the icon associated with the settings you want to change.

The following sections briefly describe the icons most commonly used to customize notebook computers. For more detailed information about the Control Panel, see the *Introducing Windows 95* guide, or refer to the *Windows Help* system.

Date/Time

Use the Date/Time icon to set the date, time, and time zone settings for your notebook.



Date/Time

Display

Use the Display icon to adjust the screen resolution and color settings for your notebook. You can also choose LCD or external CRT as the display type.



Display

Mouse

Use the Mouse icon to adjust settings for your Alps GlidePoint Touchpad as well as any external mouse you may choose to use.



Mouse

Keyboard

Use the Keyboard icon to adjust settings for your built-in keyboard as well as any external keyboard you may choose to use.



Keyboard

Password

Use the Password icon to change passwords for your notebook's security features and to identify user profile settings.



Passwords

System

Use the System icon to access several dialog boxes with information about the hardware devices that comprise your notebook. These dialog boxes store the default settings for these devices and offer you advanced configuration options.



System

Power

Use the Power icon to adjust your notebook's power management settings. Windows 95 includes a power management system called Advanced Power Management (APM) developed by Microsoft and Intel. It is recommended that you use the default APM settings to maximize battery and system performance.



Power

Add New Hardware

Use the Add New Hardware icon to add a new device to your notebook. The *Add New Hardware Wizard* will guide you through the steps to configure the new device for your notebook.



Add New
Hardware

Display

Use the Display icon to adjust the screen resolution and color settings for your notebook. You can also choose LCD or external CRT as the display type.



Display

Mouse

Use the Mouse icon to adjust settings for your Alps GlidePoint Touchpad as well as any external mouse you may choose to use.



Mouse

Keyboard

Use the Keyboard icon to adjust settings for your built-in keyboard as well as any external keyboard you may choose to use.



Keyboard

Password

Use the Password icon to change passwords for your notebook's security features and to identify user profile settings.



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Power

Add New Hardware

Use the Add New Hardware icon to add a new device to your notebook. The *Add New Hardware Wizard* will guide you through the steps to configure the new device for your notebook.



Add New
Hardware

Add/Remove Programs

Use the Add/Remove Programs icon to modify the default Windows 95 installation options and to change or remove software applications on your notebook's hard disk drive.



**Add/Remove
Programs**

Data Storage and Retrieval

Data storage and retrieval are two of the most fundamental tasks you will perform when you work with your notebook. Your notebook is equipped with both a 3.5-inch floppy disk drive and a hard disk drive. The following sections explain how to operate each of these drives.

Using the Floppy Disk Drive

Your notebook features a high-density, 3.5-inch, removable floppy disk drive housed in peripheral bay 1 module. This drive is designated drive A: by your notebook's operating system.

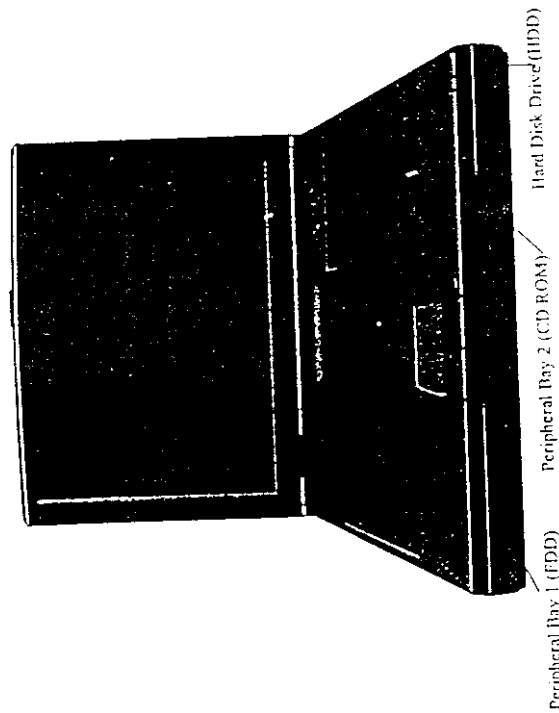


Figure 19 Exchanging Peripheral Bay Modules

See "Exchanging Peripheral Bay Modules" on page 62 for detailed information on removing your floppy disk drive and replacing it with a secondary battery module.

About Floppy Disks

Your computer's floppy disk drive accepts both 720KB double-density (DD) disks and 1.44MB high-density (HD) disks. These disks are sometimes labeled by manufacturers as double-density 1.0MB and high-density 2.0MB disks. These labels, however, indicate the unformatted capacities of the disks.

Formatting Floppy Disks

Sometimes you must format a new floppy disk before you can use it. To format a floppy disk using Windows 95:

1. Insert a new disk into the floppy disk drive.
2. Double-click on the *My Computer* icon.
3. Click on *Floppy [A:]*.
4. From the *File* menu, click on *Format*. A dialog box displays to enable you to select some settings.
5. Click on *Start* to begin formatting. After this process is complete, the disk will be ready to use.

Inserting and Removing Floppy Disks

To insert a 3.5-inch floppy disk into the floppy disk drive, follow these steps:

1. Hold the disk with the drive wheel facing down and the metal shutter end facing toward the drive.
2. Insert the disk into the drive slot and gently push it into the drive.
3. When the disk clicks into place, the eject button pops out. The disk is now ready for use.

To remove a disk from the floppy disk drive, follow these steps:

1. Ensure that the FDD (Floppy Disk Drive) Status indicator icon (located in the notebook's LCD Status Window just below the LCD screen) is not displayed. Never remove a disk from the drive while the Floppy Disk Drive Status indicator icon is displayed; otherwise, you may damage both the disk and the drive's read/write head.
2. Gently press the disk eject button.
3. When the disk pops out, remove it from the drive slot and store it in a cool, dry place.

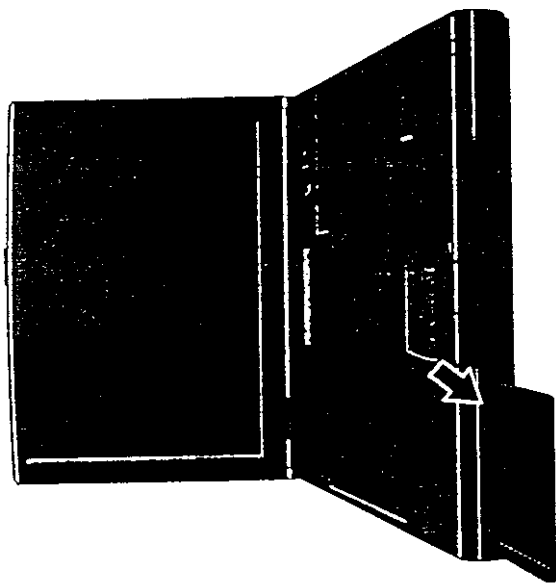


Figure 20 Removing a Floppy Disk

Write Protecting and Backing Up Disks

When working with disks, it is easy to accidentally erase the data stored on them. Write protecting a disk serves several important purposes:

- It protects the data stored on the disk from being erased.
- It prevents additional data from being written to the disk.
- It protects the disk from infection by a computer virus.

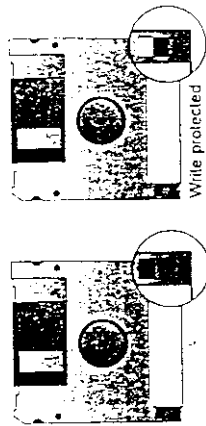


Figure 21 Write Protecting a Disk

Refer to Figure 21 and the following instructions to write protect a disk:

1. Hold the disk in front of you with the drive wheel facing up, as shown in Figure 21.
2. Slide the write-protect tab down until it clicks into place. The window is now open, indicating that the disk is write protected.

Caring for Disks

Under normal conditions, a disk's rigid plastic case will protect it from damage. Data stored on floppy disks, however, is easily corrupted. Follow these protective measures to preserve the integrity of data stored on floppy disks:

- Never touch the magnetic surface of the disk. When handling disks, take care that you don't drop them.
- Don't expose disks to extreme temperatures.
- Keep disks away from magnetic fields generated by power supplies, monitors, magnets, and so on.
- Don't smoke in the same room where disks are used or stored. Particles from cigarette smoke are large enough to scratch the surface of the disk.
- Store disks in a dry, dust-free environment.

Using the CD-ROM Drive

Your Hitachi VisionBook Pro features a multispeed 10x CD-ROM drive. You can use the CD-ROM drive to access CD-ROM programs, to read data stored on CD-ROM discs, video CDs and photo CDs, as well as to play audio CDs. To use the CD-ROM drive, you must install it in the peripheral bay *before* you turn your notebook on. See "Exchanging Peripheral Bay Modules" on page 62 for details.

Inserting and Removing a CD-ROM Media

To insert a CD-ROM Media:

1. With the notebook turned on, press the button on the front of the CD-ROM module.
2. Gently pull the tray out to its fullest extension.
3. Insert your CD-ROM Media with the label side up.
4. Gently push the tray in until it clicks in place. The CD-ROM is ready to play.

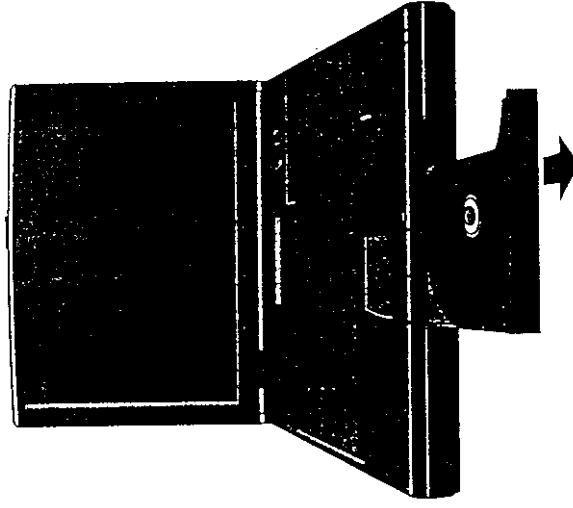


Figure 22 Inserting a CD-ROM Disk

To remove the CD-ROM Media:

1. With the notebook turned on, press the button on the front of the CD-ROM module.
2. Gently pull the tray out to its fullest extension.
3. Remove your CD-ROM Media.
4. Gently push the tray in until it clicks in place.

Using the Hard Disk Drive

Your Hitachi VisionBook Pro notebook comes with a hard disk drive already installed. Your computer's hard disk drive is an integrated electronics drive, commonly referred to as an IDE drive, with a form factor of 2.5 inches. IDE drives have become an industry standard for PC hard disk drives because they provide a reliable, fast, and cost-effective mass storage solution.

Your notebook's unique modular architecture enables you to remove and replace your hard disk drive. See "Removing and Replacing the Hard Disk Drive" on page 63.

Using the Hitachi PC Recovery CD



Caution: Use of the Recovery CD will return your hard disk drive to its factory original configuration. The hard disk will be reformatted and your data will be overwritten. Making frequent backups of your data will safeguard against unwanted data loss and allow you to recover your system fully. Follow the directions in the Microsoft Backup Utility to backup your files.

To use your Recovery CD, place the 3.5" floppy disk, labeled Recovery Utility Disk, in the A: Drive and restart your system by pressing <Ctrl+Alt+Del> twice. Follow the prompts to insert the Recovery CD in your CD-ROM Drive. Your system will be returned to its factory original configuration. In order to recover data previously backed-up, follow the directions in the Microsoft Backup Utility.

Using the Serial Infrared Port

Your Hitachi VisionBook Pro notebook is equipped with an IrDA-compliant Serial Infrared port located on its right panel.

Serial Infrared Port

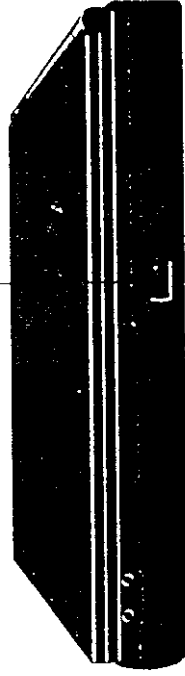


Figure 23 The Serial Infrared Port

The SIR port allows wireless, serial communications between your notebook and other SIR-equipped devices such as a printer or another computer. The SIR port consists of two Light Emitting Diodes (LEDs) that operate similarly to a television remote control device. One LED functions as a transmitter, and the other acts as a receiver. The transmitter emits a signal consisting of data as pulses of infrared light; while the receiver picks up pulses of infrared light transmitted by other SIR ports.

Use the Windows 95 Terminal utility to transmit or receive data through the Hitachi VisionBook Pro notebook's SIR port. Refer to your Windows 95 documentation for instructions on using the Terminal utility.



You cannot use the modem and SIR at the same time. When you choose to use SIR, you will not be able to use the modem until you disable SIR and re-enable the modem.

Follow these guidelines when using your notebook's SIR port to transmit or receive data:

- Ensure that the Hitachi VisionBook Pro notebook's SIR port is properly lined up with the other device's SIR port.

- Ensure that the distance between the Hitachi VisionBook Pro notebook's SIR port and the other device's SIR port does not exceed one meter (three feet).
- Ensure that the angle between the two SIR ports does not exceed 15 degrees.
- Ensure that there is a clear, unobstructed path between the two SIR ports during data transmission. Obstructions will block the optical signal.
- Do not move either the Hitachi VisionBook Pro notebook or the other device during data transmission. Movement distorts the optical signal and will result in the loss of data.
- Press the <Fn+F2> key combination to enable use of IR.
- Confirm that IR is ready to use by going to the Control Panel/Infrared/Options. Ensure "Enable IR communications" is selected. The IR light should appear in the Windows tool bar in the lower right hand corner of your screen. Confirm the IR settings within Options as follows:
 - Enable infrared communications on COM2
 - Provide application support on COM4 and LPT3
- You can now use IR for data communications. Open your IR capable software application and proceed with data communication (e.g., Laplink).

Disabling IR to Use the Modem

Remember that if you wish to use your modem after using the IR feature, you must disable SIR via the following procedure:

- Turn off IR within Control Panel/Infrared/Options, and deselect "Enable IR communication."
- Press the <Fn+F3> key combination to enable the modem.
- The modem is now ready for data/fax communications.
- To confirm that your modem is ready, go to Control Panel/Modems/Diagnostics, select COM2 and click "more information." Your modem should respond by verifying operation.

CONNECTING AND INSTALLING OPTIONAL DEVICES

CHAPTER

4

4 Connecting and Installing Optional Devices

This chapter gives you instructions on how to connect and install both external and internal optional devices for your notebook. The devices covered in this chapter are:

- Serial port
- Parallel port
- External pointing device
- External keyboard
- External monitor
- Printer
- Modem
- Network
- USB device
- Cellular phone
- Headphones
- External audio input device
- Advanced port replicator
- Peripheral bay modules
- Hard disk drive
- PCMCIA cards
- Expansion memory modules

Windows 95 Plug and Play Support

The Hitachi VisionBook Pro notebook's Plug and Play features are supported in Windows 95. Plug and Play means your system can automatically detect and configure devices without a manual setup. These devices must support Plug and Play for the feature to work.

For Plug and Play support, Yes is the default setting in the Plug and Play OS field in the Setup program. The Plug and Play OS field is located on the Advanced menu in the Setup program. See "Advanced Menu" on page 114 for more information.

Connecting Optional Peripheral Devices

This section describes how to connect optional peripheral devices to your notebook and also provides you with an overview of your notebook's ports.

Notebook Port Overview

The following sections provide you with information about your notebook's serial and parallel ports.

Serial Port

For serial communications, the Hitachi VisionBook Pro notebook has an RS-232 compatible serial port. You can connect serial devices such as a mouse, a serial printer, a plotter, a modem, or a graphics tablet to the serial port. The serial port is located at the rear of your notebook. To access this port, you need to open the large panel.

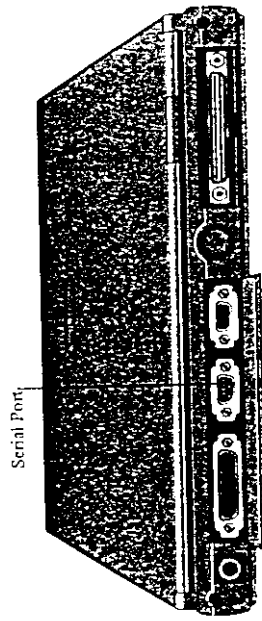


Figure 24 The Serial Port

Your Hitachi PC VisionBook Pro notebook's serial port uses a DB-9 type connector. Many serial devices are equipped with a DB-25 type connector. To plug a DB-25 connector into your notebook's DB-9 connector, you will need a serial 25-to-9 adapter.

Parallel Port

You can connect a parallel output device, such as a printer, to the parallel port. The parallel port is located at the rear of your notebook.

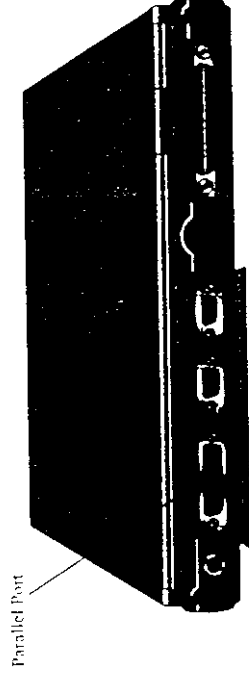


Figure 25 The Parallel Port

The Hitachi VisionBook Pro notebook supports three parallel port operation modes:

- Standard (default)
- Bi-directional
- ECP

In Standard mode, the parallel port allows data output only.

In Bi-directional mode, the parallel port allows both data input and output.

The parallel port operates in ECP (Extended Capabilities Port) mode when you load an Extended Capabilities Port device driver. Only ECP-aware peripherals support this mode. If you configure the LPT Mode option field in the Setup program as ECP, the application you are using must be ECP aware.

See "Integrated Peripherals Submenu" on page 108 for more information on setting the LPT mode.

Connecting an External Pointing Device

You can attach an external pointing device such as a mouse or a graphics tablet to either the PS/2 port or the serial port. Refer to your pointing device's documentation for information on which port to select.

Note: To use an external keyboard and an external pointing device at the same time, you need to insert a Y connector in the Mini-DIN port located at the rear of the notebook.

Follow these instructions to connect an external pointing device:

1. Determine the type of interface (PS/2 or serial) required by your pointing device. Refer to the device's operating manual for more information.
2. If the device requires a PS/2 interface, locate the external mouse (Mini-DIN) port at the rear of the notebook. Connect the male connector of your device cable to the female PS/2 port on your notebook. If the device requires a serial interface, locate the 9-pin connector at the rear of your notebook by opening the large panel. Connect the 9-pin female connector of your device cable to the 9-pin male serial port on your notebook.

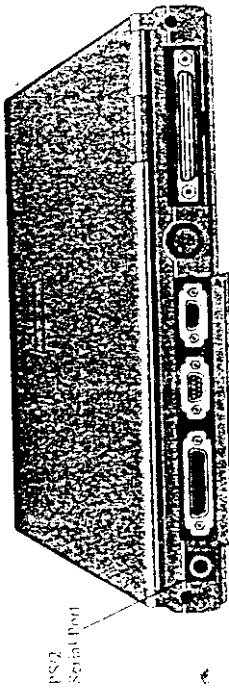


Figure 26 Connecting an External Pointing Device

3. After you connect the external pointing device, if your notebook is turned off, turn it back on. Although both the external pointing device and the Touchpad should be functional, use only one pointing device at a time to avoid device conflicts.

Connecting an External Keyboard

To make typing more convenient, you can attach an external IBM PS/2 or compatible keyboard to your Hitachi PC VisionBook Pro notebook.

Note: To use an external keyboard and an external pointing device at the same time, you need to insert a Y connector in the Mini-DIN port located at the rear of the notebook.

Follow these instructions to connect an external keyboard:

1. Locate the PS/2 Serial (Mini-DIN) port located at the rear of the notebook.

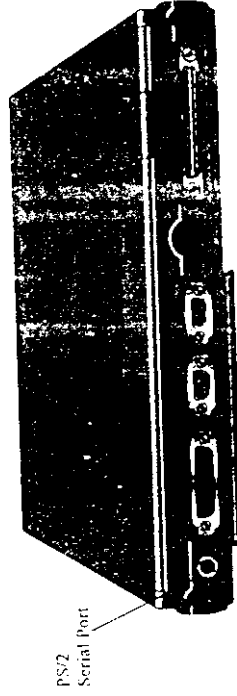


Figure 27 Connecting an External Keyboard

2. Carefully line up the pins of the keyboard jack and connect it to the external keyboard (Mini-DIN) port. Note that some keyboards have an AT-style keyboard connector. If your keyboard has this type of connector, use an AT-to-PS/2 keyboard adapter.
3. After you connect the external keyboard, if your notebook is turned off, turn it back on. Although both the embedded keyboard and the external keyboard will function, do not use them both at the same time.

Connecting an External Monitor

Follow these instructions to connect an external monitor:

1. Connect the monitor's 15-pin female analog connector to the video external monitor port located at the rear of the notebook.

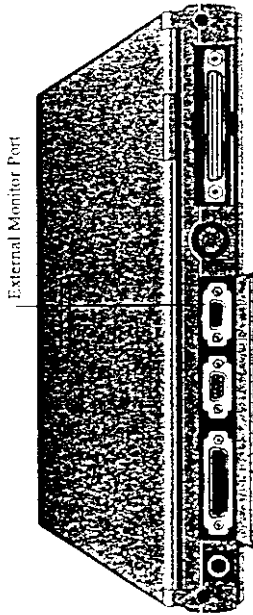


Figure 28 Connecting an External Monitor

2. Make sure the monitor is plugged into a suitable power source, and then turn the monitor on.
3. Press <Fn+F7> to change the active display device. Note that you have a choice of three active display settings: LCD only, both LCD & CRT, and CRT only. Pressing <Fn+F7> will toggle through these three settings.

Connecting a Printer

Follow these instructions to connect a printer:

1. Locate the parallel port at the rear of your notebook.

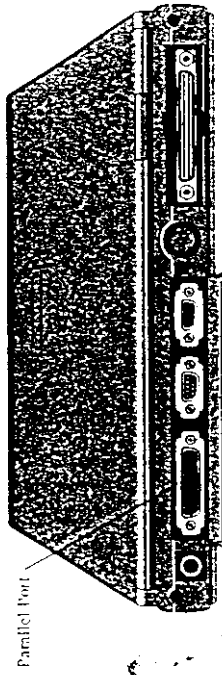


Figure 29 Connecting a Printer

2. Connect the printer's 25-pin male connector to the parallel port at the rear of your notebook.

3. If necessary, attach the printer cable to your printer. Tighten any retaining screws to ensure a secure connection.



Over tightening may damage your notebook's connector, the printer's connector, or both.

4. Turn on the printer and any other peripheral devices you have connected to the notebook.
5. If necessary, run the Setup program to configure the parallel port to properly respond to your notebook.
6. Configure your printer in Windows 95. Refer to both your Windows 95 documentation and your printer documentation for detailed information.

Connecting the Modem

Follow these steps to connect your notebook's internal modem:

1. Locate the phone jack on the left side of your notebook. Be sure not to plug the phone cable into the LAN port.



Figure 30 Connecting the Modem

2. Connect the phone cable to your notebook's modem jack.
3. Connect the other end of the phone cable to a phone jack.

For further information check the online modem manual (Start/Programs/Modem Age Books/Hitachi 56K Modem User Guide).

Connecting to a Network

Your computer comes equipped with an internal network card giving you the capability of connecting to a Local Area Network (LAN).

Follow these steps to connect your notebook to a LAN:

1. Locate the LAN jack on the left side of your notebook.



Figure 31 Connecting to a Network

2. Connect the 10BASE-T LAN cable to the LAN port.
3. Connect the other end of the 10BASE-T LAN cable to a network HUB or LAN outlet.
4. Contact your MIS manager to configure your machine for LAN connectivity.

Connecting USB Devices

You can connect peripheral devices that meet USB specifications to your Hitachi VisionBook Pro notebook.

Follow these steps to connect a USB device:

1. Locate the USB port on the left side of your notebook.



Figure 32 Connecting USB Devices

2. Open the flap covering the USB port by gently inserting your finger under the right side of the flap.
3. Connect the USB cable to the USB port.
4. Connect the other end of the USB cable to your USB device.

Connecting a Cellular Phone to the Cellular Phone Port

For detailed information on connecting your cellular phone, check the online modem manual (Start Programs/Modem Age Books/Hitachi 56K Modem User Guide).

Connecting Headphones

Your Hitachi PC VisionBook Pro notebook is equipped with Sound Blaster Pro compatible sound features. You can listen to audio with the built-in speakers or you can attach external speakers or headphones to your notebook.

Follow these steps to connect headphones to your notebook:

1. Locate the headphone jack on the right side of your notebook.

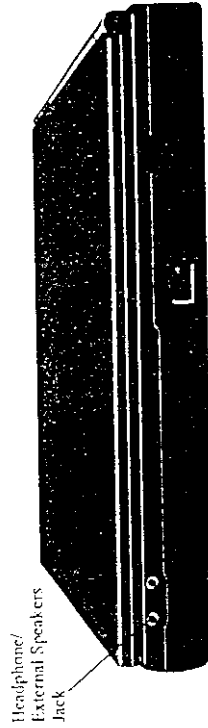


Figure 33 Connecting Headphones

2. Connect the headphone or speaker cable to the headphone jack.

Connecting an External Audio Input Device

You can connect an external audio input such as a microphone with a line-out cable to your Hitachi VisionBook Pro notebook.

Follow these steps to connect an external audio input device to your notebook:

1. Locate the Line-In jack on the right side of your notebook.

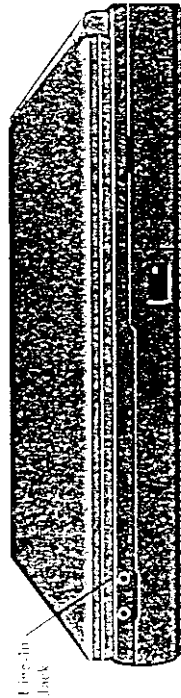


Figure 34 Connecting an External Audio Input Device

2. Connect the line-out cable to the Line-In jack.

Connecting the Advanced Port Replicator

Your Hitachi PC VisionBook Pro is designed to connect to an Advanced port replicator. The Advanced port replicator enables you to connect several external devices to the notebook at one time. This feature provides you with equivalent PC/Desktop cable management capabilities. Figure 35 shows the connector for the Advanced port replicator.

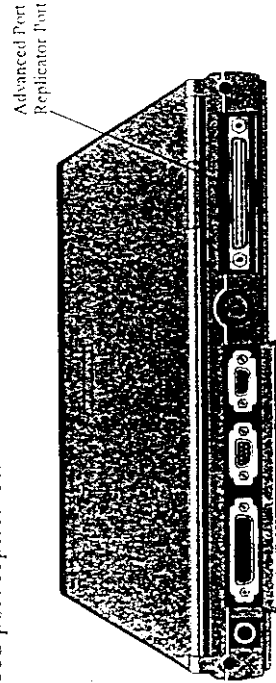


Figure 35 Advanced Port Replicator Port

Figures 36 and 37 show the layouts of the front and rear of the Advanced port replicator.

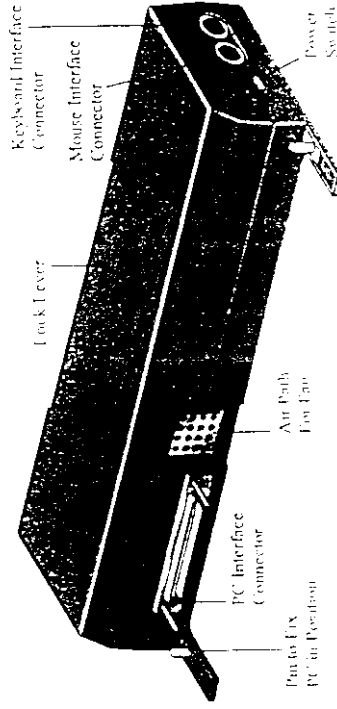


Figure 36 Front View of Advanced Port Replicator

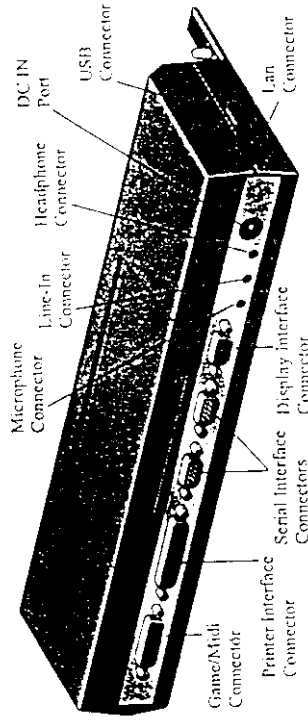


Figure 37 Rear View of Advanced Port Replicator

Consult your Advanced port replicator guide for more information.

Exchanging Peripheral Bay Modules

The peripheral bay in Position 1 on the left side is designed to house either a floppy disk drive module or a battery module. The peripheral bay in Position 2 on the right side is designed to house either a CD-ROM module or a battery module. Follow these instructions to remove the peripheral module and insert another module.

Prior to removing or installing any of the peripheral devices, including batteries, you must turn off your notebook.

1. Place the Hitachi VisionBook Pro notebook on a flat surface with the underside facing up.
2. Locate the release latch for the peripheral device you want to exchange. Refer to Figure 39 on page 63.
3. To release the device in Position 1, slide the release latch to the left. To release the device in Position 2, slide the release latch to the right.
4. Pull the module out of its bay.
5. Insert the module of your choice. Make sure that the release latch snaps back into place.

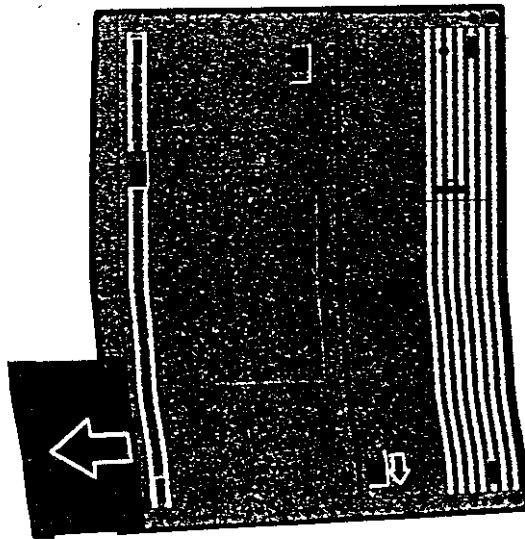


Figure 38 Exchanging Peripheral Bay Modules

Hitachi VisionBook Pro

Removing and Replacing the Hard Disk Drive

Your Hitachi VisionBook Pro notebook's modular architecture enables you to replace the hard disk drive. The drive unit is located in a special removable compartment. Refer to your notebook dealer for details on obtaining an optional hard disk drive.

To remove or replace the hard disk drive, follow these steps:

1. After you have saved your data, turn your notebook off.



Never insert or remove the hard disk drive compartment while your system is turned on!

2. Place the Hitachi VisionBook Pro notebook on a flat surface with the underside facing up.
3. Locate the hard disk drive compartment release latch.

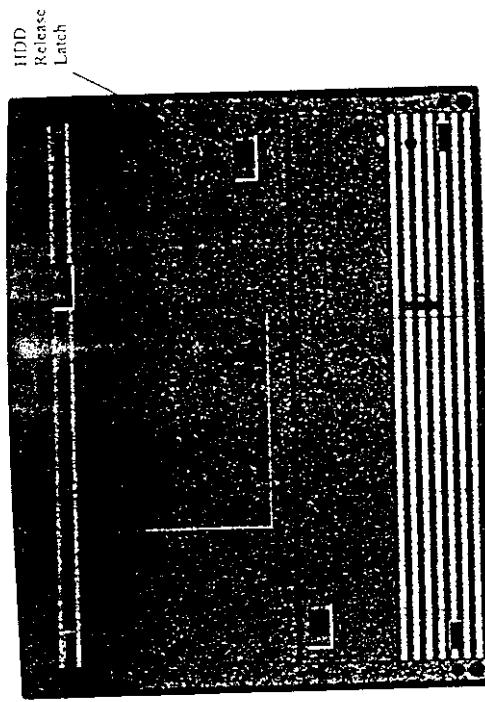


Figure 39 Removing and Replacing the Hard Disk Drive

4. Slide the latch to the left and hold it in an open position.

Hitachi VisionBook Pro

5. Carefully withdraw the hard disk drive from the compartment bay.



When your hard disk drive is removed from the notebook, always store it in a safe environment free from magnetic fields!

6. Insert the new hard disk drive into the hard disk drive compartment until it clicks in place.
7. Turn your notebook on.
8. Press <F2> after the notebook has run through its Power On Self Test (POST). This accesses the Setup program. See "Accessing the Setup Program" on page 101 for details.

Installing Optional Internal Devices

In this section, you will learn how to install optional internal devices for your notebook.

Installing PCMCIA Expansion Cards

PCMCIA cards accommodate a number of expansion options such as a memory card, a modem, a hard disk, and a network adapter. Your Hitachi VisionBook Pro notebook provides two PCMCIA slots that can receive two Type II PCMCIA compatible cards, or one Type III PCMCIA compatible card. Both slots support CardBus while the top slot supports Zoom Video.

The PCMCIA compatible card slots are located on the right side of the Hitachi VisionBook Pro notebook.

To insert a PCMCIA compatible card, follow these instructions:

1. Open the PCMCIA compartment panel on the right side of your notebook. See Figure 40 on page 65 for details.
2. Hold the PCMCIA compatible card with the arrow side up and the connector side pointed toward the socket.

3. Insert the card into the appropriate slot. The top slot is slot 1, the bottom slot is slot 2. When the card is fully seated, the black eject button located on the right side of the socket will pop out. Note that there are two eject buttons, one per slot.

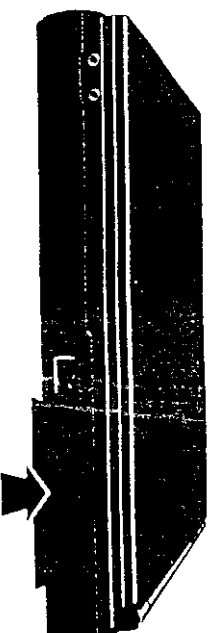


Figure 40 Inserting a PCMCIA Card

To remove a PCMCIA compatible card, press the appropriate eject button. The PCMCIA card will be ejected from the socket.

Installing Expansion Memory Modules

Your Hitachi VisionBook Pro notebook has 16MB of on-board system memory. Depending on your purchased system, your notebook may come with 16MB of additional RAM for a total of 32MB.* The memory module expansion slot enables you to upgrade your computer's memory.

The Hitachi VisionBook Pro notebook supports the following expansion memory module configurations:

On Board (Bank 0)	Expansion (Bank 1)	Expansion (Bank 2)	Total
16MB	—	—	16MB
16MB	—	16MB	32MB
16MB	16MB	—	32MB
16MB	16MB	16MB	48MB
16MB	32MB	—	48MB
16MB	—	32MB	48MB
16MB	32MB	32MB	80MB
16MB	—	64MB	80MB
16MB	64MB	—	80MB
16MB	64MB	64MB	144MB

*133 MMX systems are configured with a base of 16MB.

*166 MMX systems are configured with a base of 32MB.

Follow these instructions to insert a memory module:

1. Turn your notebook off.
2. Remove the retaining screw from the memory module compartment cover on the bottom of the notebook. See Figure 41 on page 67.
3. Remove the memory module compartment cover.

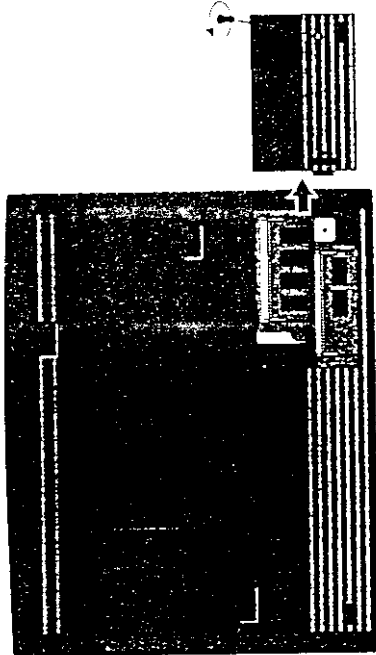


Figure 41 Removing the Memory Module Cover

4. Insert the module into the socket and press with firm, even pressure until the latches lock it into place. The memory module is designed to ensure that you insert it in the correct direction.
5. Reboot the computer. Your system will automatically detect the new memory. You do not need to make any changes to the Setup program.



Expansion memory modules are easily damaged by static electricity. Take precautions to prevent static electric discharge.

THE POWER SYSTEM

CHAPTER

5

5 The Power System

This chapter covers the power system of the Hitachi VisionBook Pro notebook. The power system is made up of three parts:

- AC adapter
- Battery pack
- Power Management program

The Hitachi VisionBook Pro notebook's built-in power management features completely control the computer's power consumption and extend the life of the battery between charges. You can set and control your notebook's power management features through the Power menu of the Setup program. You can also use hot keys to conveniently activate power saving features.

AC Adapter

The AC adapter performs two important functions:

- Converts AC current into the DC current used by your notebook
- Charges the battery pack



Your notebook comes with its own special AC adapter.

- Do not use a different AC adapter to power the computer! This can seriously damage your notebook!
- Do not use the notebook's AC adapter to power other electrical devices!

For instructions on connecting the AC adapter to your notebook, see "Connecting to AC Power" on page 19.

1. The first step in the development of a new product is the selection of a market. This is done by the marketing department, which is responsible for identifying the needs and wants of the target market.

2.

3. The second step is the development of a product. This is done by the product development department, which is responsible for creating a new product that meets the needs and wants of the target market. The product development process involves a number of steps, including research and development, design, and testing.

4. The third step is the production of the product. This is done by the manufacturing department, which is responsible for producing the product in large quantities. The production process involves a number of steps, including sourcing materials, manufacturing, and packaging.

5. The fourth step is the distribution of the product. This is done by the distribution department, which is responsible for getting the product to the target market. The distribution process involves a number of steps, including warehousing, transportation, and retailing.

6. The fifth step is the promotion of the product. This is done by the marketing department, which is responsible for creating a marketing campaign that promotes the product. The promotion process involves a number of steps, including advertising, public relations, and sales promotion.

7. The sixth step is the evaluation of the product. This is done by the marketing department, which is responsible for evaluating the success of the product. The evaluation process involves a number of steps, including measuring sales, market share, and customer satisfaction.

8. The seventh step is the improvement of the product. This is done by the product development department, which is responsible for improving the product based on customer feedback. The improvement process involves a number of steps, including research and development, design, and testing.

9. The eighth step is the launch of the product. This is done by the marketing department, which is responsible for launching the product into the market. The launch process involves a number of steps, including creating a launch plan, executing the plan, and monitoring the results.

10. The ninth step is the maintenance of the product. This is done by the product development department, which is responsible for maintaining the product over time. The maintenance process involves a number of steps, including monitoring the product, identifying problems, and implementing solutions.

11. The tenth step is the discontinuation of the product. This is done by the marketing department, which is responsible for discontinuing the product. The discontinuation process involves a number of steps, including identifying the reasons for discontinuation, creating a discontinuation plan, and executing the plan.



Fig. 1. Battery Assembly

Fig. 2. Battery Assembly

2. Locate the release latch for the peripheral bay that corresponds to the adapter cartridge containing the battery.
3. Slide the release latch in the direction of the arrow and hold it in an open position.
4. Remove the device from the peripheral bay.
5. Insert the battery pack into the peripheral bay until it clicks into place.

Note: Do not remove the cloth tab from the Duracell DR202 Lithium Ion battery pack.

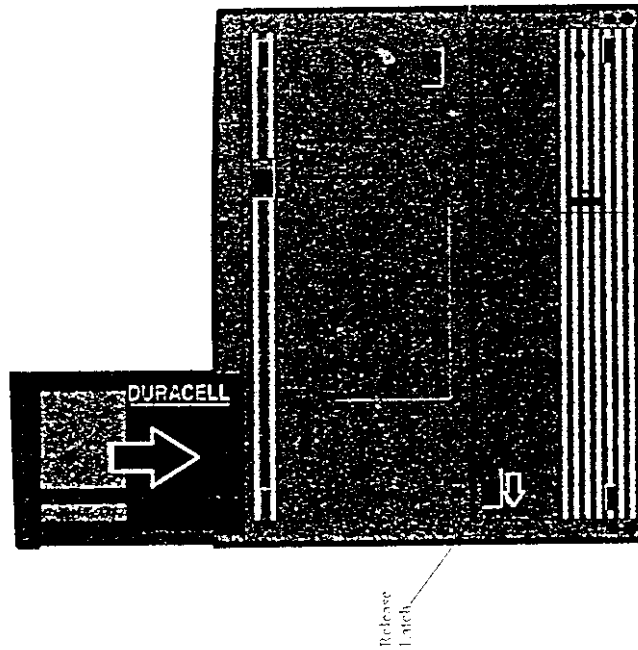


Figure 44 Inserting the Battery

6. Attach the AC adapter to the computer and plug the adapter into an AC power source. The LCD Status Window displays "CHARGE" and either Battery Status icon 1 or 2 displays. While charging the battery, the LED indicator light displays.

7. Allow the battery to charge fully. This takes about 3 hours if the notebook is turned off, or about 6 hours if the notebook is turned on.

When the battery is fully charged, the "CHARGE" LCD Status will turn off and charging will stop automatically.

Note: Battery manufacturers recommend discharging and charging your battery at least five times to set the battery to maximum capacity.



The battery pack may become extremely hot while you are using the computer. As a result, the battery may stop charging before its temperature becomes too high. If this should occur, remove the battery pack, let it cool, and then resume charging it.

Battery Status Indicators

Your Hitachi VisionBook Pro notebook provides you with several convenient mechanisms for monitoring the charge status of the battery.

Windows 95 Battery Meter

Your notebook displays battery charge information on the Windows 95 Desktop. To read the battery meter follow these steps:

1. Locate the electrical plug icon on the right side of the Windows 95 desktop status bar.
2. Click on the electrical plug to display the remaining battery capacity.
3. Double-click on the electrical plug icon to display the battery meter window.

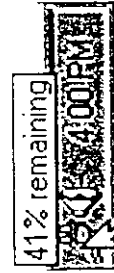


Figure 45 Battery Meter

LCD Indicators

The Battery Status indicator in the LCD Status Window (see "LCD Status Window" on page 11) indicates which battery is in use. The "1" indicates that the battery in Peripheral Bay 1 is in use, and the "2" indicates the battery in Peripheral Bay 2 is in use. The Power light also turns orange when you are operating your notebook under battery power.

Battery Gauge

Your notebook's battery comes with a built-in battery gauge. The gauge is located on the battery itself.

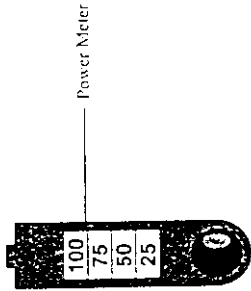


Figure 46 Battery Power Meter

You can check the power available in the battery by removing it from the peripheral bay, as follows:

1. Locate the release latch for the peripheral bay that corresponds to the adapter cartridge containing the battery.
2. Slide the release latch in the direction of the arrow and hold it in an open position.
3. Remove the battery pack from the peripheral bay.
4. Locate the diagram of the Power Meter on the battery as shown in Figure 46.
5. Press the circle at the bottom of the thermometer to see the power remaining in the battery.
6. Reinsert the battery into the peripheral bay.

Visual Indicators

When your battery is low, your notebook uses a visual (LED) indicator to inform you of your battery's status.

Condition	Battery Power Remaining	Visual Indicator
Battery Warning	10%	Battery Charge LED flashes once per second
Battery Low	5%	- Screen dims - Power light turns red
Battery Critical	N/A	Battery Charge LED flashes once per second

Maximizing Battery Pack Life

Using your notebook's Power Management capabilities and following these power saving methods can make your battery pack's charge last longer.

- Turn the notebook off when you are not using it.
- Utilize the notebook's power management functions. See "Power Menu" on page 120 and "Power Management" on page 78.
- Close the display when you are not entering data.
- Adjust the LCD display to low brightness.
- If you use a screen saver, choose one without moving graphics or complex patterns.
- Discharge (use) the battery pack until the battery status warning LED indicators flash, and then recharge it fully.
- Remove the battery pack from your computer when you are not using the computer for an extended period of time.
- Remove PCMCIA devices when not in use.

Power Management

Your Hitachi VisionBook Pro notebook features a sophisticated Power Management (PM) system that is designed to conserve power and extend the life of the battery between charges. You can set the power management features to accommodate your specific work requirements. Your notebook has several operating modes:

- Full Power
- Devices Power Down
- System Standby
- Suspend

Each of these Power Management modes works for both AC and battery-powered operations. To change your notebook's PM settings, run the Power Management Setup in the BIOS Setup program. See "Power Menu" on page 120 for more information.

Full Power Mode

Your notebook operates in Full Power mode when you select Disabled in the fields on the Power Menu. In Full Power mode, all power management features are disabled. Use this mode only when you are operating the Hitachi VisionBook Pro notebook with the AC adapter.

Devices Power Down Mode

This operating mode allows you to maximize system performance while saving power with power management features. You can choose from the following options to control when the timeout features automatically power down certain devices. After the specified period of inactivity, the device will power down. The following table shows the preset timeout periods for specific devices. If a device is not listed, it operates with full power.

Mode	Option	Setting
Maximum Performance	CPU Speed	Fast
	Standby Timeout	15 minutes
	Hard Disk Timeout	5 minutes
	Video Timeout	15 minutes
Maximum Battery Life	CPU Speed	Power Saving
	Standby Timeout	3 minutes
	Suspend Timeout	5 minutes
	Hard Disk Timeout	2 minutes
Custom	Video Timeout	1 minute
	CPU Speed	You can adjust the setting for each option
	Standby Timeout	
	Suspend Timeout	
	Hard Disk Timeout	
	Video Timeout	
	LCD Brightness Control	
	Audio Power Management	
	Modem Power Management	

The LCD screen and backlight come on when you use the keyboard or move the pointing device, and the hard disk returns to full power the next time it is accessed. The timeout timer resets when you start using the computer again.

System Standby Mode

When you enable your notebook's power management functions in the Setup program, the system automatically enters Standby mode when the set Standby timeout period elapses. The following events occur when the system enters Standby mode:

- The CPU clock stops.
- The LCD screen and backlight turn off.
- The hard disk spins down.
- The I/O controller enters Power Down mode.
- The PCMCIA and VGA controllers enter Power Down mode and Standby mode, respectively.

Any system activity (such as a keystroke) will automatically return the system to Full Power mode.

Your system may postpone entering Standby mode when it is in the middle of a critical operation, such as reading from or writing to the hard disk.

Suspend Mode

Suspend mode is the Hitachi VisionBook Pro notebook's maximum power saving mode. When you enable your notebook's power management functions in the Setup program, the system automatically enters Suspend mode when the set Suspend timeout period elapses.

Press <FN +F4> to manually send the system into Suspend mode, depending on the settings of Save to Disk in the BIOS power setup.

The following events occur when Save to Disk is *Disabled* and your system enters Low Power mode or Suspend to RAM mode.

- All data in memory is saved to RAM.
- All current system states are saved to RAM.
- The CPU clock stops.
- The LCD screen and backlight turn off.
- The hard disk spins down.
- The I/O controller enters Power Down mode.
- The PCMCIA, VGA and memory controller enters Power Down mode.

To resume from Suspend Mode, press any key on the keyboard. The following events occur when Save to Disk parameter is *Enabled* and you have an active file or partition on your disk:

- All data in memory is saved to hard disk.
- All current system states are saved to hard disk.
- The system powers off.

Suspend Precautions

You should observe the following precautions before switching the system to Suspend mode:

1. Save all open files.
2. While the notebook is in Suspend mode, do not connect or remove any devices (including PCMCIA compatible cards and memory cards); otherwise, you may damage the computer.
3. If a disk is in the floppy disk drive, do not remove it or switch it with another disk.
4. Do not try to resume to Full Power mode using battery power if the battery is low. If the battery is too low, the system may not be able to fully resume.

Resume to Full Power Mode

To resume from Suspend mode to Full Power mode, press the power button. When all devices return to Full Power mode, all data and system states are read from the hard disk and are fully restored.

Resume to Full Power mode may fail under the following conditions:

- The battery is low.
- The size of system memory has been changed.
- The hard disk has been changed.

If the system cannot be restored to Full Power mode for any reason, a long warning beep sounds and this message displays:

**System configuration has changed.
System will not resume from disk.**

(R)eboot or (S)uspend.

Type *R* to reboot the computer or *S* if you want the system to remain in Suspend mode.

The Intel-Microsoft APM Interface

In addition to having power saving features built into the Setup program, the Hitachi VisionBook Pro notebook supports the Intel-Microsoft Advanced Power Management (APM) Interface, version 1.2. APM is a cooperative interface that enhances your notebook's built-in power management features by providing one of the most accurate schemes for detecting true system idle. This scheme allows APM to put the CPU into a lower power state with no loss in notebook performance.

If you have APM installed on your notebook, you must enable the Power Management feature (set the PM control field to *On*) in the Setup program. See "Power Menu" on page 120 for details. If you disable Power Management in the Setup program (set the PM control field to *Off*), you also disable APM regardless of its settings. Once you enable the APM interface, APM will override any power management settings you may have made in the Setup program.

When properly installed and configured, APM:

- Takes over power management from the system BIOS.
- Constantly monitors all system activity, including the operating system, active programs, and the power consumption of all devices.
- Accounts for operating system inactivity and power demands.
- Accounts for application inactivity and power demands.
- Allows application programs, operating systems, and the system BIOS to share power management features to ensure more efficient use of power.
- Determines when power saving features should be activated.
- Operates transparently behind the scenes.

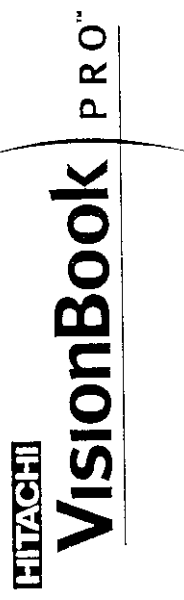
While you are running an APM-aware application, the APM detects any system inactivity. If APM detects that either the operating system or the application is waiting for input (or is in some other idle state), APM reduces the CPU to minimum speed.

When high speed is required again, APM increases the CPU to maximum speed.

Because APM constantly monitors all system activity, accounts for your notebook's power consumption, and controls all power saving features, your notebook will realize significant additional power savings.

Because APM is software based, you must set up your system software configuration to load APM for it to operate automatically. When the APM driver is correctly configured, APM loads and becomes active each time you boot your computer. An APM icon also appears in your notebook's Windows 95 Control Panel. When you double-click on this icon, a dialog box displays where you can select standard, advanced, or no Power Management mode. The dialog box also contains a battery power status gauge that indicates the current battery power level and status.

Refer to your Windows 95 documentation for a more thorough explanation of the APM interface and its features.



APPENDICES

A Maintenance and Troubleshooting

This appendix provides you with information on how to keep your Hitachi PC VisionBook Pro notebook in top working condition.

Operating Environment

When using the notebook, try to ensure that the temperature and humidity of the surroundings are within the following ranges:

Temperature

Operating: 0°C to 35°C (32°F to 95°F)

Storage: -40°C to 65°C (-40°F to 149°F)

Relative Humidity (Non-condensing)

Operating: 20% to 80%

Storage: 10% to 90%

If you suddenly move your notebook from a cold place to a warm place, undesirable moisture may condense inside the unit. After sudden temperature changes, allow the notebook to come to room temperature before you begin using it. This allows any moisture inside the notebook to evaporate.

Travel Recommendations

Your notebook was designed for portability. For safety and convenience when traveling, follow these guidelines.

- Before traveling, save your data by backing it up onto disks.
- Take along an extra backup copy of your data.
- Do not travel with a disk in the floppy disk drive.
- Do not travel with the notebook turned on. This may result in loss of data and damage to the hard disk drive.
- Disconnect the AC adapter from the notebook.
- Take along a spare, fully charged battery pack or the AC adapter.
- When carrying the notebook, take care not to drop it or bump it into things.

Maintenance

Although the Hitachi VisionBook Pro notebook requires little physical maintenance, you should follow a few simple maintenance routines and precautions to help ensure that your notebook will provide outstanding performance for many years to come.

The LCD Display

- Avoid scratching the surface of the screen.
- Always lower the display when the notebook is turned off.
- Do not allow water droplets to remain on the screen. Water can cause permanent staining.
- Do not expose the LCD screen to bright sunlight or ultra-violet radiation.
- Do not expose the LCD screen to extreme temperatures. Freezing and liquifaction of the liquid crystals may result in damage to the display.

Cleaning the Notebook

Cabinet

Keep the notebook clean by wiping the body with a dry cloth. Stubborn stains may be wiped first with a damp cloth, and then rubbed off gently with a dry cloth.



- **Never use detergents or other chemicals to clean your notebook!**
- **Never clean the notebook while it is turned on!**

Display

Gently wipe the surface of the display with a dry cloth.

SIR Port (Serial Infrared Module)

Use a soft, dry cloth to wipe the SIR port. Always keep the SIR port clean because dust on the port interferes with data transfer.

Touchpad

Use a soft, dry cloth to wipe the Touchpad.

Troubleshooting

This section can help you determine the cause of a problem and solve it yourself.

If you can't find the answer to your problem here, contact your Hitachi PC Customer Service Representative.

Common Problems

The following section presents a few common problems and the suggested corrective actions.

Symptom: The power switch doesn't function

The power switch does not accept just a light touch. Depress the switch firmly for at least one second. If you are using AC Power, check connections and verify the LCD Status Window displays the AC adapter icon. If you are using battery power, verify the LCD Status Window displays the Battery Status icon.

Symptom: The operating system will not start

The hard disk or Windows 95 may be damaged. Insert the Windows 95 Startup disk you created, and then boot the notebook. Consult your Windows 95 documentation for details on using the Startup Disk.

If you find that the hard disk is damaged, you can format the hard disk by executing the FORMAT command stored on the Windows 95 Startup disk, and then restore the software using the Windows 95 Setup disks. If Windows 95 is corrupt, reinstall it using the Windows 95 Setup disks.



Using the **FORMAT** command to format your hard disk drive will erase all the data on your system! Use the **FORMAT** command as a last resort and only after you have consulted with an Hitachi PC Customer Service Representative.

Symptom: The screen is blank

- Press the space bar to see whether a power management feature has blanked the screen to save power.
- Check the Power LED to verify that the notebook is getting power. If the Power LED is not lit, check the electrical outlet, the plug, and the power cord, as well as any power switches that may affect your notebook.
- If you are using the battery pack, make sure it has a charge remaining and is installed correctly.

- Check the brightness and contrast controls for your display.
- Press <Fn+F7> to ensure LCD is a selected display.
- Reset the notebook by pressing <Ctrl+Alt+Del>.
- Turn the notebook off, wait a few seconds, and then turn the notebook back on.

Symptom: The computer cannot write to a diskette

- The disk may not be formatted. See "Formatting Floppy Disks" on page 42 for more information.
- The disk could be corrupted with a virus.
- The disk may be write protected. Eject the disk and check that the write-protect tab is not set. See "Write Protecting and Backing Up Disks" on page 43 for more information.
- The disk may be full. Use another disk.
- Your notebook's Supervisor may have restricted access to the floppy disk drive. See "Security Menu" on page 115 for more information.

Symptom: You receive a non-system disk or disk error message

- You may have inserted a nonbootable disk in drive A: (either a defective disk or one without an installed operating system). Remove the disk and restart your notebook.
- If this message is issued when you attempt to boot from your hard disk drive, insert a bootable disk and check the integrity of your hard disk drive.

Symptom: The date and time are incorrect

- Use either the Windows 95 Control Panel or your notebook's Setup program to enter the correct date and time.
- If the date and time are still incorrect, contact your notebook dealer to change the system board battery.

Symptom: You cannot recharge the battery

If the notebook has been left unused for a prolonged period of time, the battery may become completely discharged. In such cases, you need to connect to the AC adapter for several hours before the battery begins to recharge normally.

Symptom: The printer does not operate

- Verify that the printer is turned on.
- Verify that the printer is properly connected to the notebook.
- Double-click on *My Computer*, and then click on *Printers*. Check whether your printer is installed here. If not, click on *Add Printer* to install your printer.
- Double-click on *My Computer*, and then click on *Printers*. Check whether the printer output is set to MSFax.
- Search for help on printer problems in the Windows 95 Help Index.

Symptom: The SRAM or Flash card doesn't function properly

When you want to use an SRAM or Flash card, make sure to remove REM from the following lines of the CONFIG.SYS file using Windows Notepad:

```
REM DEVICE=C:\WINDOWS\SYSTEM\CSMAPPER.SYS
REM DEVICE=C:\WINDOWS\SYSTEM\CARDDRV.EXE /SLOT=2
```

Symptom: The notebook won't produce sound

- Check the volume control and mute button. Double-click on the speaker symbol, which is to the right of the clock on the bottom right of the screen, to open the Volume Control window.
- Check whether the sound is turned down (off) at the keyboard. Press <Fn+F6> several times to see whether the volume increases.

- Verify that the sound driver is installed. From the Windows 95 Control Panel, double-click on *System*, and then click on the *Device Manager* tab. Next, click on *Sound, Video, and Game Controllers*. Verify that *ESS 1878 Plug and Play AudioDriver* is installed. If it is not, install the driver from the Control Panel's *Add New Hardware*.

Symptom: The IR communications will not function properly

- Check the IR Protocol field in the Setup program.
- Check that the SIR port is not dirty.
- Check the distance between the notebook and the other device. If there is less distance than four inches between the two, data transfer may not work well. Adjust the distance and try again.
- Toggle the IrDA function using <FN + F2>.

Symptom: Cannot Find Modem "Error"

- Certain software applications especially modem flash utilities and modem autodetect programs (like AOL and Compuserve enablers) will also "trigger" IR if it is left enabled and may not find the modem. The reason is that these Autodetect Programs check all COM ports and will only see IR if IR is enabled.
- To correct this error, disable the IR in accordance with "Disabling IR to Use Modem" instructions. If IR is properly disabled, autodetect programs and other data communications applications will work correctly.

Common Error Messages

If one of the following error messages displays when the notebook is turned on, handle the problem as shown in the right column.

Error Messages/Beeps	Cause	Corrective Action
Short beep (1→2→2→3 times)	Hardware error	Unplug the notebook and contact your Hitachi PC Customer Representative.
Short beep (1→3→1→1 times)		
Short beep (1→3→1→3 times)		
Short beep (1→3→4→1 times)		
Short beep (1→3→4→3 times)		
Short beep (2→1→2→3 times)		
Short beep (2→2→3→1 times)		
Keyboard locked - Unlock key switch	Hardware error	Unplug the notebook and contact your Hitachi PC Customer Representative.
Shadow RAM Failed at offset:nnn		
System RAM Failed at offset:nnn		
UMB upper limit segment address:nnn		
System Battery is dead - Replace and run SETUP.	The real-time clock battery is exhausted	Replace the battery.
System CMOS checksum bad - run SETUP.	Incorrect data is in the Setup menu	Set the correct data in the Setup menu. If this doesn't correct the problem, contact your Hitachi PC Customer Service Representative.
xxxxK Extended RAM Failed at offset:xxxx Failing bits:xxxx	An error was detected by the memory test for 1MB or more.	Check whether the memory boards are properly connected in the memory slots. If this doesn't correct the problem, contact your Hitachi PC Customer Service Representative.

Error Messages/Beeps	Cause	Corrective Action
Real Time Clock error	Real-time clock error	Contact your Hitachi PC Customer Service Representative.
Keyboard error	Keyboard error	Check the connections. If this doesn't correct the problem, contact your Hitachi PC Customer Service Representative.
Keyboard Controller error	Keyboard error	Check the connections. If this doesn't correct the problem, contact your Hitachi PC Customer Service Representative.
Stuck key	A key was pressed repeatedly before the system was started	Restart the system without pressing the key.
Diskette drive A: error	Floppy disk drive error	Set the correct data in the Setup menu. If this doesn't correct the problem, contact your Hitachi PC Customer Service Representative.
Failure Fixed Disk 0	Hard disk error	Set the correct data in the Setup menu. If this doesn't correct the problem, contact your Hitachi PC Customer Service Representative.
System Time error	Time circuit error	Contact your Hitachi PC Customer Service Representative.
System cache error - Cache disabled.	Secondary cache memory error	Contact your Hitachi PC Customer Service Representative.

Power On Self Test Error Messages

The notebook performs the Power-On-Self-Test (POST) every time you turn on or reset the system. The POST is a series of system checks that verifies the correct operation of your notebook's hardware.

If the POST detects a critical error (for example, a system board failure), the notebook halts and generates an audible alarm. If a failure is detected in an area other than the system board (such as the keyboard), a non-critical error message displays on the screen and testing is stopped. You can continue testing when a noncritical error occurs by pressing <F1>.

When the POST encounters an error that requires you to correct something, either a beep code sounds or a message displays in a box in the middle of the screen. If you need to enter the Setup program to correct a problem, press <F2>. Otherwise, press <F1> to continue the boot process and ignore the error.

Error Messages/Beeps	Cause	Corrective Action
Operating system not found	The operating system cannot be found	Check whether the operating system is correctly installed on the hard disk.
Parity check 1	A parity error was detected in a system bus	Contact your Hitachi PC Customer Service Representative.
Parity check 2	A parity error was detected in an I/O bus	Contact your Hitachi PC Customer Service Representative.
xxxh COM address conflict	The COM address has been used	Set the correct COM address in the Setup menu.
IO address IRQ conflict	The same IRQ has been used	Set the correct I/O address in the Setup menu.
Press <F1> to resume, <F2> to SETUP		Press <F2> to set up the system using the Setup menu. Press <F1> to boot the system.
The CMOS checksum is invalid. Default values will be loaded.		Press <Enter> and select Get Default Values in Setup's Exit menu. Then, in the Main menu, set the Fixed Disk Type data input field to Auto.

If you receive messages other than those listed in the preceding table, turn the notebook off. Wait at least ten seconds, and then turn the notebook on. Check the Setup settings.

If the same error recurs, contact your Hitachi PC Customer Service Representative.

B Using the BIOS Setup Program

All required settings for your Hitachi VisionBook Pro notebook have been preset at the factory before shipment. As long as you intend to use the notebook without modifying its environment, you do not need to read this chapter.

Your notebook uses the Setup program to store the computer's basic bootup configuration and power management settings. This chapter describes how to configure and customize your notebook using the Setup program.

Setup Introduction

Your notebook's BIOS (Basic Input and Output System) Setup program enables you to change your system's configuration and tailor it to your individual work needs. The Setup program both displays the system's current configuration status and provides you with a tool to set system parameters. The Setup program's easy-to-use menus enable you to configure such items as:

- Standard system parameters (for example, date and time)
- Hard disk drive, floppy disk drive, and peripherals
- Video display options
- Password protection
- Power Management features

The Setup program is a ROM-based (Read Only Memory) configuration utility. The settings you select are stored in nonvolatile, battery-backed-up CMOS RAM (Random Access Memory) which retains your settings even when you turn your notebook's power off.

Because the Setup program is menu driven, you can scroll through the various submenus to make your selections. If you accidentally select a setting and don't know how to switch it back:

- Press <F9> to set the parameters on the current menu to their default values.
- Press <F10> to set the parameters on the current menu to their previous values.

When to Run the Setup Program

When you need to run your notebook's Setup program depends on your individual computing requirements.

When you turn on your Hitachi VisionBook Pro notebook for the first time you may get a message prompting you to run the BIOS Setup program. A warning message may also appear on the screen if the hardware configuration has changed or the notebook's Power On Self Test (your computer's self-diagnostic test) fails. This message will inform you of any errors or invalid settings and prompt you to run the Setup program to correct the problem. For more information on Power On Self Test (POST) errors, see "Power On Self Test Error Messages" on page 97.

Even if you are not prompted by a message instructing you to use the Setup program, you may eventually want to change your notebook's configuration. Following are some reasons why you may want to run the Setup program:

- You set up the computer for the first time and received a message stating that you should run the BIOS Setup program.
- You want to reset the system clock.
- You want to redefine the notebook's communications ports to prevent any conflicts.
- You want to make changes to the notebook's Power Management configuration.
- You want to change the password or make other changes to the security setup.

Accessing the Setup Program

To access the BIOS Setup program, press <F2> after the notebook has run through its Power On Self Test (POST). You can access Setup just after you have turned on or reset the notebook but before the notebook has launched the Windows 95 operating system. A prompt displays at the bottom of the LCD display when the POST is complete.

Navigating the Setup Program

Both the menu bar and the legend bar assist you in navigating through the Setup program.

The Setup Menu Bar

The top of the Setup screen has a menu bar with the following selections:

Main	Use this menu to make changes to the basic system configuration.
Advanced	Use this menu to make changes to the advanced features available on your system.
Security	Use this menu to set passwords for your notebook.
Power	Use this menu to configure and enable your notebook's Power Management features.
Exit	Use this menu to exit the current menu or the Setup program.

To select a Setup menu, use the ← and → arrow keys to highlight the desired menu bar item and then press <Enter>.

The Setup Legend Bar

The Setup legend bar is located at the bottom of the Setup screen. The keys in the legend bar enable you to navigate through the various Setup menus. The following table lists these keys along with their corresponding alternates and functions.

Legend Key	Alternate Key	Function
F1	Alt + H	Displays the General Help screen.
Esc		Exits the current menu.
↑ or ↓	keypad arrow keys	Moves the cursor up and down between fields.
← or →	keypad arrow keys	Selects a different menu.
Tab		Moves the cursor forward through the field. If the field has only one value, the Tab key moves the cursor to the next field.
Shift + Tab		Moves the cursor backward through the field. If the field has only one value, the Shift + Tab keys move the cursor to the previous field.
Home	PgUp	Moves the cursor to the field at the top of the window.
End	PgDn	Moves the cursor to the field at the bottom of the window.
F5	- (minus key)	Scrolls backward through the values for the highlighted field.
F6	+ or <space>	Scrolls forward through the values for the highlighted field.
F9		Sets the parameters for the current menu to their default values.
F10		Sets the parameters for the current menu to their previous values.
Enter		Executes commands or selects a submenu.

Launching Submenus

A triangular pointer appears to the left of certain fields in the Setup program. This pointer indicates that you can launch a submenu from this field. A submenu contains additional options for a given field.

To launch a submenu, move the cursor to highlight the field and press <Enter>. The submenu displays. Use the legend bar keys to enter values and navigate within a submenu, just as you would within a menu.

Setup Help

In the Setup program, the *Item Specific Help* window located to the right of each menu displays the help text for the currently highlighted field.

In addition to the Item Specific Help window, the Setup program also provides you with a *General Help* screen. You can access this screen from any menu by pressing either <F1> or <Alt + H>. The General Help screen lists the Setup legend keys with their corresponding alternates and functions.

A scroll bar to the right of a help window indicates that there is more information to be displayed that won't fit in the window. Use <PgUp> and <PgDn> or the up and down arrow keys (↑ ↓) to scroll through the entire help document. Press <Home> to display the first page, or press <End> to go to the last page. To exit the help window, press <Enter> or <Esc>.

Main Menu

When you first access the Setup program, the Main menu displays as shown in Figure 47 on page 104.

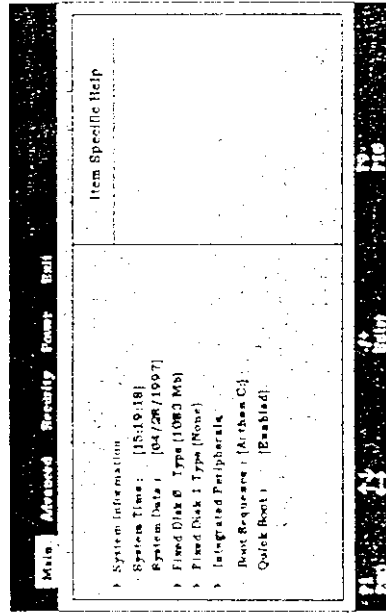


Figure 47 Setup Main Menu

System Information Submenu

This field displays information about your system. Highlight this field and press <Enter> to view the System BIOS version, the VGA BIOS version, the Keyboard controller version, and the Battery controller version, whether a modem is present and whether a LAN port is configured. You can view this information, but you cannot change any settings.

System Time

This field sets your system to the time that you specify. The format is hour, minute, and second (HH:MM:SS). Type the appropriate information. Use the <Tab> key to move from the hour to the minute and second fields.

System Date

This field sets your system to the date that you specify. The format is month, day, year (MM-DD-YY). Type the appropriate information. Use the <Tab> key to move from the month to the day and year fields.

Fixed Disk Type Submenus

Because your notebook can support two hard disk drives, the Main menu contains two Fixed Disk Type fields. Each Fixed Disk Type field configures one IDE hard disk drive installed in the system.

There are two categories of IDE drives:

- Fixed Disk 0 Type
- Fixed Disk 1 Type

The Fixed Disk 0 drive supports your operating system and is bootable. The Fixed Disk 1 drive does not support your operating system and is not bootable.

To configure a hard disk drive, move the cursor to highlight one of the Fixed Disk Type fields and press <Enter>. A submenu similar to the one shown in Figure 48 displays:

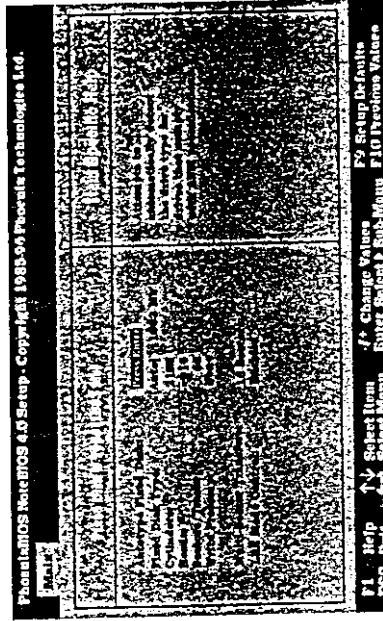


Figure 48 Setup Fixed Disk Type Submenu

Before you attempt to configure a hard disk drive, make sure you have the configuration information supplied by the drive's manufacturer. Incorrect settings can cause your system to malfunction.

Autotype Fixed Disk

This field automatically configures an IDE type drive. When you press <Enter> in this field, your system attempts to automatically detect the drive type. If your system is successful in detecting the drive type, it automatically fills the remaining fields in this submenu with the correct values.

Fixed Disk Type

If you know the correct drive type for your hard disk drive, enter the type's number (1-39) in this field. All remaining fields in this submenu will then automatically fill with the correct values for the pre-defined disk type.

Select *User* to configure a drive that is not one of the 39 standard drive types. Manually enter the number of cylinders, heads, sectors per track, and write precomp for your drive in the other fields on this menu. Refer to your drive's documentation or look on the drive to obtain this information. If you do not have the documentation that came with your hard disk, try to use the Autotype Fixed Disk option as described in the preceding section.

Select *None* if no drive is installed, or if you are removing a drive and not replacing it.

Cylinders

This field configures the drive's number of cylinders. To change this field, you must set the Type field to *User*. Refer to your drive's documentation or look on the drive to determine the correct value to enter in this field.

Heads

This field configures the drive's number of read/write heads. To change this field, you must set the Type field to *User*. Refer to your drive's documentation or look on the drive to determine the correct value to enter in this field.

Sectors/Track

This field configures the drive's number of sectors per track. To change this field, you must set the Type field to *User*. Refer to your drive's documentation or look on the drive to determine the correct value to enter in this field.

Write Precomp

To change this field, you must set the Type field to *User*. Refer to your drive's documentation or look on the drive to determine the correct value to enter in this field.

Multi-Sector Transfers

To change this field, you must set the Type field to *User*. This option automatically sets the number of sectors per block to the highest number supported by the drive. You can also set this field manually.

Configuration options are:

- Disabled
- 2 Sectors
- 4 Sectors
- 8 Sectors
- 16 Sectors

The default value for this field is: 16 Sectors

LBA (Logical Block Access) Mode Control

To change this field, you must set the Type field to *User*. When enabled, this option uses 28-bit addressing of the hard disk drive without regard for cylinders, heads, and sectors. LBA (Logical Block Access) mode may decrease the access speed of the hard disk.

Configuration options are:

- Disabled
- Enabled

The default value for this field is: Enabled

Integrated Peripherals Submenu

The Integrated Peripherals submenu enables you to configure your notebook's peripheral devices such as the display, the parallel and serial ports, the mouse, and sound. Highlight the Integrated Peripherals field and press <Enter>. The Integrated Peripherals submenu displays, as shown in Figure 49.

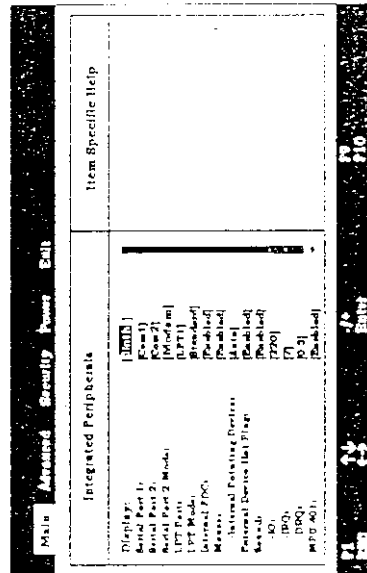


Figure 49 Setup Integrated Peripherals Submenu

Display Device Selection

This field enables you to choose the display device you want to use. You can use the internal LCD display, the external CRT display, or both displays. The options are:

- Internal
- External
- Both

The default value for this field is: **Both**

Serial Ports

This field enables you to configure your notebook's serial ports by selecting a COM port. Each COM port is associated with a unique Input/Output (I/O) address and Interrupt Request (IRQ). The Item Specific Help window displays the settings associated with each COM port option. The following configuration options are available:

- Disabled
- Com1
- Com2
- Com3
- Com4

The default value for this field is: **Port 1 Com1, Port 2 Com2**

Scroll through this field to see which addresses and IRQ numbers are available. If you do not have a device connected to the COM serial port, specify *Disabled* for this field. Selecting *Disabled* saves power and serves as an additional system security measure.

Serial Port2 Mode

This field enables you to configure your notebook's Serial Infrared (SIR) port by selecting either a unique address or *Disabled*. The following configuration options are available:

- Serial (Advanced port replicator)
- Modem
- Ask (Sharp Ask)
- Fir (Fast IrDA)
- Sir (Serial IrDA)

The default value for this field is: **Modem**

LPT (Parallel) Port

This field enables you to configure your notebook's parallel port by selecting an LPT port. Each LPT port is associated with a unique I/O address and interrupt request (IRQ). The Item Specific Help window displays the settings associated with each LPT port option. The following configuration options are available:

- Disabled
- LPT1
- LPT2
- LPT3

The default value for this field is: **LPT1**

Select *Disabled* if you do not have a device connected to the LPT parallel port. Selecting *Disabled* saves power and serves as an additional system security measure.

LPT Mode

This field enables you to set the parallel port mode. The following options are available:

- Standard
- Bi-directional
- ECP (Extended Capabilities Port)

The default value for this field is: **Standard**

Standard mode permits data flow in only one direction.

Bi-directional mode permits data flow in two directions.

ECP permits the parallel port to operate in the Extended Capabilities Port mode. ECP mode provides an automatic high-burst bandwidth channel that supports DMA for ECP in both the forward (host to peripheral) and reverse (peripheral to host) directions. ECP mode is supported *only* with ECP-aware peripherals.

Internal FDC

This field enables you to choose whether to use the internal floppy disk controller. The following options are available:

- Enabled
- Disabled

The default value for this field is: **Enabled**

Mouse

This field enables you to choose whether to use a pointing device. The following options are available:

- Enabled
- Disabled

The default value for this field is: **Enabled**

When *Enabled* is selected, you can also choose an Internal Pointing Device option. This option controls whether the

Touchpad is available to use when you have a mouse connected to your notebook. The following choices are available for the Internal Pointing Device option:

- Enabled
- Disabled
- Auto

The default value for this field is: **Auto**

External Device Hot-Plug

This field enables you to choose whether you can connect certain compatible devices while the notebook is turned on. The following options are available:

- Enabled
- Disabled

The default value for this field is: **Enabled**

Sound

This field enables you to choose whether to activate your notebook's sound features. The following options are available:

- Enabled
- Disabled

The default value for this field is: **Enabled**

When *Enabled* is selected, you can also choose an I/O address, an interrupt request (IRQ), and a DMA channel (DRQ) for the sound port. Default settings are already defined.

MPU-401

This field enables you to choose whether to activate your notebook's MPU-401 features. The following options are available:

- Enabled
- Disabled

The default value for this field is: **Enabled**

When *Enabled* is selected, you can also choose an I/O address for the MPU-401.

FM Synthesizer

This field enables you to choose whether to use your notebook's FM synthesizer sound feature. The following options are available:

- Enabled
- Disabled

The default value for this field is: **Enabled**

Game Port

This field determines whether your notebook's game port is active when the Advanced port replicator is connected. You can use this port to connect a joystick. The following options are available:

- Enabled
- Disabled

The default value for this field is: **Disabled**

Beep Volume

This field enables you to adjust the volume of your notebook's beep tone. Select a number from 0 to 7. A setting of 0 turns the beep off, and 7 is the loudest setting.

The default value for this field is: **5**

Boot Sequence

This field enables you to set your notebook's booting sequence.

You can choose one of three settings:

- A: then C:
- C: then A:
- C: only

The default value for this field is: **A: then C:**

When you specify *A: then C:*, the system attempts to boot from drive A first. If drive A is empty or contains a nonsystem disk, the system will then boot from drive C.

When you specify *C: then A:*, the system attempts to boot from drive C first. If the system is unable to boot from drive C, the system will then boot from drive A.

When you specify *C: only*, the system attempts to boot only from drive C.

Quick Boot

This field enables you to choose whether to activate Quick Boot mode. The following options are available:

- Enabled
- Disabled

The default value for this field is: Enabled

Advanced Menu

When you select *Advanced* from the menu bar, the Advanced menu displays, as shown in Figure 50.

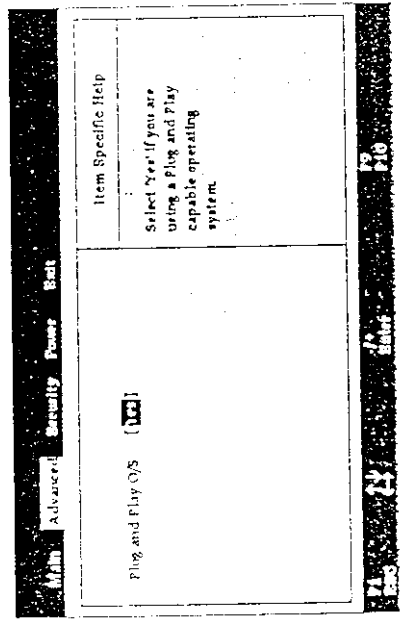


Figure 50 Setup Advanced Menu

Plug and Play OS

This field enables you to set the Plug and Play option for your notebook.

The options for this field are:

- No
- Yes

The default value for this field is: Yes

If you are using a Plug and Play operating system, such as Windows 95, select *Yes*. You will be able to connect or disconnect Plug and Play, or hot pluggable devices while your computer is turned on. Select *No* if you are not using a Plug and Play operating system. For more information, see "Windows 95 Plug and Play Support" on page 51.

Security Menu

The Setup Security menu enables you to configure your notebook's advanced security system. When you select *Security* from the menu bar, the Security menu displays, as shown in Figure 51.

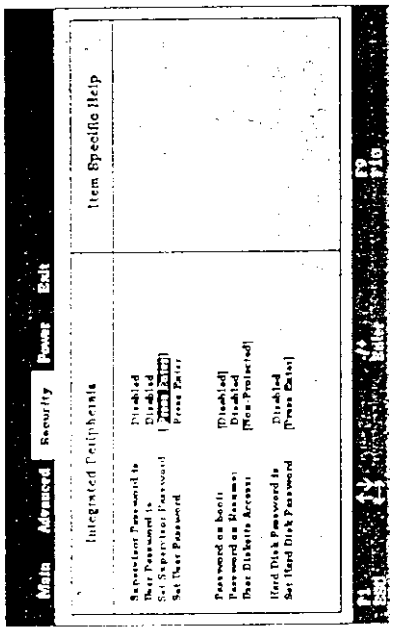


Figure 51 Setup Security Menu

Security Levels

You can set two security levels for your notebook:

- Supervisor password
- User password

The access privileges you assign to a person determine which functions that person can perform on your notebook. When you enable your notebook's security features, every person must enter a password before they can begin using the computer.

Supervisor Password is

This is a display-only field. This option is enabled when you enter a password in the *Set Supervisor Password* field. Configuration options are:

- Disabled
- Enabled

The Supervisor password is intended for the person responsible for administering the notebook's system. The person assigned the Supervisor security level can access all notebook functions, including the Setup program and the floppy disk drive.

User Password is

This is a display-only field. This option is enabled when you enter a password in the *Set User Password* field. Configuration options are:

- Disabled
- Enabled

The User password is intended for a person who is given permission to access the notebook by the Supervisor of the system. You must set the Supervisor password before you assign the User password. The person assigned the User security level cannot access the Setup program and, depending on the setting, may be denied access to the floppy disk drive.

Password Options

Your notebook's Security Setup menu enables you to set five different password options:

- Set Supervisor Password
- Set User Password
- Password on Boot
- Password on Resume
- User Diskette Access

Each of these options is described in the following sections.

Set Supervisor Password

This field enables you to set the Supervisor password. To set the Supervisor password, press <Enter>. The maximum number of password characters you can enter is seven.

Set User Password

This field enables you to set the User password. You must set the Supervisor password before you assign the User password. To set the User password, press <Enter>. The maximum number of password characters you can enter is seven.

Password on Boot

If you enable this option, the system requires a password when you boot the system. Before you can set this option, you must set the Set Supervisor Password option. The options for this field are:

- Disabled
- Enabled

The default value for this field is: **Disabled**

Password on Resume

If you enable this field, the system requires a password when you restore the system from Suspend or Save to Disk/File mode.

Before you can set this option, you must set the Password on Boot option. The options for this field are:

- Disabled
- Enabled

The default value for this field is: **Disabled**

User Disk Access

This field enables you to restrict access to your notebook's floppy disk drive. The options for this field are:

- Protected

- Non-Protected
- Read Only

When set to *Protected*, the use of the floppy disk drive is restricted to the Supervisor. This option requires setting the Supervisor password. When set to *Non-Protected*, both the User and the Supervisor have access to the floppy disk drive. When set to *Read Only*, the User can access the floppy disk drive, but cannot write data to a disk in this drive.

The default value for this field is: **Non-Protected**

Note: If you set a *Supervisor Password* and disable the *Password on Boot* option, the Setup program assumes that the User is booting.

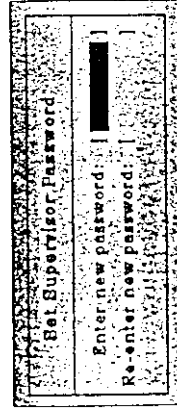
Setting or Changing a Password

Use the following procedure to set the password security features according to your requirements.



If you lose your password, you will be unable to access the notebook or change its configuration. Select a password you will never forget or write it down and protect it in a secure place. Otherwise, you will have to contact your Hitachi PC Customer Service Representative for assistance.

1. To set the Supervisor password, select the *Set Supervisor Password* field and press <Enter>. The following dialog box displays:



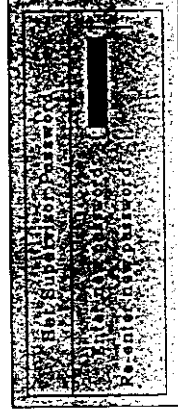
2. Type the password you want to assign to the Supervisor and press <Enter>.
 - The characters you enter will not appear on the screen.
 - You can type up to seven alphanumeric characters.
 - Symbols and other keys are ignored.
 - Passwords are not case sensitive. This means you can enter a password in either lowercase or uppercase letters.
3. To confirm the password, type the password again and press <Enter>. The Supervisor password is now set.
4. If necessary, select *Set User Password* and repeat this procedure.

If you enter the wrong password three times in succession, an error message will appear and you will be unable to operate your notebook. If this happens, turn the notebook off and wait at least 10 seconds. Then turn it on again and enter the correct password.

Deleting a Password

Use the following procedure to delete the Supervisor password, and/or the User password. To disable the password security feature entirely, delete both passwords.

1. From the Security Setup menu, select the password field you want to delete (Supervisor or User) and press <Enter>. The following dialog box displays:



2. Instead of entering the password, press <Enter>. This deletes the existing password.
3. If necessary, repeat this procedure to delete the other password.

Power Menu

The Setup Power menu enables you to activate and adjust your Hitachi VisionBook Pro notebook's sophisticated power saving features. Enabling these features will extend the life of the battery pack between charges. To make changes to the power management settings, select *Power* from the Setup menu bar. The menu shown in Figure 52 displays:

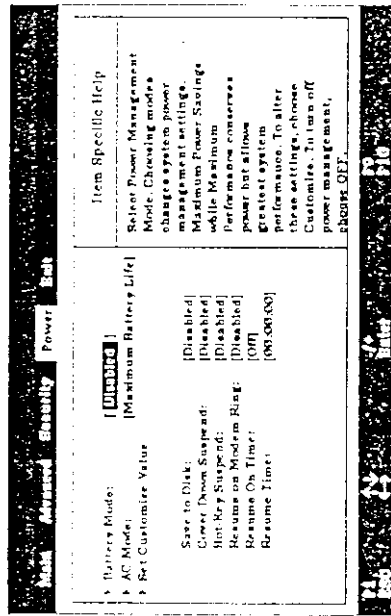


Figure 52 Setup Power Menu

Battery Mode

This field enables you to set power management features with pre-defined values for the battery power source. To display the predefined values for the various options, highlight this field and press <Enter>. The available options for this field are:

- Maximum Battery Life
- Maximum Performance
- Customize
- Disabled

If you choose *Maximum Battery Life*, the Setup program automatically sets the remaining fields on this menu to predefined values that ensure maximum power savings for your notebook.

If you choose *Maximum Performance*, the Setup program automatically sets the remaining fields on this menu to predefined values that ensure the best system performance at the expense of power savings.

The *Customize* setting enables you to make your *own* selections for the remaining fields on the menu.

The *Disable* setting turns off power management features for the battery power source.

The default value for this field is: **Maximum Battery Life**

AC Mode

This field enables you to set power management features with pre-defined values for the AC power source. To display the pre-defined values for the various options, highlight this field and press <Enter>. The available options for this field are:

- Maximum Battery Life
- Maximum Performance
- Customize
- Disabled

If you choose *Maximum Battery Life*, the Setup program automatically sets the remaining fields on this menu to pre-defined values that ensure maximum power savings for your notebook.

If you choose *Maximum Performance*, the Setup program automatically sets the remaining fields on this menu to pre-defined values that ensure the best system performance at the expense of power savings.

The *Customize* setting enables you to make your *own* selections for the remaining fields on the menu.

The *Disable* setting turns off power management features for the AC power source.

The default value for this field is: **Maximum Battery Life**

Set Customize Value

This field enables you to configure the power management features with your own values. To access this submenü, you must first choose *Customize* in the Battery Mode or AC Mode field. Then highlight this field and press <Enter>.

CPU Speed

This field enables you to specify the performance standard for your notebook's CPU. Before you can set this option, you must set the *Customize* option in the Battery Mode or AC Mode field. The available options for this field are:

- Fast
- Power Saving

The *Fast* option maximizes CPU performance.

The *Power Saving* option conserves power but may compromise CPU performance.

Standby Timeout

This field enables you to specify how long your system must be inactive before the notebook automatically enters Standby mode. In Standby mode, various devices are powered off and the system enters a low power CPU state. Before you can set this option, you must set the *Customize* option in the Battery Mode or AC Mode field. Available options for this field are:

- Disabled
- 1–5 minutes
- 10 minutes
- 15 minutes

If APM is installed, this function will be controlled by APM and may function differently depending on the APM settings. See "The Intel-Microsoft APM Interface" on page 82 for more information.

Suspend Timeout

This field enables you to specify how long your system must be inactive before the notebook automatically enters Suspend mode. If you set Suspend Timeout to *OFF*, the system cannot suspend operations. Before you can set this option, you must set the *Customize* option in the Battery Mode or AC Mode field.

The possible settings for this field are as follows:

- Disabled
- 1–5 minutes
- 10 minutes
- 15 minutes

Hard Disk Timeout

This field enables you to specify how long your hard disk must be inactive before the hard disk spins down to save power. The hard disk's spindle motor will spin back up to full power the next time your system accesses the hard disk. Before you can set this option, you must set the *Customize* option in the Battery Mode or AC Mode field. The possible options for this field are:

- Disabled
- 1–5 minutes
- 10 minutes
- 15 minutes

Video Timeout

This field enables you to specify how long your user input device must be inactive before your LCD display and backlight turn off to save power. The LCD display and backlight will turn back on the next time you access your system (for example, by pressing a keyboard key or using the Touchpad). Before you can set this option, you must set the *Customize* option in the Battery Mode or AC Mode field. The possible options for this field are:

- Disabled

- 1–5 minutes
- 10 minutes
- 15 minutes

LCD Brightness Control

This field enables you to specify whether your LCD display will dim during the video timeout period. Before you can set this option, you must set the Video Timeout field. Available options for this field are:

- Disabled
- Enabled

Audio Power Management

This field enables you to specify whether to conserve power when your notebook's sound features remain idle for more than 12 seconds. Before you can set this option, you must set the *Customize* option in the Battery Mode or AC Mode field. Available options for this field are:

- Disabled
- Enabled

Modem Power Management

This field enables you to specify whether to conserve power when your notebook's internal modem remains idle for more than 12 seconds. Before you can set this option, you must set the *Customize* option in the Battery Mode or AC Mode field. Available options for this field are:

- Disabled
- Enabled

Save to Disk

This field enables you to specify whether to save the system state to the disk (or to a file) when the system enters Suspend mode. Available options for this field are:

- Disabled
- Enabled

The *Disabled* option saves the system state and enters a low power mode when it enters Suspend mode.

The *Enabled* option saves the system state to the disk (or to a file) and powers off when it enters Suspend mode.

The default value for this field is: **Disabled**

Cover Down Suspend

This field enables you to specify whether the system enters Suspend mode when you close the display. Available options for this field are:

- Disabled
- Enabled

The *Disabled* option turns off only LCD power when you close the display.

The *Enabled* option sends the system into Suspend mode when you close the display.

The default value for this field is: **Disabled**

Note: This suspend mode depends on the settings of the Save to Disk option.

Hot-Key Suspend

This field enables you to specify whether the system enters Suspend mode when you press <Fn+F4>. Available options for this field are:

- Disabled
- Enabled

The *Disabled* option turns off the <Fn+F4> hot keys.

The *Enabled* option sends the system into Suspend mode when you press <Fn+F4>.

The default value for this field is: **Enabled**

Resume On Modem Ring

This option enables you to set a built-in modem ring as a resume event. The possible options are:

- Disabled
- Enabled

The default value for this field is: **Disabled**

Note: Resume On Modem Ring does not work if Suspend mode is set to Save to Disk. Additionally, APM must be enabled.

Resume On Time

This option enables you to set a specific time for the system to resume to Full Power mode. The possible options are:

- Disabled
- Enabled

The default value for this field is: **Disabled**

If you set this field to *Enabled*, you must set the Resume Time field as well.

Note: Resume On Time does not work if Suspend mode is set to Save to Disk.

Resume Time

This option enables you to specify the time for the system to resume to Full Power mode. Enter the time in hours, minutes, and seconds (HH:MM:SS).

Exit menu

After you have made all your selections from the various menus in the Setup program, you should save your changes and exit the Setup program. When you select *Exit* from the Setup menu bar, the menu shown in Figure 53 displays.

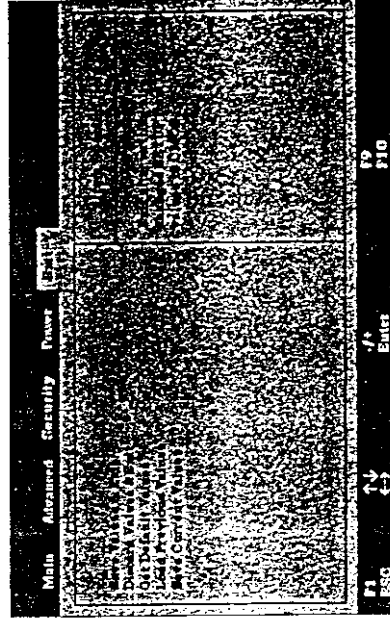


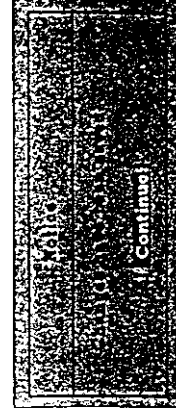
Figure 53 Setup Exit Menu

To exit from the Exit menu, you cannot press <Esc>; you must choose one of the options from the Exit menu or choose a menu bar item.

Save Values and Exit

Choose this option from the Exit menu to ensure that the values you selected are saved.

After the Setup program has saved your selections, the following message displays:

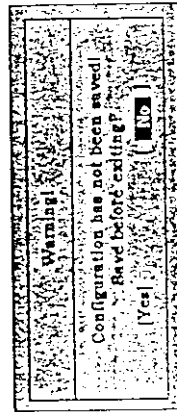


The next time you boot your notebook, the BIOS Setup program will attempt to load the values you selected. If these values cause the system boot to fail, reboot and press <F2> to enter the Setup program. You can then try to change the values that caused the system boot to fail. If the problem persists, load the default values as described in the next section.

If you attempt to exit the Setup program without saving your changes, the program will prompt you with a message asking whether you want to save your changes before exiting.

Discard Values and Exit

Choose this option *only* if you do not want to save the changes you have made to the Setup program. When you select this item and press <Enter>, the following message displays:

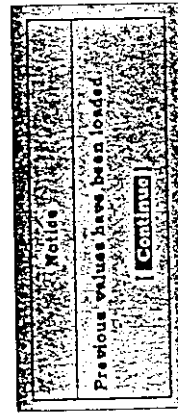


To exit the Setup program without saving your configuration, choose *No*.

To save your changes and exit the Setup program, choose *Yes*.

Get Default Values

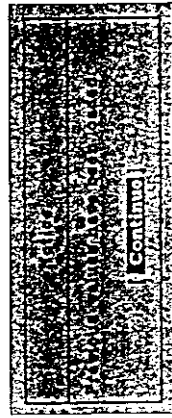
This option enables you to load the default values for each setting on the Setup menus. When you select this option, the following message displays:



You can now select *Save Values and Exit* or make other changes before saving the values to nonvolatile RAM.

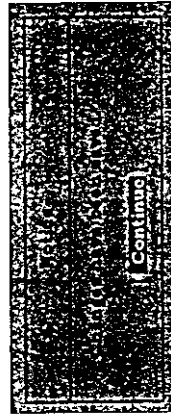
Load Previous Values

This option enables you to discard the Setup selections you have made and restore the values you previously saved. After selecting this option, all selections are updated and the following message displays:



Save Current Values

This option saves your selections without exiting the Setup program. You can then return to other menus and make changes. When you choose this option, the Setup program saves all of your selections and displays the following message:



C Technical Data

This appendix contains important technical data and specifications for your Hitachi VisionBook Pro notebook.

Upper Memory Address Map

Memory Address	Description
00000000-0009FFFF	System board extension for PnP BIOS
000A0000-000AFFFF	Chips and Tech. 65554 PCI
000B0000-000BFFFF	Chips and Tech. 65554 PCI
000C0000-000CBFFF	Chips and Tech. 65554 PCI
000CC000-000CCFFF	TI PCI-1131 CardBus Controller
000CD000-000CDFFF	TI PCI-1131 CardBus Controller
000CE000-000CE01F	AMD PCNET Family Ethernet Adapter
000E0000-000EFFFF	System board extension for PnP BIOS
00010000-00FFFF	System board extension for PnP BIOS
02000000-0200FFFF	AMD PCNET Family Ethernet Adapter
FD000000-FDFFFFFF	Chips and Tech. 65554 PCI
FFFE0000-FFFFFF	Motherboard resources

DMA Channels

Setting	Description
00	ESS 1878 Plug and Play AudioDrive
01	ECP Printer Port (LPT1)
02	Standard Floppy Disk Controller
03	ESS 1878 Plug and Play AudioDrive
04	Direct memory access controller
05	System reserved
06	System reserved
07	System reserved

System Interrupts

IRQ	Description
01	System timer
02	Standard 101/102-Key or Microsoft Natural Keyboard
03	Programmable interrupt controller (cascade)
04	Generic Ir serial Port (COM3)
04	USRobotics 56K Internal Modem IrDA when in IR mode
06	Standard Floppy Disk Controller
07	ECP Printer Port (LPT1)
08	System CMOS/real time clock
09	ESS 1878 Plug and Play Audio Drive
10	USB
10	IRQ Holder for PCI Steering
11	AMD PCNET Family Ethernet Adapter (PCI & ISA)
11	Texas Instruments PCI-1131 CardBus Adapter
11	IRQ Holder for PCI Steering
11	Texas Instrument PCI-1131 CardBus Adapter
12	Alps Glidepoint Touchpad
13	Numeric coprocessor
14	Intel 82371 AB PCI Bus Master IDE Controller
14	Primary IDE controller (dual fifo)
15	Intel 82371 AB PCI Bus Master IDE Controller
15	Secondary IDE controller (dual fifo)

I/O Address Map

Address	Device
0000-000F	Direct memory access controller
0020-002F	Programmable interrupt controller
0040-0043	System timer
0060-0060	Standard 101/102-Key or Microsoft Natural Keyboard
0061-0061	System speaker
0064-0064	Standard 101/102-Key or Microsoft Natural Keyboard
0070-0071	System CMOS/real time clock
0080-0080	Motherboard resources
0081-008F	Direct memory access controller
00A0-00A1	Programmable interrupt controller
00B2-00B3	Motherboard resources
00C0-00DF	Direct memory access controller
00E0-00E0	Motherboard resources
00E4-00E4	Motherboard resources
00F0-00FF	Numeric data processor
0120-013F	Standard Universal PCI to USB Host Controller
0140-015F	AMD PCNET Family Ethernet Adapter (PCI&ISA)
01F0-01F7	Intel 82371AB PCI Bus Master IDE Controller
01F0-01F7	Primary IDE controller (dual info)
0201-0201	Gameport Joystick
0220-022F	ES 1878 Plug and Play AudioDrive
2F8-02FF	USRobotics 56K Internal Modem
0388-038B	ES 1878 Plug and Play AudioDrive
0390-0397	ES 1878 Control Interface
0398-0399	Motherboard resources
03B0-03DF	Chips and Tech 65554
03F0-03F5	Standard Floppy Disk Controller
03F6-03F6	Intel 82371AB PCI Bus Master IDE Controller
03F6-03F6	Primary IDE Controller (dual info)

Notebook Technical Specifications

The following specifications are for the standard configurations of Hitachi VisionBook Pro notebook computers. Your system may contain optional equipment. All product specifications are subject to change without notice.

Specification	133MMX	166MMX	166MMX
Processor	Intel Pentium with MMX technology	Intel Pentium with MMX technology	Intel Pentium with MMX technology
CPU Speed	133 MHz	166 MHz	166 MHz
Hard Disk Drive	One removable 1.44GB hard drive with Fast (Enhanced) IDE Interface	One removable 2.1GB hard drive with Fast (Enhanced) IDE Interface	One removable 3.2GB hard drive with Fast (Enhanced) IDE Interface
On-Board Memory	16 MB EDO DRAM; 60NS	32MB EDO DRAM; 60NS	32 MB EDO DRAM; 60NS
Memory Upgrade	Upgradeable to 144 MB with 16/32/64 MB EDO DRAM memory modules, 60NS 144-pin DIMM	Upgradeable to 144 MB with 16/32/64 MB EDO DRAM memory modules, 60NS 144-pin S0-DIMM	Upgradeable to 144 MB with 16/32/64 MB EDO DRAM memory modules, 60NS 144-pin S0-DIMM

D Technical Support

Hitachi PC Corporation provides easy access to technical support information.

World Wide Web Site

Access the latest technical information on Hitachi PC Corporation's World Wide Web Site by entering our URL into your Internet browser:

<http://www.hitachipc.com> or
<http://www.hitachipc.com/noscript/support/supportfirms.html>

This service features news and information about Hitachi PC products, customer service and support, Hitachi PC Corporation's latest news releases, and more.

Customer Service Representatives

You may contact Hitachi PC Corporation's Customer Service Representatives by calling:

(800) HITACHI PC
 (800) 448-2244
 or by FAX at (408) 321-5273

Hitachi PC Customer Service Representatives are available to help you 24 hours a day, 7 days a week.

Specification	133MMX	166MMX	166MMX
System/Video BIOS	256KB Flash EPROM		
Video RAM	2MB	2MB	2MB
Display	12.1" SVGA TFT Color LCD	12.1" SVGA TFT Color LCD	13.3" XGA TFT Color LCD
Floppy Disk Drive	1.44 MB 3.5" floppy disk drive		
CD-ROM	Removable 10X CD-ROM		
PCMCIA	Two Type II, or one Type III PC Card slots; 32-bit card bus and Zoom Video supported		
LAN	Integrated 10BaseT port		
Keyboard	Standard 88 keys with two Windows keys and one application key		
L2 Cache	256KB	512KB	512KB
Pointing Device	Alps Glidepoint Touchpad with two buttons		
Audio	ESS 1878 Chipset with FM synthesizer; Sound Blaster Pro compatible		
Audio Ports	One Headset jack (stereo) One Line-In jack (mono)		
Interfaces	RS232 serial port, parallel port, external SVGA port, external PS/2 port, IrDA2.1 compliant infrared port (ASK/SIR/SIR), port replicator docking connector, USB port		
Battery Support	Removable Duracell DR202 Lithium Ion (43Whr, 10.8V) battery pack; removable Duracell DR36 Nickel Hydride (42Whr, 12V) battery pack or equivalent		
Dimensions	11.34"(W) x 9.5"(D) x 1.7"(H) 288mm(W) x 228mm(D) x 54.5mm(H)		
Weight	7.5 lbs with floppy drive and battery pack; 7.7 lbs with CD-ROM and battery pack		

Technical Support Representatives

You may contact Hitachi PC Corporation's Technical Support Representatives by calling:

(800) 555-6820 or (408) 321-5216

Email support@hitachiipc.com

Bulletin Board (408) 321-8774

Service

FAX Back (800) 555-9621 or (408) 321-5217

FTP Site: <ftp.hitachiipc.com>

E Safety and Regulatory Information

FCC PART 15 COMPLIANCE STATEMENT

Note: This equipment has been tested and found to comply with 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 the 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 different from that to which the receiver is connected.
- Consult your dealer or an experienced radio/TV technician for help.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This device complies with Part 15 of the FCC Rules. Operations are subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference which may cause undesired operation.

IMPORTANT: This product requires the use of shielded cables and connectors. The use of non-shielded interfaced cables is prohibited.

Canadian EMI Compliance Statement

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

"Cet appareil numérique de la class B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada."

FCC Warning

WARNING - FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Properly shielded and grounded cables and connectors must be used for connection to host computer and/or peripherals in order to meet FCC emission limits.

FCC Notice Part 68

This equipment complies with Part 68 of the FCC Rules. A label is attached to this equipment that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The equipment uses the following USOC jacks: RJ11C

The REN is used to determine the quality of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this equipment, please contact U.S. Robotics Mobile Communications Corp. at (801) 320-7777 for repair and warranty information. If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem is resolved.

The user must use the accessories and cables supplied by the manufacturer to get optimum performance from the product.

No repairs may be done by the customer.

The equipment cannot be used on telephone company provided coin service. Connection to Party Line Service is subject to state tariffs.

When programming and/or making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in the off-peak hours such as early morning or late evenings.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone facsimile machine unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity, or individual sending the message and the telephone number of the sending machine of such business, other entity, or individual.

In order to program this information into your facsimile, refer to your communications software user manual.

Industry Canada (CS-03)

The load Number of this modem is .5. The standard connecting arrangement code for this equipment as specified in CP-01, Section 1.8.3 is CA11A.

The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe systems, if present, are connected together. This precaution may be particularly important in rural areas.



Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

About the Telephone Consumer Protection Act of 1991

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone facsimile machine unless such message clearly contains in a margin at the top or bottom of each transmitted page, or on the first page of the transmission all of the following information:

1. the date and time of transmission
2. the identity of the business, business entity, or individual sending the message
3. the telephone number of the sending machine, business, business entity, or the individual.

Precautions

Follow the general precautions given below (together with all specific precautions indicated in other parts of the manual) to ensure proper installation and use of the machine.

General Safety

- Follow all cautions and instructions marked on the notebook.
- Make sure the operating voltage of your machine is the same as the voltage of your local power supply. Otherwise, there is a danger of electrical shock or fire. If voltage adaptation is required, consult your place of purchase.
- Be sure to use only the specified batteries to prevent battery explosion, battery leaks, fire, and injury.
- Whenever you detect any abnormal heat, smoke, noise or smell when using the machine, stop operating the machine immediately, turn it off, and disconnect the power cord. If you continue to operate the machine under such conditions, there is a danger of electrical shock or fire.
- If lightening occurs while using the notebook, turn off the computer.
- Except as described elsewhere in this manual, refer all servicing to qualified personnel. Immediately shut off the notebook and refer for servicing under the following conditions:
 - when the power cord or plug is damaged or frayed
 - if liquid has been spilled on the notebook
 - if the notebook has been dropped or the cabinet has been damaged
- Do not use or store the machine in a dusty environment.
- Allow the notebook adequate air circulation to prevent internal heat build-up. Do not use the machine near fabrics (curtains, draperies, etc.), and do not place any

object against the notebook that would block the ventilation holes. Doing so could cause malfunction or fire.

- Arrange the electrical cords so that you do not trip over them. Failure to do so may result in personal injury and damage to the connected equipment.
- Never push any objects of any kind into cabinet openings. They may touch dangerous voltage points or short parts that could result in fire or electrical shock.
- Turn off the notebook before installing or removing a peripheral device.
- Turn off the notebook and disconnect the AC adapter before cleaning.
- Do not expose the notebook to direct sunlight.
- Keep the notebook away from any magnetic devices or TVs.
- Do not drop the notebook.
- Keep all liquids away from the notebook and its accessories.
- Do not place containers with liquids or small metal objects such as pins or paper clips on the machine. If any liquid or solid falls on the machine, and you continue to use it, there is a danger of electrical shock, fire, or malfunction.
- Do not use the machine for any purpose other than for which it was intended. Such use may cause a malfunction or personal injury.
- Be sure to use the AC adapter supplied with the notebook. If you use a different adapter, there is a danger of electrical shock, fire, or malfunction.
- Do not place an object on the power cord. Do not pull, press, bend, or rework the power cord. Otherwise, there is a danger of electrical shock, fire, or malfunction.
- To disconnect the cord from the wall outlet, pull it out by the plug. Never pull on the cord itself. Pulling on the cord may cause a line to break and result in a fire.

Battery Safety

- Danger of explosion if battery is incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Be sure to dispose of replaced batteries in accordance with the laws and regulations of your local community. Incorrect handling of a battery can cause a fire or explosion when exposed to heat.
- Never disassemble a battery!
- Keep batteries out of the reach of children so that they do not accidentally swallow a battery. If such a mishap occurs, contact a physician immediately.
- Never allow the batteries to heat up to 100 degrees Celsius (212 degrees Fahrenheit) or more. Never burn the batteries or soak them in water.

Operation Safety

- Make sure you are sitting directly in front of the machine when you operate it.
- Adjust the angle of the display so that you look down slightly at the display. The distance between your eyes and the display should be 50 to 60 cm (20 to 24 inches).
- Adjust the brightness of your display and room lighting so as to prevent any reflection on the display.
- Avoid exhaustion by taking frequent breaks.

Glossary

AC adapter

A device used for converting and supplying power to the notebook from a wall AC outlet.

back up

To copy programs and data from the hard disk or floppy disk onto floppy disks or other storage systems. Backup copies can be used to restore the original programs and data if they are damaged or lost.

battery pack

A battery power source which can be installed in the notebook to enable operations without using power from an AC outlet. Fully charged, the battery pack should last approximately 2 to 4 hours, depending on operating conditions.

boot

The process of loading the initializing program into a computer.

computer virus

A hazardous computer program that can infect the notebook through a network or floppy disk and damage data.

default

A value assumed by the system for any parameter in the absence of a specific value input by the user.

device driver

A software program that links a peripheral device (such as a printer) with an operating system by interpreting and transmitting data so that the operating system knows how to handle the peripheral device.

dialog box

A boxed area on the computer screen that either provides or requests information.

drag

A Touchpad and mouse technique for moving information. Hold down the click button (or main mouse button) and move your finger across the Touchpad (or roll the mouse).

DSTN

(Double Super-Twisted Nematic) A display technology used for the liquid crystal display.

expansion memory module

An optional board used to expand the notebook's memory (up to 80 MB).

headphone/external speakers jack

Used to connect a line to the audio input of peripheral devices such as headphones.

highlight

To indicate an item that will be affected by the next actions.

Hot-Keys

Hot-key functions perform specific tasks initiated by the combined input of the <Fn> key with the <F2> to <F9> keys.

indicator lamp

An illumination source that lights up icons to indicate the status of notebook power, hard disk and floppy disk activity, remaining battery power, and so on.

line-in jack

Used to connect a line from the audio output of peripheral devices such as a CD or cassette player.

Main Menu

One of the menus provided by the Setup Menu. Used for system settings such as the system date and time, hard disk type, interface ports, and booting sequence and method.

menu bar

A bar on the computer screen that shows available menus.

mouse (or Touchpad) cursor

A cursor that moves on the screen in accordance with corresponding movements of the Touchpad or mouse.

MPU-401

A standard MIDI interface that lets electronic musical instruments and computers communicate with each other. It features its own processor for some MIDI data, freeing up resources in the notebook for other purposes.

numeric keypad

A small-sized keyboard, similar to a calculator, used for entering numeric values.

partition

To divide a single hard disk into several areas. When partitions are created, each area can be handled as if it were a separate hard disk.

PC card

Also called a PCMCIA (see PCMCIA) card. A compact card that can be inserted into the PC card slot. A SCSI card and a LAN card are examples of PC cards.

PC Card slot

Also called a PCMCIA (see PCMCIA) slot. A compartment with a door in the housing of the notebook designed to hold a PC card.

PCM audio source

A type of audio source system that uses the PCM method to reproduce digital recorded sound.

PCMCIA

Personal Computer Memory Card International Association. A global standard for PC cards.

RAM

Random-Access Memory. A type of internal memory used for the temporary storage of information. You can alter the information stored in RAM. Information in RAM is lost when you turn your computer off.

reset

To restart the notebook without turning off the power. Press <Ctrl/+Alt+Del> to reset your system.

ROM

Read Only Memory. A type of internal memory that contains permanent instructions for your computer's system. You cannot alter things stored in ROM. Information in ROM is retained when you turn your computer off.

SCSI

(Small Computer System Interface) One of the standards used for connecting the notebook with a peripheral device such as a printer.

self-diagnosis test

A test function that a computer performs on its own system when you either turn it on or reset it.

Standby mode

One of the notebook's power management functions. When the notebook is placed in Standby mode, the CPU clock stops, the LCD backlight turns off, and the hard disk drive motor spins down. The notebook returns to Full Power mode when you either press a key or move your finger across the Touchpad.

Supervisor

A user who enters the supervisor password to access the notebook when it is started up. The person assigned this security level can access all notebook functions including the Setup menu.

Suspend mode

One of the notebook's power management functions. When the notebook transits to Suspend mode, power is turned off to the CPU, LCD panel, hard disk drive, and floppy disk drives. The notebook returns to Full Power mode when you either press a key or move your finger across the Touchpad.

system clock

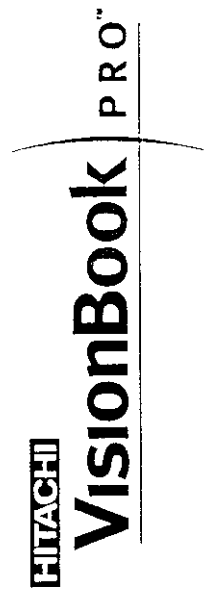
The clock built into the notebook.

TFT

(Thin Film Transistor) A display technology used for the liquid crystal display.

User

A person who enters the user password to access the notebook when it is started. The person assigned to this security level cannot access the Setup menu.



INDEX

Index

A

- AC adapter
 - caution 20, 71
 - connecting notebook to 19–21
 - overview 71
 - troubleshooting 72
- See also power management; power system
- AC Power Status indicator 12, 13
- Add New Hardware icon 39
- Add New Hardware Wizard 39
- Add/Remove Programs icon 40
- adding programs 40
- addresses
 - I/O 134–135
 - memory map 131
- Advanced port replicator 60–61
- Advanced Power Management
 - interface 39, 82–83, 122
- alphanumeric keys 28
- Alt (Alternate) key 31
- APM interface 39, 82–83, 122
- applications. See programs
- audio control hot keys 34
- audio. See sound

B

- Backspace key 32
- battery
 - changing settings 39
 - charging 73–75, 77
 - maximizing life 77

- overview 72–73
- power management
 - features 120–121
 - replacing 62
 - safety precautions 146
 - status indicators 14, 75–77
 - visual indicators 15
 - waking up 72
- Battery Charge LED indicator 14
- Battery Charge Status indicator 12
- battery gauge 76
- Battery Status Indicator 12
- beep tone 94, 113
- BIOS Setup program.
 - See Setup program
- booting notebook
 - Password on Boot option 117
 - Quick Boot mode 114
 - setting boot sequence 113
- Break key 32
- brightness, adjusting 34, 124

C

- Caps Lock key 31
- Caps Lock Status indicator 12
- CD-ROM drive
 - exchanging modules 62
 - using 45–46
- CD-ROM Drive Status
 - indicator 12
- CD-ROM Media 45, 46
- cellular phone, connecting 59

- changing passwords 118–119
- channels, DMA 132
- charging battery 73–75
- cleaning notebook 89
- clicking, Touchpad 35
- color settings, adjusting 38
- COM port, configuring 109
- communications hot keys 33
- configuring
 - hard disk drive 105–107
 - hardware devices 39
 - peripheral devices 108–113
 - ports 109–110
 - power management system 122
 - security system 115–119
 - sound 112
 - system 99–129
- connecting
 - AC adapter 19–21
 - advanced port replicator 60–61
 - cellular phone 59
 - external audio input device 60
 - external keyboard 55
 - external monitor 55
 - headphones 59
 - modem 57
 - mouse 54
 - peripheral devices 52–61
 - pointing device 54
 - printer 56–57
 - to network 58
 - USB devices 58
- contrast, adjusting 34
- Control Panel 37–40
- controls
 - communications 33
 - display 34
 - LCD display 124
 - power management 33
 - sound 34
- cover, opening 20
- CPU speed 122
- Ctrl (Control) key 31
- cursor keys 29
- customer service 137
- D**
- data
 - receiving and transmitting with SIR port 47–48
 - storing and retrieving 40–46
- date
 - setting for system 104
 - setting with Control Panel 37
- Date/Time icon 37
- default values, Setup program 128
- Del (Delete) key 29
- deleting passwords 119
- Devices Power Down
 - mode 78–79
- devices. *See* internal devices; peripheral devices
- display
 - adjusting brightness 34, 124
 - adjusting contrast 34
 - adjusting resolution 38
 - care of 88
 - changing type 34, 38, 108
 - cleaning 89
 - keyboard controls 34
 - resolution 5
 - timeout 123–124
- Display icon 38
- DMA channels 132
- double-clicking, Touchpad 35
- double-tapping, Touchpad 36
- drag and drop operations, Touchpad 36
- drive. *See* floppy disk drive; hard disk drive

- E**
- ECP (Extended Capabilities Port) 110
- editing keys 29
- ejecting
 - CD-ROM Media 46
 - floppy disks 42–43
 - PCMCIA cards 65
- embedded numeric keypad 29–30
- Enter key 32
- error messages 94–97, 119
- Esc (Escape) key 30
- Extended Capabilities Port (ECP) 110
- external audio input device, connecting 60
- external keyboard 55
- external monitor 55, 108
- external speaker jack 59
- F**
- FCC notice 139–142
- floppy disk drive
 - boot sequence 113
 - configuring 111
 - exchanging modules 62
 - setting access to 117–118
 - using 40–44
- Floppy Disk Drive (FDD) Status indicator 12
- floppy disks 41–44
- FM synthesizer 112
- Fn (Function) key 31
- formatting floppy disks 42
- Full Power mode 78
- Function (Fn) key 31
- function keys 28, 31, 102

G

- game port 113
- gauge, battery 76
- glossary 149–153
- graphics tablet 54

H

- hard disk drive
 - boot sequence 113
 - configuring 105–107
 - IDE drive 46
 - removing 63–64
 - replacing 63–64
 - timeout 123
 - using 46
- Hard Disk Drive (HDD) Status indicator 12
- hardware devices. *See* internal devices; peripheral devices
- headphones 59
- help
 - Setup program 103
 - See also* support; troubleshooting
 - Hitachi PC web site 137
 - Hitachi VisionBook Pro notebook. *See* notebook
 - hot keys 32–34, 125
 - humidity, notebook and 87

I

- I/O address map 134–135
- IDE drive. *See* hard disk drive
- Industry Canada label 142–143
- infrared communications. *See* SIR port
- Ins (Insert) key 29

installing
 internal devices 62–67
 memory modules 66–67
 PCMCIA cards 64
 peripheral bay modules 62
 internal devices, installing 62–67
 internal modem 57, 124
 interrupts, system 133

J
 joy stick 113

K
 keyboard
 adjusting settings 38
 connecting external 55
 features 27
 layout 27–32
 operations 27–34
 keyboard controls 32–34
 Keyboard icon 38

ports
 advanced port 60
 cellular phone port 59
 Extended Capabilities Port (ECP) 110
 external monitor port 55
 LPT mode and 110
 parallel port 53, 110
 replicator port 60
 serial port 52–53, 109
 SFR port 47–48, 89, 109
 USB port 58

POST error messages 97
 power button 5, 6, 21
 Power icon 39
 Power LED indicator 15, 21
 power management
 AC power settings 121
 APM and 82
 battery settings 120–121
 changing settings 39, 120–126
 customizing features 122
 hot keys 33
 modes 78–81
 power system
 AC adapter 71–72
 APM interface 82–83
 battery pack 72–77
 power management 78–81
 power-on self-test
 error messages 97
 printer, connecting 56–57
 problems, See troubleshooting
 programs
 adding 40
 removing 40
 Setup program 99–129
 PrtSc (Print Screen) key 31

P

page keys 29
 parallel port 53, 110
 Password icon 38
 passwords
 changing 38, 118–119
 deleting 119
 error message 119
 losing 118
 options for 116–118
 Password on Boot option 117
 Password on Resume
 option 117
 setting 116–119
 Supervisor password 116, 117
 User password 116, 117
 Pause key 32
 PC Recovery CD 46
 PCMCIA cards 64
 performance, CPU 122
 peripheral bay modules 62
 peripheral devices
 configuring 108–113
 connecting 52–61
 plug and play support 51–52, 114–115
 pointing device 54, 111

N

network, connecting to 58
 notebook
 adding devices to 39
 care of 87–89
 cleaning 89
 components 5–11
 configuring 99–129
 connecting peripheral
 devices 52–61
 connecting to AC power 19–21
 customizing with
 Windows 95 36–40
 features 3–4, 16
 installing internal
 devices 62–67
 opening cover 20
 power system 71–83
 restarting 22

L

LAN, connecting to 58
 LBA (Logical Block Access)
 mode 107
 LCD display. See display
 LCD Status Window 11–13
 legend bar, Setup program 102
 local area network,
 connecting to 58
 Logical Block Access (LBA)
 mode 107
 LPT (parallel) port 110

M

memory address map 131
 memory modules 66–67
 menu bar, Setup program 101
 messages, error 94–97, 119

- Quick Boot mode 114
- Q**
- RAM. See memory modules
- rebooting system 22–23
- receiving data with
 - SIR port 47–48
- Recovery CD 46
- regulatory information 139–143
- removing
 - CD-ROM Media 46
 - floppy disks 42–43
 - hard drive 63–64
 - memory modules 66–67
 - PCMCIA cards 65
 - peripheral bay modules 62
 - programs 40
 - resetting system 22–23
 - resolution, display 5
 - restarting notebook 22
 - resume button 5
 - Resume on Modem Ring
 - option 126
 - Resume on Time option 126
 - Resume Time option 126
 - Resume to Full Power mode 81
 - resuming system,
 - password for 117
 - retrieving data 40–46
 - Return key 32
 - S**
 - safety precautions 144–146
 - AC adapter caution 20, 71
 - battery safety 146
 - floppy disks 44
 - general safety 144–145
 - operation safety 146
 - Save to Disk/File mode 117
 - screen. See display
 - Scroll Lock key 31
 - Scroll Lock Status indicator 12
 - security system 115–119
 - Serial Infrared port. See SIR port
 - serial ports 52–53, 109
 - setting passwords 116–119
 - settings, changing with Control Panel 37–40
 - Setup program 99–129
 - Advanced menu 114–115
 - default values 128
 - discarding values 128
 - Exit menu 127–129
 - help 103
 - legend bar 102
 - loading previous values 129
 - Main menu 103–114
 - menu bar 101
 - overview 99–100
 - Power menu 120–126
 - saving values 127–128, 129
 - Security menu 115–119
 - submenus 103
 - using 101–129
 - when to run 100
 - Shift key 31
 - shutting down notebook 22
 - SIR port 47–48, 89, 109
 - sleep mode 19, 72
 - sound
 - configuring 112
 - conserving power and 124
 - controls 34
 - features 16
 - FM synthesizer 112
 - volume 34
 - See also beep tone
 - space bar 31
 - speaker jack 59
 - specifications, technical 135–136
 - Standby mode 79–80, 122
 - starting notebook
 - Password on Boot option 117
 - Quick Boot mode 114
 - setting boot sequence 113
 - status indicators 11–15, 75–77
 - storing data 40–46
 - Supervisor password 116, 117
 - support 137–138
 - Suspend mode
 - options 124–126
 - overview 80
 - Password on Resume
 - option 117
 - precautions 81
 - timeout 123
 - Suspend Status indicator 13
 - Sys Rq (System Request) key 31
 - system
 - configuring 99–129
 - resetting 22–23
 - setting system date 104
 - setting system time 104
 - shutting down 22
 - System icon 39
 - system interrupts 133
 - System Power On Status indicator 12
 - system request key 31
 - System Status indicator 13
 - System Suspend Status indicator 12
 - Tab key 30
 - tap and drop operations,
 - Touchpad 36

- tapping, Touchpad 36
- technical data, notebook 131–136
- technical support 137–138
- Telephone Consumer Protection Act of 1991 143
- temperature, notebook and 87
- time
 - setting system time 104
 - setting with Control Panel 37
 - timeout
 - hard disk drive 123
 - Standby mode 122
 - Suspend mode 123
 - video 123–124
- tone control hot keys 34
- Touchpad
 - adjusting settings 38
 - cleaning 89
 - mouse and 111
 - using 35–36
 - transmitting data with
 - SIR port 47–48
 - troubleshooting 89–93
 - AC adapter 72
 - common problems 90–93
 - error messages 94–97, 119
 - losing password 118
 - passwords 118
 - Recovery CD 46
 - resetting system 22–23
 - turning off notebook 22
 - turning on notebook 21
- U**
- USB devices 58
- User password 116, 117
- user profile settings 38

T

- Tab key 30
- tap and drop operations,
 - Touchpad 36

V

video timeout 123–124
VisionBook Pro notebook.
See notebook
volume, adjusting 34, 113

W

waking up battery 72
web site 137
Windows 95 operating system
battery meter on desktop 75
customizing notebook 36–40
plug and play support 51–52,
114–115
Windows 95 shortcut
menu key 32
Windows 95 Start menu key 32
wireless communications.
See SIR port
write protecting floppy
disks 43–44



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