

# ***SA200 Series***



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# About This Guide

This guide contains all the information you need to setup and use your new SA200 computer.

## **Chapter 1 Introduction**

Read Chapter 1 for a general introduction to your laptop. This chapter contains illustrations that show you the laptop'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 laptop, as well as creating your system disks.

## **Chapter 3 Using Your Laptop**

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

## **Chapter 4 Installing Optional Devices**

Read Chapter 4 for instructions on connecting optional peripheral devices, such as a mouse, a printer, or a full-size 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 laptop's power system. This chapter covers the AC adapter, the battery pack and the laptop's power management features.

## About This Guide

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### Appendixes


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

### Glossary

Refer to this glossary for the definitions of unfamiliar terms.

## Conventions

The following conventions are used throughout this manual.

<b>NOTE:</b>	<b>Calls attention to important information.</b>
	Alerts 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.
PHDISK	Commands, utilities, device drivers, directory names, and file names appear in upper case.
A: Install	This font is used to represent displays that appear on your LCD screen.

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# ***SA200 Series***

## **INTRODUCTION**

CHAPTER

# **1**



# 1 Introduction

Congratulations on your purchase of the SA200. This chapter will acquaint you with the features of your laptop. Illustrations showing the main parts of the laptop will help you become familiar with the computer before you begin using it.

## Welcome to the Laptop

Welcome to your SA200 computer. Hitachi Software has thoughtfully designed your laptop to make it ergonomic, convenient, and easy to use. Your new laptop features the most innovative advances in portable computing technology. Designed for a wide range of general business and personal productivity applications, this laptop is an ideal choice for your computing needs in your office, at home, and on the road.

## Features Overview

The SA200 is designed to provide you with a portable computer that is compact, convenient, and powerful. Your laptop's state-of-the-art features include:

- A powerful Intel-Pentium processor
- A flexible and user-upgradable memory architecture supporting up to 128MB of RAM
- Built-in expansion slots that accept industry standard Type II and Type III PCMCIA compatible cards including Zoomed Video and CardBus devices
- A removable hard disk drive featuring an enhanced IDE interface
- A peripheral bay that can house a floppy disk drive, a CD-ROM drive or an LS-120 drive

## **1 Introduction**

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- A removable and rechargeable Nickel Metal Hydride or Lithium Ion battery pack
- I/O (input/output) support for fast infrared (FIR) wireless communications, a serial device, a parallel device, a USB device, an external keyboard or mouse, and an analog monitor
- A Synaptics TouchPad (with an Edge Motion feature) that is ergonomically placed to facilitate left or right hand use
- Advanced power management capabilities that conserve battery power including support for the Intel-Microsoft Advanced Power Management (APM) Interface, version 1.2
- An integrated audio system compatible with Sound Blaster Pro that includes two built-in stereo speakers, an internal microphone, and audio input and output ports
- Intelligent management features built into the BIOS Setup program supporting the system's power management modes
- Windows 95<sup>®</sup> and other pre-installed software that enable you to begin working with a minimum of setup and preparation
- A security setup for protecting your data

For your laptop's precise technical specifications, see "Laptop Technical Specifications" on page 106.

## **Optional Features**

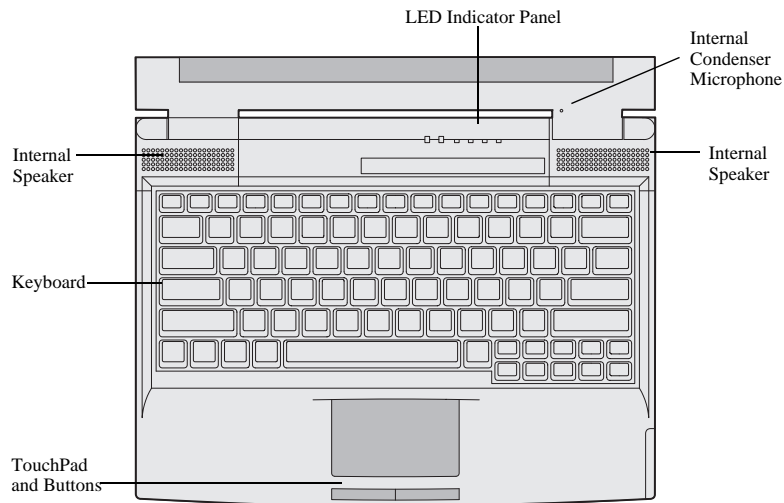
- Nickel Metal Hydride or LiIon battery
- Memory upgrade modules



## Identifying Components

The figures in this section identify the external components and accessories of your SA200.

### Front View



**Figure 1 Front View of the SA200**

#### **LED Indicator Panel**

The indicator lights show the status of the AC power, battery, the CD-ROM drive, the floppy disk drive (FDD), the hard disk drive (HDD), Num Lock, Caps Lock, and Scroll Lock. See “Visual Status Indicators” on page 11 for more information.

#### **Keyboard**

Supports all functions of an enhanced keyboard including Windows 95 keys. See “Keyboard Operations” beginning on page 21 for more information.

## 1 Introduction

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### **TouchPad and Buttons**

The TouchPad uses a PS/2 interface. Its two buttons correspond to the two buttons of a mouse. See “TouchPad Operations” on page 29 for more information.

### **Internal Speakers**

These speakers are connected internally to the laptop’s integrated audio system. See “Multimedia Sound System” on page 12 for more information.

### **Internal Condenser Microphone**

Use this to record sounds and music.

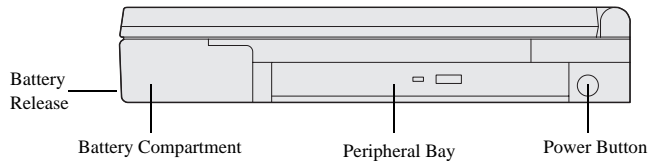
### **LCD Screen (not shown)**

The 12.1" SCC SVGA LCD panel supports resolutions up to 800 x 600 x 256 colors. The 12.1" SVGA TFT LCD panels support resolutions up to 800 x 600 x 64K.

### **Display Panel Latch (not shown)**

Located on top of the LCD display panel, the display panel latch releases the display panel from its locked position.

## Right View



**Figure 2 Right View of the SA200**

### **Battery Compartment**

This compartment houses the auxiliary battery that comes with your laptop. See “Removing and Replacing the Battery Pack” on page 63.

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## 1 Introduction

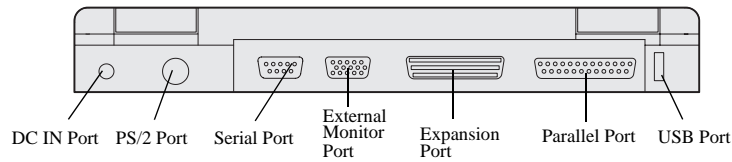
### Peripheral Bay

This bay is designed to house the floppy disk drive module, the CD-ROM module or the LS-120 high-capacity drive module. See “Exchanging the Peripheral Bay Modules” beginning on page 54 for more information.

### Power Button

Press this button and hold it down for a few seconds to turn the computer on or off. See “Turning Your Laptop On” and “Turning Your Laptop Off” beginning on page 17 for more information.

## Rear View



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**Figure 3 Rear View of the SA200**

### DC IN Port

Connect the laptop power cable to this jack. See “Connecting to AC Power” on page 15 for more information.

### PS/2 Port

You can connect an external Windows 95 compliant 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 48 and “Connecting an External Pointing Device” on page 47 for more information.

## 1 Introduction

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### Serial Port

You can connect RS-232 serial devices (for example, a mouse, or a graphics tablet) to this port. You must open the small panel to access this port. See “Serial Port” on page 46 and “Connecting an External Pointing Device” on page 47 for more information.

### External Monitor Port

You can connect an external monitor (CRT) to this port. See “Connecting an External Monitor” on page 48 for more information.

### Expansion Port

You can connect a variety of external devices to this port such as an external floppy disk drive, a port replicator, or a docking station.

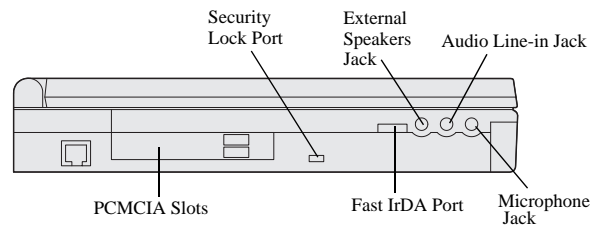
### Parallel Port

You can connect a printer to this port. See “Parallel Port” on page 46 and “Connecting a Printer” on page 49 for more information.

### USB Port

You can connect a device that meets USB specifications to this port.

## Left View



**Figure 4 Left View of the SA200**

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## 1 Introduction

### **PCMCIA Slots**

The laptop has two PCMCIA slots. The upper slot is slot 1 and the lower slot is slot 0. See “Installing PCMCIA Expansion Slots and Cards” on page 51 for more information.

### **Security Lock Port**

This opening is for use with a security device such as the Kensington Lock. You can use a security device to secure your laptop to your workspace.

### **Fast IrDA Port**

The fast infrared (FIR) module allows serial, wireless communications between the SA200 and other FIR-equipped devices such as a printer or another computer. See “Using the Infrared Communications Port” on page 40 for more information.

### **External Speakers Jack**

You can connect external speakers or headphones to this jack. Using this jack disables the internal speakers. See “Connecting Headphones” on page 50 for more information.

### **Audio Line-In Jack**

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

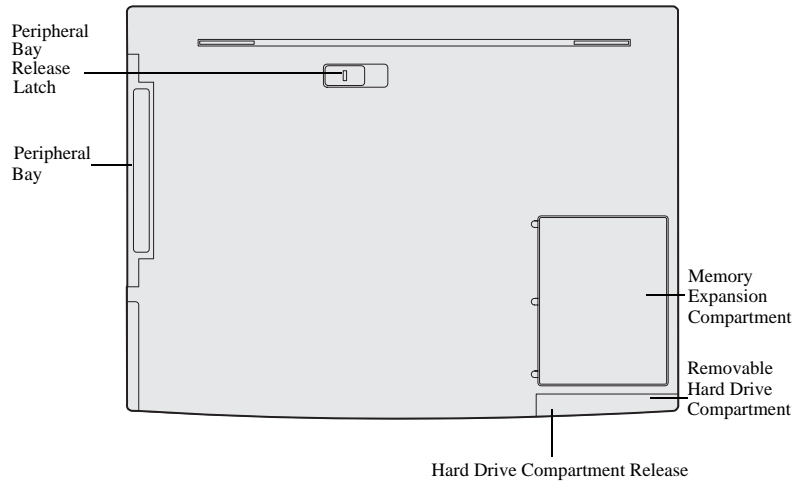
### **Microphone Jack**

You can connect an external microphone to this jack. See “Connecting an External Microphone” on page 50 for more information.

## 1 Introduction

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### Bottom View



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**Figure 5 Bottom View of the SA200**

#### **Peripheral Bay Release Latch**

This latch locks and unlocks the module in the peripheral bay. See “Exchanging the Peripheral Bay Modules” beginning on page 54 for more information.

#### **Memory Expansion (RAM) Compartment**

This compartment houses the SA200’s RAM modules. See “Installing Expansion Memory Modules” on page 52 for more information.

#### **Removable Hard Drive Compartment**

You can remove and replace your hard disk drive. See “Removing and Replacing Your Hard Disk Drive” beginning on page 55 for more information.

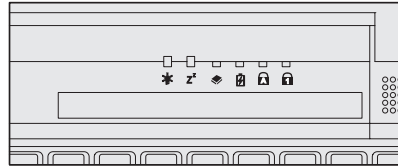
### Laptop Status Indicators

The SA200 uses both audible and visual indicators to inform you of your system’s status. These indicators convey warnings and important system status information.

## Visual Status Indicators







Your laptop is equipped with several LED indicators that communicate the status of your laptop. The LED indicator panel is located just below the laptop's LCD display panel.

See Figure 6.



**Figure 6 LED Indicator Panel**

The LED indicator panel consists of the following indicators:

LED Indicators	
ICON	Meaning
	<b>System Status:</b> When this light is green, the system is on. When this light is off, the system is off, or in Suspend to Disk mode.
	<b>Suspend to RAM Status:</b> When this light is flashing green, the laptop is in Suspend to RAM mode.
	<b>Media Status:</b> When this light is on, the laptop is accessing the floppy disk drive, hard disk drive or CD-ROM drive. Do not remove the CD or floppy disk if this light is on.
	<b>Battery Status:</b> When this light is green, the battery is charging. When the AC adapter is connected and this light is off, the battery is full. When the battery is in use and this light is flashing green, the battery power is low.
	<b>Caps Lock Status:</b> When this light is on, pressing alphabetic keys produces capitalized characters; other keys are not affected.
	<b>Num Lock Status:</b> When this light is on, pressing a key in the embedded numeric keyboard produces a numeric character; other keys are not affected when Num Lock is active.

## **1 Introduction**

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### **Multimedia Sound System**

Your SA200 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 laptop is equipped with an on-board FM sound generator that produces realistic music and human voice sounds in 16-bit stereo.

Your laptop's sound system features internal stereo speakers and an internal condenser microphone. You can connect both an external audio source such as a CD player to the laptop's audio line-in jack and external stereo speakers or headphones to the headphone jack. You also have the option of connecting an external microphone to the laptop's microphone jack.

See "Audio and Tone Controls" beginning on page 28 for more information on setting your laptop's sound system controls.



# ***SA200 Series***

## **GETTING STARTED**

CHAPTER

# **2**



## **2 Getting Started**

Your SA200 is designed and pre-configured for easy setup and use. This chapter describes the steps you should follow to get your laptop up and running. For information on using your battery pack, see Chapter 5, “The Power System” beginning on page 61. If you want to install optional devices such as a mouse or a printer, follow the instructions in Chapter 4, “Installing Optional Devices.” If you need to alter your laptop’s BIOS Setup configuration, consult Appendix B, “Using the BIOS Setup Program.”

### **Connecting to AC Power**

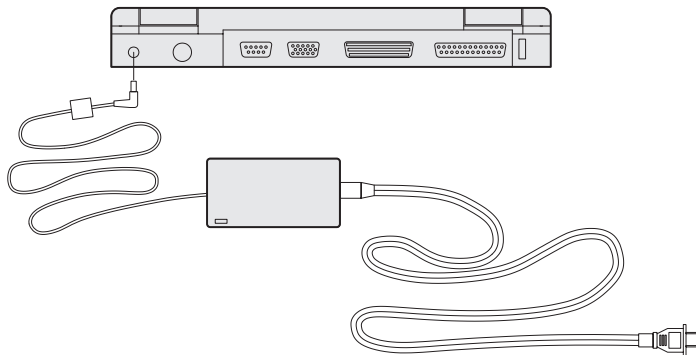
You can power your laptop with either the rechargeable battery pack or the AC adapter. You will find detailed information on using both power sources in Chapter 5, “The Power System.”

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

1. Connect the AC adapter cable to the SA200’s DC IN port. Make sure the connector sheath locks firmly into the jack.
2. Plug one end of the power cord into the AC adapter and the other end into an electric outlet.

## 2 Getting Started

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**Figure 7 Connecting the AC Adapter**



**Your laptop comes with its own special AC adapter.**

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

3. Open the LCD cover by first sliding the display panel latch to the left and then lifting the display panel open.
4. Check the SA200's Battery Status indicator and AC Power Status indicator. The battery status should be on if the battery is not full.
5. If the Battery Status indicator does not light, make sure all connections are secure. If there is still a problem, unplug the adapter and contact your dealer.

See "Charging the Battery Pack" on page 62 for more information.

## Turning Your Laptop On

1. Connect the laptop 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 several seconds. The SA200's sign-on message should appear on the screen. You may have to adjust the brightness and contrast controls for a clear display. See "LCD Display Controls" on page 28.
3. If you need to run the BIOS Setup program to set or modify your system's configuration, refer to Appendix B, "Using the BIOS Setup Program."

## Turning Your Laptop Off



- **Never turn your laptop off suddenly! Instead, close all programs and use the Windows 95 Shut Down command before turning your laptop off.**
  - **Always wait at least 5 seconds after turning the laptop off before turning it back on!**
1. To turn the laptop off, click on the Windows 95 *Start* button (most often found 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?
    - Restart the computer?
    - Restart the computer in MS-DOS mode?
  2. Click *Yes* to shut down the laptop.
  3. Wait until the system powers down and then lower the display. Gently press the top of the laptop to fasten the open/close latch.

## Resetting Your System

Occasionally, you may need to reset your system if you encounter a hardware or software problem that locks up your laptop. Follow these instructions to reset your system:

1. From Windows 95, press <Ctrl+Alt+Del>.

## 2 Getting Started

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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 *End Task*. You will lose any unsaved information in the programs you choose to close.
  - You can shut down the entire system. Click *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 laptop. You will lose any unsaved information in all programs that are running.

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

# ***SA200 Series***

## **USING YOUR LAPTOP**

CHAPTER

# **3**





## 3 Using Your Laptop

This chapter describes the basics of laptop 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 SA200 computer is equipped with a full-size, low-profile Windows 95 compliant keyboard. This keyboard features an embedded numeric keypad and a full array of special function keys.

For your convenience, Hitachi Software also gives you the option of connecting a full-size keyboard to your laptop. See “Connecting an External Keyboard” on page 48 for more information.

### Keyboard Layout

Figure 8 shows your laptop’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 8 Keyboard Layout**

### 3 Using Your Laptop

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#### Alphanumeric Keys

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

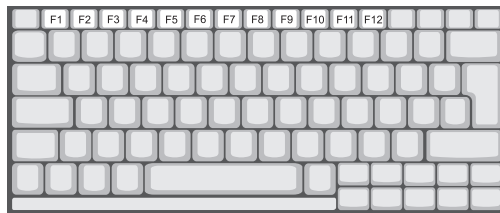


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**Figure 9** Alphanumeric Keys

#### Function Keys

The function keys are the smaller keys in the top row of the keyboard labeled F1 through F12. See Figure 10. Although function keys generally send instructions to your laptop'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.

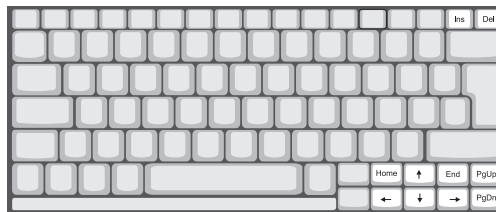


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**Figure 10** Function Keys

## **Editing Keys**

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



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**Figure 11 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.

Press <PgUp> to display the previous page and <PgDn> to display the next page. The functions of the <Home> and <End> keys depend on the software you are using.

### 3 Using Your Laptop

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#### Embedded Numeric Keypad

The embedded numeric keypad 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+F7> to activate this keypad.

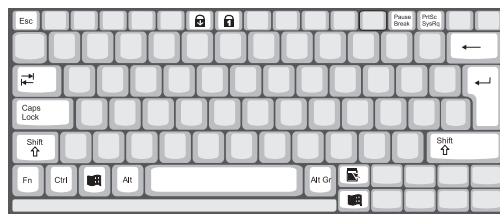


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Figure 12 Numeric Keypad

#### Miscellaneous Keys

Most of your laptop's miscellaneous keys have software specific functions. For more detailed information on these keys, refer to the documentation for the appropriate software you are using.



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Figure 13 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 upper case 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 active.) Press <CapsLock> again to turn off the Caps Lock function. Pressing <Shift> and a letter key when Caps Lock is active generates a lower case letter instead of an upper case letter. Using <Shift> while striking a letter key when Caps Lock is engaged generates a lower case letter instead of an upper case letter.

**Shift key**

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

**Fn (Function) key**

Press this key to invoke the functions identified in blue 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 <Sys Rq> to access the function of a software application.

**Pause/Break key**

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


**NumLk (NumLock) key**

Press <Fn+F7>  to activate the numeric function of the keypad.

### 3 Using Your Laptop

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#### **Scroll Lock key**

This is a software specific key. Scroll Lock affects cursor movement and text scrolling in some applications. Press <Fn+F6>  to activate Scroll Lock.

#### **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 SA200 is its host of keyboard controls. You can change many laptop 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 laptop's non-volatile memory even when you turn your laptop off. Hot key <Fn+→> (Increase Contrast), for example, is a permanent setting. If you press <Fn+→> to increase your display's contrast, your laptop 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 laptop off and affect only your current laptop session. NumLk (numeric keypad control) <Fn+F7>, for example, is a temporary setting.

### **Setup Control**

#### **Fn+F1 Access Notebook Manager**

When you press this key combination, you will access the Notebook Manager program.

### **Power Management Controls**

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

#### **Fn+F2 Suspend to Disk Mode Switch**

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

### 3 Using Your Laptop

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#### **Fn+F3 Z<sup>z</sup> Suspend to RAM Mode Switch**

When you press this key combination, your system emits one short beep and enters Suspend to RAM mode. In Suspend to RAM mode, most devices are powered off. Press any key to resume from Suspend to RAM mode.

#### **Key Combination Help**

#### **Fn+F4 Key Combination Help**

Displays help on key combinations.

#### **Audio and Tone Controls**

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

#### **Fn+S or Fn+End Toggles Speaker**

Toggles the speaker on and off.

#### **Fn+PgDn Decreases Audio**

Decreases the volume and saves the new setting.

#### **Fn+PgUp Increases Audio**

Increases the volume and saves the new setting.

#### **LCD Display Controls**

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

#### **Fn+↓ Decrease Brightness**

Decreases the display brightness and saves the new setting.

#### **Fn+↑ Increase Brightness**

Increases the display brightness and saves the new setting.



**Fn+←            Decrease Contrast**

Decreases the display contrast and saves the new setting.  
(SCC LCD panel only)

**Fn+→            Increase Contrast**

Increases the display contrast and saves the new setting.  
(SCC LCD panel only)

**Fn+F11  Blanks the Display**

Blanks the display to save power.

**Fn+F12  Toggles LCD/CRT/Simultaneous Display**

Toggles the display between the LCD, CRT and both  
LCD and CRT.

## TouchPad Operations

Your laptop'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 SA200 also allows you to attach an external pointing device such as a mouse. For more information, see "Connecting an External Pointing Device" on page 47.

## Using the TouchPad

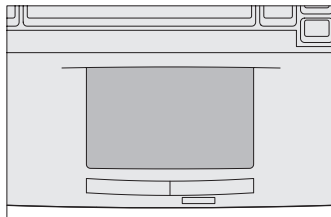
Place your left or right hand next to the TouchPad and rest your wrist naturally in a relaxed manner. Place your thumb or forefinger on the TouchPad. Move your finger across the pad.

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 it.

### 3 Using Your Laptop

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The TouchPad also includes a special “Edge-Motion” feature that enables you to extend a drag operation if your finger reaches the edge of the pad before the cursor reaches the desired location. Hold your finger against the edge of the pad, and the cursor will continue to move in the indicated direction.



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**Figure 14 TouchPad**

### Click and Double-Click

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

Slide your finger on the TouchPad 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 click and double-click even more rapidly than you can with a mouse. 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.

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### 3 Using Your Laptop

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You can then drag the item 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. 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.

## Toggle Key

Pressing the **Fn+T** key disables and enables the TouchPad. This function is useful if you want to use an external pointing device. For more information, see “Connecting an External Pointing Device” on page 47.

## Customizing Your Laptop With Windows 95

All of the required settings for your SA200 have been set at the factory before shipment. Windows 95 includes a groups of system utilities that enable you to adjust your laptop settings. These utilities are accessed through the Control Panel. You can use the Control Panel to adjust your laptop settings including:

Date and time	Password
Display	System
Mouse	Power
Keyboard	

### 3 Using Your Laptop

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If you need to adjust these settings, add new hardware to your laptop, or add and remove programs on your laptop, read this chapter. If you do not need to adjust these settings, skip this chapter. For information on adjusting your laptop's BIOS settings, see "Using the BIOS Setup Program" on page 85.

## 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:

Click on the *Start* button and then point to *Settings*.

Click on *Control Panel*.

Double-click the icon associated with the settings you want to change.

The following sections briefly describe the icons most commonly used to customize laptop computers. There are several other icons in the Control Panel that you can use to customize your SA200 for your particular needs. 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 laptop.



## **Display**

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



## **Mouse**

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



## **Keyboard**

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



### 3 Using Your Laptop

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#### Password

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



#### System

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



#### Power

Use the Power icon to adjust your laptop'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.



### **Add New Hardware**

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



### **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 laptop's hard disk drive.



### **Data Storage and Retrieval**

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

### 3 Using Your Laptop

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## Using the Floppy Disk Drive

Your laptop features a high-density 3.5 inch, removable floppy disk drive. This drive is designated drive “A” by your laptop’s operating system and is housed in the laptop’s peripheral bay. See Figure 2 on page 6. See “Exchanging the Peripheral Bay Modules” beginning on page 54 for detailed information on removing your floppy disk drive and replacing it with the CD-ROM module.

### About Floppy Disks

Your computer’s floppy disk drive accepts both 720KB double-density (DD) floppy disks and 1.44MB high-density(HD) floppy disks, but 2.88MB (High Density) disks are not supported. Floppy disks are sometimes labeled by manufacturers as double density 1.0MB and high density 2.0MB floppy disks. These labels, however, indicate the unformatted capacities of the floppy 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 floppy 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 floppy 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 floppy disk with the drive wheel facing down and the metal shutter end toward the drive.
2. Insert the floppy disk into the drive slot and gently push it into the drive.



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### 3 Using Your Laptop

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3. When the floppy disk clicks into place, the eject button pops out. The floppy disk is now ready for use.

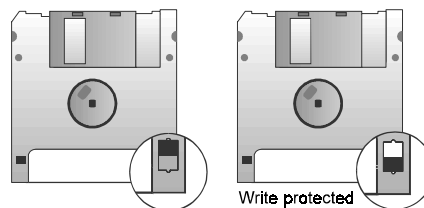
To remove a floppy disk from the floppy disk drive, follow these steps:

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

### Write Protecting and Backing Up Floppy Disks

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

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



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**Figure 15 Write Protecting a Floppy Disk**

Refer to the following instructions to write protect a floppy disk.

1. Hold the floppy disk in front of you with the drive wheel facing up as shown in Figure 15.

### 3 Using Your Laptop

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2. Slide the write-protect tab down until it clicks into place. The window is now open, indicating that the floppy disk is write protected.

### Caring for Floppy Disks

Under normal conditions, a floppy 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 floppy disk. When handling floppy disks take care that you don't drop them.
- Don't expose floppy disks to extreme temperatures.
- Keep floppy disks away from magnetic fields generated by power supplies, monitors, magnets, and so on.
- Don't smoke in the same room where floppy disks are used or stored. Particles from cigarette smoke are large enough to scratch the surface of the floppy disk.
- Store floppy disks in a dry, dust-free environment.

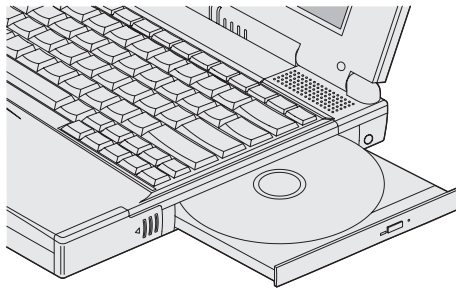
### Using the CD-ROM Drive

Your SA200 features a CD-ROM drive. You can use the CD-ROM drive to access CD-ROM programs, to read data stored on CD-ROM discs, and to play audio CDs. To use the CD-ROM drive, you must install it in the peripheral bay *before* you turn your laptop on. See "Exchanging the Peripheral Bay Modules" on page 54 for details.

## **Inserting and Removing a CD-ROM**

To insert CD-ROM Media:

1. With the laptop 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 with the shiny-side face down.
4. Gently push the tray in until it clicks in place. The CD-ROM is ready to play.



**Figure 16 Inserting a CD-ROM Disk**

To remove CD-ROM Media:

1. With the laptop 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 SA200 comes with a hard disk drive already installed. Your computer's hard disk drive is an integrated drive 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.

### 3 Using Your Laptop

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Your laptop's unique modular architecture enables you to remove and replace your hard disk drive. See "Removing and Replacing Your Hard Disk Drive" on page 55.

## Using the Infrared Communications Port

Your SA200 is equipped with an IrDA-compliant fast serial infrared (FIR) communications port on its left panel. See Figure 4 on page 8.

The FIR port allows wireless, serial communication between your laptop and other IR equipped devices such as a printer or another computer. The FIR 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; the receiver picks up pulses of infrared light transmitted by other IR ports.

Use the Windows 95 Terminal utility to transmit or receive data through the SA200's FIR port. Refer to your Windows 95 documentation for instructions on using the Terminal utility.

Follow these guidelines when using your laptop's FIR port to transmit or receive data:

- Ensure that the SA200's FIR port is properly lined up with the other device's IR port.
- Ensure that the distance between the SA200's FIR port and the other device's IR port does not exceed one meter (three feet).
- Ensure that the angle between the two IR ports does not exceed 15 degrees.
- Ensure that there is a clear, unobstructed path between the two IR ports during data transmission. Obstructions will block the optical signal.
- Do not move either the SA200 or the other device during data transmission. Movement distorts the optical signal and results in the loss of data.

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**3 Using Your Laptop**

**3 Using Your Laptop**

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# ***SA200 Series***

## **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 laptop. The devices covered in this chapter are:

- External keyboard
- External pointing device
- External monitor
- External floppy disk drive
- Printer
- Modem
- USB device
- Headphones
- Microphone
- Internal hard disk drive
- Expansion memory modules
- PCMCIA cards

The SA200's Plug and Play features are supported for Windows 95. Plug and Play means that the laptop automatically detects and configures the device for operation.

#### 4 Connecting and Installing Optional Devices

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## Connecting Optional Peripheral Devices

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

### Laptop Port Overview

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

#### Serial Port

For serial communications the SA200 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 laptop. To access this port, you need to open the panel door. Refer to Figure 3 on page 7.

Your SA200'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 laptop'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 or the floppy disk drive when used externally to the parallel port. The parallel port is located at the rear of your laptop. Refer to Figure 3 on page 7.

The SA200 supports three parallel port operation modes:

- Standard
- Bi-directional
- ECP (Extended)

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

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#### 4 Connecting and Installing Optional Devices

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

In *ECP* mode, the parallel port uses Direct Memory Access (DMA) to transfer data in the background without using CPU resources. The parallel port operates in ECP mode when you load an Extended Capabilities Port device driver. Only ECP-aware peripherals support this mode. If you configure the Operation Mode option field in the BIOS Setup program as ECP, the application you are using must be ECP aware.

See “Advanced Menu” beginning on page 91 for more information on setting the printer operation 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.

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 laptop. Refer to Figure 3 on page 7. Connect the male connector of your device cable to the female PS/2 port on your laptop. If the device requires a serial interface, locate the 9-pin connector at the rear of your laptop by opening the large panel. Refer to Figure 3 on page 7. Connect the 9-pin female connector of your device cable to the 9-pin male serial port on your laptop.

When connecting a serial mouse, the system may require additional configuration activities or may ask you to reboot your system.

#### **4 Connecting and Installing Optional Devices**

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3. After you connect the external pointing device, turn your laptop 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.

**Note: When using an external mouse, we suggest that you disable the TouchPad to avoid conflict. To disable the TouchPad, press Fn+T.**

### **Connecting an External Keyboard**

To make typing more convenient, you can attach a full-size external Windows 95 compatible keyboard to your SA200.

Follow these instructions to connect an external keyboard:

1. Locate the PS/2 (Mini-DIN) port located at the rear of the laptop. Refer to Figure 3 on page 7.
2. Carefully align the pins of the PS/2 port with the external keyboard plug and connect the two. 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. 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 (also known as a CRT):

1. Connect the monitor's 15-pin female analog connector to the external monitor port located at the rear of the laptop. Refer to Figure 3 on page 7.
2. Make sure the monitor is plugged into a suitable power source.
3. Turn the monitor on, and then turn your laptop on.
4. Press <Fn+F12> 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. <Fn+F12> will toggle through these three settings.

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#### 4 Connecting and Installing Optional Devices

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### Connecting a Printer

Follow these instructions to connect a printer:

1. Locate the parallel port at the rear of your laptop. Refer to Figure 3 on page 7.
2. Connect the printer's 25-pin male connector to the parallel port at the rear of your laptop.
3. If necessary, attach the printer cable to your printer. Tighten any retaining screws.
4. Turn on the printer and any other peripheral devices you have connected to the laptop.
5. If necessary, run the BIOS Setup program to configure the parallel port to properly respond to your system.
6. Configure your printer in Windows 95. Refer to both your Windows 95 documentation and your printer documentation for detailed information.

### Connecting USB Devices

You can connect peripheral devices that meet USB specifications to your SA200.

Follow these steps to connect a USB device:

1. Locate the USB port on the rear of your laptop. Refer to Figure 4 on page 8 for details.
2. Connect the USB cable to the USB port.
3. Connect the other end of the USB cable to your USB device.
4. Follow the instructions provided with the device for configuration and usage. If your laptop is turned off, turn it on.

#### **4 Connecting and Installing Optional Devices**

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### **Connecting Headphones**

Your SA200 is equipped with Sound Blaster Pro compatible sound features. You can listen to audio with the built-in speakers, attach headphones to your laptop, or connect external speakers.

Follow these steps to connect headphones or external speakers to your laptop:

1. Locate the headphone jack on the left side of your laptop. Refer to Figure 4 on page 8 for details.
2. Connect the headphone or speaker cable to the headphone jack.
3. If your laptop is turned off, turn it on.

### **Connecting an External Microphone**

Your SA200 is equipped with an internal microphone. If you prefer to use an external microphone, you can connect one to your laptop.

Follow these steps to connect an external microphone to your laptop:

1. Locate the microphone jack on the left side of your laptop. Refer to Figure 4 on page 8 for details.
2. Connect the microphone cable to the microphone jack.
3. If your laptop is turned off, turn it on.

### **Connecting an External Audio Input Device**

You can connect an external audio input device with a line-out cable to your SA200 laptop.

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

1. Locate the Audio Line-In jack on the left side of your laptop.
2. Connect the line-out cable to the Line-In jack.

## Installing Optional Internal Devices

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

### Installing PCMCIA Expansion Cards



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**Figure 18** Inserting a PCMCIA Card

PCMCIA cards accommodate a number of expansion options such as a memory card, a hard disk drive, and a network adapter. Your SA200 provides two PCMCIA slots that can receive two Type II PCMCIA compatible cards, or one Type III PCMCIA compatible card.

The PCMCIA compatible card slots are located on the right side of the SA200. The lower socket is for the Zoomed Video Option.

To insert a PCMCIA compatible card follow these instructions:

1. Locate the PCMCIA slots on the left side of your laptop. See Figure 4 on page 8.
2. Hold the PCMCIA compatible card with the arrow side up and the connector side toward the slot.
3. Insert the card into the appropriate slot. The top slot is socket 1, the bottom slot is socket 0. When the card in socket 1 is fully seated, the black eject button located on the left side of the slot will pop out. When the card in socket 0 is fully seated the black eject button on the right side will pop out.
4. Configure your PCMCIA card in Windows 95 as directed. This may require using additional driver files not found in Windows 95. Please consult the instructions provided with your PCMCIA device on PCMCIA installation.

#### 4 Connecting and Installing Optional Devices

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To remove a PCMCIA compatible card follow these instructions:

1. Use the Windows 95 shutdown procedure for PCMCIA devices to disable the PCMCIA card.
2. After Windows 95 notifies you it is safe to eject the card, press the appropriate eject button. The PCMCIA card will eject from the slot.

### Installing Expansion Memory Modules

Your SA200 comes with 16MB or 32MB memory. The memory module expansion slots enable you to upgrade your computer's memory. The SA200 supports the following expansion memory module configurations:

Expansion (Bank 1)	Expansion (Bank 2)	Total
8MB	8MB	16MB
16MB	—	16MB
16MB	8MB	24MB
16MB	16MB	32MB
16MB	32MB	48MB
16MB	64MB	80MB
32MB	—	32MB
32MB	8MB	40MB
32MB	16MB	48MB
32MB	32MB	64MB
32MB	64MB	96MB
64MB	64MB	128MB

Follow these instructions to insert a memory module:

1. Turn your laptop off using the Windows 95 Shutdown screen described in **Turning Your Laptop Off** on page 17.

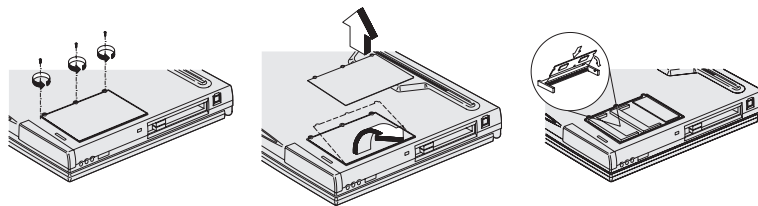


#### 4 Connecting and Installing Optional Devices

2. Remove the retaining screws from the memory module compartment cover on the bottom of the laptop. See Figure 19.
3. Remove the memory module compartment cover.
4. Insert the module into the slot 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. Turn your laptop on. The system automatically detects and gives the following error message: "Warning, Unexpected Amount of Memory, run SCU."
6. Go to BIOS Setup, Save and Reboot.



**Expansion memory modules are easily damaged by static electricity. You may want to wear a grounding strap before handling memory modules. Grounding straps are readily available at most computer and electronics shops.**



**Figure 19 Memory Module Compartment**

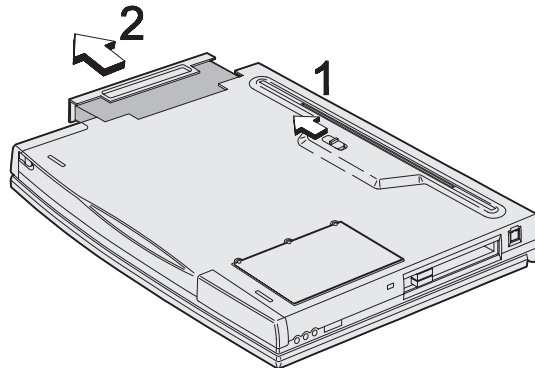
#### 4 Connecting and Installing Optional Devices

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### Exchanging the Peripheral Bay Modules

The SA200 right or “peripheral” bay is designed to house either a floppy disk drive module or a CD-ROM module. Follow these instructions to remove the peripheral module and insert another module:

1. Place your system in suspend mode or turn your laptop off using the Windows 95 Shutdown screen (see page 17).
2. Place the laptop on a flat surface with the underside facing up.
3. Locate the peripheral bay release latch. Refer to Figure 20 on the next page.
4. Slide the release latch toward the peripheral bay.
5. Pull the module out of its bay.
6. Insert the module of your choice. Make sure that the release latch snaps back into place.
7. Resume from suspend mode by opening the LCD cover or turn your system on by opening the LCD cover and pressing the power button (see page 16).



**Figure 20 Exchanging Peripheral Bay Modules**

## Removing and Replacing Your Hard Disk Drive

Your SA200's modular architecture enables you to replace the hard disk drive. The drive unit is located in a special, removable compartment. Refer to your laptop dealer for details on obtaining another hard disk drive.

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

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



- **Never insert or remove the hard disk drive compartment while your system is turned on! Otherwise, you will seriously damage your hard drive!**
- **When your hard disk drive is removed from the laptop, always store it in a safe environment free from magnetic fields!**

2. Place the SA200 on a flat surface.
3. Locate the hard disk drive compartment release. See Figure 5 on page 10 and Figure 21 on page 56 for details.
4. Press the release tab and slide it outward.
5. Using the pull loop at the end of the hard disk drive module, carefully pull out the hard disk drive from the compartment bay.
6. With the label facing up, insert the new hard disk drive into the hard disk drive compartment until it clicks in place.
7. Turn your laptop on.
8. Press <F2> while the laptop is running through its Power On Self Test (POST). This accesses the BIOS Setup program.
9. Use the Main menu to configure the new hard disk drive. See "Main Menu" on page 88 for more information.

#### 4 Connecting and Installing Optional Devices

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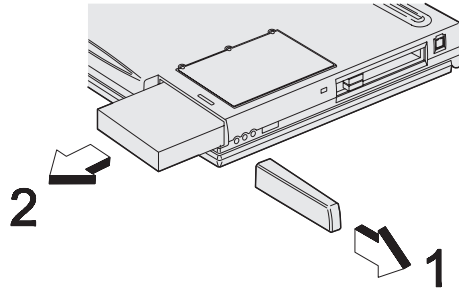


Figure 21 Removing the Hard Disk Drive

### Connecting the Floppy Disk Drive Externally

If the CD-ROM is being used, you can connect the Floppy Disk Drive to the parallel port with the provided external floppy drive cable. To make the connection:

1. Attach the Floppy Disk Drive to the cable and attach the other end of the cable to the parallel port.
2. The External FDD is ready to use. You can disconnect the FDD cable without turning off the system.

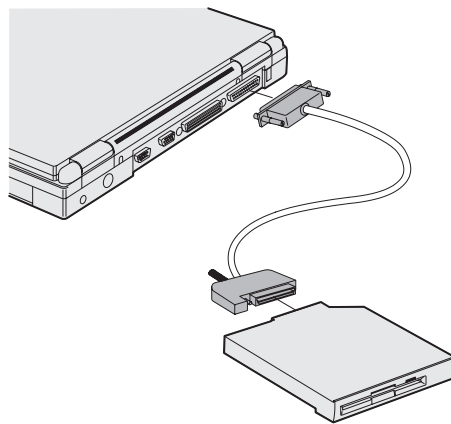


Figure 22 Connecting the Floppy Disk Drive Externally

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#### 4 Connecting and Installing Optional Devices

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The FDD cable can only be used with the FDD module. If connected to the parallel port, the cable must also be connected to the FDD module or the system may halt.

**4 Connecting and Installing Optional Devices**

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# ***SA200 Series***

## **THE POWER SYSTEM**

CHAPTER

# **5**





## 5 The Power System

This chapter covers the power system of the SA200. The power system is made up of three parts:

- AC adapter
- Battery pack
- Power management program

The SA200'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 laptop's power management features through the Power Saving Menu of the BIOS 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 laptop
- Charges the battery pack



**Your laptop comes with its own special AC adapter.**

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

For instructions on connecting the AC adapter to your laptop, see "Connecting to AC Power" on page 15.

## 5 The Power System

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If the AC adapter is not working, check the connector to see whether it is properly connected. If everything is connected properly, you may need to replace the adapter. Consult Mastercare PC Service for assistance.

### Battery Pack

Your SA200 comes with a removable battery. The laptop is designed to operate with the battery pack installed.



**When selecting an additional or replacement battery pack for the SA200 Series, ONLY use battery packs for the SA200 Series. Use or installation of any other manufacturer's battery pack will VOID the laptop warranty and may result in system damage or user injury.**

When using your battery pack, keep the following in mind:

- New battery packs are shipped in a discharged state. You must charge the battery before you can use it to power your laptop.
- The battery will slowly lose its charge even when the laptop is turned off.
- If you do not use a battery pack for an extended period of time, either charge it periodically (at least every two weeks) or remove the battery pack from the laptop.
- When a battery pack no longer provides normal operating time, replace it with a new one.

### Charging the Battery Pack

When the AC adapter is connected to a power source, it charges the battery whether the SA200 is turned on or off. Before installing or removing the battery, save your work and then follow these instructions to charge the battery:

## 5 The Power System

1. Ensure that the battery pack is inserted in its compartment as described in the next section “Removing and Replacing the Battery Pack.”
2. Attach the AC adapter to the laptop and plug the adapter into an AC power source. The Battery Status indicator lights.
3. Allow the battery to charge fully. This takes about 2-3 hours if the laptop is turned off, or about 6 hours if the laptop is turned on.

When the battery is fully charged and the Battery Status indicator turns off, charging will stop automatically.

**Note: The manufacturer recommends that you fully discharge and charge your new battery the first five times you use it for maximum battery life.**



**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.**

## Removing and Replacing the Battery Pack

Follow the instructions listed below to remove the battery.



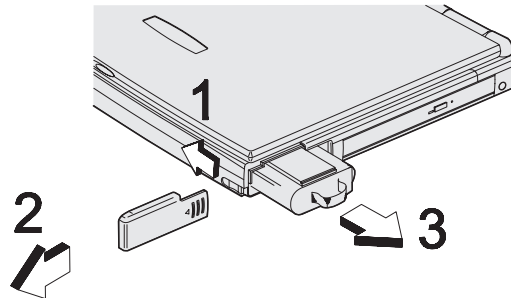
**Do not remove the battery when system is on. This may cause damage to your laptop. Make sure that you shutdown properly before removing the battery, refer to page 17 for more information on turning your system off.**

1. Turn your laptop off.
2. Locate the battery release latch.
3. Slide the release latch to the left and hold it in an open position.

## 5 The Power System

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4. Slide the battery compartment cover to the front and to remove it.
5. Pull the battery out of its compartment.



**Figure 23 Battery Adapter Cartridge**

Follow the instructions listed below to replace the battery.



**Do not remove the battery when system is on. This may cause damage to your laptop. Make sure that you shutdown properly before removing the battery, refer to page 17 for more information on turning your system off.**

1. Turn your laptop off.
2. Locate the battery release latch.
3. Pull the release latch to the left and hold it in an open position.
4. Slide the battery compartment cover to the front to remove it.
5. Place the battery into the compartment until it is firmly seated. The battery fits only one way; battery connector should be facing down when placed into the battery compartment.
6. Slide the battery compartment cover until the release latch locks.

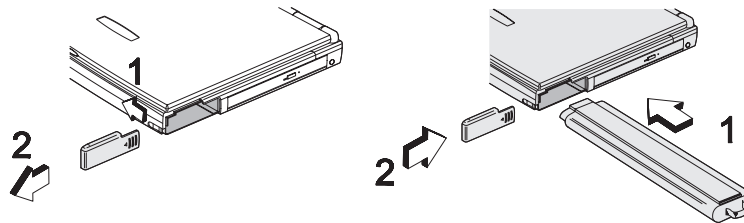


Figure 24 Inserting the Battery Pack

## Battery Status Indicators

Your SA200 provides you with several convenient mechanisms for monitoring the charge status of the battery.

### Windows 95 Battery Meter

Your laptop 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 taskbar.
2. Click on the electrical plug icon to display the remaining battery capacity.
3. Double-click on the electrical plug icon to display the Battery Meter window.

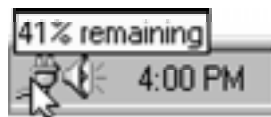


Figure 25 Battery Meter

## 5 The Power System

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### Windows 95 Low Battery Warnings

When your battery is low, your laptop uses Audio Indicator warnings to inform you of your battery's status.

When your battery capacity reaches 15%, your system will produce 2 warning beeps every 7 seconds.

When the battery charge level is less than 10%, your system will warn you within 30 seconds of suspending to RAM.

### Maximizing Battery Pack Life

In addition to using your laptop's power management capabilities, you can make your battery pack's charge last longer by following these power saving methods:

- Turn the laptop off when you are not using it.
- Utilize the laptop's power management functions. See "Power Saving Menu" beginning on page 96 and "Power Management" in the next section.
- Close the display or press <Fn+F3> to enter Suspend to RAM mode 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 indicator flashes, 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.

### Power Management

Your SA200 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 laptop has several operating modes:

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## 5 The Power System

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- Full Power
- Power Management
- Suspend to RAM
- Suspend to Disk

Each power management mode works for both AC and battery-powered operations. To change your laptop's PM settings, run the Power Saving Setup in the BIOS Setup program. See "Power Saving Menu" beginning on page 96 for more information.

### Full Power Mode

Your laptop operates in Full Power mode when you set Heuristic Power Management to *Disabled* in the BIOS Setup program. This option is located on the Power Saving Menu. In Full Power mode, all power management features are disabled. Use this mode only when you are operating the SA200 with the AC adapter.

### Power Management

Power management allows you to maximize system performance while saving power. The SA200 uses an innovative power management technique called Heuristic Power Management.

Most computers use timer-based power management. You set timeout timers to determine when the computer should save power on a device. The problem with this is that no two users are alike. Each one of us has his or her own habits when using the computer. This makes timer-based power management ineffective.

Heuristic Power Management allows your computer to manage all power management. You do not need to set timers because the computer dynamically sets timeout timers depending on how you use the computer.

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.

## 5 The Power System

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### Suspend to RAM Mode

Suspend to RAM mode is one of the SA200's power saving modes. When you enable your laptop's power management functions in the BIOS Setup program, the system automatically enters Suspend to RAM mode when the Suspend to RAM timeout period elapses or when you close the display.

Press <Fn+F3> to manually send the system into Suspend to RAM mode.

The following events occur when your system enters Suspend to RAM mode:

- All data in memory is saved to RAM.
- Current system states are saved to RAM.
- The system turns off all devices except memory.
- The Suspend to RAM indicator blinks.

### Suspend to Disk Mode

Suspend to Disk mode is the SA200's maximum power saving mode. When you enable your laptop's power management function and create a Suspend to Disk partition using the Suspend to Disk program, the system automatically enters Suspend mode when the Suspend to Disk timeout period elapses.

Press <Fn+F2> to manually send the system into Suspend to Disk mode.

The following events occur when your system enters Suspend to Disk mode:

- All data in memory is saved to the hard disk.
- Current system states are saved to the hard disk.
- The system turns off.





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

### Suspend Precautions

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

1. Save all open files.
2. While the laptop 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 floppy disk is in the floppy disk drive, do not remove it or switch it with another floppy 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

When your SA200 is in Suspend to RAM mode, the Suspend to RAM Status indicator blinks. To resume to Full Power mode from Suspend to RAM mode, press any key or open the display if it is closed. The system reads all data and system states from RAM and fully restores the system.

**Note: If an incoming modem ring is detected while the computer is in Suspend to RAM mode, the computer resumes to Full Power mode.**

When your laptop is in Suspend to Disk mode, all of the indicator lights are off. To resume to Full Power mode from Suspend to Disk mode, press the power button. The system reads all data and system states from the hard disk and fully restores the system.

## 5 The Power System

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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:

```
Save to disk space is not found or insufficient.  
Save to disk feature is disabled.  
Press any key to continue.
```

Press any key and run the Suspend to Disk program again to create a Suspend to Disk partition. See Appendix C.

## The Intel-Microsoft APM Interface

In addition to the power-saving features built into your laptop's BIOS Setup program, the SA200 also supports the Intel-Microsoft Advanced Power Management (APM) Interface, version 1.2. This is a cooperative interface that enhances your laptop'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 laptop performance.

If you have APM installed on your laptop, you must enable the power management feature (set the PM control field to *Enabled*) in the BIOS Setup program. If you disable power management in the BIOS Setup program (set the PM control field to *Disabled*), you also disable APM regardless of its settings. When you enable the APM interface, APM will override any power management settings you may have made in the BIOS 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.

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## 5 The Power System

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- 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 active.
- 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 laptop's power consumption, and controls all power saving features, your laptop 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 laptop's Windows 95 Control Panel. When you double-click on this icon, a dialog box displays and you can select between standard, advanced, or no power management modes. 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.

**5 The Power System**

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# ***SA200 Series***

## **APPENDICES**



# **A Maintenance and Troubleshooting**

This appendix provides you with information on how to maintain your SA200 in top working condition.

## **Operating Environment**

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

### **Temperature**

Operating: 0°C to 35°C (32°F to 95°F)

Storage: -20°C to 60°C (4°F to 140°F)

### **Relative Humidity (Non-condensing)**

Operating: 20% to 80%

Storage: 20% to 80%

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

## **A Maintenance and Troubleshooting**

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### **Travel Recommendations**

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

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

### **Maintenance**

Although the SA200 requires little physical maintenance, you should follow a few simple maintenance routines and precautions to help ensure that your laptop 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 laptop 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 ultraviolet radiation.
- Do not expose the LCD screen to extreme temperatures. Freezing and liquefaction of the liquid crystals may result in damage to the display.



## **Cleaning the Laptop**

### **Cabinet**

Keep the laptop 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 laptop!**
- **Never clean the laptop while it is turned on!**

### **Display**

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

### **FIR Port**

Use a soft, dry cloth to wipe the FIR port. Always keep the FIR 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 Mastercare PC Service.

### **Common Problems**

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

#### **Symptom: The power switch doesn't function**

## **A Maintenance and Troubleshooting**

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- The power switch does not accept just a light touch. Depress the switch firmly for at least one second.
- Confirm that the AC adapter is properly connected to your laptop and an electric outlet.
- If you are using the battery pack, check the battery gauge on the battery and confirm that the battery pack is properly seated in the main battery compartment.

### **Symptom: The laptop will not start**

- If the system does not complete the Power On Self Test (POST), contact Mastercare PC Service.
- If the system completes the POST, the hard disk or Windows 95 may be damaged. Insert the Windows 95 Startup disk you created, and then boot the laptop. The A:\> prompt appears.

If you find that the hard disk is damaged, you can restore your hard disk by using the Setup Boot Disk and Windows 95 CD. Please refer to the instructions that are printed on the Setup Boot Disk label.



**Using the FORMAT command to format your hard disk drive will erase all of your system's data. Use the FORMAT command as a last resort and only after you have consulted with an Mastercare PC Service.**

### **Symptom: The screen is blank**

- Press the space bar to see whether a power management feature has blanked the screen to save power.
- Press <Fn+F12> a few times to toggle through the LCD and external display options.
- Check the System Status indicator to verify that the laptop is getting power. If the System Status indicator is not lit, check the electrical outlet, the power cord, and the AC adapter cable, as well as any power switches that may affect your laptop.
- 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.

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**A Maintenance and Troubleshooting**

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- Reset the laptop by pressing <Ctrl+Alt+Delete>. If the system completes the POST but the screen is blank, or if the screen lights momentarily and then becomes blank, contact Mastercare PC Service.
- Turn the laptop off, wait a few seconds, and then turn the laptop back on. If the system completes the POST but the screen is blank, or if the screen lights momentarily and then becomes blank, contact Mastercare PC Service.

**Symptom: The computer cannot write to a floppy disk**

- The floppy disk may not be formatted. See “Formatting Floppy Disks” on page 36 for more information.
- The floppy disk may be corrupted with a virus.
- The floppy disk may be write protected. Eject the floppy disk and check that the write protect tab is not set. See “Write Protecting and Backing Up Floppy Disks” on page 37 for more information.
- The floppy disk may be full. Use another floppy disk.
- The laptop’s Supervisor may have restricted access to the floppy disk drive.

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

- You may have inserted a nonbootable floppy disk in Drive A: (either a defective floppy disk or one without an installed operating system). Remove the floppy disk.
- If this message is issued when you attempt to boot from your hard disk drive, insert a bootable floppy 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 laptop’s BIOS Setup program to enter the correct date and time.
- If the date and time are still incorrect, contact your laptop dealer to change the system board battery.

## **A Maintenance and Troubleshooting**

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### **Symptom: You cannot recharge the battery**

If the laptop 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 laptop.
- Double-click on *My Computer*, and then double-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 double-click on *Printers*. Check whether printer output is set to MSFax.
- Search for help on printer problems in the Windows 95 Help Index.

### **Symptom: The laptop 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+PgUp> 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 Manger* tab. Next click on *Sound, Video and Game Controllers*. Verify that the *YAMAHA OPL3-Sax Sound System* is installed. If not, use the Control Panel's *Add New Hardware* icon to install the driver.

### **Symptom: The IR communications will not function properly**

- Check the IrDA Port field in the BIOS Setup program.
- Check that the FIR port is not dirty.
- Check the distance between the laptop 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.

**A Maintenance and Troubleshooting****Error Messages**

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

<b>Error Messages/ Beeps</b>	<b>Cause</b>	<b>Corrective Action</b>
Short beep (1→2→2→3 times) 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) Any other beep pattern that does not result in a system boot	Hardware error	Unplug the laptop and contact Mastercare PC Service.
Keyboard locked - Unlock key switch Shadow RAM Failed at offset:nnn System RAM Failed at offset:nnn UMB upper limit segment address:nnn	Hardware error	Unplug the laptop and contact Mastercare PC Service.
System Battery is dead - Replace and run SETUP.	The real time clock battery is depleted	Replace the battery.
System CMOS checksum bad - run SETUP.	Incorrect data is in the BIOS Setup program	Correct the data in the BIOS Setup program. If this doesn't correct the problem, contact Mastercare PC Service.

**A Maintenance and Troubleshooting**

xxxxK Extended RAM Failed at offset:xxxx Failing bits:xxxx	An error was detected while testing the memory area above 1MB	Check whether the memory boards are properly connected in the memory slots. If this doesn't correct the problem, contact Mastercare PC Service.
Real Time Clock error	Real time clock error	Contact Mastercare PC Service.
Keyboard error	Keyboard error	Check the connections. If proper connections don't correct the problem, contact Mastercare PC Service.
Keyboard Controller error	Keyboard error	Check the connections. If proper connections don't correct the problem, contact Mastercare PC Service.
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	Correct data in the BIOS Setup program. If this doesn't solve the problem, contact Mastercare PC Service.
Failure Fixed Disk 0	Hard disk error	Correct data in the BIOS Setup program. If this doesn't solve the problem, contact Mastercare PC Service.
System Time error	Time circuit error	Contact Mastercare PC Service.
System cache error - Cache disabled.	Secondary cache memory error	Contact Mastercare PC Service.
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 Mastercare PC Service.

**A Maintenance and Troubleshooting**

Parity check 2	A parity error was detected in an I/O bus	Contact Mastercare PC Service.
xxxh COM address conflict	The COM address has been used	Set the correct COM address in the BIOS Setup program.
IO address IRQ conflict	The same IRQ has been used	Set the correct I/O address in the BIOS Setup program.
Press <F1> to resume, <Ctrl + Alt + S> to SETUP		Press <Ctrl + Alt + S> to set up the system using the BIOS Setup program. Press <F1> to boot the system.
The CMOS checksum is invalid. Default values will be loaded.		Press <Enter> and select <i>Load Default Values</i> in the BIOS Setup program's Exit menu. Then select <i>Auto</i> in the Hard Drive submenu of the Main menu.

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

If the same error recurs, contact Mastercare PC Service.

**Power on Self Test Error Messages**

The laptop 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 laptop's hardware.

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

### **A Maintenance and Troubleshooting**

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



## **B Using the BIOS Setup Program**

All required settings for your SA200 have been preset at the factory before shipment. As long as you intend to use the laptop without modifying its environment, you do not need to read this chapter.

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

### **BIOS Setup Introduction**

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

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

The BIOS Setup program is a ROM-based (read only memory) configuration utility. The settings you select are stored in non-volatile, battery-backed-up CMOS RAM (random access memory), which retains your settings even when you turn your laptop's power off.

## **B Using the BIOS Setup Program**

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Because the BIOS Setup program is menu driven, you can scroll through the various submenus to make your selections.

### **When to Run the BIOS Setup Program**

When you need to run your laptop's BIOS Setup program depends on your computing requirements.

When you turn on your SA200 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 laptop'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 BIOS 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 83.

Even if you are not prompted by a message instructing you to use the BIOS Setup program, you may eventually want to change your laptop's configuration. Following are some reasons why you may want to run the BIOS 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 laptop's communication ports to prevent any conflicts.
- You want to make changes to the laptop's power management configuration.
- You want to change the password or make other changes to the security setup.

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## B Using the BIOS Setup Program

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### Accessing the BIOS Setup Program

To access the BIOS Setup program, press <F2> while the laptop is running through its Power On Self Test (POST). You can access the BIOS Setup program just after you have turned on or reset the laptop but before the laptop has launched the Windows 95 operating system.

### Navigating the BIOS Setup Program

Both the menu bar and the help box assist you with navigating through the BIOS Setup program.

#### The Menu Bar

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

<b>Main</b>	Use this menu to make changes to the basic system configuration.
<b>Advanced</b>	Use this menu to make changes to hardware settings on your system.
<b>Security</b>	Use this menu to configure security settings for your laptop.
<b>Power Saving</b>	Use this menu to configure and enable your laptop's power management features.
<b>Exit</b>	Use this menu to exit the current menu or the BIOS Setup program.

To select a BIOS Setup menu, press <<-> or <->>.

## **B Using the BIOS Setup Program**

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### **The Keyboard Controls**

The following table lists the keys you can use to navigate through the various BIOS Setup menus with their corresponding functions:

<b>Key</b>	<b>Function</b>
← or →	Selects the menu.
Esc	Selects the exit menu.
↑ or ↓	Moves the cursor up and down between fields.
+ or -	Changes the value of a field.
Enter	Selects a submenu. A > symbol in front of a field denotes an item with a submenu.

### **The Help Box**

In the BIOS Setup program, the Help Box is located at the right of the screen. The Help Box displays the help text for the currently highlighted field.

### **Main Menu**

When you first access the BIOS Setup program, the Main menu displays. This section describes all the options on the Main menu.

### **Time and Date**

These options set your system to the time and date you specify. If you change the time and date settings in your operating system, the time and date settings in the Main menu change also. Some applications may also alter data files to reflect these changes.

---

## B Using the BIOS Setup Program

### Floppy Disk

This option controls the settings for the floppy drive. The BIOS supports the 3-mode feature to automatically detect and read 512 bytes per sector, NEC-formatted (1.2MB) floppy disks without any special configuration. The options available are:

- Disable
- 1.44MB 3.5"

**The default value for this field is: 1.44MB 3.5"**

### Hard Disk 0

Press Enter to access the Hard Disk submenu. This submenu lists the parameter for the IDE hard disk drive. Every time you install a different hard disk drive in the laptop, it should be (re)configured, unless you have selected the Auto option described below. The disk Type options are:

*None* No hard disk drive is installed. With this option, the system requires a floppy disk to supply the bootup information.

*User* This allows you to fill in the parameters of the hard disk drive below the Type option. The size (MB) field is automatically calculated based on this information. These parameters should be printed on the hard disk drive itself or in its accompanying documentation.

*Auto* (Default setting) This is the easiest solution. The BIOS Setup program detects the type of hard disk drive every time you boot the system and automatically loads the information into BIOS. Set Type to Auto and press Enter in the Autotype Hard Disk option.

## **B Using the BIOS Setup Program**

---



The Auto option may provide a different set of parameters for the same hard disk drive at different times. You should, however, always reconfigure the hard disk drive with the parameters you received the first time. If you use a different set of parameters, you may be unable to read any data on the hard disk drive. Be sure to record the original configuration parameters for your hard disk drive for future use.

**Note:** If the system determines that the hard disk drive is 528MB or larger (unformatted capacity), it automatically “sees” the hard disk drive using LBA mode. If you are using a 528MB or larger hard disk drive from an older system that does not support LBA mode, the system cannot read it properly. You must reconfigure the BIOS Setup program and reformat the hard disk drive.

### **CD-ROM/ATAPI Device**

Press Enter to access the CD-ROM/ATAPI Device submenu. This submenu shows the ATAPI device installed in the peripheral bay and is automatically determined by the computer. The options are:

- None
- CD-ROM
- ATAPI Removable

**The default value for this field is: CD-ROM**

### **Boot Sequence**

Press Enter to access the Boot Sequence submenu. Using the <+><-> keys, select the order of the drives that you want the system to go through during the boot-up process. The options are:

- Removable Device
- CD-ROM Drive
- Hard Drive

---

## B Using the BIOS Setup Program

---

### **The default order of the options is: Removable Device, CD-ROM Drive and Hard Drive**

**Note: The default removable drive is the floppy drive. To change this value, press Enter at the Removable Drive option.**

### **Speaker**

This option enables or disables the speaker on boot-up. The options are:

- Enabled
- Disabled

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

**Note: You can override this setting after boot-up by pressing <Fn+S> or <Fn+End>.**

### **Boot Display**

The Boot Screen setting controls which screen the system uses when you turn it on. The options are:

- Auto
- Both

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

### **System Memory, Extended Memory, Processor Speed, BIOS Version, VGA BIOS Version**

These fields are automatically determined by the system.

## **Advanced Menu**

### **Serial Port**

The Serial Port options allow you to enable and choose the COM port settings for the serial port. If you are not planning to use the this port, you can disable it by choosing “Disabled” to conserve power or to assign this port to another device for example, a PC card device).

## **B Using the BIOS Setup Program**

---

The Serial Port options are:

- Enabled
- Disabled

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

The Base I/O Address options are:

- 3F8
- 2F8
- 3E8
- 2E8

**The default value for this field is: 3F8**

The Interrupt options are:

- IRQ 3
- IRQ 4
- IRQ 10
- IRQ 11

**The default values for this field is: IRQ 4**

### **Infrared Port**

The Infrared Port options allow you to enable and choose the COM port settings for the Infrared Port. If you are not planning to use this port, you can disable it by choosing "Disabled" to conserve power or to assign this port to another device for example, a PC card device).

The Infrared Port options:

- Enabled
- Disabled

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

The Base I/O Address options are:

- 3F8
- 2F8
- 3E8
- 2E8



---

**B Using the BIOS Setup Program**

---

**The default value for this field is: 2F8**

The Interrupt options are:

- IRQ 3
- IRQ 4
- IRQ 10
- IRQ 11

**The default value for this field is: IRQ 3**

### **Parallel Port**

These options allow you to enable the parallel port and configure its Operation Mode, Base I/O Address and Interrupt setting. If you don't plan to use the parallel port, you can set it to "Disabled" to conserve power.

The Parallel Port options are:

- Enabled
- Disabled

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

The Operation Mode options are:

- Output only
- Bi-directional
- ECP

Check your parallel device's documentation to see which mode it can use. Most devices use Standard or Bi-Directional mode.

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

The Base I/O Address options are:

- 378
- 278
- 3BC

**The default value for this field is: 378**

## **B Using the BIOS Setup Program**

---

The Interrupt (IRQ) options are:

- IRQ 5
- IRQ 7

**The default value for this field is: IRQ 7**

## **Security Menu**

### **Supervisor Password is**

Before you can set the Supervisor password, you need to enable this option.

### **User Password is**

Before you can set the User password, the Supervisor password has to be set, and you need to enable this option.

### **Set Supervisor Password**

The Supervisor password can be up to seven alphanumeric (A-Z, 0-9) characters long. Only the Supervisor can change the Supervisor password. If you disable the Supervisor password, both the Supervisor and User passwords are disabled and erased.

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

### **Set User Password**

To set the User password, the Supervisor password must be set first. Only the Supervisor (using the Supervisor password) can set and change the User password. To disable the User password, enter the existing password first and leave the new password field blank.

The User password won't be effective until you enable the Password Check During Resume or Password on Boot options. This restricts user access to the system (Boot System), to the BIOS Setup program, or to both the system and BIOS Setup.

---

## B Using the BIOS Setup Program

---

### Password on Boot

When this option is enabled, you need to enter a password to complete the boot-up process. The options are:

- Enabled
- Disabled

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

### Password Check During Resume

When this option is enabled, you need to enter a password to resume from Suspend to RAM or Suspend to Disk mode. The options are:

- Enabled
- Disabled

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

### Diskette Access

This option controls the use of the floppy drive. The options are:

- Supervisor
- User

When set to Supervisor, the computer prompts for the Supervisor Password before allowing access to the floppy drive.

**Note: If Password on Boot is enabled, access to the floppy drive is determined by the password entered at boot-up.**

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

## **B Using the BIOS Setup Program**

---

### **Power Saving Menu**

Before you adjust the settings in the Power menu, review the power management system in Chapter 5.

**Note: Pressing <Fn+F2> activates Suspend to Disk mode. Pressing <Fn+F3> activates Suspend to RAM mode.**

#### **Heuristic Power Management**

This option enables you to configure when the power management features are active. The options are:

- Enabled
- Disabled

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

#### **Display Always On**

When this option is enabled, the display is always turned on. The options are:

- Enabled
- Disabled

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

#### **Battery Low Suspend**

This option applies when the battery enters a low-battery level. This control does not take effect if the laptop can draw power from an AC adapter. When this option is enabled and a low-battery situation occurs, the laptop enters Suspend to Disk mode or Suspend to RAM mode. The options are:

- Enabled
- Disabled

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

---

## B Using the BIOS Setup Program

---



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

### Resume on Modem Ring

When this option is enabled, the computer resumes from Suspend to RAM mode when an incoming modem ring is detected. This option does not apply to Suspend to Disk mode. The options are:

- Enabled
- Disabled

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

**Note: The serial port is not monitored if you disable it in the Advanced menu. PC Card ports are monitored only if the driver is set correctly; see the PC card driver's manual for details.**

### Resume on Alarm

When this option is enabled, you can set the Alarm Time and Date the computer resumes on. This options applies to Suspend to Disk mode. The options are:

- Enabled
- Disabled

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

## **B Using the BIOS Setup Program**

---

### **Battery Low Warning Beep**

This option applies when the battery enters a low-battery level. This control does not take effect if the laptop can draw power from an AC adapter. When this option is enabled and a low-battery situation occurs, the laptop emits a warning beep. The options are:

- Enabled
- Disabled

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

## **Exit Menu**

### **Save Changes and Exit**

Saves all your changes and restarts your laptop.

### **Discard Change and Exit**

Discards all of your changes and restarts your laptop using the previous settings.

### **Get Default Values**

Restores all the original factory settings.

### **Load Previous Values**

Loads the settings you had when you started the BIOS Setup program.

### **Saves Changes**

Saves all your changes and does not exit the BIOS Setup program.

## C PhDISK

The PhDISK utility allows your computer to enter suspend mode. Before entering suspend mode, your computer saves all necessary information into a suspend file created by PhDISK, then shuts off power to all system components. On the next startup, the computer reloads the information from the PhDISK file and resumes from where you left off.

The program accepts the following parameters:

### Syntax

PhDISK [options]

where options:

- /CREATE creates the suspend file
- /DELETE deletes the suspend file
- /INFO displays information on the suspend file
- /REFORMAT  
PARTITION reformats the existing suspend file



**The Suspend to Disk file is a hidden file named SAVE2DSK.BIN; DO NOT delete or alter this file in any way except by using the PhDISK utility. Improper deletion or alteration of this file could cause you to lose all access to your computer.**

**C PhDISK**

---



## D Technical Data

This appendix contains important technical data and specifications for your SA200.

### Upper Memory Address Map

Memory Address	Definition	Function
000000-09FFFF	640KB memory	Base memory
0A0000-0BFFFF	128KB video RAM	Reserved for graphics display buffer
0C0000-0CBFFF	Video BIOS	Video BIOS
0F0000-0FFFFFFF	64KB system BIOS	System BIOS
10000-7FFFFFFF	Extended memory	On-board memory
80000-27FFF	Extended memory	DIMM memory
FE00000-FFFFFFF	256KB system ROM	Duplicate of code assignment at 0E0000-0FFFFFFF

**D Technical Data**

---

**DMA Channels**

Setting	Address	Function
0	0087	Audio (default)
1	0083	Printer ECP mode
2	0081	Standard floppy disk controller
3	0082	Generic Ir serial port
4	Cascade	Direct memory access controller
5	008B	Spare
6	0089	Spare
7	008A	Audio

## System Interrupts

IRQ	Description
SMI	Power management unit
NMI	Parity error, I/O channel error, watchdog timer error
00	System timer (reserved)
01	Keyboard (reserved)
02	Cascade interrupt from slave PIC (reserved)
03	Serial communication port 2
04	Serial communication port 1
05	Audio controller / video controller (option) / parallel (option)
06	Standard floppy disk controller
07	ECP printer port (LPT1)
08	Real-time clock interrupt
09	Cascaded to INT 0AH (IRQ2)
10	Audio (option) / PCMCIA
11	Audio (option) / PCMCIA
12	PS/2 TouchPad (reserved)
13	Coprocessor Error-FERR# (reserved)
14	Primary IDE controller for hard disk drive (reserved)
15	CD-ROM controller

**D Technical Data****I/O Address Map**

Address	Device
000-00F	DMA controller 1
020-021	Interrupt controller 1
040-043	System timer 1
060-060	Keyboard / mouse
061-061	System speaker
064-064	Keyboard / mouse
070-071	System CMOS / RTC
080-080	Motherboard resources
081-08F	DMA page register
0A0-0A1	Interrupt controller 2
0C0-0DF	DMA controller 2
0F0-0FF	Numeric data processor
100-101	Yamaha audio sound system
170-177	Intel 82371AB PCI Bus Master IDE
170-177	Secondary IDE controller
1A0-1BF	PCI to USB host controller
1F0-1F7	Hard disk select
3F6-3F7	Hard disk select
170-177	CD-ROM select
376-377	CD-ROM select
220-22F	Audio
240-24F	Audio (default)
260-26F	Audio
280-28F	Audio
278-27F	Parallel port 3
2E8-2EF	COM 4
2F8-2FF	COM 2 (IrDA)
300-301	MPU-401 port
310-311	MPU-401 port

**D Technical Data**

320-321	MPU-401 port
330-331	MPU-401 port (default)
34C-34F	Docking bar
378-37F	Parallel port 2
388-38B	FM synthesizer
3BC-3BE	Parallel port 1
3B4, 3B5, 3BA	Video subsystem
3C0-3C5	NeoMagic VGA
3C6-3C9	Video DAC
3C0-3CF	Enhanced graphics display
3D0-3DF	Color graphics adapter
3E8-3EF	COM 3 (modem)
3F0-3F7	Floppy disk controller
3F8-3FF	COM 1 (serial 1)
CF8-CFF	PCI configuration register

**D Technical Data****Laptop Technical Specifications**

The following specifications are for the standard configurations of SA200 laptop computers. Your system may contain optional equipment. All product specifications are subject to change without notice.

<b>Specification</b>	<b>166MHz</b>	<b>200MHz</b>	<b>233MHz</b>
<b>Processor</b>	Intel Pentium with MMX™ technology		
<b>L2 Cache</b>	256KB		
<b>Operating System</b>	Windows 95		
<b>Hard Disk Drive</b>	One removable 2.1GB hard drive with Fast (Enhanced) IDE Interface		One removable 3.2GB hard drive with Fast (Enhanced) IDE Interface
<b>On-Board Memory</b>	16MB EDO DRAM (upgradable to 128MB with 16/32/64MB EDO DRAM memory modules)	32MB EDO DRAM (upgradable to 128MB with 16/32/64MB EDO DRAM memory modules)	
<b>System/Video BIOS</b>	256KB Flash EPROM		
<b>Video RAM</b>	2MB		
<b>Display</b>	12.1" SVGA SCC; maximum colors 65,000; 800x600 pixels		
<b>Floppy Disk Drive</b>	1.44MB 3.5" floppy disk drive; LS-120 drive (Optional)		
<b>CD-ROM</b>	Removable 20X CD-ROM		
<b>PCMCIA</b>	Two Type II, or one Type III PC Card slots; 32 bit CardBus and Zoomed Video Port support		
<b>Keyboard</b>	Full-size Windows 95 keyboard with integrated palm rest.		
<b>Pointing Device</b>	Synaptics TouchPad with two buttons, Edge Motion, and advanced features.		

**D Technical Data**

<b>Audio</b>	Yamaha enhanced stereo output with 3D audio; Sound Blaster Pro compatible.	
<b>Audio Ports</b>	One Line-in jack (stereo) One Line-out jack (stereo) One Microphone jack (mono)	
<b>Interfaces</b>	RS232 serial port, parallel port, external Monitor port, external PS/2 port, IrDA 1.1 compliant infrared port (ASK/SIR/FIR), USB port.	
<b>Power System</b>	Removable, cold swappable Nickel Metal Hydride battery pack, Lilon (Optional).	Removable, cold swappable Lithium Ion battery pack, NiMH (Optional)
<b>Dimensions</b>	313.5mm(W) x 243mm(D) x 48mm(H) 12.34"(W) x 9.56"(D) x 1.89"(H)	
<b>Weight</b>	2.8kg (6.2lbs) lbs with battery and CD-ROM	

**D Technical Data**

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# E Technical Support

Hitachi Software Engineering Co., Ltd. provides easy access to technical support information.

## World Wide Web Site

Access the latest technical information on Hitachi Software Engineering Co., Ltd.'s World Wide Web Site by entering our URL into your Internet browser:

[http://www.ms.hitachi-sk.co.jp/uk\\_note](http://www.ms.hitachi-sk.co.jp/uk_note)

This service features news and information about Hitachi Software products, customer service and support, Hitachi Software Engineering Co., Ltd.'s latest news releases, and more.

## Customer Support

Mastercare PC Service

Unit 10, Lenton Lane Industrial Estate  
Lenton Lane  
Nottingham NG7 2NR

Customer Support Line : 0115 971 1099

**E Technical Support**

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# ***SA200 Series***

## **GLOSSARY**



# Glossary

**AC adapter**

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

**Audio line-in jack**

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

**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 laptop 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 laptop 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.

## **Glossary**

---

### **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).

### **expansion memory module**

An optional board used to expand the laptop's memory (up to 128MB).

### **external speakers jack**

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

### **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 <Fn> and another key.

### **indicator lamp**

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

### **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.

**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 later in this Glossary) 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 later in this Glossary) slot. A compartment with a door in the housing of the laptop 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 laptop 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 altered things stored in ROM. Information in ROM is retained when you turn your computer off.

## **Glossary**

---

### **SCC**

(Super Clear Color) Hitachi's display technology used for the liquid crystal display.

### **SCSI**

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

### **self-diagnostic 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 laptop's power management functions. When the laptop is placed in Standby mode, the CPU clock stops, the LCD backlights turns off, and the hard disk drive motor spins down. The laptop 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 laptop when it is started up. The person assigned this security level can access all laptop functions including the BIOS Setup program.

### **Suspend mode**

One of the laptop's power management functions. When the laptop transits to Suspend mode, power is turned off to the CPU, LCD panel, hard disk drive, and floppy disk drives. The laptop 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 laptop.

### **TFT**

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



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**Glossary**

**User**

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

**Glossary**

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# ***SA200 Series***

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