Extensa 610

User's Manual

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IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions carefully. Save these instructions for future reference.

2. Follow all warnings and instructions marked on the product.

3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

4. Do not use this product near water.

5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

6. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.

7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

8. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.

9. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.

10. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

11. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.

12. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    a. When the power cord or plug is damaged or frayed

    b. If liquid has been spilled into the product

    c. If the product has been exposed to rain or water

    d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.

    e. If the product has been dropped or the cabinet has been damaged

    f. If the product exhibits a distinct change in performance, indicating a need for service

13. Replace battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified serviceman.

14. Warning! Battery may explode if not handled properly. Do not disassemble or dispose of in fire. Keep away from children and dispose of used battery promptly.

15. Use only the proper type of power supply cord set (provided in your accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SPT-2, rated 7A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

Concerning Lithium Batteries

ADVARSEL!
Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Léver det brugte batteri tilbage til leverandøren.

A D V A R S E L
Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende
type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

VARNING
Explosionsfara vid felaktigt batteribyte.
Anvãnd samma batterityp eller en ekvivalent typ som
rekommenderas av apparattillverkaren.
Kassera anvãnt batteri enligt fabrikantens instruktion

VAROITUS
Päristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

Canadian Department of Communications

Regulatory Statement

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

Le présent appareil numérique n'émet pas de bruits radio-électriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Réglement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

FCC Class B Radio Frequency Interference Statement

Note:

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

1. Reorient or relocate the receiving antenna.

2. Increase the separation between the equipment and receiver.

3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

4. Consult the dealer or an experienced radio/television technician for help.

Notice 1:

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

Notice 2:

Shielded interface cables, if any, must be used in order to comply with the emission limits.

About This Manual

Purpose

This manual discusses the features of the notebook and tells how to use and configure it. This manual, along with the online help, should familiarize you with all aspects of the notebook computer.

Manual Structure

This manual consists of eight chapters and two appendices:

Chapter 1, *Getting Started*, tells you how to get started with the notebook.

Chapter 2, *System Tour*, gives a guided and in-depth “tour” of the notebook and its features.

Chapter 3, *Power*, discusses issues on battery use and includes information on the unique power management system.

Chapter 4, *Options*, tells how to connect and install hardware options.

Chapter 5, *Software*, describes how to use certain system applications.

Chapter 6, *Setup*, explains how to configure the system using the BIOS Setup utility.

Chapter 7, *Traveling with the Notebook*, includes informative and useful tips on travel.

Chapter 8, *Troubleshooting*, lists the steps you can take to resolve problems in an easy Q&A format.

Appendix A, *Specifications*, lists the specifications of the notebook.

Appendix B, *Address and Interrupt Tables*, shows the address and interrupt tables.

An index is found after the appendices.

Conventions

The following conventions are used in this manual:

`C:\setup`, `[Enabled]`, etc.	Represent text input by the user, default settings and recommended selections
`message displayed`	Denotes actual messages that appear on screen
	**NOTE** Gives bits and pieces of additional information related to the current topic
	**WARNING** Alerts you if damage may result from doing or not doing specific actions
	**CAUTION** Gives precautionary measures to avoid possible hardware or software problems
	**IMPORTANT** Reminds you to take action relevant to the accomplishment of the procedure at hand
	**TIP** Tells how to complete a procedure with minimum steps through little shortcuts

1 Getting Started

2 System Tour

3 Power

4 Options

5 Software

6 Setup

Getting Started

Congratulations on your purchase of the Extensa 610 notebook computer. Guaranteed and backed by Acer's world-class support, you can be sure of top-notch performance with your new AcerNote. This chapter guides you through the first few steps on setting up your notebook computer.

1.1 Item Checklist

Carefully unpack the carton and remove the contents. If any of the following items are missing or damaged, contact your dealer immediately.

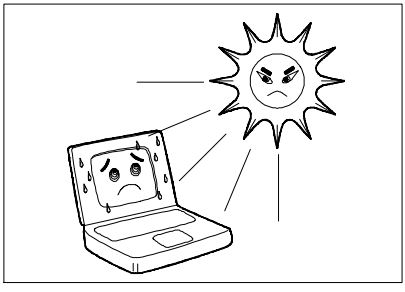
- Notebook computer
- Accessory box
  - AC adapter
  - Battery pack
  - User's manual
  - Other user documentation
  - System utilities
  - Third-party software and/or documentation

Check for optional items, if any.

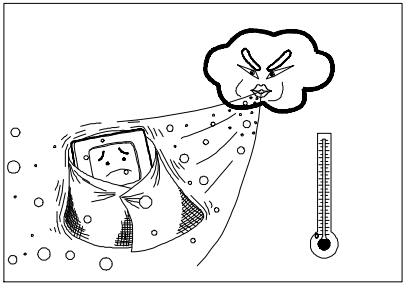
1.2 Taking Care of Your Computer

Your computer will serve you well if you take care of it. This section tells you how to care for the notebook. Also, re-read the important safety instructions at the beginning of this manual.

1.2.1 Notebook

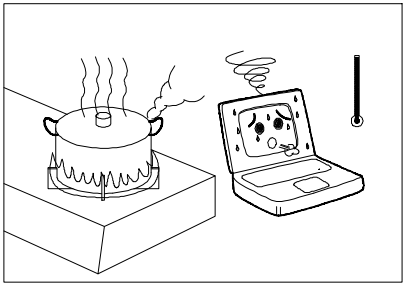


- Do not expose the notebook to direct sunlight. Do not place near sources of heat, such as a radiator.

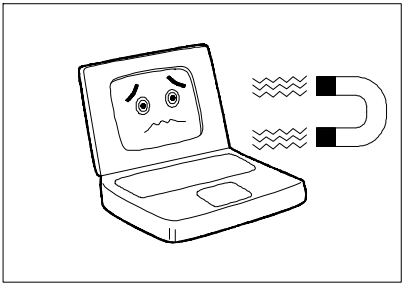


- Do not expose to temperatures below 0ºC (32ºF)

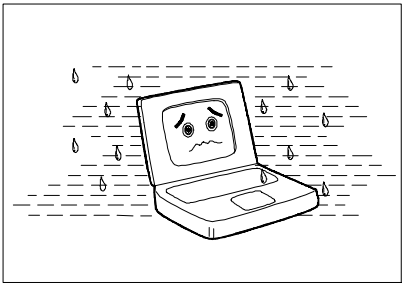
or



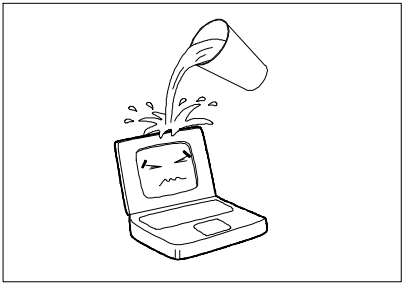
above 50ºC (122ºF).



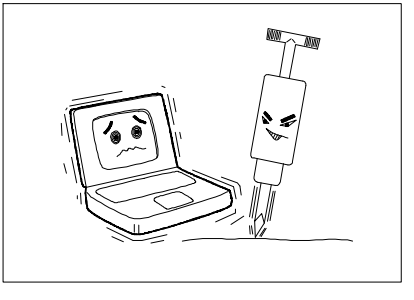
- Do not subject the notebook to magnetic fields.



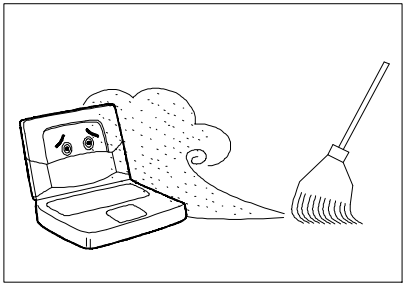
- Do not expose the notebook to rain or moisture.



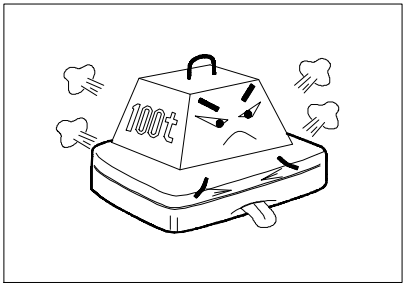
- Do not spill water on the notebook.



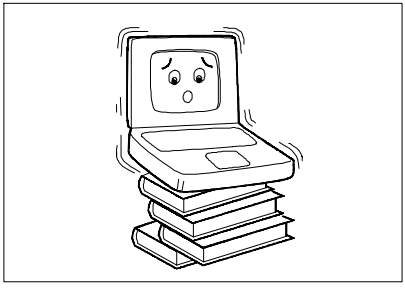
- Do not subject the computer to heavy shock and vibration.



- Do not expose the notebook to dust and dirt.



- Never place objects on top of the notebook to avoid damaging the notebook.



- Never place the notebook on uneven surfaces.

1.2.2 AC Adapter

Here are some ways of taking care of your AC adapter.

- Do not connect the adapter to any other device.
- Do not step on the power cord or place heavy objects on top of it. Carefully route the power cord and any cables away from personal traffic.
- When unplugging the power cord, do not pull on the cord itself but pull on the plug.
- The total ampere ratings of the equipment plugged in should not exceed the ampere rating of the cord if you are using an extension cord. Also, the total current rating of all equipment plugged into a single wall outlet should not exceed the fuse rating.

1.2.3 Battery Pack

Here are some ways of taking care of your battery pack.

- Use only batteries of the same kind as replacements. Turn the power off before removing or replacing batteries.
- Do not tamper with batteries. Keep them away from children.
- Dispose of used batteries according to local regulations. Recycle if at all possible.

1.2.4 Cleaning and Servicing

When cleaning the notebook, follow these steps:

1. Power off the notebook and remove the battery pack.
2. Disconnect the AC adapter.
3. Use a soft cloth moistened with water. Do not use liquid or aerosol cleaners.

Contact your dealer or see your service technician if any of the following occurs:

- Notebook has been dropped or the body has been damaged.
- Liquid has been spilled into the product.
- The notebook does not operate normally.

See sections 7.2 and 7.3 for contact information.

1.2.5 Diskettes

Following are some tips on diskette management:

- Always make backup copies of diskettes that contain important data or program files.
- Keep diskettes away from magnetic fields and sources of heat.
- Avoid removing a diskette from a drive when the floppy drive activity light is on.

- Write-protect your diskettes to prevent accidental erasure. To do this, slide the write-protect tab to the write-protect position.

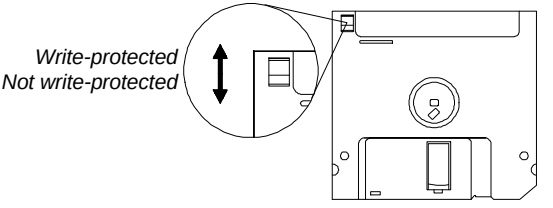
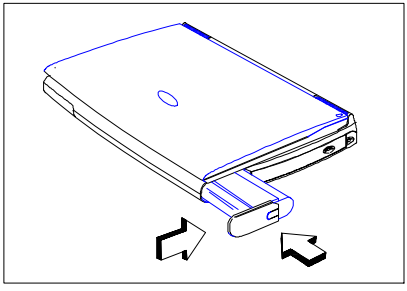


Figure 1-1 Write-protecting a 3.5-inch Diskette

- When you put a label on a 3.5-inch diskette, make sure that the label is properly attached (flat on the surface) and within the labelling area (area with slight surface depression) on the diskette. An improperly attached label may cause a diskette to get stuck in the drive when you are inserting or removing it.

1.3 Connecting the Notebook

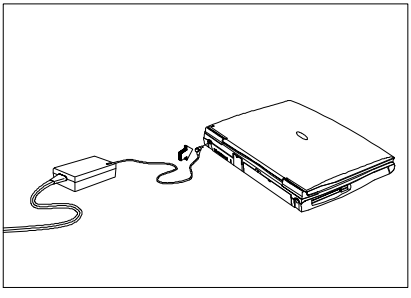
After reading through the previous section, you are now ready to experience your new notebook. Connecting the notebook is as easy is 1-2-3.



Inserting the Battery Pack

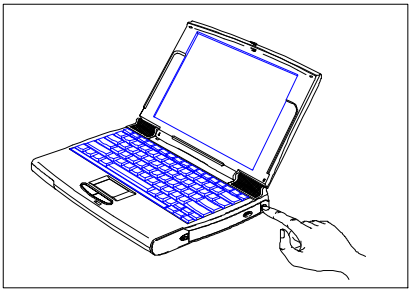
Insert the battery pack into the battery compartment and slide the battery compartment cover in place.

NiMH battery packs have pull loops at the end. You do not need to connect the cover to the battery.



Connecting the AC Adapter

Connect one end of the AC adapter to the DC-in port on the notebook's rear panel and the other end to a properly grounded power outlet.



Turning on the Power

Press the power switch to turn on the power.

The POST (Power On Self-Test) routine executes and Windows 95 begins loading.

To turn off power, press the power switch for more than four seconds. If you are using Windows 95, we recommend you use the Shutdown command to turn off the computer.

1.4 Getting Help Online

This user's manual provides clear and concise information about the notebook, so read it thoroughly. To provide you with help when traveling, the notebook has a comprehensive online help.

Accessing Online Help

Follow these steps to access the online documentation:

1. Press the Windows logo button or Click on the Start button.
2. Select Programs.
3. Click on Extensa 610.
4. Select Online Manual.

The online help is easy to navigate with hypertext and hypergraphics. Clear illustrations help describe notebook operation as well.

Getting Online

If you are connected to the Internet and have World Wide Web access, visit our home page (http://www.acer.com/) and get the latest information about our products.

System Tour

This notebook combines high-performance, versatility, power management features and multimedia capabilities in a uniquely stylish and ergonomic design case. Work with unmatched productivity and reliability with your new power computing partner.

This chapter gives an in-depth "tour" of the notebook's many features.

2.1 Features

The notebook was designed with the user in mind. Here are just a few of the notebook's many features:

Performance

- High-end Pentium microprocessor
- 64-bit main memory and external (L2) cache memory
- Large LCD display and PCI local bus video with graphics acceleration
- Internal CD-ROM drive or 3.5-inch floppy drive
- High-capacity, Enhanced-IDE hard disk
- Lithium-Ion or Nickel Metal-Hydride battery pack
- Power management system with standby and hibernation power saving modes

Multimedia

- 16-bit stereo audio with software wavetable
- Built-in dual speakers
- Ultra-slim, high-speed CD-ROM drive[1]

[1] Some areas or regions may not offer models with a built-in CD-ROM drive.

Human-centric Design and Ergonomics

- Lightweight and slim
- Sleek, smooth and stylish design
- Full-sized keyboard
- Wide and curved palm rest
- Centrally-located touchpad pointing device

Expansion

- Cardbus PC card (formerly PCMCIA) slots (two type II/I or one type III) with ZV (Zoomed Video) port support
- Upgradeable memory and hard disk

2.2 Display

The large graphics display offers excellent viewing, display quality and desktop performance graphics. The notebook supports two different display configurations –DSTN and TFT active matrix.

Video Performance

PCI local bus video with graphics accelerator and 1MB video RAM boost video performance.

Simultaneous Display

The notebook's large display and multimedia capabilities are great for giving presentations. If you prefer, you can also connect an external monitor when giving presentations. This notebook supports simultaneous LCD and CRT display. Simultaneous display allows you to control the presentation from your notebook and at the same time face your audience. You can even connect an LCD projection panel for large-audience presentations.

Power Management

The power management system incorporates an "automatic LCD dim"feature that automatically decides the best settings for your display and at the same time conserve power. See section 3.2 for more information on power management.

Opening and Closing the Display

To open the display, slide the display lid latch to the left and lift up the lid. Then tilt it to a comfortable viewing position.

The notebook employs a microswitch that turns off the display to conserve power when you close the lid, and turns it back on when you open the lid.

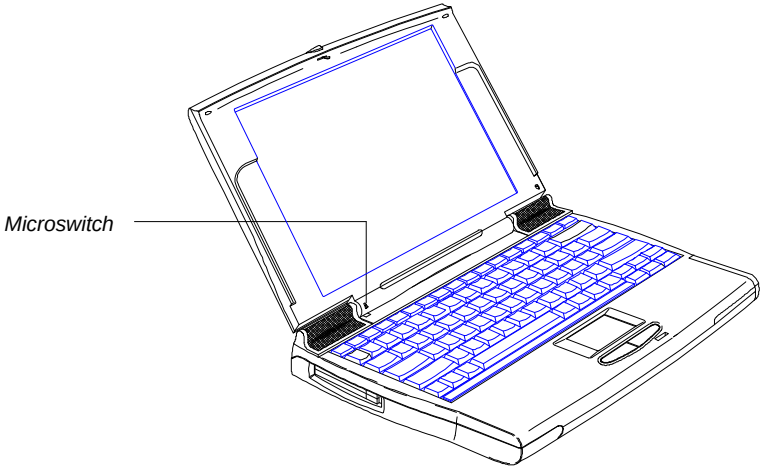


Figure 2-1 Display

To close the lid, fold it down gently until the display lid latch clicks into place.

To avoid damaging the display, do not slam it when closing. Do not place any object on top of the notebook when the display is closed.

2.3 Indicator Light

A two-way indicator light is found on the inside and outside of the display.

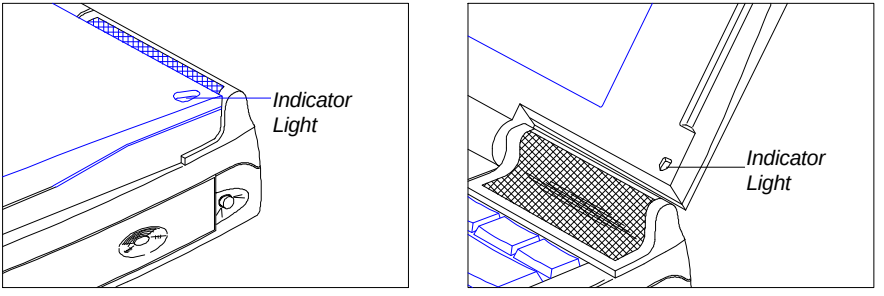


Figure 2-2 Indicator Light

This two-way indicator light allows you to see the notebook status when the display is open or closed. The indicator serves both as a power and battery-charging indicator. See Table 2-1.

Table 2-1 Indicator Status Descriptions

Indicator Status	Power	Condition
Green	On	Charged battery is installed **or** a power AC adapter is connected to the notebook.
Orange	Off	Battery is installed and a powered AC adapter is connected to the notebook and charging the battery (rapid charge mode).
Orange (Green inside)	On	Battery is installed and a powered AC adapter is connected to the notebook and charging the battery (charge-in-use mode).
Flashing	On	Battery is running low on power and no AC adapter is connected to the notebook.
	On	Computer is in standby mode.

To find out more about batteries, see Chapter 3.

2.4 Keyboard

The keyboard has full-sized keys that includes an embedded keypad, separate cursor keys, two Windows 95 keys and twelve function keys.

2.4.1 Keyboard Layout

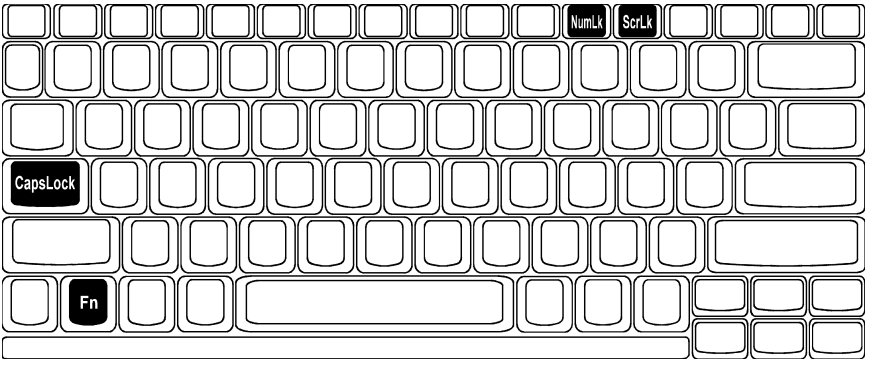
US

UK

Figure 2-3 Keyboard Layout

2.4.2 Special Keys

Lock Keys

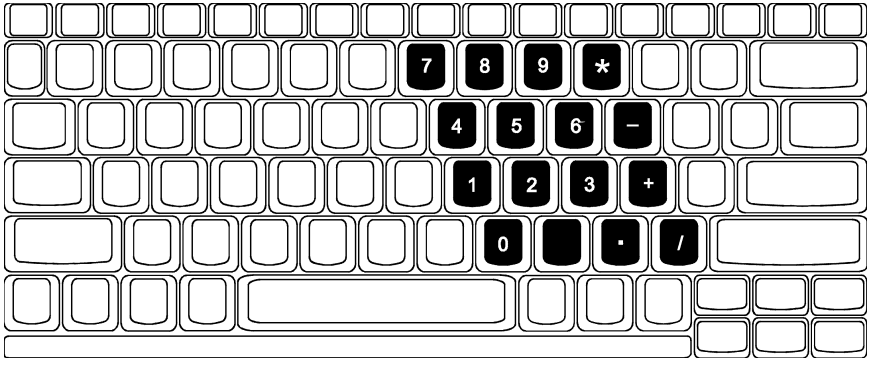


The keyboard has three lock keys which you can toggle on and off. See Table 2-2 for the lock key descriptions.

Table 2-2 Lock Key Descriptions

Lock Key	Description
Caps Lock	When Caps Lock is on, all alphabetic characters typed are in uppercase.
Fn-NumLk	When Num Lock is on, the embedded keypad is in numeric mode. The keys function as a calculator (complete with arithmetic operators +, -, *, and /). Use this mode when you need to do a lot of numeric data entry. A better solution would be to connect an external keypad.
Fn-ScrLk	When Scroll Lock is on, the screen moves one line up or down when you press ↑ or ↓ respectively. Scroll lock does not work with some applications.

Embedded Keypad



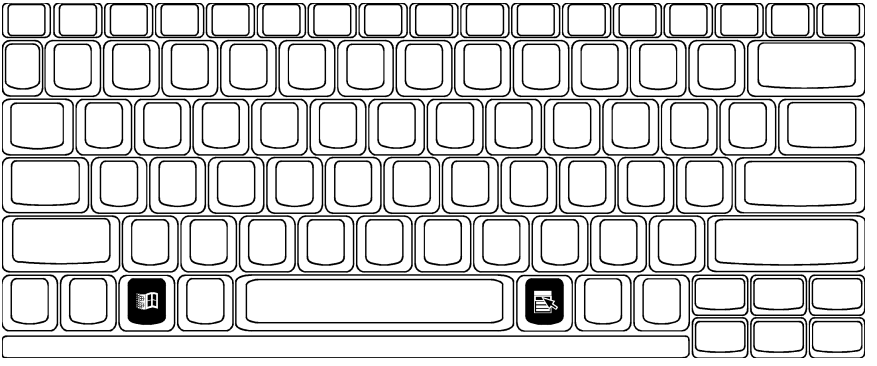
The embedded keypad functions like a desktop numeric keypad. It is indicated by small, encircled characters located on the upper right corner of the keycaps. To simplify the keyboard legend, the cursor-control key symbols are not printed on the keys. Table 2-3 tells how to use the embedded keypad.

Table 2-3 Using the Embedded Keypad

Desired Access	Num Lock On	Num Lock Off
Number keys on embedded keypad	Type numbers in a normal manner.	Hold **Fn** and **Shift** while using the number keys.
Cursor-control keys on embedded keypad	Hold **Shift** while using cursor-control keys.	Hold **Fn** while using cursor-control keys.
Main keyboard keys	Hold **Fn** while typing letters on embedded keypad.	Type the letters in a normal manner.

If an external keyboard or keypad is connected to the notebook, the numlock function only works on the external keyboard or keypad.

Windows 95 Keys

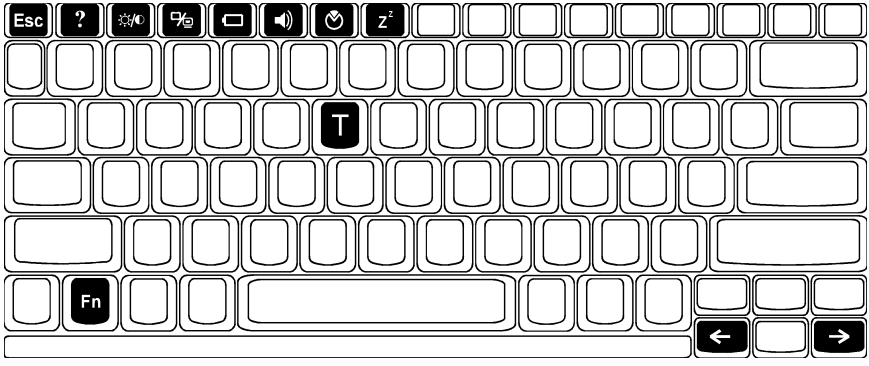


The keyboard has two keys that perform Windows 95-specific functions. See Table 2-4.

Table 2-4 Windows 95 Key Descriptions

Key	Description
Windows logo key	Start button. Combinations with this key performs special functions. Below are a few examples: • *Windows* + *Tab* Activate next Taskbar button • *Windows* + *E* Explore My Computer • *Windows* + *F* Find Document • *Windows* + *M* Minimize All • *Shift* + *Windows* + *M* Undo Minimize All • *Windows* + *R* Display Run dialog box
Application key	Opens the application's context menu (same as right-click).

Hot Keys



The notebook employs hot keys or key combinations to access most of the notebook's controls like screen contrast and brightness, volume output and the BIOS setup utility.

Table 2-5 Hot Key List

Hot Key	Icon	Function	Description
Fn-Esc		Hotkey Escape	Exits the hotkey control.
Fn-F1	?	Hotkey Help	Displays the hotkey list and help.
Fn-F2		Brightness Control  Contrast Control 	Toggles between brightness control and contrast control. Press the scale hotkeys (**Fn-**→, **Fn-**←) to increase and decrease the brightness or contrast level. Notebooks with TFT displays do not show the contrast control icon.
Fn-F3		Display Toggle	Switches display from LCD to CRT to both LCD and CRT.
Fn-F4		Battery Gauge 	Displays the battery gauge.

Table 2-5 Hot Key List (continued)

Hot Key	Icon	Function	Description
Fn-F5		Volume Control 	Press the scale hotkeys (**Fn-→**, **Fn-←**) to increase and decrease the output level.
Fn-F6		Setup	Gains access to BIOS setup utility's power management settings and system information reference screens. See section 6.5 and 6.6.
Fn-F7		Sleep	Enters hibernation mode if the hibernation function (Sleep Manager) is installed, valid and enabled; otherwise, the notebook enters standby mode.
Fn-→		Scale Increase	Increases the setting of the current icon.
Fn-←		Scale Decrease	Decreases the setting of the current icon.
Fn-T		Toggle Touchpad	Turns the internal touchpad on and off.

Activating and Using Hot Keys

When activating hot keys, press and hold the first key **Fn** before pressing the other keys in the hot key combination.

Some hot keys pop-up an onscreen icon as shown in Table 2-5. For hot keys with pop-up icons, press the scale hot keys (**Fn-**→ and **Fn-**←) to increase and decrease the setting of the current icon.

Exiting Pop-up Icons and Screens

Press hot key escape (**Fn-Esc**) to exit a pop-up icon resulting from a hot key. Press **Esc** to exit a screen resulting from a hot key.

2.4.3 Keyboard Ergonomics

Located below the keyboard, the wide and curved palm rest gives you a place to rest your hands while you type.

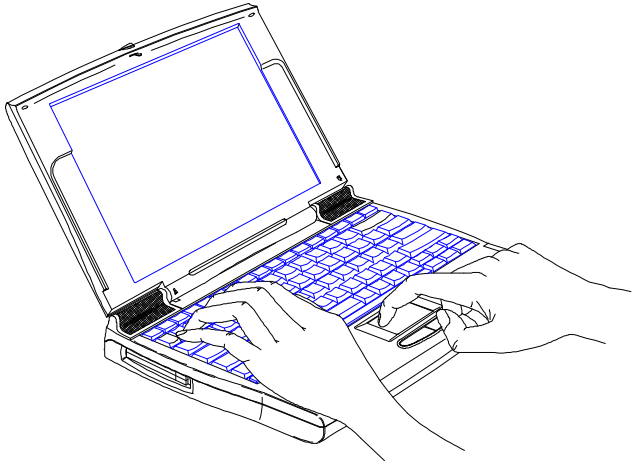


Figure 2-4 Palm Rest

2.5 Touchpad

The built-in touchpad is an PS/2-compatible pointing device that senses movement on its surface. This means the cursor responds as you move your finger on the surface of the touchpad. The central location on the palm rest provides ample comfort and support.

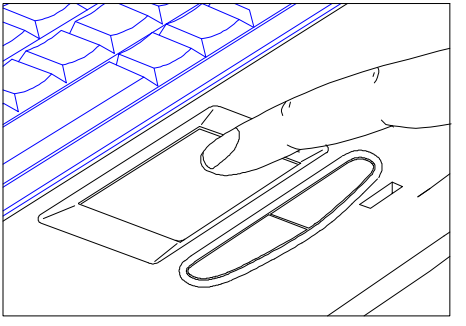


Figure 2-5 Touchpad

The touchpad works with most mouse drivers, but the bundled touchpad driver supports special functions that work uniquely with the touchpad. See section 5.4 for details.

*When using an external mouse, you can press **Fn-T** to disable the internal touchpad.*

Touchpad Basics

The following items teach you how to use the touchpad:

- Move your finger across the touchpad to move the cursor.
- Press the left and right buttons located on the edge of the touchpad to do selection and execution functions. These two buttons are similar to the left and right buttons on a mouse. Tapping on the touchpad produces similar results. See Table 2-6.

Table 2-6 Touchpad Functions

Function	Left Button	Right Button	Tap
Execution	Click twice quickly		Tap twice (at the same speed as double-clicking the mouse button)
Selection	Click once		Tap once
Drag	Click and hold to drag the cursor		Tap twice (at the same speed as double-clicking the mouse button) and hold finger to the touchpad on the second tap to drag the cursor
Access Context Menu		Click once	When Corner Taps is enabled, tap on the upper right corner of the touchpad. See section 5.4 on how to configure the touchpad.

Keep your fingers dry and clean when using the touchpad. Also keep the touchpad dry and clean.

The touchpad is sensitive to finger movements. Hence, the lighter the touch, the better the response. Tapping too hard will not increase the touchpad's responsiveness.

2.6 Storage

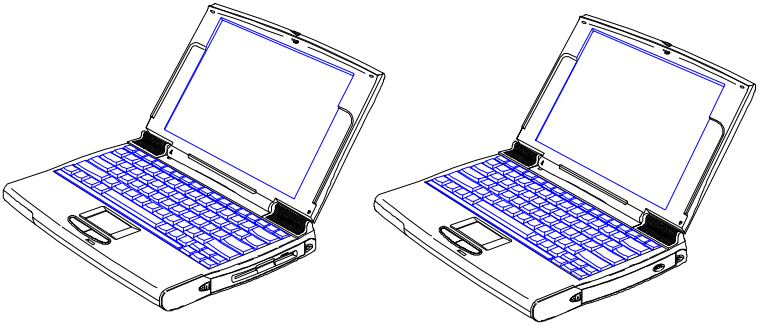
High-capacity storage comes in the form of a 2.5-inch Enhanced-IDE hard disk. The notebook also has either an internal 3.5-inch, 1.44MB floppy drive or an internal high-speed CD-ROM drive.

2.6.1 Hard Disk

The hard disk module can be upgraded when you need more storage space. See section 4.9.2 for details.

2.6.2 Internal Drive

The notebook comes with either a floppy drive or CD-ROM drive installed.

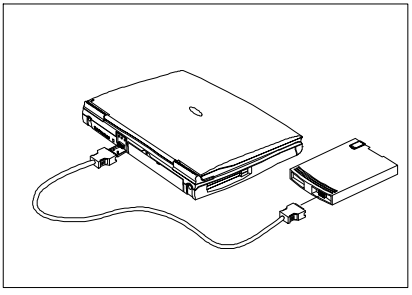


Internal Floppy Drive Model *Internal CD-ROM Drive Model*

Figure 2-6 Internal Drive

The CD-ROM drive gives you portable multimedia access. An external floppy drive is included for models with built-in CD-ROM drives.

External Floppy Drive



To use the external floppy drive, simply connect one end of the floppy drive cable to the floppy drive port and the other end to the connector on the external floppy drive.

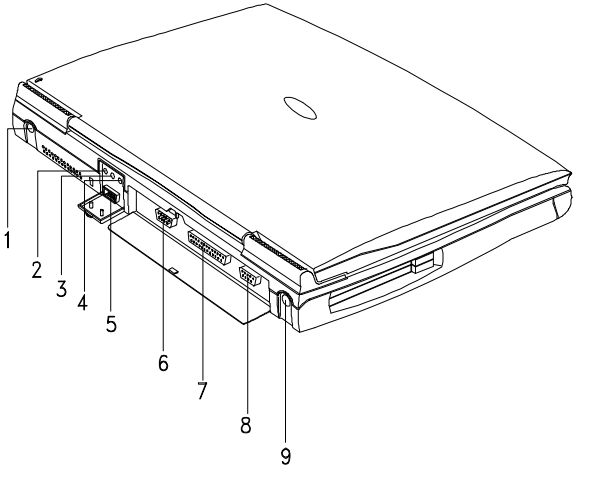
The external floppy drive is hot-pluggable. You do not need to turn off the computer to connect and use the floppy drive.

2.7 Ports

Ports allow you to connect peripheral devices to your notebook computer as you would with a desktop PC. The ports are found on the rear panel; PC card slots are found on the left panel of the notebook.

See Chapter 4 on how to connect external devices to the notebook.

2.7.1 Rear Ports



1 *DC-in Port*
2 *Microphone-in Port*
3 *Line-in Port*
4 *Line-out Port*
5 *External Floppy Drive Connector*
6 *Serial Port*
7 *Parallel Port*
8 *External CRT Port*
9 *PS/2 Port*

Figure 2-7 Ports and Connectors

Table 2-7 describes these ports.

Table 2-7 Port Descriptions

#	Icon	Port	Connects to...
1		DC-in Port	AC adapter and power outlet
2		Microphone-in Port	External 3.5mm minijack condenser microphone
3		Line-in Port	Line-in device (e.g., audio CD player, stereo walkman)
4		Line-out Port	Line-out device (e.g., speakers, headphones)
5		External Floppy Drive Connector	External floppy drive
6		Serial Port (UART16650-compatible)	Serial device (e.g., serial mouse)
7		Parallel Port (EPP/ECP-compliant)	Parallel device (e.g., parallel printer)
8		External CRT port	Monitor (up up to 1024x768, 256-colors)
9		PS/2 Port	PS/2-compatible device (e.g., PS/2 keyboard, keypad, mouse)

2.7.2 PC Card Slots

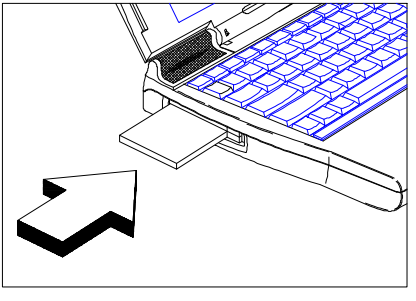
There are two type II/I or one type III Cardbus PC Card slots found on the left panel of the notebook. These slots accept credit-card-sized cards that enhances the usability and expandability of the notebook.

PC Cards (formerly PCMCIA) are add-on cards for portable computers, giving you expansion possibilities long afforded by desktop PCs. Popular type II cards include flash memory, SRAM, fax/data modem, LAN and SCSI cards. Common type III cards are 1.8-inch ATA drives and cellular modems. Cardbus improve on the 16-bit PC card technology by expanding the bandwidth to 32 bits.

ZV (Zoomed Video) port support allows your system to support hardware MPEG in the form of a ZV PC card.

Refer to your card's user's manual for details on how to install and use the card and its functions.

Inserting a Card



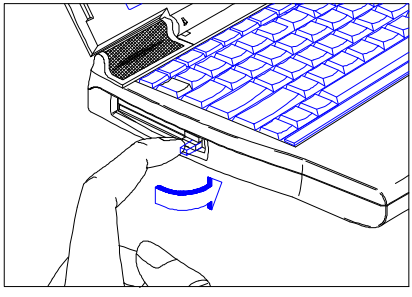
Insert the card into the desired slot and make the proper connections (e.g., network cable), if necessary. See your card manual for details.

For type III and ZV cards, insert card into the lower slot.

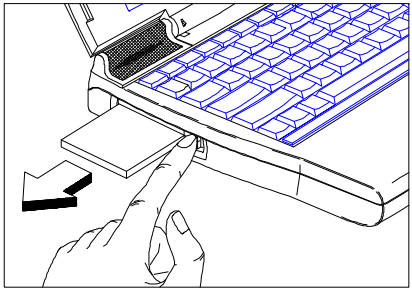
If the notebook detects a PC I/O card (e.g., modem card, ZV card) installed in the PC card slots, the notebook can only enter standby mode, and not hibernation mode.

Ejecting a Card

Exit the application using the card, then follow these steps:



Pull out the slot eject button of the slot where the card is inserted.



Press the slot eject button to eject the card.

2.8 Audio

Standard notebook configuration includes 16-bit stereo audio with further enhancements that include a software wavetable for more accurate sound reproduction. Dual speakers found on both sides of the display hinge direct sound towards you which allows for excellent sound output.

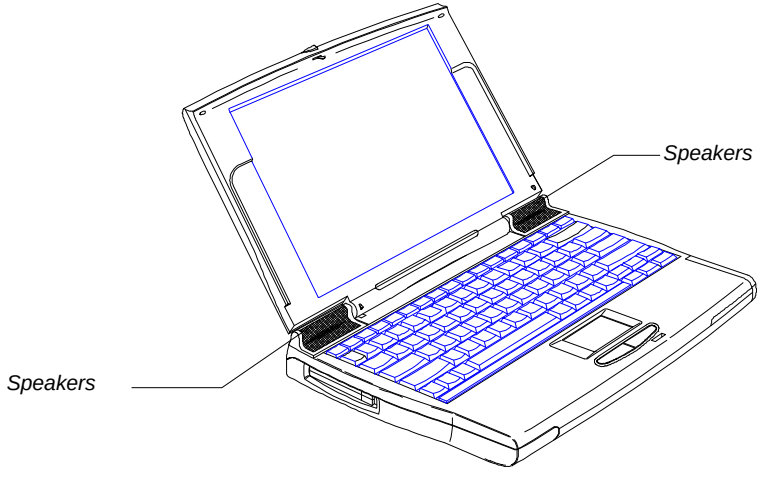


Figure 2-8 Built-in Speakers

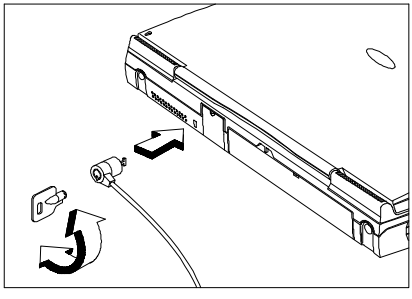
Besides the built-in speakers, there are audio ports on the rear panel of the notebook. See section 4.6 for more information.

2.9 Securing your Notebook

Security features include hardware and software locks ~~a~~ security notch and a two-level password scheme.

2.9.1 Security Notch

A security notch located on the rear panel of the notebook lets you connect a Kensington-compatible key-based computer security lock.



Circle or wrap a computer security lock cable around an immovable object such as a table or locked drawer handle. Insert the lock into the notch and turn the key to secure the lock.

2.9.2 Passwords

A two-level password scheme protects your notebook from unauthorized access. When set, no one can access the notebook without entering the correct password. For information on how to set passwords, see section 6.4.8.

Power

The notebook operates on AC or battery power. This chapter contains the information you need to know to operate the notebook on battery power. It also includes information about the power management system.

3.1 Battery Pack

The notebook uses a battery pack that gives you long use between charges.

3.1.1 Battery Pack Characteristics

The battery pack has the following characteristics:

- *Employs Current Battery Technology Standards* The notebook uses either a Lithium-Ion or Nickel Metal-Hydride (NiMH) battery pack. These battery types do not have the memory effect problem of Nickel Cadmium (NiCd). NiMH and especially Li-Ion batteries consistently provide the longest battery life, best-suited for road warriors.

- *Battery-low Warning* When the battery charge level becomes low, the notebook gives off warning beeps and the status indicator flashes at regular intervals. This tells the user that the battery power is critically low. You can correct this situation by recharging the battery pack.

Whenever possible, use the AC adapter. The battery will come in handy when you travel or during a power failure. It is advisable to have an extra fully-charged battery pack available for backup.

Currently, there is no defined standard for measuring battery life. Several factors have made it almost impossible to compare the battery life of different notebooks based on specifications alone. These factors include different implementations of power saving/management systems, applications in use, the user's "usage pattern", hard disk capacity and access frequency, LCD size and brightness, system form factor and weight.

If the system is to be stored for more than two weeks, we suggest that you remove the battery pack. Battery power (from a fully charged battery pack) depletes in roughly ten hours with the notebook in standby mode. When power is off, battery power depletes in one month.

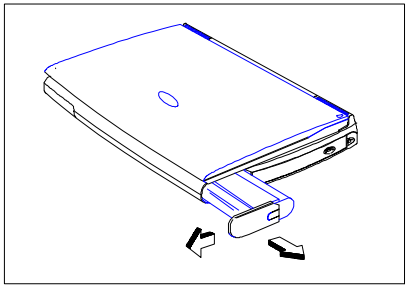
Do not expose battery packs to temperatures below 0ºC (32ºF) or above 60ºC (140ºF). This may adversely affect the battery pack.

3.1.2 Removing and Installing the Battery Pack

Removing the Battery Pack

Before removing the battery pack, make sure that you have an AC adapter connected to the notebook; otherwise turn off the notebook. The following figures illustrates how to remove the battery pack.

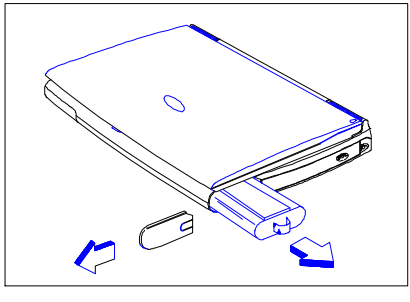
Lithium-Ion



Press the battery compartment cover release button and slide out the cover.

Then pull out the battery pack.

Nickel-Metal Hydride



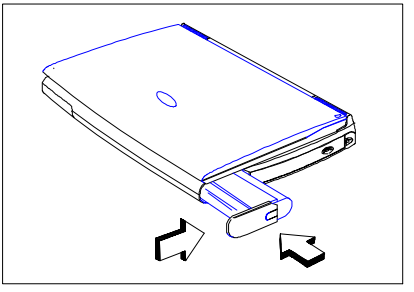
Press the battery compartment cover release button and slide out the cover.

Pull on the loop connected to the battery pack and remove the battery pack.

Installing the Battery Pack

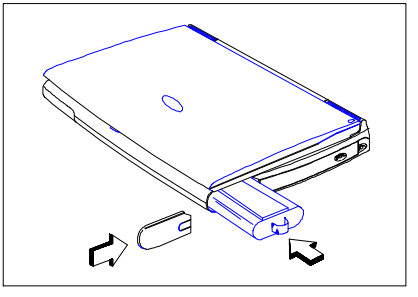
The following figure shows how to install the battery pack.

Lithium-Ion



Insert the battery pack into the battery compartment and slide in the battery compartment cover.

Nickel-Metal Hydride



Insert the battery pack into the battery compartment. Then slide in the battery compartment cover.

3.1.3 Charging the Battery

To charge the battery, place the battery pack inside the battery compartment and plug the AC adapter into the notebook and an electrical outlet. You can also purchase an optional external battery charger to charge the battery pack (see section 4.8.3 for details).

Charging Modes

The adapter has three charging modes:

- Rapid mode

  The notebook uses rapid charging when power is turned off and a powered AC adapter is connected to it. In rapid mode, a fully depleted battery gets fully charged in approximately two hours.

- Charge-in-use mode

  When the notebook is in use with the AC adapter plugged in, the notebook also charges the battery pack if installed. This mode will take longer to fully charge a battery than rapid mode. In charge-in-use mode, a fully depleted battery gets fully charged in approximately six to eight hours.

- Trickle mode

  When the battery is fully charged, the adapter changes to trickle mode to maintain the battery charge level. This prevents the battery from draining while the notebook is in use.

We suggest that you charge the battery pack before retiring, letting it charge overnight before traveling. This ensures a fully charged battery for use the next day.

3.1.4 Checking the Battery Level

The notebook features battery-low warning signals that are both audible and visible. When the battery pack is low, the notebook emits warning beeps and the battery indicator flashes at regular intervals. Also, you can check the battery charge level using the onscreen battery gauge.

Using the Onscreen Battery Gauge

To access the onscreen battery gauge, press **Fn-F4**. The battery level icon displays onscreen.

The onscreen battery gauge indicates the present battery level.

3.1.5 Optimizing Battery Life

This section helps you get the most out of battery operation. Optimizing battery life prolongs the charge/recharge cycle and improves recharge efficiency. Follow these suggestions to optimize and maximize battery power:

- Purchase an extra battery pack.
- Use the Sleep Manager utility to reserve hard disk space for the hibernation function. See section 5.2.
- Use the AC adapter whenever possible so that the battery is reserved for on-the-go computing.
- Keep the battery pack in the notebook powered by the AC adapter. The constant trickle charge maintains the battery level to eliminate the battery self-discharge effect. The charge-in-use function also charges the battery pack.
- Disable the parallel and serial ports if no devices are connected to these ports. You can do this through Setup. See sections 6.4.5. and 6.4.6.

- Eject the PC card from the card slot when not in use, since the PC card draws extra power.

- Store the battery pack in a cool, dry place. The recommended storage temperature for battery packs ranges from 10 to 30 degrees C. The higher the storage temperature, the faster the battery pack self-discharges.

- The batteries can be recharged about 500 times when used as directed. Excess recharging decreases battery life.

- Take care of your battery pack and AC adapter. See sections 1.2.2 and 1.2.3 for details.

3.1.6 Battery-low Warning

You never have to worry about battery power as long as you are using the AC adapter. However, when you operate the notebook on battery power, pay extra attention to the warning beeps and the indicator light on the display panel. The indicator flashes when the battery power is low.

The following signals indicate a battery-low condition:

- The buzzer generates four short beeps every minute, if you enabled the Battery-low Warning Beep parameter in Setup

- The status indicator flashes at regular intervals until battery power is depleted

When you receive a battery-low warning, you have around three minutes to save your work. If you do not connect the AC adapter within this period, the notebook enters hibernation mode if the Sleep Upon Battery-low parameter in Setup is enabled and the following conditions exist:

- There is enough battery power left to save system information onto the hard disk.

- The reserved disk space for saving these data is larger than the combined system and video memory size (Sleep Manager).

Otherwise, the notebook enters standby mode.

Connect the AC adapter or insert a charged battery pack into the notebook as soon as possible. Data is lost when notebook power is cut off during standby mode.

Table 3-1 lists the recommended course of action when you encounter a battery-low condition.

Table 3-1 Course of Action for Battery-low Condition

Situation	Recommended Action
AC adapter and power outlet available	1. Connect the AC adapter to the system. 2. Save all necessary files. 3. Resume work. Power off the notebook if you wish to recharge the battery rapidly.
An extra fully-charged battery pack available	1. Save all necessary files. 2. Exit the application. 3. Power off the notebook. 4. Replace the battery pack. 5. Power on the notebook and resume work. or 1. Save all necessary files. 2. Enter hibernation mode. 3. Install the extra battery pack. 4. Resume from hibernation mode.
AC adapter or power outlet not available	1. Save all necessary files. 2. Exit the application. 3. Power off the notebook. or 1. Save all necessary files. 2. Enter hibernation mode.

3.2 Power Management

This notebook has a built-in power management unit that monitors system activity. System activity refers to any activity involving one or more of the following devices: keyboard, mouse, floppy drive, hard disk, peripherals connected to the serial and parallel ports, and video memory. If no activity is detected for a specified period of time (called an inactivity time-out), the system switches to one of the power-saving modes to conserve energy. These power-saving modes are display standby mode, hard disk standby, and two sleep modes (standby and hibernation).

The BIOS Utility allows you to specify the inactivity time-out.

The power management function may not work when the cursor is emulated by software such as Chinese system (ET v3.1), Japanese system (DOS/V), Word for Windows, etc.

3.2.1 Power Management Modes

Display Standby Mode

Screen activity is determined by the keyboard, the built-in touchpad, and an external PS/2 pointing device. If these devices are idle for the period specified by the Display Standby Timer, the display shuts off until you press a key or move the touchpad or external mouse.

We strongly recommend you to enable the Display Standby Timer with a shorter time interval to prolong your battery life.

"Automatic Dim" Feature

The notebook has a unique "automatic dim" power saving feature. When the notebook is using AC power and you disconnect the AC adapter from the notebook, the system "decides" whether or not to automatically dim the LCD backlight to save power.

If the LCD backlight is too bright, the system automatically adjusts it to a manageable level; otherwise, the level stays the same. If you want a brighter picture, you can then adjust the brightness and contrast level using hotkeys (**Fn-F2**[1]).

If you reconnect AC power to the system, the system automatically adjusts the LCD backlight to its original level — the brightness and contrast level before disconnecting the AC adapter. If you adjusted the brightness and contrast level after disconnecting AC power, the level stays the same after you reconnect the AC adapter.

Hard Disk Standby Mode

The hard disk enters standby mode when there are no disk read/write operations within the period of time specified by the Hard Disk Standby Timer. In the standby state, the power supplied to the hard disk is reduced to a minimum. The hard disk returns to normal once the system accesses it.

Hibernation Mode

In hibernation mode (also known as zero-volt suspend-to-disk mode), power shuts off. The notebook saves all system information onto the hard disk before it enters hibernation mode. Once you turn on the power, the notebook restores this information and resumes where you left off upon leaving hibernation mode.

A necessary condition for the notebook to enter hibernation mode is that the reserved space (created by the Sleep Manager utility) for saving system information on the hard disk must be larger than the combined system and video memory size. Under such conditions, the sleep hot key acts as the hibernation hot key. See section 5.2 for information on the Sleep Manager.

[1] After pressing this key combination, press **Fn-**→ and **Fn-**← to increase and decrease the current setting. Press **Fn-Esc** to close the pop-up.

In this situation, there are four ways to enter hibernation mode:

- Press the sleep hot key **Fn-F7** (Z^z) with System Sleep Mode set to [Hibernate].
- Set a value for the System Sleep Timer in Setup with System Sleep Mode set to [Hibernate]. If the waiting time specified by this time elapses without any system activity, the system goes into hibernation mode
- Enable the Sleep Upon Battery-low parameter in Setup. If a battery-low condition takes place, the notebook enters hibernation mode in about five minutes. See section 3.1.6.
- Invoked by the operating system power saving modes

If the notebook beeps but does not enter hibernation mode after pressing the sleep hot key, it means the operating system does not allow the notebook to enter the power saving mode.

When the notebook enters hibernation mode, the whole system does not consume any power. This is why hibernation mode is also called zero-volt suspend.

To exit hibernation mode, press the power switch (⏻). The notebook also resumes from hibernation mode if the resume timer is set and matched.

Do not change any system devices when the notebook is in hibernation mode.

If the notebook detects a PC I/O card installed in the PC card slots, the notebook can only enter standby mode, and not hibernation mode.

Standby Mode

The notebook consumes very low power in standby mode. Data remain intact in the system memory until battery is drained.

There are four ways to enter standby mode:

- Press the sleep hot key **Fn-F7** (Z^z) with System Sleep State set to [Standby].
- System Sleep Mode set to [Hibernate] but the reserved area made by Sleep Manager is insufficient. See section 5.2 for details.
- Set a value for the System Sleep Timer in Setup with System Sleep Mode set to [Standby]. If the waiting time specified by this timer elapses without any system activity, the notebook goes into standby mode.
- Invoked by the operating system power saving modes with System Sleep Mode set to [Standby].
- Closing the display cover.

If the notebook beeps but does not enter standby mode after pressing the sleep hot key, it means the operating system does not allow the notebook to enter the power saving mode.

The following signals indicate that the notebook is in standby mode:

- The buzzer beeps (when you press the standby/suspend hot key)
- The indicator light flashes

Unstored data is lost when you turn off the notebook power in standby mode or when the battery is drained.

To leave standby mode and return to normal mode:

- Press any key
- Move the active pointing device (internal or external, PS/2 or serial)
- Resume Timer is set and matched
- Opening the display cover
- If an incoming PC card modem event occurs and the Modem Ring Resume On Indicator is enabled, the notebook returns to normal mode.

If the notebook detects a PC I/O card (e.g., modem card, ZV card) installed in the PC card slots, the notebook can only enter standby mode, and not hibernation mode.

3.2.2 Advanced Power Management (APM)

This notebook supports the APM standard designed to further reduce system power consumption. APM is a power-management approach defined jointly by Microsoft and Intel. An increasing number of software supports APM to take advantage of power saving features and allows greater system availability without degrading performance.

DOS

You can use the APM feature under the DOS environment by including the POWER.EXE command in the CONFIG.SYS file. See the MS-DOS manual for instructions on how to edit the CONFIG.SYS file. For more information about APM, type the following at the DOS prompt:

```
HELP POWER.EXE    e
```

Windows 3.x

To enable APM under the Windows environment, run Windows Setup and select `MS-DOS System with APM` as your computer type in the System Information menu. Refer to the Windows user's guide for details.

Windows 95

To enable APM under Windows 95, follow these steps:

1. Select the Start button, then Settings, then Control Panel.
2. Double-click on the System icon in the Control Panel window.
3. Select the Device Manager tab and double-click on System devices.
4. Double-click on Advanced Power Management support.

   If the device is not working properly, select the Settings tab and verify if the check box for enabling power management support is selected.

Refer to the Windows 95 user's guide for details.

1. *If you enable the Power Management Mode parameter in Setup without installing the APM under DOS, Windows or Windows 95, the system time and date do not display the correct settings after the notebook returns to normal operation from standby or hibernation mode. To update the time and date, reboot the notebook. Enable APM to avoid this problem.*

2. *You can not change any power management parameter in the Setup screen after APM is enabled because it is controlled by APM.*

Advanced Power Management greatly prolongs battery life. Use APM whenever possible.

Options

Your notebook offers excellent expansion capabilities with its built-in ports and connectors. This chapter describes how to connect peripherals and hardware options that help you use your notebook computer with ease. When connecting peripherals, read the manual included with the peripheral for operating instructions.

This chapter also includes sections on how to upgrade key components. Key component upgradeability guards your notebook from becoming obsolete.

4.1 External Monitor

To show graphical effects on a larger display, open the port cover and connect an external monitor to the CRT port ( ). Read the monitor manual for additional instructions.

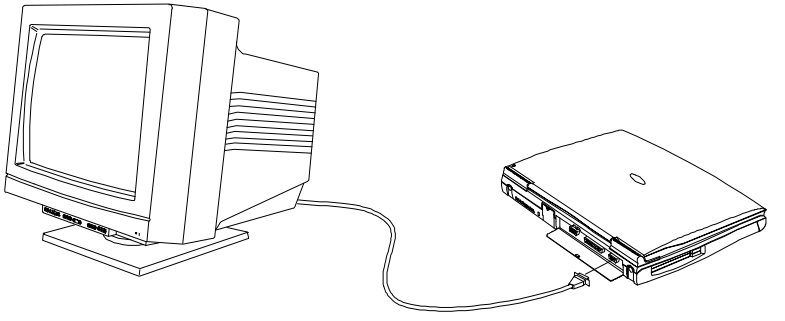


Figure 4-1 Connecting an External Monitor

Closing the notebook display puts the system into standby mode.

4.2 External Keyboard

This notebook has a keyboard with full-sized keys and an embedded keypad. If you feel more comfortable using a desktop keyboard, you can install a PS/2-compatible external keyboard.

To connect an external keyboard, plug the external keyboard into the PS/2 connector ( ).

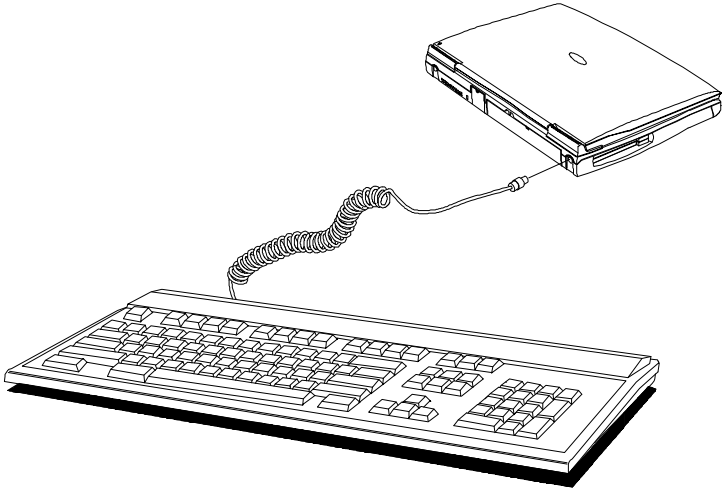


Figure 4-2 Connecting an External Keyboard

4.3 External Keypad

You can also use a 17-key numeric keypad for number-sensitive data entry applications. To connect the keypad, plug in the keypad connector to the PS/2 port ( ) at the rear of the notebook.

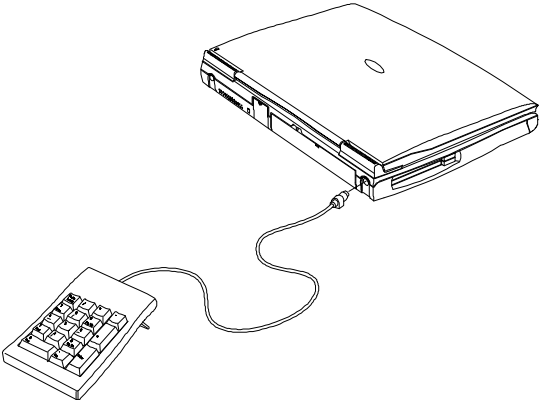


Figure 4-3 Connecting an External Keypad

4.4 External Pointing Device

This notebook accepts either a PS/2-compatible or serial mouse or similar pointing device.

The built-in touchpad works alternately with an external PS/2 mouse which is hot-pluggable. To use a PS/2-compatible mouse, simply plug it into the PS/2 port ( ).

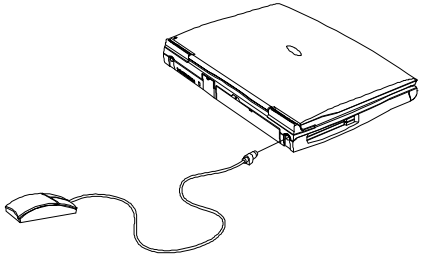


Figure 4-4 Connecting an External PS/2 Mouse

If you use a serial mouse, open the port cover and plug it into the serial port ( ). To enable the serial mouse, use the Add New Hardware tool in the Windows 95 Control Panel.

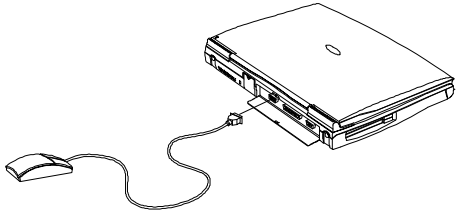


Figure 4-5 Connecting an External Serial Mouse

*When using an external mouse, you may choose to disable the internal touchpad by pressing **Fn-T**.*

4.5 Printer

This notebook supports both serial and parallel printers. For a serial printer, plug the printer cable into a serial port (). For a parallel printer, open the port cover and plug the printer cable into the parallel port (). See your printer manual for operating instructions.

If the printer does not function, enter Setup and see to it that the parallel port is enabled. Refer to section 6.4.6 for assistance.

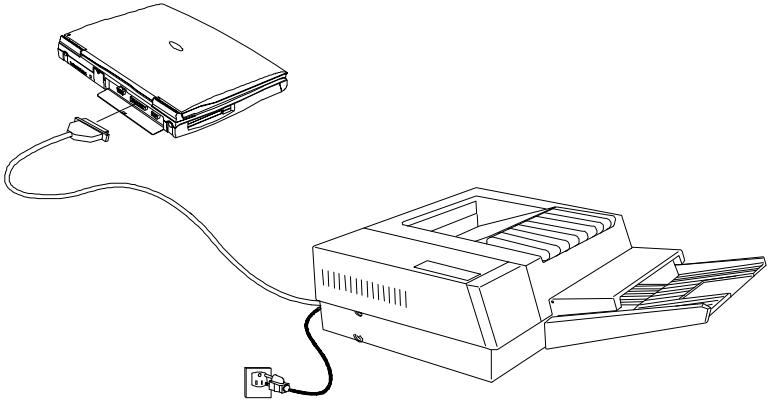


Figure 4-6 Connecting a Parallel Printer

4.6 Audio Devices

To connect audio devices, open the mini port cover and plug in an external microphone, a line-in device and amplified speakers or headphones to the microphone-in, line-in and line-out ports, respectively.

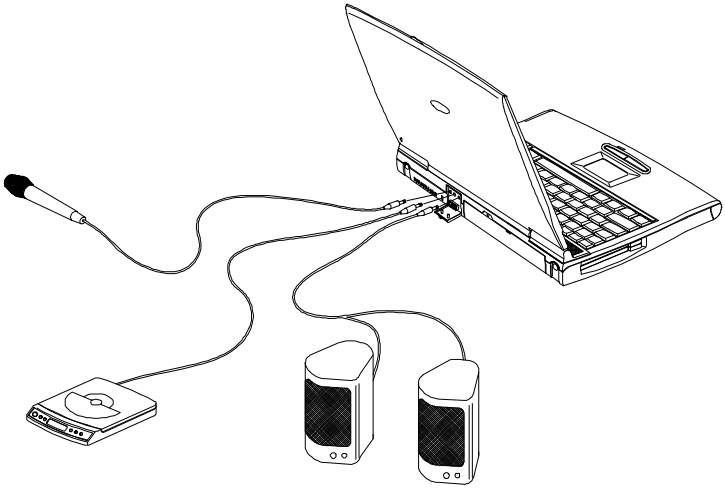


Figure 4-7 Connecting Audio Devices

4.7 PC Cards

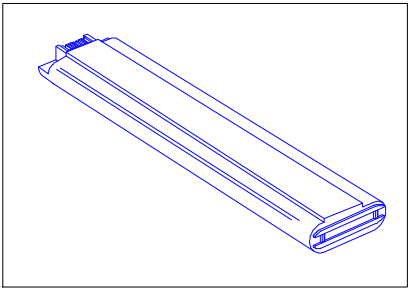
The notebook has two Cardbus PC card slots that accommodate two type I/II or one type III PC card(s). Please consult your dealer for PC card options available that you can purchase for your notebook.

4.8 Miscellaneous Options

4.8.1 Additional Power Packs

You can order spare batteries, AC adapter, and an external battery charger.

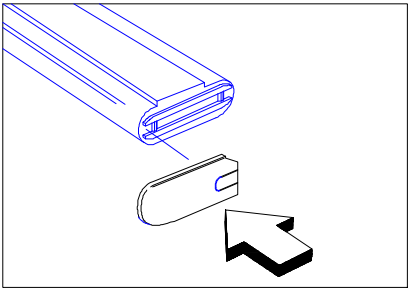
Battery Pack



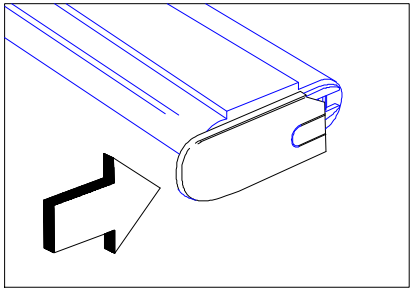
It is good practice to have a spare battery around, especially when you travel. The NiMH and Li-Ion batteries, coupled with power management features, supply you with more power on-the-go.

Attaching the Battery Compartment Cover

Lithium-Ion battery pack comes attached with a battery compartment cover. In case the cover gets detached, follow these steps to re-attach the cover to the battery.

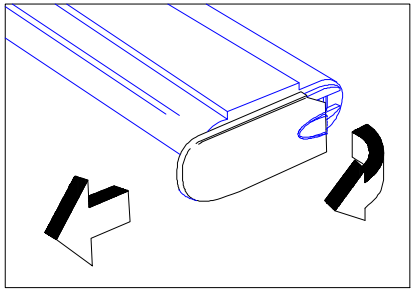


1. Position the battery compartment cover over the battery pack.



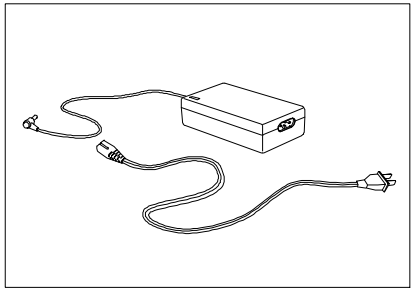
2. Using a little force, slide the battery compartment cover over the battery until both the cover and the battery are firmly attached. See figure on the left.

Detaching the Battery Compartment Cover



Slightly pull up the battery compartment cover release latch and slide out the cover.

AC Adapter



The compact AC adapter charges your battery pack and supplies power to your notebook.

External Battery Charger

The external battery charger fully recharges your Nickel Metal-Hydride (NiMH) and/or Lithium-Ion (Li-Ion) battery packs. Charging times for NiMH and Li-Ion are 2 hours and 4 to 5 hours, respectively.

You can also use the external battery charger to discharge Nickel Metal-Hydride (NiMH) battery packs before charging for optimum recharge efficiency. Li-Ion battery packs do not need to be discharged before recharging.

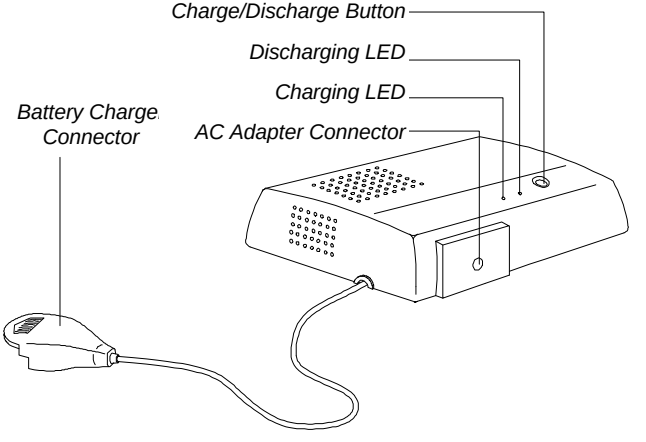
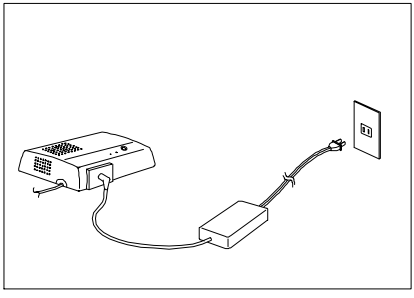


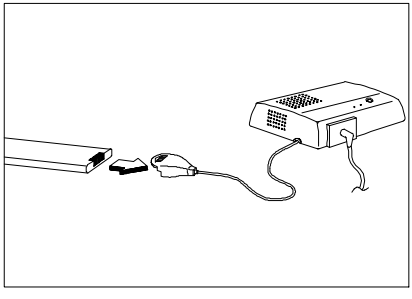
Figure 4-8 External Battery Charger

Using the External Battery Charger

Follow these steps:



1. Plug the AC adapter into a power outlet.
2. Connect the AC adapter to the external battery charger.



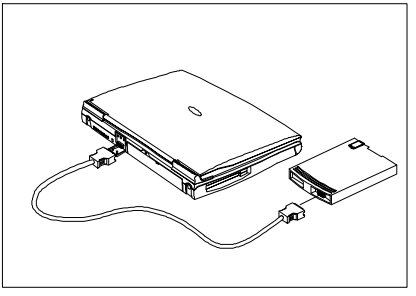
3. Attach the battery pack to the battery charge connector.
4. If you are recharging a NiMH battery pack, press the discharge button (discharge LED lights up). When discharging completes (discharge LED turns off), the external battery charger begins recharging the battery pack.

The charging LED lights up. When recharging completes, the charging LED turns off.

4.8.2 Cables

Floppy Drive Cable

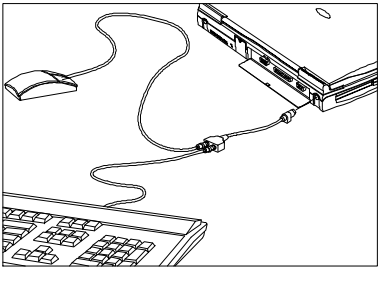
The floppy drive cable connects your floppy drive to the notebook. This cable is supplied along with the floppy drive.



Open the mini port cover of the notebook and connect one end of the floppy drive cable to the floppy drive port and the other end to the external floppy drive connector.

PS/2 Y-Bridge Cable

The PS/2 Y-bridge cable allows you to connect two PS/2 devices, mouse and keyboard, to your notebook simultaneously.



Connect the single connector end of the Y-bridge cable to the notebook's PS/2 port and the double connector ends to the two PS/2 devices.

Take note of the icons on the double connector before connecting the devices.

File Transfer Cable

You can use a file transfer cable to transfer data between the notebook and other computers. Connect the file transfer cable between the two computers and use your file transfer utility to perform the transfer.

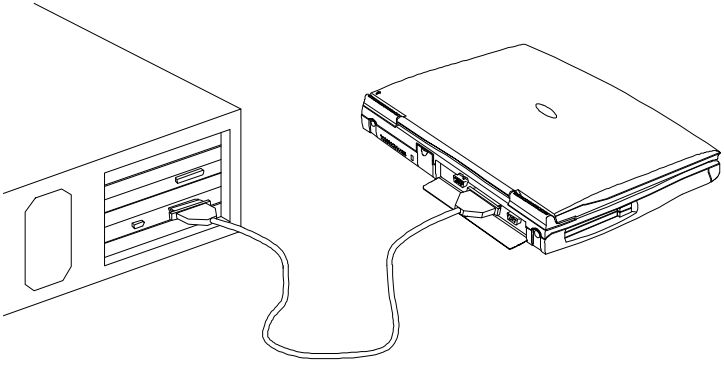


Figure 4-9 Using the File Transfer Cable

4.9 Key Component Upgrades

The notebook delivers superior power and performance. However, some users and the applications they use may demand more. This notebook allows you to upgrade your key components when you need increased performance.

Contact your authorized dealer if you decide to perform a key component upgrade.

4.9.1 Memory Upgrade

Memory is upgradeable from 8 to 64 MB, employing 8-/16-/32-MB 64-bit soDIMMs (Small Outline Dual Inline Memory Modules). The following table lists all possible memory configurations.

Memory Configurations

Table 4-1 Memory Configurations

Slot 1	Slot 2	Total Memory
8 MB	0 MB	8 MB
0 MB	8 MB	8 MB
8 MB	8 MB	16 MB
16 MB	0 MB	16 MB
0 MB	16 MB	16 MB
16 MB	8 MB	24 MB
8 MB	16 MB	24 MB
16 MB	16 MB	32 MB
32 MB	0 MB	32 MB
0 MB	32 MB	32 MB
32 MB	8 MB	40 MB

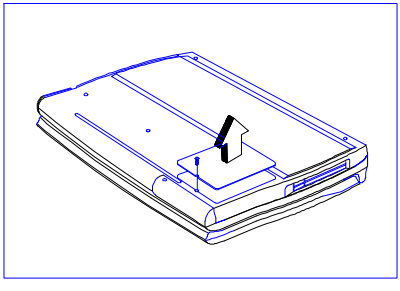
Table 4-1 Memory Configurations (continued)

Slot 1	Slot 2	Total Memory
8 MB	32 MB	40 MB
32 MB	16 MB	48 MB
16 MB	32 MB	48 MB
32 MB	32 MB	64 MB

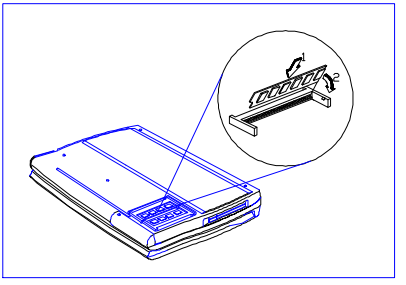
Installing Memory

When installing memory, we recommend you seek the help of a qualified service technician. Improper installation may damage the memory module or the notebook, or cause a malfunction.

Follow these steps to install an additional memory module.

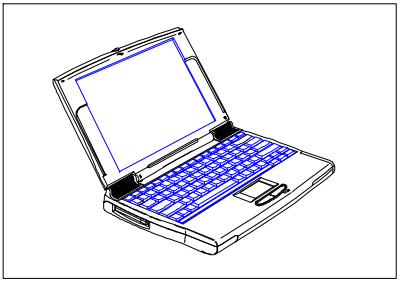


1. Turn off the computer, then turn the computer over on its base.
2. Remove the screw that secures the memory door and lift the door up.



3. (1) Insert the memory module diagonally into the slot, then (2) gently press down the module until it clicks into place.

4. Replace the memory door and secure it with the screw.



5. Turn on the notebook.

After installing the memory modules, the system automatically detects and reconfigures the total memory size during the POST routines.

4.9.2 Hard Disk Upgrade

You can upgrade your hard disk with a higher capacity drive when you need more storage space. The notebook uses a 12.5mm, 2.5-inch Enhanced-IDE hard disk that is auto-detected or user-defined. The following table shows the available, supported hard disks.

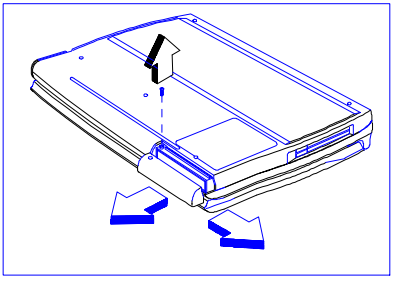
Table 4-2 Hard Disk List

Vendor	Model	Capacity
Toshiba	MK1301MAV	1.3 GB
IBM	DMCA14400	1.44 GB

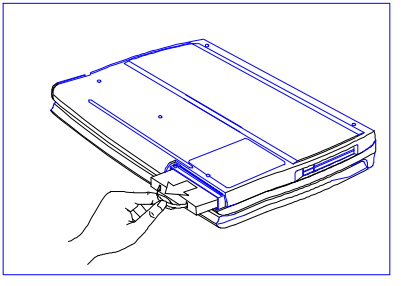
Use the blank spaces to record additional hard disks that will be available in the future.

Upgrading the Hard Disk

Follow these steps to remove and install the hard disk.



1. Turn off the computer, then turn the computer over on its base.
2. Remove the screw that secures the hard disk door, then (1) slide out and (2) pull out the hard disk door.



3. Pull out the hard disk using the pull tab.
4. Insert the replacement hard disk until you feel the contacts engage.
5. Replace the hard disk door secure it with the screw.

Software

The notebook comes pre-loaded with software and system utilities. This chapter discusses these system utilities[1], their features and functions.

[1] System utilities may differ according to system configuration.

5.1 System Software

The notebook comes preloaded with the following software:

- Windows 95[1]
- System utilities and application software[2]
  - Sleep Manager hibernation utility
  - SafeOff utility
  - Touchpad driver
  - Display drivers
  - Audio drivers
  - Other third-party application drivers and software

Accessing the Applications

To access most of the software applications, click on the Start button and select the application folder. Then click on the application icon to run the selected application.

To know about the software and utility, make use of the online help provided by the software.

[1] In some areas, a different operating system may be pre-loaded instead of Windows 95.
[2] The system utilities and application software list may vary.

5.2 Sleep Manager

Notebooks usually feature built-in power-saving functions. In addition to the normal standby mode for power-saving, this notebook is also capable of a power management feature called hibernation mode. When a hibernation event occurs, this built-in function saves all the system's current status onto your hard disk in the form of a file. The system then shuts off the power. When the user resumes (pressing the power switch), the system will restore the data from the hard disk and resume from where you left off upon leaving hibernation mode.

Sleep Manager is a utility that reserves hard disk space needed to successfully perform the hibernation feature. The user can use this utility to create a contiguous area that resides on the hard disk. Once the reserved space is created, the notebook will be capable of the hibernation feature. User can also use this utility to remove the reserved space from the disk. In this case, the machine will not be able to enter hibernation mode.

Sleep Manager is functionally-connected with the Advanced Power Management (APM) system of Microsoft Windows. Sleep Manager uses many advanced APM functions. Sleep Manager is capable of auto-create and auto-recover features. If the system memory size was changed or the reserved space on the hard disk was corrupted, Sleep Manager will reallocate the hard disk space for you automatically.

5.2.1 Accessing the Sleep Manager

There are two ways to bring up the Sleep Manager:

- Taskbar. Double-click on the Sleep Manager status icon if enabled.
- Start menu
    1. Click on the Start button.
    2. Select Programs.
    3. Select Sleep Manager.
    4. Select the Sleep Manager program.

The Sleep Manager displays below:

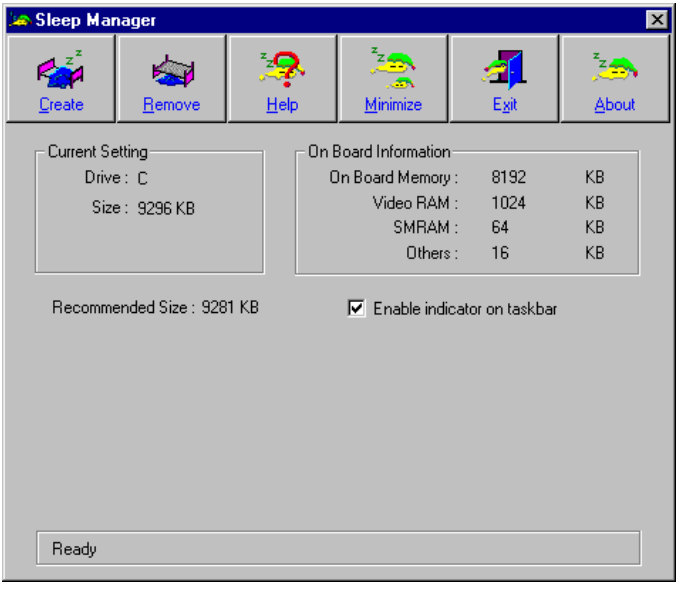


Table 5-1 Sleep Manager Window Items

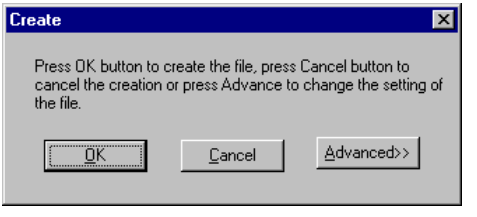
Item	Description
Buttons	Click to access the Sleep Manager functions
Current Setting	Displays the drive and size of the current reserved space created by Sleep Manager.
On Board Information	Displays the different areas of system memory and their respective sizes. These system resources need to be stored before the system can enter hibernation mode, so the system can resume to the previous state successfully. These system resources are the contents of: • Onboard memory (DRAM or dynamic memory) • Video RAM (VRAM or video memory) • SMRAM (static memory) • Others The total size of these system resources shows as the recommended size in the dialog box.
Recommended Size	Displays the minimum size of the contiguous space you need for the hibernation feature. The actual size may be a little bit more due to file system alignment.
Enable Indicator on the Taskbar	When this checkbox is checked, the Sleep Manager status appears on the taskbar. Double-click on the Sleep Manager status icon on the taskbar to bring up the main program, or simply rest your mouse pointer on the icon to display the current status.

5.2.2 Sleep Manager Functions

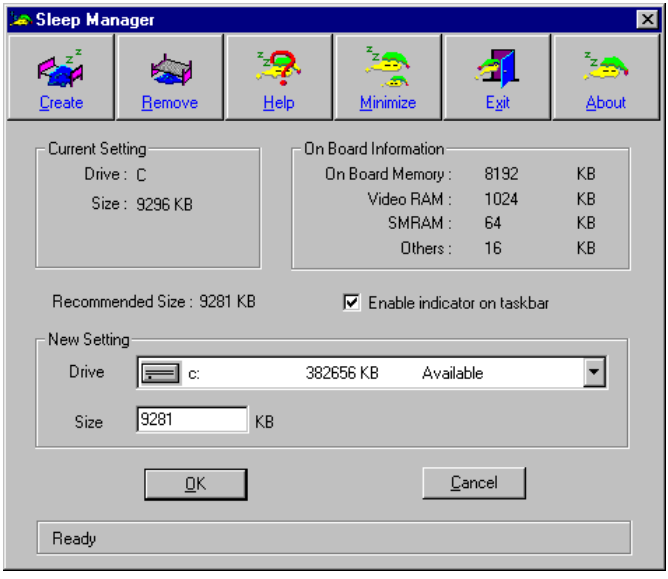
Create

The main purpose of Sleep Manager is to find and reserve a contiguous area on the hard disk. The user can allocate the space themselves by using the 'Create' function on the Sleep Manager utility. Once a hibernation event occurs, the system will enter the hibernation mode. If the user did not create the space or the system DRAM size been changed, Sleep Manager is invoked and begins the process of creating a space for the system.

When you click on the **Create** button, a dialog box pops up:



You can select **OK** to automatically create space for the hibernation feature. Sleep Manager displays the recommend size based on onboard system information. You can also choose **Advance>>>** to manually set the space settings and size. The advanced screen shows below.



Sleep Manager automatically checks the system configuration and displays the recommended size. The drive where the space will be created is defined by the system and will be the first available logical drive which has the requested contiguous free disk space on it. The recommended size is the minimum size needed to save the current system status.

If the program cannot find the required space on the hard disk during the space creation process, it shows a message box to inform the user.

Not Enough Space for Allocation

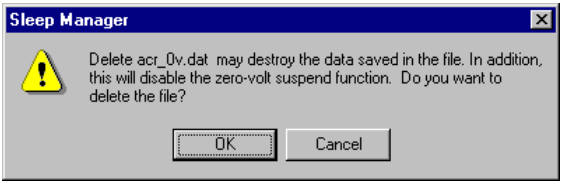
This is a common error message that appears when Sleep Manager is creating the space on the hard disk. There are several different reasons that may cause this error. One of the reasons is that the size of the free disk space on the specific drive is less than the required size. For example, if the onboard memory is 4MB and the VGA memory is 512KB, the total free disk space required will be 4608KB. If the total free disk space is less than 4608KB, the user has to delete some unnecessary files from his hard disk.

Another possible reason is that the hard disk has enough free space, but this free space exists as small fragments. The free disk space that Sleep Manager requires needs to be contiguous. To solve this problem, the user can use tools such as SpeedDisk (Norton Utilities) or Disk Defragmenter (Windows 95) to compact these free disk spaces. The user can then run Sleep Manager utility again to reserve the space.

Another factor that causes the error is when the user employs disk compression utilities. Sleep Manager can work with most compression software. However, Sleep Manager can only create the space on a host drive. A host drive stores original file information and will not be compressed. The free space on the host drive is usually very small, so the user should use the command provide by these compression software to enlarge the size of the host (uncompressed) drive for Sleep Manager.

Remove

If the user wants to use or take back the reserved space, he or she can use the delete function of Sleep Manager by clicking on the Remove button. The deletion will result in the system not being able to enter hibernation mode. Instead, the system will only be able to enter standby mode.

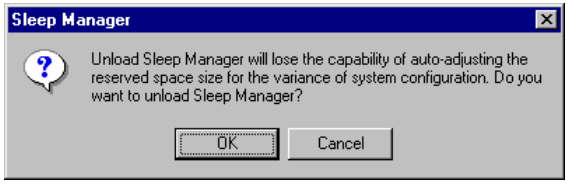


Minimize

The user can minimize Sleep Manager by selecting the Minimize button. If the Enable indicator on taskbar box is checked, Sleep Manager will then switch to background by locating itself on the taskbar. You can pop-up the main program of Sleep Manager again by double-clicking whenever needed. If the Enable indicator on taskbar icon is not checked, you have to select the Sleep Manager program from the Sleep Manager folder in the Programs menu.

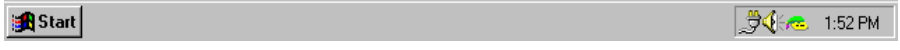
Exit

The user can exit Sleep Manager by selecting the Exit button. Sleep Manager will then quit and disable the for capability of auto-adjusting the reserved space size. Disconnecting this feature is NOT recommended.



5.2.3 Running Sleep Manager

Once Sleep Manager is installed on the disk, the system automatically loads this utility every time you start Windows 95. Sleep Manager resides in the background by appearing on the taskbar.



To change the settings of Sleep Manager, simply double-click on the Sleep Manager icon ( ) on the taskbar, or run the Sleep Manager program from the Sleep Manager folder in the Programs menu.

The Sleep Manager icon may or may not appear on the taskbar. A checkbox in the Sleep Manager main screen determines whether to enable or disable the icon on the taskbar. When Sleep Manager has not created the space to be used for hibernation or if APM is not enabled, the exclamation icon will appear. If both Sleep Manager has not created the space to be used for hibernation and APM is not enabled, the icon appears with a red crossed circle .

5.2.4 Sleep Manager Troubleshooting Tips

The following are the error messages with their corresponding solutions:

1. BIOS not compliant with Sleep Manager.

   Sleep Manager can only run on notebooks with a BIOS compatible with this computer.

2. This machine does not have a power management unit. You cannot run Sleep Manager without PMU.

   Sleep Manager can only work on notebooks installed with a PMU.

3. The APM driver for Windows is not installed. Use Windows Setup to install the APM driver before you run Sleep Manager.

   Run Windows Setup and redefine your system as MS-DOS System with APM model. Windows will then install the APM driver for you.

4. Requested disk space is not enough./The created file is not contiguous.

   If the free space is actually greater than the requested free space but not contiguous, use the Windows 95 defragment utility Disk Defragmenter to compact the hard disk drive space. Then run Sleep Manager again. If you run Sleep Manager under a DoubleSpace environment, make sure the free space on the host drive is larger than the required size for Sleep Manager.

5. The [directory name] directory cannot be created. Enter another directory or try another drive.

   The directory name that the user specified is not valid. Note that the user can create only one subdirectory at a time.

6. The software has not been successfully installed. You must run Setup again.

   Sleep Manager is not completely installed. Try to install again.

5.2.5 Uninstalling Sleep Manager

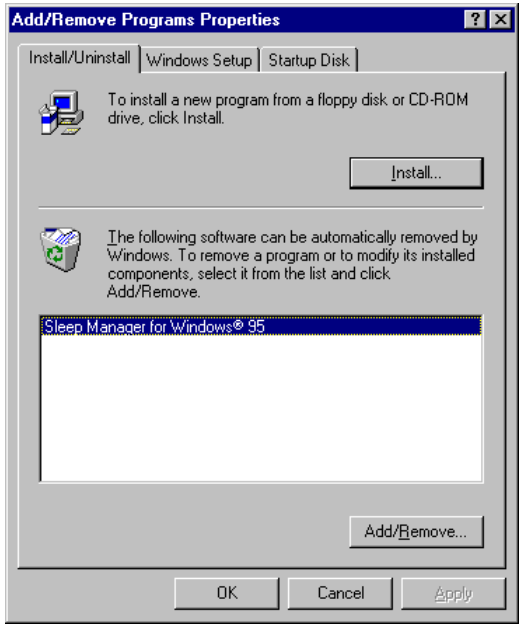
Uninstalling Sleep Manager will delete all files and all system information for Sleep Manager, it loses the capability of auto-adjusting the reserved space size for the system configuration changes or modifications, though hibernation feature still functions

To uninstall Sleep Manager from the Windows, follow these steps:

1. Quit the Sleep Manager if it is still running.

2. Click on the Start button and select the Control Panel folder from Settings.

3. Open the Add/Remove Programs Icon.



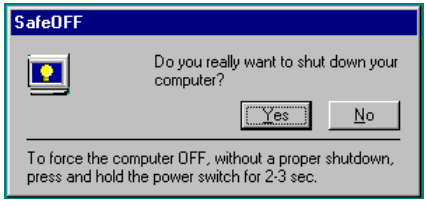
4. Select Sleep Manager for Windows 95 and click the Add/Remove... button.

5. Follow the screen instructions to complete the uninstallation program.

Do not deactivate or uninstall Sleep Manager and do not remove or delete the hibernation file. Otherwise, the function will not work — the notebook will only enter standby mode and not hibernation mode.

5.3 SafeOff

The SafeOFF provides protection from accidental power off. If you accidentally press the power switch, a dialog box pops up for confirmation.



- If you select **No**, the dialog closes and the system does not power off.
- If you select **Yes**, SafeOFF will request Windows 95 to shutdown the computer. Opened files can be saved and closed safely.
- If none of the alternatives is chosen, SafeOFF waits for 30 seconds and shuts down the computer.

5.3.1 Uninstalling SafeOFF

To uninstall the SafeOFF, follow these steps:

1. Press **Ctrl-Alt-Del** to end the SafeOFF task.
2. Double-click on the Add/Remove Program icon in the Control Panel.
3. Select 'SafeOFF for Windows 95' for uninstallation.

5.4 Touchpad Driver

The touchpad works with most mouse drivers, but the touchpad driver supports special functions that work uniquely with the touchpad. The touchpad driver enhances the Mouse dialog box to include these special features.

5.4.1 Configuring the Touchpad

Follow these steps to configure the touchpad:

1. Click on the Start button, then select Settings...
2. Select Control Panel to display the Control Panel Window.
3. Double-click on the Mouse icon and select TouchPad.

You can configure different aspects of the touchpad. Refer to the online help for details.

Setup

The notebook has a BIOS (Basic Input/Output System) setup utility that allows you to configure the notebook and its hardware settings. This chapter tells how to use this utility and describes each parameter item in the setup screens.

6.1 When to Use the BIOS Utility

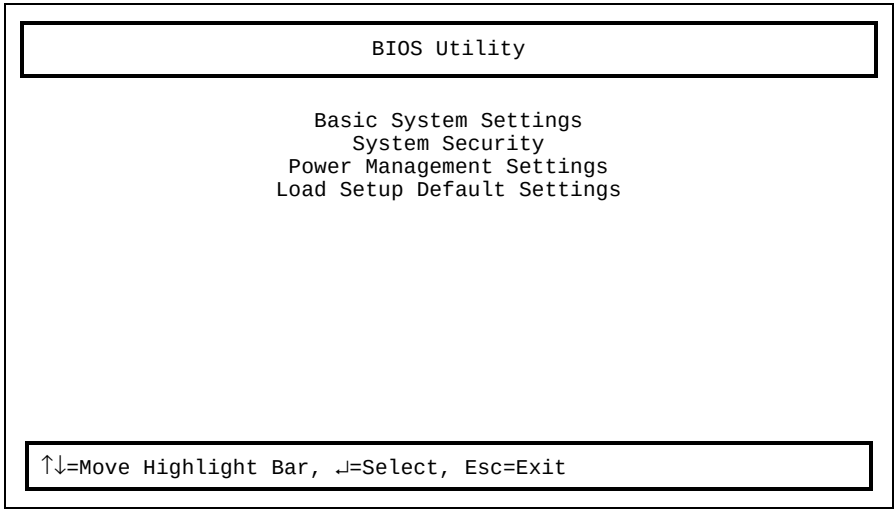
The notebook is already correctly configured for you and you do not need to run the BIOS Utility. If you make any changes to the notebook or you receive an Equipment Configuration Error message after you turn on the notebook, you need to run the BIOS Utility. Run the BIOS Utility also if you want to do any of the following:

- Change the system date or time
- Set the power-saving modes and timers
- Set, change, or remove a system password
- Change the system boot drive or display device
- Add or remove serial and parallel devices
- Set the video display features

The system configuration values reside in the battery-powered CMOS RAM.

6.2 Entering the BIOS Utility

Press **F2** during POST to enter the BIOS Utility. The BIOS Utility main screen displays.



There are four main menu items:

- Basic System Settings
- System Security
- Power Management Settings
- Load Setup Default Settings

Read through the BIOS Utility Screen Notes before navigating the BIOS Utility screens.

BIOS Utility Notes

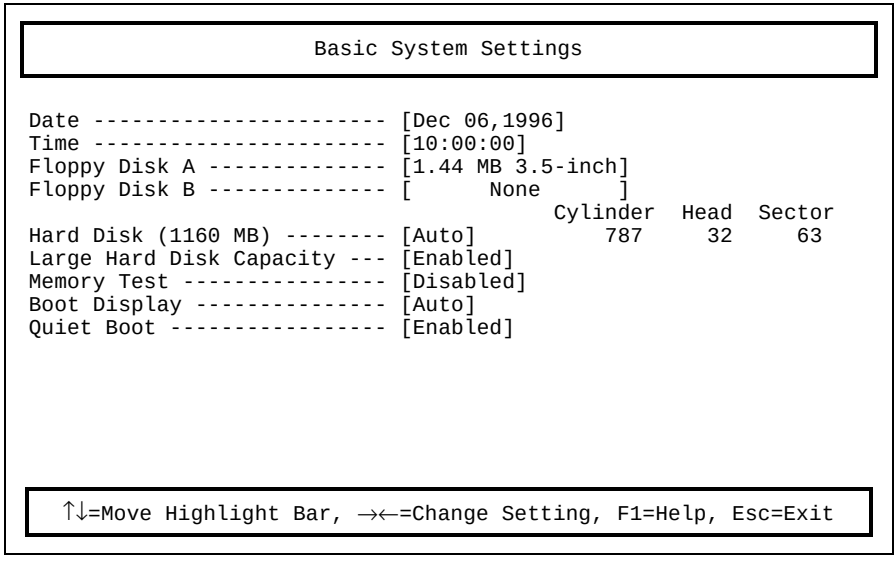
- From the main menu, press ↑, ↓, ← or → to move from one menu item to another and press **Enter** to enter the selected menu.
- When accessing multi-page sections, press **PgDn** and **PgUp** to go through the pages.
- Parameters displayed in low brightness (grayed-out) are not user-configurable. The notebook detects and sets the values for these parameters.
- Press ↑ or ↓ to move from one parameter to another. Press ← or → to change parameter settings. You have to change some settings when you add a component to the notebook.
- Most of the parameters are self-explanatory. Press **F1** for help on individual parameters.
- When you press **Esc** to exit the BIOS Utility, the following prompt appears:

```
Do you want to save CMOS data?

      [Yes]          [No]
```

Select [Yes] to save the changes you made to the configuration values or [No] to abandon the changes and retain the current values.

6.3 Basic System Settings



6.3.1 Date and Time

The notebook displays the current date in Mmm DD, YYYY format and the current time in HH:MM:SS format. It uses a 24-hour clock; for example, 6:25 PM displays as 18:25:00.

6.3.2 Floppy Disk Drives

The default setting for Diskette Drive A is [1.44 MB 3.5-inch] and this setting applies to both an internal and external floppy drive configuration. Diskette Drive B, by default, is set to [None]. Enable this parameter if two floppy drives are connected to the notebook.

6.3.3 Hard Disk Drive

The default setting for Hard Disk is [Auto]. With this setting, the BIOS automatically detects your drive parameters. You can also opt to key in your drive parameters by setting this parameter to [User]. To determine your drive parameters, look at the data on the label pasted on your hard disk drive (or supplied in vendor documentation) and type in the parameters. Be sure to set the correct drive parameters; otherwise an error message appears when you boot up the notebook. We suggest you set this parameter to [Auto].

6.3.4 Large Hard Disk Capacity

The default setting for Large Hard Disk Capacity is [Enabled]. Set this parameter to [Disabled] if you use a non-DOS or non-Windows-based operating system on this computer.

6.3.5 Memory Test

The notebook can test main memory for errors when you turn it on. The default setting, [Disabled], allows the notebook to bypass the memory test and speed up the self-test procedure.

6.3.6 Boot Display

If you connect an external monitor, you can switch display between the LCD and the external display. This parameter determines which display device the notebook uses on boot-up. Table 6-1 describes the different settings.

If notebook resolution is set at 640x480, the image on the notebook and external monitor will not be full-screen. For full-screen image, set-up notebook at 800x600 resolution.

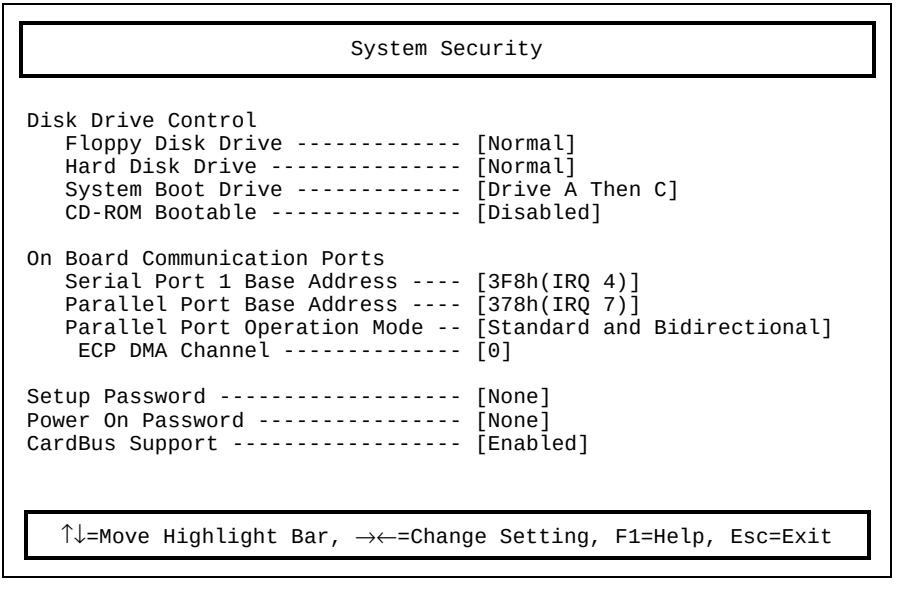
Table 6-1 Display Device Settings

Setting	Description
Auto (default)	If an external display is present, the notebook uses the external display; otherwise, the LCD is the display device.
Both	The notebook uses the external display and LCD simultaneously.

6.3.7 Quiet Boot

In Quiet Boot mode, the notebook does not display POST messages on your display. The default setting is [Enabled].

6.4 System Security



6.4.1 Floppy Disk Drive Control

This parameter allows you to enable or disable the read/write functions of the floppy drive. The following table summarizes the available options.

Table 6-2 Floppy Disk Drive Control Settings

Setting	Description
Normal (default)	Floppy drive functions normally
Write Protect Boot Sector	Disables the floppy drive write function on a diskette's boot sector. This option is for operating systems that access the floppy drive 100 percent via BIOS only.
Disabled	Disables the floppy drive

6.4.2 Hard Disk Drive Control

This parameter allows you to enable or disable the read/write functions of the hard disk drive. The following table summarizes the available options.

Table 6-3 Hard Disk Drive Control Settings

Setting	Description
Normal (default)	Hard disk drive functions normally
Write Protect Boot Sector	Disables the hard disk drive write function on the hard disk's boot sector. This option is for operating systems that access the hard disk 100 percent via BIOS only.
Disabled	Disables the hard disk drive

6.4.3 System Boot Drive Control

This parameter determines which drive the notebook boots from when you turn it on. The following table lists the three possible settings.

Table 6-4 System Boot Drive Control Settings

Setting	Description
Drive A Then C (default)	Notebook boots from floppy drive A. If there is no system disk in drive A, the notebook boots from hard disk C. If the hard disk is a non-system disk, an error message appears.
Drive C Then A	Notebook boots from hard disk C. If hard disk C is not a system disk, the notebook boots from floppy drive A. If no diskette is present or if the diskette in floppy drive A is a non-system disk, an error message appears.
Drive C	Notebook boots from hard disk C. If hard disk C is not a system disk, an error message appears.
Drive A	Notebook boots from floppy drive A. If no diskette is present or if the diskette in floppy drive A is a non-system disk, an error message appears.

An installed PCMCIA bootable card overrides the System Boot Drive setting. The notebook supports SRAM card boot.

6.4.4 CD-ROM Bootable

When enabled the notebook checks the CD-ROM drive first and boots from there, if possible, before checking the System Boot Drive control setting.

There are two image types/formats for CD-ROMs - floppy drive and hard disk. See Table 6-5 for a description.

Table 6-5 CD-ROM Image Descriptions

Image Type	Upon Boot-up…
Floppy Drive	CD-ROM drive becomes drive A and the floppy drive becomes drive B. The hard disk drive remains drive C.
Hard Disk	CD-ROM drive becomes drive C and the hard disk drive becomes drive D. The floppy drive remains drive A.

6.4.5 Serial Port 1 Base Address

The serial port can accommodate a modem, serial mouse, serial printer, or other serial devices. The default setting for the serial port base address is 3F8h(IRQ 4)[1].

Other options include:

- 2F8h(IRQ 3)
- 3E8h(IRQ 4)
- 2E8h(IRQ 3)
- Disabled

Make sure the serial port base address does not conflict with the address used by a PCMCIA card, if one is installed.

6.4.6 Parallel Port Base Address

The parallel port can accommodate a parallel printer or other parallel devices. The default setting for the parallel port base address is [378h(IRQ 7)][1]. The other options for this parameter are:

- 278h(IRQ 5)
- 3BCh(IRQ 7)
- Disabled

[1] The parameter value is the base address expressed in hexadecimal.

6.4.7 Parallel Port Operation Mode

The parallel port supports four operation modes:

- `Standard and Bidirectional`
- `Extended Capabilities Port(ECP)`
- `Standard and Unidirectional`
- `Enhanced Parallel Port(EPP)`

ECP or Extended Capabilities Port supports a 16-byte FIFO (first in, first out) which can be accessed by host DMA cycles and PIO cycles. ECP boosts I/O bandwidth to meet the demands of high-performance peripherals. EPP or Enhanced Parallel Port is a parallel port interface that greatly improves performance for bi-directional block-mode data transfers. EPP provides greater throughput by supporting faster transfer times and a mechanism that allows the host to address peripheral device registers directly.

The default setting is `[Standard and Bidirectional]`.

If you set EPP as the parallel port operation mode, do not use 3BCh as the parallel port base address; otherwise, I/O conflicts may occur.

ECP DMA Channel

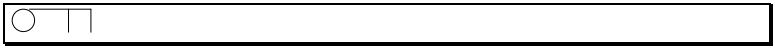
Set the ECP DMA Channel parameter if you set the Parallel Port Operation Mode to `[Enhanced Capabilities Port(ECP)]`. The default value, with ECP selected, is `[0]`.

6.4.8 Passwords

Two passwords are implemented in this notebook. The Setup Password prevents unauthorized access to the BIOS Utility, while the Power On Password prevents unauthorized access to the notebook during boot-up and resume from hibernation.

Setting a Password

To set a password, select the desired password (Setup and Power On) to set or edit, and press ← or →. The password prompt (a key) appears:



A message below the menu prompts you to enter a password. The password may consist of up to seven characters which do not appear on the screen when you type them. After typing your password, press Enter. Another prompt appears asking you to retype your password to verify your first entry.

After setting a password, the notebook sets this parameter to [Enabled]. The next time you boot the notebook, resume from hibernation mode or run the BIOS Utility, the password prompt appears. Key in the appropriate password (Power On or Setup). If the password you entered is incorrect, an "X" appears. You have three chances to type in the correct password. After three tries, the following message appears:

```
Incorrect password specified.  System disabled.
```

The notebook freezes up and disables all devices. You must turn off the notebook and turn it on again to retry. If you forget your password, you must reset the configuration values stored in CMOS to defaults. Resetting CMOS requires opening up the notebook, so contact your dealer for assistance.

Removing a Password

To remove a password, select the desired password (Setup and Power On) to remove and press ← or → to set it to [None].

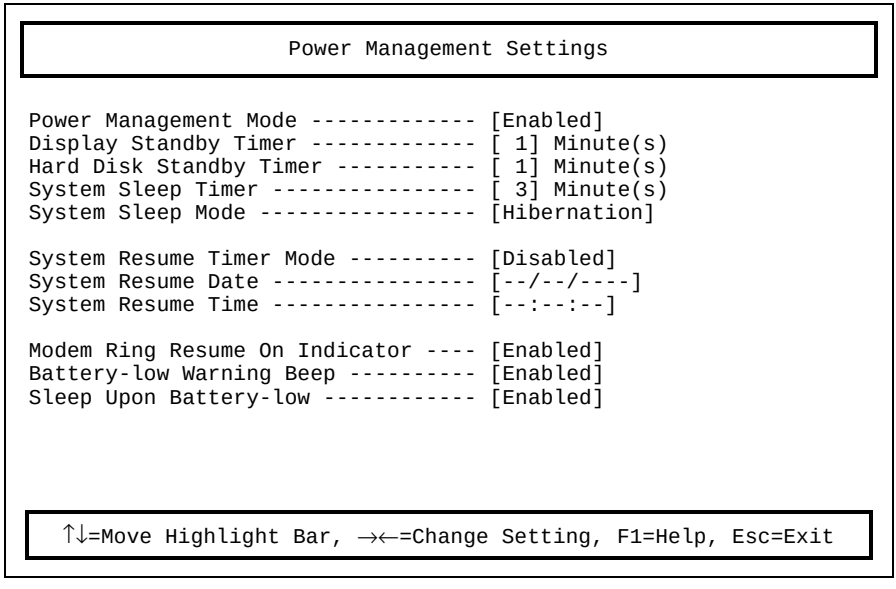
6.4.9 CardBus Support

The notebook comes pre-installed with a Windows 95 version which has built-in support for CardBus. In this case, CardBus Support is set to [Enabled]. If in case you install an older version of Windows 95 which does not have built-in Cardbus driver support, you need to disable this parameter. The default setting is [Enabled].

To verify your Windows 95 version, access the System icon in the Control Panel. In the System section of the General tab, verify that the Windows 95 version is 4.00.950 B.

6.5 Power Management Settings

Besides accessing this screen from POST (**F2**), you can also press **Fn-F6** during runtime (system operation) to access this section of the BIOS Utility.



6.5.1 Power Management Mode

With enabled, all the power management timers take effect unless specifically disabled by the user. Select [Disabled] to turn off all the timers. The default setting is [Enabled].

You cannot disable this parameter in BIOS Utility if APM is installed under DOS, Windows or Windows 95. To disable APM, type **Power Off** *under DOS, or disable the Power icon in the Windows Control Panel.*

6.5.2 Display Standby Timer

The notebook shuts off the LCD backlight and turns off the CRT video as well, if there is no activity from the keyboard or external PS/2 mouse within the period specified by this timer. To turn the display back on, press a key or move the mouse.

The valid values for this timer range from 1 to 15 minutes with default set at [1]. Select [Off] to disable the timer.

6.5.3 Hard Disk Standby Timer

The hard disk drive enters standby mode if there are no disk read/write operations within the period specified by this timer. The hard disk returns to normal mode once the notebook accesses it.

The valid values for this timer range from 1 to 15 minutes with default set at [1]. Select [Off] to disable the timer.

6.5.4 System Sleep Timer

This parameter enables you to set a timeout period for the notebook to enter either standby or hibernation mode. The System Sleep Mode parameter determines which sleep mode the notebook will enter into.

The valid values for this timer range from 1 to 15 minutes with default set at [3]. Select [Off] to disable the timer.

6.5.5 System Sleep Mode

This parameter tells the notebook which sleep mode (Standby or Hibernation) to enter into when the System Sleep Timer times out. The default setting is [Hibernation].

6.5.6 System Resume Timer Mode

When enabled, the notebook resumes from standby mode at the specified Resume Date and Resume Time parameter settings.

When the notebook is in hibernation mode, it cannot resume when this parameter is enabled.

6.5.7 System Resume Date and Time

The Resume Date and Resume Time parameters let you set the date and time for the resume operation. The date and time fields take the same format as the System Date and Time parameters in the Basic System Settings screen.

Setting a resume date and time that is not valid automatically disables these fields. A successful resume occurring from a date and time match automatically disables these fields.

6.5.8 Modem Ring Resume On Indicator

When enabled, the notebook wakes up from standby mode and returns to normal mode when a PCMCIA modem detects a ringing tone. The default setting is `[Enabled]`.

When the notebook is in hibernation mode, it cannot resume from a modem ring.

6.5.9 Battery-low Warning Beep

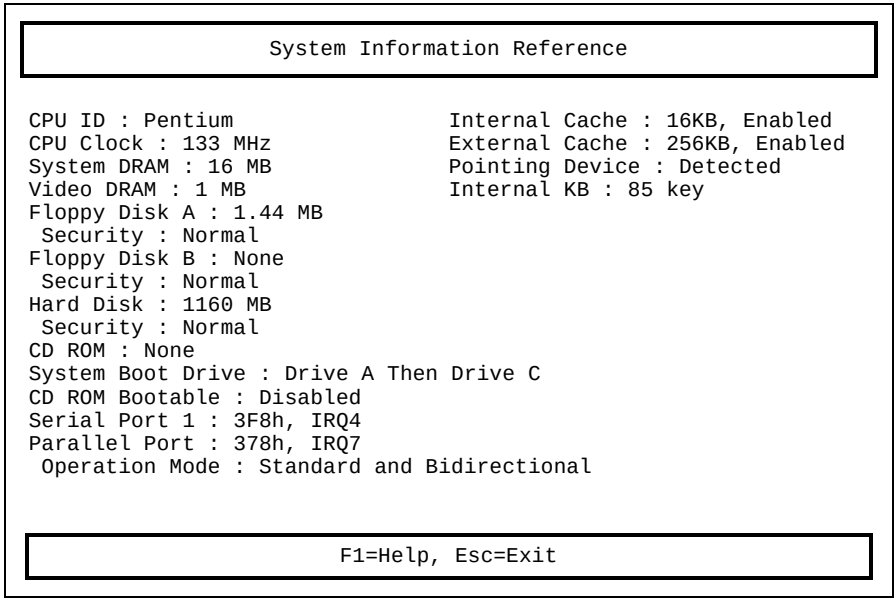
This parameter allows you to enable or disable the warning beep generated by the notebook when a battery-low condition occurs. The default setting is [Enabled].

6.5.10 Sleep Upon Battery-low

This parameter enables the notebook to enter standby or hibernation mode when a battery-low condition takes place. The default setting is [Enabled].

6.6 System Information Reference

If you access the BIOS Utility during runtime (**Fn-F6**), pressing **PgDn** after the Power Management Settings screen displays a summary of your notebook's components and settings.



The items in this screen are not user-configurable. See table below.

Table 6-6 System Status Descriptions

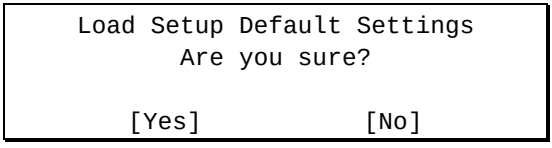
Item	Description
CPU ID	Shows the processor type
CPU Clock	Shows the processor speed
System memory	Shows the total system memory
Video memory	Shows the total video memory
Floppy Disk A	Shows the floppy drive A type
Security	Shows floppy drive A security setting
Floppy Disk B	Shows the floppy drive B type
Security	Shows floppy drive B security setting
Hard Disk	Shows the IDE drive type and size and its security setting
Security	Shows hard disk drive security setting
CD ROM	Shows the presence of a CD-ROM drive
System Boot Drive	Shows the boot sequence setting
CD ROM Bootable	Shows if the CD ROM Bootable feature is enabled or not
Serial Port 1	Shows the serial port base address and IRQ
Parallel Port	Shows the parallel port base address and IRQ
Operation Mode	Shows the parallel port operation mode
Internal Cache	Shows the internal cache size and setting
External Cache	Shows the external cache size
Pointing Device	Shows the presence of a pointing device
Internal KB	Shows the internal keyboard type

This screen may show other items which are not in this list if certain parameters settings are changed and enabled.

6.7 Load Setup Default Settings

Selecting this option allows you to load all the default settings. The default settings are the values initially stored in CMOS RAM intended to provide high performance. If in the future, you change these settings, you can load the default settings again by selecting this option.

When you select this option, the following prompt appears:



Select [Yes] to load the default settings or [No] to abort the operation.

Traveling with the Notebook

This chapter tells you what to do when traveling with the notebook. This chapter also includes a list of Acer's worldwide offices and contact information.

7.1 Traveling Preparations

Follow these steps to prepare the notebook for travel:

1. Make diskette copies of important files on the hard disk.
2. Turn off the notebook and all peripherals.
3. Make sure the display lid is properly closed. The display lid latch must be secure.
4. Disconnect the AC adapter and all peripherals.
5. Place the notebook, AC adapter, external floppy drive, extra battery pack and user documentation in a carrying bag.
6. Hand-carry the notebook. **Do not check it in as luggage!**

The notebook can pass through airport X-ray equipment, but metal detectors may damage the notebook (i.e., hard disk drive).

7. Check with your airline if you plan to use the notebook on the aircraft.
8. When traveling in another country, check that the local AC voltage and the AC adapter power cord specifications are compatible. If not, purchase a power cord that is compatible with the local AC voltage. Do not use converter kits sold for appliances to power the notebook.
9. Check also if the PC card modem and connector used with your notebook is compatible with the telecom system of the country you are traveling in.

7.2 International Traveler's Warranty

Your notebook is backed by an international traveler's warranty (ITW) that gives you security and peace of mind when traveling. Our worldwide network of service centers are there to give you a helping hand. Simply fill up and return the ITW application form to avail of this unique service.

Below is a list of Acer-authorized ITW service sites.

Have your ITW card number ready when you call. For updated sites and more information on ITW, see the ITW brochure.

Acer America Corporation (AAC)
399 West Trimble,
San Jose, CA 95131, USA
Tel: 1-408-922-2995 / 1-800-445-6495
Fax: 1-408-922-0773 / 1-408-922-2958

Acer America Corp.
(Canadian Branch)
5775, McLaughin Road,
Mississauga., Ontario, L5R 3P7 Canada
Tel: 1-905-712-7912 / 1-800-320-2237
Fax: 1-905-712-7902

Acer Latin America Inc. (ACLA)
1701 N.W. 87th Avenue
Miami, Florida 33126, USA
Tel: 1-305-477-8119
Fax: 1-305-477-5963

Acer Argentina
Marcos Sastre 3620, Carapachay,
Buenos Aires, 1605, Argentina
Tel: 54-1-763-1111
Fax: 54-1-763-0222

Acer Colombia
Carretera 129 no. 29-57
Bodega 42, Parque Industrial de Occidente
Santa Fe de Bogota, Colombia
Tel: 57-1-418-1498
Fax: 57-1-418-1510

Acer Chile
Antonio Varas 754,
Casilla 972, Santiago De Chile, Chile
Tel: 56-2-200-9000
Fax: 56-2-235-8481

Acer de Venezuela
Avenida Principal de la Castellana
Torre Banco de Lara, piso 3. of 3-B,
La Castellana Caracas, Venezuela
Tel: 58-2-263-0406
Fax: 58-2-261-3058

Computec Servicio, S.A. de C.V.
Poniente 140 no. 717, Col. Industrial Vallejo
Mexico, D.F. C.P. 02300
Tel.: 52-5-729-5570 / 729-5590
Fax: 52-5-729-5596

Acer Computer B.V. (ACH)
Europalaan 89, 5232 BC's-Hertogenbosch,
The Netherlands
Tel: 31-73-645-9595
Fax: 31-73-645-9599

Acer Computer HandelsgmbH (ACE)
Hutteldorfer Strasse 299
1140 Vienna, Austria
Tel: 43-1-914-18810
Fax: 43-1-914-188110

Acer Scandinavia A/S (ACD)
Kongevejen 62A
3460 Birkerod, Denmark
Tel: 45-45-821-000
Fax: 45-45-821-072

Acer Computer GmbH (ACG)
Kornkamp 4
22923 Ahrensburg, Germany
Tel: 49-4102-4880
Fax: 49-4102-488-101

Acer Italy s.r.l. (AAI)
Via Cassanese 210
Segrate, Milan, Italy
Tel: 39-2-2692-2565
Fax: 39-2-2692-1021

Acer U.K. Ltd. (AIL)
Technical Support Division
Maddison House, Thomas Road,
Wooburn Industrial Park, Wooburn Green
Buckinghamshire, HP10 OPE, United Kingdom
Tel : 44-1628-533-422
Fax: 44-1628-524-060

Acer Computer France (ACF)
ZI Paris Nord II, 209, Avenue des Nations
93290 Tremblay Les Gonesse, France
Tel : 33-1-4817-4040
Fax: 33-1-4817-4048

Acer Computer Australia Pty Ltd. (ACA)
Tower A, Level 3, 112-118 Talavera Rd,
North Ryde, NSW 2113,
Australia
Tel: 61-2-9870-1999
Fax: 61-2-9878-6943

Acer Computer New Zealand Ltd
1 Nandina Avenue, East Tamaki
P.O. Box 58467 Greenmount
Auckland, New Zealand
Tel: 64-9-2739999
Fax: 64-9-2739990

Acer Africa (Pty) Ltd. (AAF-1)
76 Lechwe Street
Corporate Park, Old Pretoria Road
Randjespark Ext 76, Midrand, South Africa
Tel: 27-11-314-2807
Fax: 27-11-314-2703

Acer Africa (Pty) Ltd. (AAF-2)
Acer House, 15 Aloefield Cresent,
Springfield Park, Durban, 4091, South Africa
Tel: 27-31-579-1331
Fax: 27-31-579-1712

Acer Africa (Pty) Ltd. (AAF-3)
Unit 50, M5 Freeway Park,
Camp Road, Maitland CT.
Box 7367, Roggebaai, 8012, South Africa
Tel: 27-21-510-5960
Fax: 27-21-510-2838

Acer Computer(South Asia) Pty Ltd. (ASA)
Block 4, Pasir Panjang Rd., #10-29
Alexandra Distripark, Singapore 0511
Tel: 65-276-4878
Fax: 65-274-9925

Acer Sales & Service Sdn Bhd (AMA)
Tech. Supp. No. 25, Jalan 8/91,
Taman Shamelin Perkasa,
Off Jalan Cheras,
56100 Kuala Lumpur, Malaysia
Tel: 60-3-984-2488
Fax: 60-3-981-3302

PT. Metrodata Electronics
Duta Merlin Block B/27
JL. Gajah Mada 3-5
Jakarta Pusat 10130, Indonesia
Tel: 62-21-633-4532/4542
Fax: 62-21-634-4516

Sahaviriya OA Co., Ltd.
279 Moo 7, Ratburana Rd.,
Ratburana, Bangkok 10140, Thailand
Tel: 66-2-462-5822 / 462-5933
Fax: 66-2-816-7536

Wipro Infotech
Repair Centre, Akshaya Complex,
26 Victoria Road, Bangalore 560 047, India
Tel: 91-80-556-6420/556-9993/557-6712
Fax: 91-80-556-0144

Upson International Import & Export Corp.
1651 Paz M. Guazon St.
Paco Manila, Philippines 1007
Tel: 63-2-522-0531/592-461
Fax: 63-2-522-0592

Acer Computer (M.E) Ltd. (AME)
P.O Box 16951, Dubai,
United Arab Emirates
Tel: 971-4-836-663
Fax: 971-4-836-464

Acer Japan Corporation (AJC)
5F Sumitomo Gotanda Bldg.
7-1-1 Nishi-Gotanda, Shinagawa-ku
Tokyo 141, Japan
Tel: 81-3-5434-7373
Fax: 81-3-5434-7533

Acer Korea Customer Service Center
#534 Najin Bldg.
1-1 Hangangro-3ga, Yongsan-ku,
Seoul, Korea
Tel: 2-3272-0544/5
Fax: 2-3272-0547

Acer Market Services Ltd. (AMS-BJ)
Rm 329, 3rd Fl. 4th Area
Science & Technology Trade Center
37 Baishiqiao Road, Haidian District,
Beijing,100081 People's Republic of China
Tel: 86-10-6847-2323
Fax: 86-10-6847-1101

Acer Shanghai Regional Office (AMS-SH)
Beijing Acer Information Co.,Ltd.
Rm 403, Jinan Lianheng Commercial Bldg,
394/8, Yanan Rd. West, Shanghai, 200040,
People's Republic of China
Tel: 86-21-6247-7288 (ext. 4030)
Fax: 86-21-6247-7617

Acer Computer (F.E.) Ltd. (AFE)
Room A1, 5th Floor, Block A
Tonic Industrial Centre, 26 Kai Cheung Road,
Kowloon Bay, Kowloon, Hong Kong
Tel: 852-2755-2611
Fax: 852-2799-9998

Acer Sertek Inc. (STK)
4th floor, 135 Section 2, Chien Kuo North Road
Taipei 10449, Taiwan, R.O.C.
Tel: 886-2-501-0055 (Ext. 5126/5127)
Fax: 886-2-509-2745

7.3 Worldwide Support

If the country you are traveling in does not have an Acer-authorized ITW service site, you can still get in contact with our offices worldwide.

World Headquarters

Acer Incorporated
156 Min Sheng E. Rd. Sec. 3, 6F
Taipei, Taiwan 105 R.O.C.
Telephone: 886-2-545-5288
Facsimile: 886-2-545-5308
http://www.acer.com/

Regional Headquarters

Acer America Corporation
2641 Orchard Parkway
San Jose, CA 95134 USA
Telephone: 1 (408) 432-6200
Facsimile: 1 (408) 922-2933
http://www.acer.com/aac/

Acer Computer B. V.
Europalaan 89
5232 BC 's-Hertogenbosch
The Netherlands
Telephone: 31-73-6459595
Facsimile: 31-73-6459599

Acer Computer International Ltd.
438 Alexandra Rd.
#17-00 Alexandra Point
Singapore 119958
Telephone: 65-274-7778
Facsimile: 65-276-3588
http://www.aci.acer.com.tw/

Acer Computec Latino America
Berruguete No. 25
Col. Nonoalco Mixcoac
C.P. 03700, Mexico, DF
Telephone: 525-627-9400
Facsimile: 525-627-9401
http://www.acer.com.mx/

Worldwide Operations

Asia

Acer Computer International, CIS
#14 Chapaevsky Pereulok, 5F
Moscow, Russia, 125252
Telephone: (7-095) 258-4400
Facsimile: (7501) 258-4401

Acer Computer (Far East) Ltd.
2001 United Centre, 2F
95 Queensway, Hong Kong
Telephone: 852-25280233
Facsimile: 852-28613758

Acer Computer (M.E.) Ltd.
P.O. Box 16951
Jebel Ali Free Zone, Dubai
United Arab Emirates
Telephone: 971-4-836663
Facsimile: 971-4-836464

Acer Computer Turkey
Altunizade Sitesi, Okul Sokagi
C Blok No. 5, Da: 4
81190 Altunizade
Istanbul, Turkey
Telephone: 90-216-3270311/2
Facsimile: 90-216-3270314

Acer Japan Corporation
5F, Sumitomo Gotanda Bldg.
7-1-1, Nishi-Gotanda, Shinagawa-ku
Tokyo 141, Japan
Telephone: 81-3-5434-7373
Facsimile: 81-3-5434-7533

Acer Korea Co. Ltd.
DaeYoung Bldg., #831
44-1 Yoido-Dong, YoungDeungPo-Ku
Seoul, South Korea
Telephone: 82-2-784-6898/9
Facsimile: 82-2-784-6897

Acer Market Services, Ltd.
Science & Technology Trade Center
4th Area, 3F Rm 329
37 Bai Shi Qiao Rd., Haidian Dist.
Beijing, People's Republic of China
Telephone: 86-10-6847-2233
Facsimile: 86-10-6847-1101

Acer Sales & Services Sdn. Bhd.
Level 17 Menara Lion
165 Jalan Ampang
50450 Kuala Lumpur, Malaysia
Telephone: 60-3-466-3223/262-1388
Facsimile: 60-3-466-2388/261-8113

Acer Sertek Incorporated
135 Chien Kuo N. Rd. Sec. 2
Taipei, Taiwan 104 R.O.C.
Telephone: 886-2-501-0055
Facsimile: 886-2-501-2521

SV-Acer Co., Ltd.
900/9 SVOA Tower 18F
Rama 3 Rd., Bangpongpang
Yannawa, Bangkok 10120 Thailand
Telephone: 662-682-1111/682-6233
Facsimile: 662-6826323

Wipro Acer
6F, S.B. Towers,
88 Mahatma Gandhi Rd.,
Bangalore 560001, India
Telephone: 91-80-558-8422
Facsimile: 91-80-558-6657

Australia

Acer Computer Australia Pty. Ltd.
Tower A, Level 3
112-118 Talavera Rd.
North Ryde, NSW 2113 Australia
Telephone: 61-2-9870 1999
Facsimile: 61-2-9878 6227

Sales Offices

Acer Computer Australia Pty. Ltd.
20 Greenhill Road
Wayville, SA 5034
Telephone: 61-8-82717131
Facsimile: 61-8-82717236

Acer Computer Australia Pty. Ltd.
Suite, 44 Kings Park Road
West Perth, WA 6005
Telephone: 61-9-3219511
Facsimile: 61-9-3219534

Acer Computer Australia Pty. Ltd.
Unit 7, Kingston Manor
#10 Kennedy St.
Kingston, ACT 2604
Telephone: 61-6-239 5939
Facsimile: 61-6-2395944

Acer Computer Australia Pty. Ltd.
Unit 10, 2F, 150 Albert Rd.
South Melbourne, VIC 3205
Telephone: 61-3-9696 4266
Facsimile: 61-3-9696 4354

Acer Computer Australia Pty. Ltd.
Level 3, Waterfront Place
1 Eagle St.
Brisbane, QLD 4000
Telephone: 61-7-3360 0266
Facsimile: 61-7-3360 0222

New Zealand

Acer Computer New Zealand Ltd.
1 Nandina Avenue
East Tamaki
PO Box 58467 Greenmount
Auckland
Telephone: 64-9-273-9999
Facsimile: 64-9-273-9990

Europe

Acer Belgium N.V.
Coremansstraat 34, 2600 Antwerpen
(Berchem) Belgium
Telephone: 32-3-2305032
Facsimile: 32-3-2813325

Acer Computer B.V.
Europalaan 89
5232 BC 's-Hertogenbosch
The Netherlands
Telephone: 31-73-6459645
Facsimile: 31-73-6459699

Acer Computer Finland Oy
Pihatörmä 1A
02240 Espoo, Finland
Telephone: 358-9-855-0155
Facsimile: 358-9-855-0166

Acer Computer France S.A.R.L.
Paris Nord II
165 avenue du Bois de la Pie
B.P. 40005
95911 Roissy Charles de Gaulle Cedex
Telephone: 33-1-4817-4040
Facsimile: 33-1-4817-4089

Acer Computer GmbH
Kornkamp 4
22923 Ahrensburg/Hamburg, Germany
Telephone: 49-4102-488-0
Facsimile: 49-4102-488-101

Acer Computer HandelsgmbH
Jochen-Rindt-Straße 25
1230 Wien
Austria
Telephone: 43-1-615-0820
Facsimile: 43-1-6150820-50

Acer Computer Norway A/S
Skysstasjon 5
Postbox 75
N-1371 ASKER
Telephone: 47-66-761070
Facsimile: 47-66-901031

Acer Computer Polska
ul. Wiejska 12
00-490 Warszawa, Poland
Telephone: 48-22-6219866
Facsimile: 48-22-6282416

Acer Computer Representative Hungary
Dayka G.u.3. B I-1
1118 Budapest, Hungary
Telephone: 36-1-3192655
Facsimile: 36-1-3191655

Acer Computer Iberica, S.A.
Frederic Mompou 5, 3, 2B
Sant Just Desvern
08960 Barcelona, Spain
Telephone: 34-3-4990303
Facsimile: 34-3-499-0483

Acer Italy s. r. l.
Via Cassanese 210
20092 Segrate, Milan, Italy
Telephone: 39-2-2692-2565
Facsimile: 39-2-2692-1021

Acer Scandinavia A/S
Kongevejen 62A
3460, Birkeroed, Denmark
Telephone: 45-45-821000
Facsimile: 45-45-821072

Acer Computer Sweden AB
Box 5
S-171 18 Solna
Sweden
Telephone: 46-8-444-7910
Facsimile: 46-8-444-7920

Acer UK Limited
Maddison House, Thomas Rd.
Wooburn Green HP10 OPE
United Kingdom
Telephone: 44-1628-533422
Facsimile: 44-1628-524071
http://www.aceruk.co.uk

North America

Sales Offices

Acer America/Boston
Burlington Office Park
1 Wall St.
Burlington, MA 01803, USA
Telephone: 1 (617) 272-2572
Facsimile: 1 (617) 272-5155

Acer America/Canada
5775 McLaughlin Road
Mississauga, Ontario
Canada L5R 3P7
Telephone: 1 (905) 712-7900
Facsimile: 1 (905) 712-7901

Acer America/North Central West
Two Continental Towers
1701 Golf Rd., Suite 601
Rolling Meadows, IL 60008, USA
Telephone: 1 (708) 640-7112
Facsimile: 1 (708) 640-6865

Acer America/Midwest
Farmington Hills, MI
Telephone: 1 (810) 471-2451
Facsimile: 1 (810) 471-2451

Acer America/South Central
5025 Arapaho Rd., #250
Dallas, TX 75248, USA
Telephone: 1 (214) 661-2093
Facsimile: 1 (214) 661-9665

Acer America/Southeast
3675 Crestwood Pkwy., Suite 400
Duluth, GA 30136, USA
Telephone: 1 (404) 923-2001
Facsimile: 1 (404) 923-1306

Acer America/North Mid Atlantic
Wyckoff, NJ
Telephone: 1 (201) 848-1007
Facsimile: 1 (201) 848-1086

Acer America/New York Metro
Bayville, NY
Telephone: 1 (516) 628-7373
Facsimile: 1 (516) 628-1703

Acer America/Northwest
Issaquah, WA
Telephone: 1 (206) 391-0717
Facsimile: 1 (206) 391-0801

Acer America/North Central East
Akron, OH
Telephone: 1 (216) 867-7794
Facsimile: 1 (216) 867-1697

Acer America/Southwest
Costa Mesa, CA
Telephone: 1 (714) 540-0812
Facsimile: 1 (714) 506-3826

Acer America/Government Sales
8321 Old Courthouse Rd., Ste. 250
Vienna, VA 22182, USA
Telephone: 1 (703) 442-7500
Facsimile: 1 (703) 821-1813

Latin America

Acer Latin America, Inc.
1701 N.W. 87 Ave.
Miami, FL 33126
Telephone: 1 (305) 477-8119
Facsimile: 1 (305) 477-5963

Subsidiaries

Acer Argentina
Marcos Sastre 3620, Carapachay
Buenos Aires 1605, Argentina
Telephone: (541) 763-1111
Facsimile: (541) 763-0222

Acer Chile
Antonio Varas 754, Casilla 972
Santiago de Chile, Chile
Telephone: (562) 200-9301
Facsimile: (562) 200-9310

Acer Computers Colombia
Cra. 129 # 29-57
Bodegas 41-42-43
Bogotá, Colombia
Telephone: (571) 418-1301
Facsimile: (571) 418-1510

Acer Miami International
1701 N.W. 87 Ave.
Miami, FL 33127
Telephone: 1 (305) 392-3200
Facsimile: 1 (305) 392-7216

Computec de México S.A. de C.V.
Berruguete No. 25,
Patriotismo y Mixcoac Col. Nonoalco Mixcoac
México, D.F. 03700
Telephone: (525) 627-9400
Facsimile: (525) 627-9401

Newtec
Berruguete No. 25,
Patriotismo y Mixcoac Col. Nonoalco Mixcoac
México, D.F. 03700
Telephone: (525) 627-9400
Facsimile: (525) 627-9401

Acer Perú S.A.
Calle Paz Soldán 170 Of. 502-503
San Isidro, Lima, Perú
Telephone: (511) 442-3505
Fax: (511) 441-2592

Acer de Venezuela
Calle TIUNA
Edificio ACER
(Antiguo Edif. Tiuna Films)
Boleita, Norte
Caracas, Venezuela
Telephone: (582) 232-3341
Facsimile: (582) 232-8277

Acer Computec Latino América, S.A. de C.V.
Berruguete No. 25,
Patriotismo y Mixcoac Col. Nonoalco Mixcoac
México, D.F. 03700
Telephone: (525) 627-9400
Facsimile: (525) 627-9401

Africa

Acer Africa Pty. Ltd.
Private Bag X28
Halfway House 1685
South Africa
Telephone: 27-11-314-2807
Facsimile: 27-11-314-2789

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Troubleshooting

This chapter tells how to deal with common system problems. Read it before calling a technician if a problem occurs. Solutions to more serious problems require opening up the system. Do not attempt to open the system by yourself. Contact your dealer or an authorized service center for assistance.

8.1 Q & A

Q & A lists possible situations that may arise during the use of your notebook, and gives easy answers and solutions to these questions.

Q: ***I prefer using an external keyboard and mouse, but both have PS/2 connectors and there is only one PS/2 port on the notebook. How do I connect them to the notebook at the same time?***

A: To connect two PS/2-type devices to the notebook, you need to use a PS/2 Y-bridge connector. See section 4.8.2 for details.

Q: ***I pressed the power switch opened the display but the notebook does not start or boot-up.***

A: Look at the status indicator on the display panel.

If the indicator is not lit, no power is being applied to the notebook. Check the following:

- If you are running on battery power, it may be low and unable to power the notebook. Connect the AC adapter to recharge the battery pack.
- Make sure the AC adapter is plugged in properly to the notebook and to the power outlet.

If the indicator is lit, check the following:

- If the indicator flashes, the notebook is in standby mode. Press any key or tap on the touchpad to resume.
- Is a non-bootable (non-system) diskette in the floppy drive? Remove or replace it with a system diskette and press **Ctrl-Alt-Del** to restart the system.
- The operating system files may be damaged or missing. Insert the startup disk you created during Windows 95 setup into the floppy drive and press **Ctrl-Alt-Del** to restart the system. This will diagnose your system and make necessary fixes.

Q: ***Nothing appears on the screen.***

A: The notebook's power management system automatically blanks the screen to save power. Just press any key to turn the display back on.

If pressing a key does not turn the display back on, two things might be the cause:

- The contrast and/or brightness level might be too low. Press **Fn-F2** (☼ / ◐) to bring up the contrast/brightness pop-up icon. Then press the scale increase hot keys (**Fn-**→) to increase the contrast/brightness level.
- The display device might be set to an external monitor. Press the display toggle hot key **Fn-F3** (🖵/▣) to toggle the display back to the notebook.

Q: ***The keyboard does not respond.***

A: Try attaching an external keyboard to the PS/2 connector on the notebook's rear. If it works, contact your dealer or an authorized service center as the internal keyboard cable may be loose.

Q: ***The serial mouse does not work.***

A: Do the following:

- Make sure that the serial cable is plugged securely into the serial port.
- Press **Fn-F6** (⏲) to enter Setup, then press **PgDn** to see the System Information Reference screen. Check if the serial port is enabled.

  If the serial port is disabled, you need to reboot the machine and press **F2** during POST, then access the System Security screen from the main menu. Move the cursor to the serial port 1 base address parameter and change the setting. See section 6.4.5 for details.

Q: ***The printer does not work.***

A: Do the following:

- Make sure that the printer is connected to a power outlet and it is turned on.
- Make sure the printer cable is connected securely to the notebook's parallel port and the corresponding port on the printer.
- Press **Fn-F6** (⏲) to enter Setup, then press **PgDn** to see the System Information Reference screen. Check if the parallel port is enabled.

  If the parallel port is disabled, you need to reboot the machine and press **F2** during POST, then access the System Security screen from the main menu. Move the cursor to the parallel port base address parameter and change the setting. See section 6.4.6 for details.

Q: ***No audio comes out from the notebook.***

A: Check the following:

- The volume may be muted. In Windows 95, look at the volume control icon on the taskbar. If it is crossed-out, click on the icon and de-select the Mute option.
- The volume level may be too low. Press **Fn-F5** to bring up the volume control pop-up icon. Press **Fn-**→ to increase the volume.
- If headphones, earphones or external speakers are connected to the line-out port on the notebook's rear panel, the internal speakers automatically turn off.

Q: ***Image is not full-screen.***

A: Make sure the resolution is set to 800x600. Right-click on your Windows 95 desktop and select Properties to bring up the Display Properties dialog box. Then click on the Settings tab to make sure the resolution is set to 800x600.

640x480 resolution is not full-screen on notebook or on an external monitor.

8.2 Error Messages

If you receive an error message, note the message and take corrective action. Table 8-1 lists the error messages in alphabetical order together with the recommended course of action.

Table 8-1 POST Error Messages

Error Message	Corrective Action
CMOS Battery Bad	Contact your dealer or an authorized service center.
CMOS Checksum Error	Contact your dealer or an authorized service center.
Disk Boot Failure	Insert a system disk in drive A, then press **Enter**.
Diskette Drive Controller Error or No Controller Present	Contact your dealer or an authorized service center.
Diskette Drive Error	Contact your dealer or an authorized service center.
Diskette Drive Type Mismatch	Press **F2** (during POST) to reconfigure the notebook.
Equipment Configuration Error	Press **F2** (during POST) to reconfigure the notebook.
Hard Disk 0 Error	Contact your dealer or an authorized service center.
Hard Disk 0 Extended Type Error	Contact your dealer or an authorized service center.
I/O Parity Error	Contact your dealer or an authorized service center.
Insert system diskette and press <Enter> key to reboot	Insert a system disk in drive A, then press **Enter**.
Keyboard Error or No Keyboard Connected	Contact your dealer or an authorized service center.
Keyboard Interface Error	Contact your dealer or an authorized service

	center.

Table 8-1 POST Error Messages (continued)

Error Message	Corrective Action
Memory Size Mismatch	Enter and then exit the System Configuration Setup in the Setup utility (pressing **F2** during POST).
Missing operating system	Correct the HDD type and reboot. See the specification label pasted on the back side of the notebook or attached to hard disk drive. We suggest you set the HDD type to [Auto] for hard disk drive auto-detection.
Non-system disk or disk error. Replace and strike any key when ready	Insert a system disk in drive A, then press **Enter**.
Pointing Device Error	Contact your dealer or an authorized service center.
Pointing Device Interface Error	Contact your dealer or an authorized service center.
Protected Mode Test Fail	Contact your dealer or an authorized service center.
RAM BIOS Bad	Contact your dealer or an authorized service center.
RAM Parity Error	Contact your dealer or an authorized service center.
Real-Time Clock Error	Press **F2** (during POST) to reconfigure the notebook.
Video RAM BIOS Bad	Contact your dealer or an authorized service center.

If you still encounter problems after going through the corrective measures, please contact your dealer or an authorized service center for assistance. See sections 7.2 and 7.3.

Specifications

Item	Standard	Optional
Microprocessor	120-/133-/150-MHz Pentium® processor or 133/150MHz Pentium® processor with MMX™ technology	
Memory Main / system External cache	 8MB / 16MB Dual 64-bit memory banks 256KB	 Expandable to 64MB using 8, 16 and 32MB soDIMMs
Flash ROM BIOS	256KB	
Data storage devices CD-ROM model FDD model	Removable 12.5mm, 2.5-inch, 1GB Enhanced-IDE hard disk drive Internal 15mm, 5.25-inch high-speed CD-ROM drive Internal 3.5-inch, 1.44MB floppy drive	1+GB Enhanced-IDE hard disk drive External 3.5-inch, 1.44MB floppy drive
Display	DSTN, 800x600, 256 colors (SVGA) TFT active matrix, 800x600, 64K colors (SVGA)	Up to 1024x768, 256-color ultra-VGA monitor LCD projection panel

Item	Standard	Optional
Video	PCI local bus video with graphics accelerator 1MB video RAM	
Audio	16-bit stereo audio with software wavetable Built-in dual speakers; separate audio ports	
Keyboard and pointing device	84-/85-/88-key with Windows 95 keys Touchpad (centrally-located on palmrest)	101-/102-key, PS/2-compatible keyboard or 17-key numeric keypad External serial or PS/2 mouse or similar pointing device
I/O ports	One 9-pin RS-232 serial port (16550-compatible) One 25-pin parallel port (EPP/ECP-compliant) One 15-pin CRT port One 6-pin PS/2 keypad/ keyboard/mouse connector One type III or two type II Cardbus PC card slot(s) with ZV port support One external FDD port	Serial mouse, printer or other serial devices Parallel printer or other parallel devices Up to a 1024x768, 256-color ultra-VGA monitor 17-key numeric keypad, PS/2 keyboard or mouse LAN card or other PC cards External floppy drive

Item	Standard	Optional
I/O ports (continued)	Three 3.5mm minijacks for mic-in line-in line-out audio devices	 Microphone Audio CD player or Walkman Speakers or headphones
Operating system	Windows 95	Windows NT, OS/2 Warp
Weight FDD model CD-ROM model	(includes battery) 2.65 kg. (5.84 lbs.) 2.8 kg. (6.2 lbs.)	
Dimensions (main footprint)	W x D x H 306mm x 228mm x 46mm (12.05” x 8.98” x 1.81”)	
Temperature Operating Non-operating	 10ºC ~ 35ºC -20ºC ~ 60ºC	
Humidity Operating Non-operating	(non-condensing) 20% ~ 80% 20% ~ 80%	
AC adapter	100~240 Vac, 50~60 Hz autosensing AC adapter	Extra AC adapter
Battery pack Charge time Li-Ion NiMH	Lithium-Ion or Nickel Metal-Hydride battery 4~5 hr. (rapid charge) 6~8-hr. (charge-in-use) 2~2.5 hr. (rapid charge) 5.5~6.5 hr. (charge-in-use)	Extra battery pack External battery charger

Address and Interrupt Tables

B.1 System Memory Map

Address Range	Definition	Function
000000 - 09FFFF	640 KB memory	Base memory
0A0000 - 0BFFFF	128 KB video RAM	Reserved for graphics display buffer
0C0000 - 0CBFFF	Video BIOS	Video BIOS
0E0000 - 0EFFFF 0F0000 - 0FFFFF	128 KB system BIOS	System BIOS System BIOS
10000 - 7FFFF 80000 - 27FFF	Extended memory	Onboard memory SIMM memory
FE0000 - FFFFFF	256 KB system ROM	Duplicate of code assignment at 0E0000-0FFFFF

B.2 I/O Address Map

Address Range	Device
000 - 00F	DMA controller-1
020 - 021	Interrupt controller-1
040 - 043	Timer 1
048 - 04B	Timer 2
060 - 064	Keyboard controller 3880L chip select
070 - 071	Real-time clock and NMI mask
080 - 08F	DMA page register
0A0 - 0A1	Interrupt controller-2
0C0 - 0DF	DMA controller-2
170 - 177	CD-ROM
178, 17A	M7101 registers
1F0 - 1F7	Hard disk select
3F6, 3F7	
220 - 22F, 240 - 24F	Audio (option)
300 - 301, 330 - 331	Audio (option)
370 - 371, 388 - 38F	Audio (option)
530 - 537, E80 -	Audio (option)
E87	Parallel port 3
278 - 27F	COM 4
2E8 - 2EF	COM 2
2F8 - 2FF	Parallel port 2
378, 37A	Parallel port 1
3BC - 3BE	Video subsystem
3B4, 3B5, 3BA	
3C0 - 3C5	Video DAC
3C6 - 3C9	Enhanced graphics display
3C0 - 3CF	Color graphics adapter
3D0 - 3DF	PCMCIA controller
3E0 - 3E1	COM3
3E8 - 3EF	Floppy disk controller
3F0 - 3F7	COM 1
3F8 - 3FF	PCI configuration register
CF8 - CFF	

B.3 Interrupt Levels

Priority	Interrupt Number	Interrupt Source
1	SMI	Power management unit
2	NMI	Parity error detected, I/O channel error
3	IRQ 0	Interval timer, counter 0 output
4	IRQ 1	Keyboard
	IRQ 2	Interrupt from controller 2 (cascade)
5	IRQ 8	Real-time clock
6	IRQ 9	Cascaded to INT 0AH (IRQ 2)
7	IRQ 10	Audio (option) / PCMCIA
8	IRQ 11	Audio (option) / PCMCIA
9	IRQ 12	PS/2 mouse
10	IRQ 13	INT from coprocessor
11	IRQ 14	Hard disk controller
12	IRQ 15	CD-ROM controller
13	IRQ 3	Serial communication port 2
14	IRQ 4	Serial communication port 1
15	IRQ 5	Parallel port (option) / Audio
16	IRQ 6	Diskette controller
17	IRQ 7	Parallel port (option)

A PCMCIA card can use IRQ 3, 4, 5, 7, 9 and 11 as long as it does not conflict with the interrupt address of any other device.

B.4 DMA Channels

Controller	Channel	Address	Function
1	0	0087	Audio (option) / ECP (option)
1	1	0083	Audio
1	2	0081	Diskette
1	3	0082	Audio (option) / ECP (option)
2	4	Cascade	Cascade
2	5	008B	-
2	6	0089	Spare
2	7	008A	-

Index

F

H

I

L

M

N

O

P

S

T

W