Notice

The information within this manual is subject to change without notice.
The manufacturer shall not be held liable for technical or editorial errors or omissions contained herein; nor for incidental or consequential damages resulting from the furnishing, performance or use of this material.

Important Safety Instruction

Read all of these instructions, and save these instructions for later use.

- •Follow all warnings and instructions marked on the product.
- •Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- •Do not use this product near water. Never spill liquid of any kind on the product.
- •Do not place this product on an unstable cart, stand, or table.
- •Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of 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. This product should not be placed in a built-in installation unless proper ventilation is provided.
- •Before connecting this product to a power source, check the required voltage and frequency match the available power source.
- •This computer is powered by an internal battery pack or by an external AC power source, Which is supplied with the computer. Use of another battery pack or AC power source may present risk of fire or explosion. To disconnect the AC power cord and remove the battery packs.
- •This product is equipped with a 2-wire type plug. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet.
- •Do not allow anything to rest on the power cord.
- •Do not place this product in a location where someone may trip over the cord.
- •If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- •Never push objects of any kind into this product through the cabinet slots, as they may touch dangerous voltage points or short out parts; that could result in a risk of fire or electric shock.
- •Except as explained elsewhere in this manual, do not attempt to service this product yourself.
- •Handle battery with care. If dropped, they may damaged.
- •Do not allow the battery to be exposed to direct sunlight for extended periods of time.

•Do not attempt to disassemble the battery. If the battery is disassembled and the electrodes are exposed to outside, the battery may generate eat and smoke by chemical reaction.
•Do not expose the battery to moisture or chemicals.
•Charge the battery only as described in this document.
•Do not short circuit the battery terminals as the resulting high currents can damage the battery.
•The battery should not be used to power other products.
•Do not dispose of a used battery in a fire or incinerator, as an explosion may result.
•The battery should be recycled.
•Do not subject the battery to temperature should not less than -20 degrees Centigrade or greater than 50 degrees Centigrade.
•Unplug this product from the wall outlet and refer problems to the service representative under the following conditions:
    - When the power cord or plug is damaged or frayed.
    - If liquid has been spilled into product.
    - If the product has been exposed to rain or water.
    - If the product does not operate normally when the operating instructions are followed, adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage.
    - If the product exhibits a distinct change in performance.

Federal Communications Commission (FCC)

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

NOTE:
This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generate uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions may cause harmful interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- •Reorient or relocate the receiving antenna.
- •Increase the separation between the equipment and receiver.
- •Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- •Consult the dealer or an experienced radio/TV technician for help.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet helpful: "Something About Interference." This is available at FCC local regional offices. Our company is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by our company. The correction will be the responsibility of the user. Use only shielded data cables with this system.

Canadian Radio Interference Regulations

This apparatus does not exceed the class B limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil n’émet pas de bruits radioélectriques dépassant les limites applicable aux appareils de la classe B prescrites par le règlement de brouillage radioélectrique dicté par le Ministère des Communictions du Canada.

Introducing Your Computer

Your computer is a lightweight portable computer that includes features to meet your computing needs at home or on the road.

Your computer is one of 3-spindle type computer and 2-spindle type computer. These computers are basically same, but the device arrangement is different.

- **3-spindle type computer** has CD-ROM drive and floppy drive within the computer.
- **2-spindle type computer** has CD-ROM drive and external floppy disk drive with its connectable cable. And different Status lights position from 3-spindle type computer.

Figure 1 through 4 show you the features of your computer.

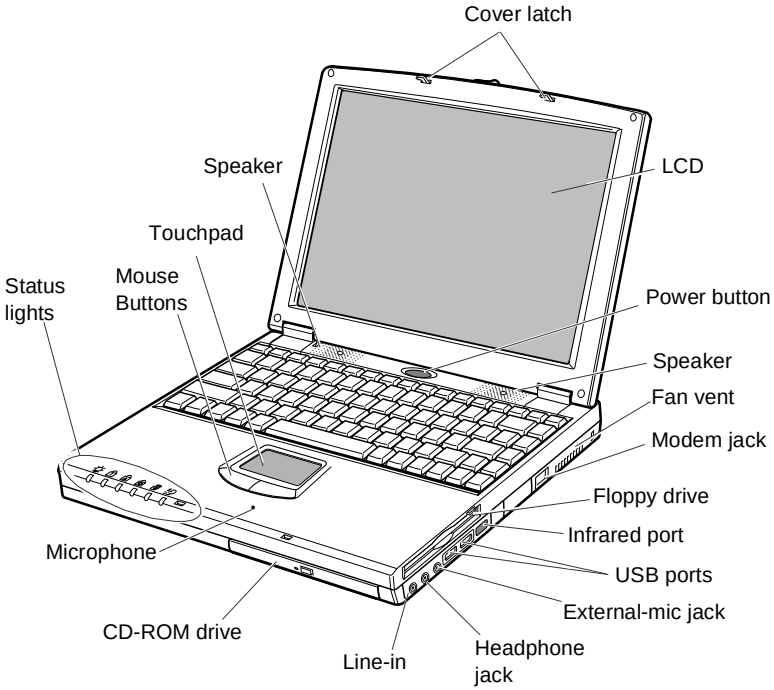


Figure 1. Front View of Computer (3-spindle type computer)

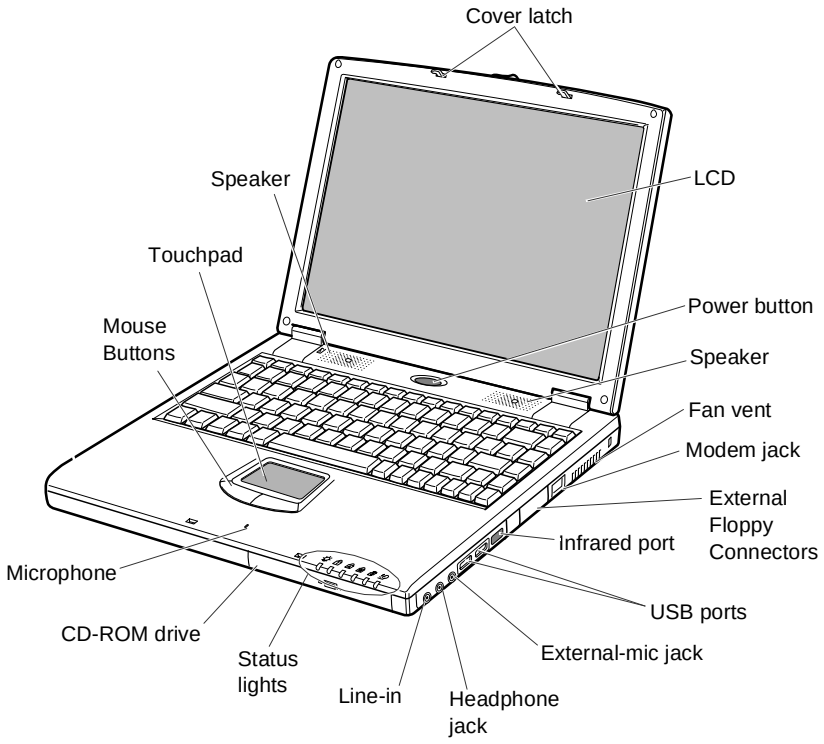


Figure 2. Front View of Computer (2-spindle type computer)

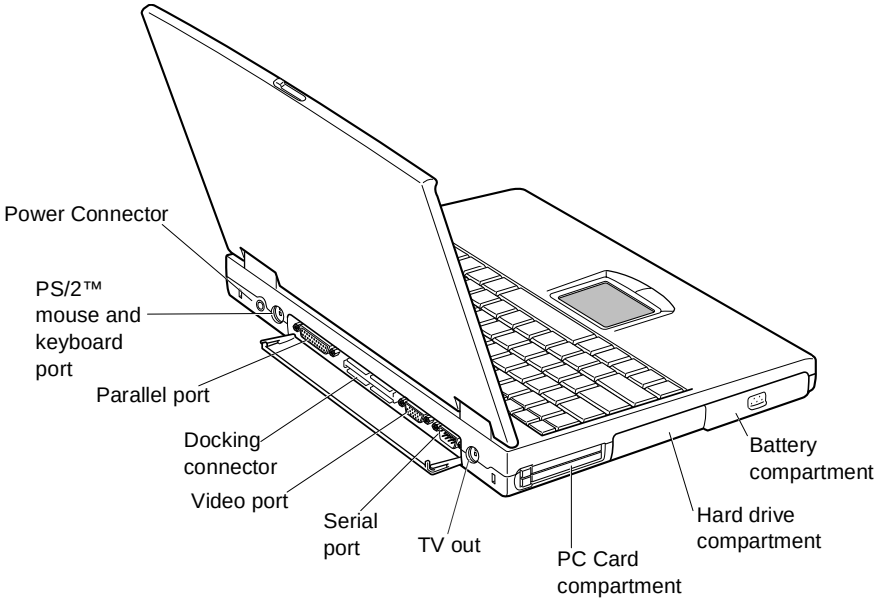


Figure 3. Back View of Computer

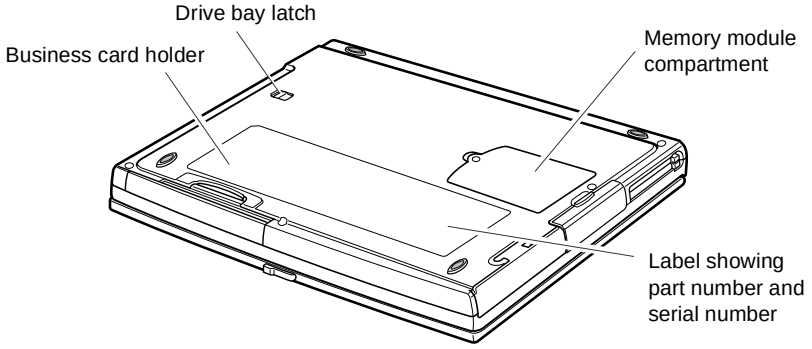


Figure 4. Bottom View of Computer

Using Your Computer for the First Time

This section gives you detailed information on using your computer for the first time.

Installing the Battery

Your computer comes with the battery pack separate from the computer. To install the battery pack:

1. With the computer's power off, close the LCD panel and turn the computer over so the bottom of the unit faces up.
2. Slide the battery compartment cover straight up and off the computer(Figure 5).

Insert the battery into the battery compartment in right direction or the battery does not fit on its slot properly.

3. Slide the battery pack into the compartment. Make sure the battery is fully inserted into the compartment.
4. Align the tabs on the battery compartment cover with the slots on the battery compartment.
5. Push the cover straight down until it snaps into place.

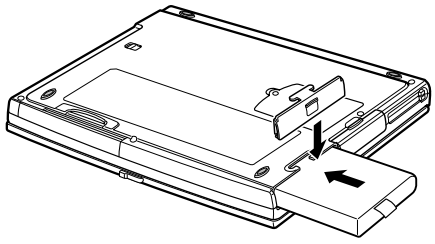


Figure 5. Installing the Battery

Attaching the Power Cord

Your computer runs on power from the battery in the computer or from an electrical outlet. The first time that you use your computer, fully charge the battery by attaching the power cord to the computer and to an electrical outlet.

All batteries lose their charge if they sit unused for an extended time period. When not used, battery can discharge fully in 2 to 3 months. The battery may have discharged in the time it took for the computer to go from the factory to you.

To attach the power cord:

1. Plug the AC adapter into the power connector on the back side of the computer (Figure 6).
2. Connect the power cord to the AC adapter and then to an electrical outlet.

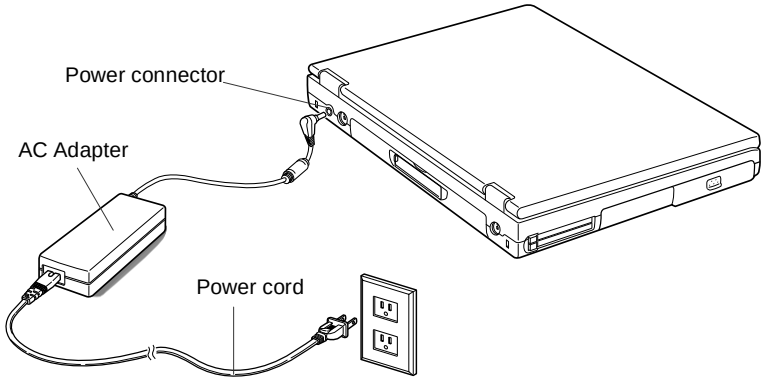


Figure 6. Connecting the Power Cord

The battery starts charging as soon as you plug the power cord into an electrical outlet. The battery charges faster if the computer is turned off during charging.

If the battery is fully depleted and the computer is turned off, the battery charges in about 3 hours. If the computer is turned on, the battery charges in about 5 hours. When the battery is charging, the battery charge light is amber. When the battery is fully charged, the light turns green.

See ”Using the Battery” on page 35 for more information on using your computer’s battery.

Turning On the Computer

To turn on the computer's power for the first time:

1. Push to the right and hold the cover latches on the front of the cover.
2. Lift up the cover.
3. Press and then release the power button (Figure 7).

   The power light is on when the computer's power is on.

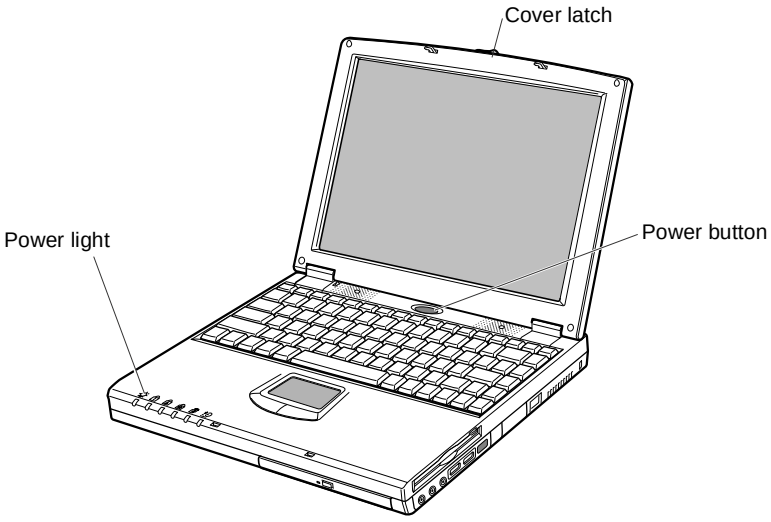


Figure 7. Turning On the Computer's Power

The front view of the computer might differ from 3-spindle type computer to 2-spindle type computer.

Understanding POST

When you turn on your computer, a routine called POST (Power-On Self-Test) automatically runs to test the computer components. Several messages appear on the screen during POST.

Screen messages are built into the computer to report both normal and abnormal system conditions. If an error message appears, take any action suggested in the message. If the message identifies the error condition but does not suggest any corrective action, write down the message and contact the manufacturer or an authorized reseller's service center for assistance.

Adjusting the LCD Display

You may wish to adjust the LCD (Liquid-Crystal Display) when you begin using your computer. A TFT (Thin-Film Transistor) LCD does not require adjustment for contrast because the contrast is set to remain at maximum.

To adjust the LCD:

- Press <Fn+Right Arrow> to increase the display brightness.
- Press <Fn+Left Arrow> to decrease the display brightness.

Making Backup Disks

Use the Create System Disks Utility in Windows 98 to make backup disks of any software on your hard drive. The utility will start automatically when you use your computer for the first time. You can also open the utility by doing the following:

1. Click the Start button on the taskbar.
2. Select *Programs*.
3. Select *Accessories*.
4. Select *System Tools*.
5. Click *Backup*.

Turning Off Your Computer

If your computer has a Windows operating system, turn off your computer by performing the shutdown procedure described in this section. Otherwise, you may lose data.

To turn off the computer:

1. Click Start on the taskbar.
2. Click *Shut Down*.
3. Select the shut down option.
4. Click OK or Yes.
   - If the operating system is Windows 98, the computer turns off.
   - If the operating system is Windows NT, you receive a shutdown message and must press the power button to turn off the computer.
   - Under the ACPI mode, you can shut down the computer or enter the standby mode by just pressing the power button.

Restarting Your Computer

You may need to restart (reboot) your computer when installing hardware or software or if the computer does not respond to your input. A warm (or soft) boot prompts you to save your files, turns off the computer, and then restarts the computer. A cold boot turns off the computer without saving your files.

To perform a warm (or soft) boot:

1. Click Start on the taskbar.
2. Click *Shut Down*.
3. Select the restart option.
4. Click OK or Yes.
5. Save your files if prompted. Your computer reboots.

Do not perform a cold boot unless your keyboard and touchpad have no effect and you cannot perform a warm boot.

When you perform a cold boot, you lose data unless it was saved to a storage medium.

You can also perform a soft boot by saving your files and pressing <Ctrl+Alt+Del>. You can perform a cold(or hard) boot by pressing the power button to turn the computer off, waiting five second, and then pressing the power button to turn the computer on.

Tips for Using Your Computer

The following information helps you avoid potential problems as you use your computer:

Do not try to disassemble your computer. Opening the system chassis voids your warranty. Only an authorized manufacturer's service center can replace or add any parts inside the chassis.

- Follow all the instructions and cautions in your computer user documentation.
- The LCD has a polarized surface and can be damaged easily. To prevent damage, avoid touching the screen.
- Use only memory modules which provided from authorized service center.
- Because a notebook computer is small and has restricted air flow around components, it is more likely to overheat than a desktop computer. A fan inside your computer runs when needed to help eliminate some heat. Make sure the fan vent on the right side of your computer is not blocked when you use the computer. (See Figure 1 for the location of the vent.) Occasionally check the vents and remove any accumulated dust on the outside.
- Avoid using or storing the computer in extremely hot or cold areas, such as a car on a hot day. Keep the computer away from heaters and out of direct sunlight. Exposure to excessive heat may damage computer components.

If you have left your computer in a hot place, let it cool down slowly to room temperature (with the LCD panel open) before using it.

- Do not remove the memory-module compartment door, or try to install a memory module when the computer is on. (See ”Bottom View of Computer” on page 5 for the location of the door.)

  (For information on installing memory modules, see “Installing a Memory Module” on page 74.)
- Set up your computer work area to avoid physical strain. Sit with your back straight and supported by your chair. Adjust your chair or work table so that your arms and wrists can remain in a relaxed position, parallel with the floor. Avoid bending or twisting your wrists as you work. Your hands should “float” slightly above the keyboard. Refer to a book on office ergonomics for more information on setting up your work area.
- Take frequent breaks from working at the computer to rest your eyes and stretch your muscles.
- Remember to save your data files frequently and to make backup copies of your files.

Traveling with Your Computer

If you are traveling by airplane, follow these tips:

- Take the computer with you as carry-on luggage. Do not check the computer with your baggage.
- Allow the computer and disks to go through the X-ray security devices. Do not hand-carry disks through the walk-through metal detectors, which can cause loss of data.
- Make sure that the battery is charged or the power cord is easily accessible. You may be required to turn on the computer for airport security personnel.
- Be prepared to turn off the computer during take off and landing.

Handling Spills

Do not spill anything on your computer. The best way to avoid spills is to avoid eating and drinking around your computer. If you do spill something on your computer, turn off your computer, unplug it immediately, and do the following:

- If you spill liquid on the keyboard, drain as much of the liquid from the keyboard as possible. Be careful not to let the liquid drip onto the LCD panel. Allow the system to dry for several days before trying to use it.
- If you spill liquid on an external keyboard or keypad, unplug it and drain as much of the liquid as possible. Allow the keyboard to sit at room temperature for a full day before trying to use it.

Sweet liquids leave a sticky residue that may jam the keyboard despite your efforts to dry it.

- If you spill liquid on the LCD panel, clean it immediately with a soft cloth and denatured alcohol. Do not use water, window cleaner, acetone, aromatic solvent, or dry, rough towels to clean it.

Some liquids damage the polarized LCD screen. If your screen is damaged, contact your authorized manufacturer's service center for a replacement.

Storing the Computer for Long Periods

If possible, leave the power cord connected to the computer and an electrical outlet when the computer is not in use. This extends the life of the battery and keeps the battery fully charged.

If you will not be using the computer for a long period of time (a month or more), you should charge the battery until it is completely full. After you have done so, remove the battery from the unit.

Connecting Peripheral Devices

The connectors on your computer enable you to attach peripheral devices to the computer (Figure 12). The system in Figure 12 is based on 3-spindle type computer, 2-spindle type computer has no internal floppy disk drive, but external floppy connectors instead.

Turn off your computer before you connect a peripheral device. Connecting a peripheral device with your computer turned on may seriously damage the device or your computer.

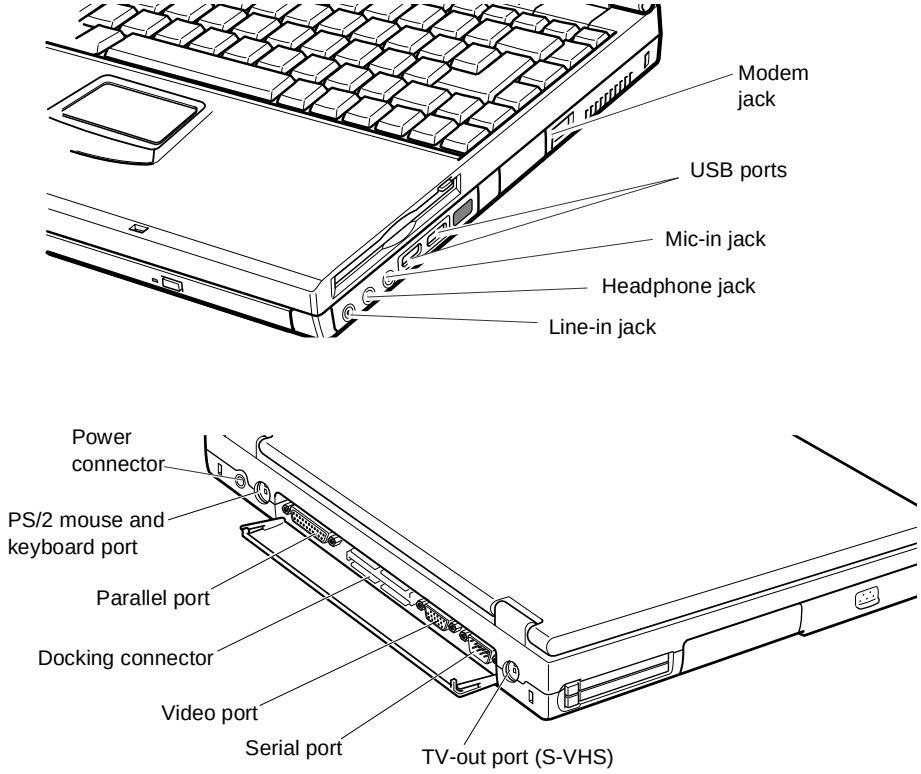
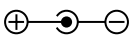
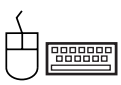


Figure 12. Peripheral Connectors

Table 4 shows the icons located near each connector and tells you the devices that you can attach to the connectors.

Table 4. Connecting Peripheral Devices

Icon	Connector
	*Line-in jack:* An input for external audio.
	*Headphone jack :* Connect stereo headphones or speakers to this jack. Speakers connected to this jack override the internal speakers.
	*Microphone jack :* Connect an external microphone to this jack.
	*USB (universal serial bus) port:* Connect USB devices to this port. USB input/output devices include keyboards, pointing devices, and monitors.
	*Modem jack:* Connect telephone line to connect to internet.
	*Power cord connector:* Plug in the power cord to run the computer and charge the battery.
	*PS/2 (Personal System/2) mouse and keyboard port:* Connect a PS/2-compatible mouse or external keyboard or keypad to this port. Make sure your computer is turned off when you attach peripherals to the port. You can use the computer's touchpad and a PS/2 keyboard at the same time.
	*Docking connector:* Connect a docking option to this connector.

Using the Floppy Drive

Your computer comes with a 1.44 MB, 3.5-inch, high-density floppy drive, which can read, write to, and format the following disks:

- A high-density, 3.5-inch disk, which stores 1.44 MB (megabytes) of data.
- A double-density, 3.5-inch disk, which stores 720 KB (kilobytes) of data.

The floppy drive in your notebook computer is smaller, but more power-efficient, than a floppy drive in a desktop computer. To get the best performance from your floppy drive use high-quality floppy disks.

To use a floppy disk in 3-spindle type computer, insert it into the floppy drive (Figure 13). Next figure is based on 3-spindle type computer, see “Connecting the Floppy Drive to the Floppy Connector (2-spindle type computer only)” on page 25 for using the 2-spindle type computer’s floppy drive.

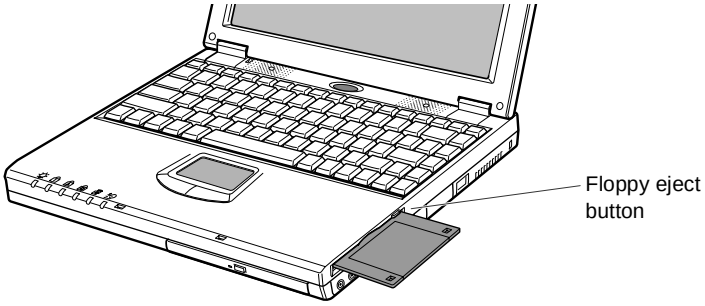


Figure 13. Inserting a Floppy Disk (3-spindle type computer)

To remove a floppy disk, press the eject button on the floppy drive.

The floppy drive light on the computer is on when the computer writes to or reads from a floppy disk. Do not remove a disk when this light is on.

To protect the data on your floppy disks, follow these guidelines:

- Keep disks away from excessive heat, direct sunlight, and liquids.
- Keep magnets and any device that contains a magnet (like the telephone) away from your disks.

Magnetic fields can destroy the information on a disk.

- Do not write directly on a label on your disk; instead, write on a disk label first and attach the label to the disk.
- Make copies of all your important disks.

Connecting the Floppy Drive to the Floppy Connector (2-spindle type computer only)

2-spindle type computer is shipped from the factory with both a floppy drive and a CD-ROM drive included.

Turn off your computer before you install or remove devices from the drive bay or connect or disconnect the floppy cable and drive.

To use the floppy drive and the CD-ROM drive at the same time, install the CD-ROM drive in the drive bay. Then attach the floppy drive to the external floppy connector. Attach one end of the floppy cable to the floppy drive and the other to the external floppy port on the computer (Figure 14).

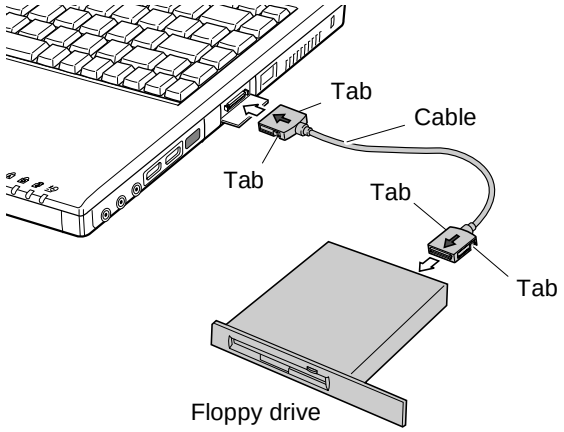


Figure 14. Attaching the Floppy Drive to the Floppy Connector

The floppy cable must be inserted as shown in Figure 14. To insert the cable correctly, make sure that the connectors are fit to the cable connectors in proper direction.

If the cable does not fit easily, do not force it. Make sure you have the correct end of the cable going to the computer and to the floppy drive.

To remove the cable:

1. Press in and hold the tabs on the side of each cable connector.
2. Pull the cable connectors away from the floppy drive and the computer.

If you want to use floppy disk drive within the computer, then insert the external floppy disk driver into the drive bay. See ”Using the Drive Bay” on page 30 for detail information.

Using the CD-ROM Drive

Compact discs are designed so that you can easily insert one into the computer when you need it, and then remove it:

1. Press the button on the CD-ROM drive, and the tray slides out. (Do not lean on the tray; it does not support much weight.)
2. Insert a CD (compact disc), label side up (or remove a disc, if you have finished using it).
3. Push the tray in gently to close the drive tray (Figure 15).

   A light on the drive tray is on when the computer is reading from a CD. Do not remove a disc when this light is on.

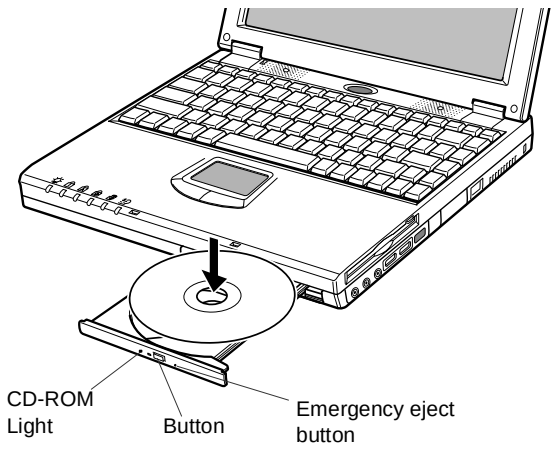


Figure 15. Using the CD-ROM Drive

Install and start a CD-based program as you would run a program on a floppy disk. See your operating system documentation for more information on running programs.

The name of the CD-ROM drive is the letter following the letter assigned to your last hard drive. For instance, if you have one hard drive with only one hard drive partition, the hard drive is drive C and the CD-ROM drive is drive D.

If necessary, you can use the emergency eject button to open the CD-ROM drive. To use the emergency eject button, turn the computer's power off and insert a small object, like an unbent paperclip, into the hole to press the button.

Do not place reflective objects in the disc slot because of possible hazardous laser emissions.

The laser beam used in this CD-ROM drive is harmful to the eyes. Do not attempt to disassemble the CD-ROM drive. Refer servicing to your authorized service center.

The on-board audio hardware and software of your computer enable the computer to play audio compact discs. If you wish to do so, you can attach external speakers to the Headphone jack.

To play an audio compact disc:

1. Insert a compact disc into your CD-ROM drive:
   a. Press the button on the CD-ROM drive, and its tray slides out.
   b. Insert a CD, label side up.
   c. Push the tray in to close the drive tray. The CD Player button appears on the taskbar.

   The disc begins to play.

   A light on the drive tray is on when the computer plays a CD. Do not remove a disc when this light is on.
2. To adjust the sound, press the following key combinations:
   - <Fn+F9> decreases volume.
   - <Fn+F10> increases volume.

To remove the CD:

1. Click the CD Player button on the Windows taskbar to open the CD Player window (Figure 16).

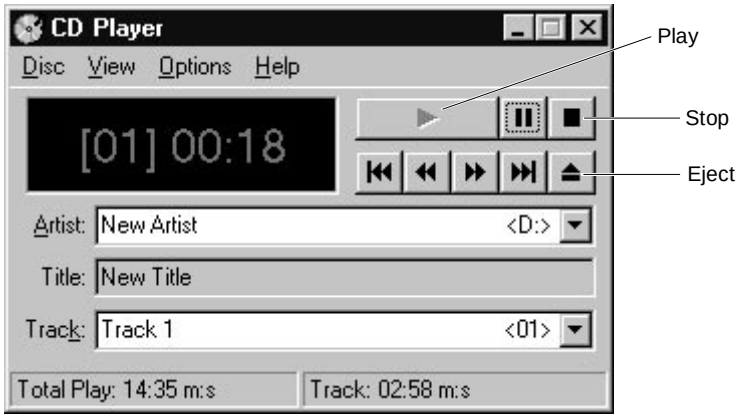


Figure 16. CD Player Window

2. Click the Stop button in the CD Player Window.
3. Click the Eject button on the CD Player window or press the button on your CD-ROM drive. The drive tray opens and you can remove the disc from the CD-ROM drive.

For more information on playing compact discs, see the Help menu in the CD Player window.

Using the Drive Bay

Your computer includes the Drive bay, a peripheral bay that can hold one of the following devices:

- Floppy disk drive: shipped with 2-spindle type computers.
- Optional secondary hard drive: available as an option for your computer.
- DVD-ROM / Zip drive / LS-120: available as an option for your computer.

If your operating system is Windows 98, you can use the SmartBay Utility to hot-swap the devices. If you do not use Window 98, make sure that the computer's power is off before you remove or install any devices.

To remove a device from the drive bay:

1. Turn the computer's power off.
2. Close the LCD panel, and turn the computer over so that the bottom of the unit faces up.
3. Pull up on the drive bay latch and pull the device from the bay.(Figure 17)

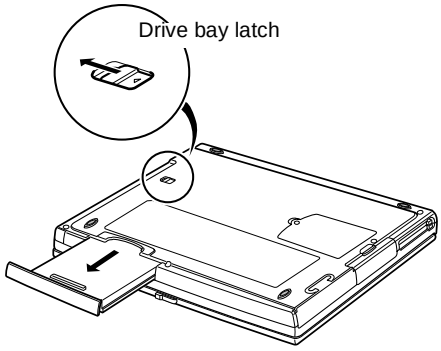


Figure 17. Removing a Device from the drive bay

4. Remove the device out of the bay.

To install a device in the drive bay:

1. Turn the computer's power off.

2. Place the device into the bay.
3. Push the device in until it is flush with the chassis.
4. Push down on the drive bay latch until the latch snaps into place.

Your computer's operating system automatically recognizes the device in the drive bay and configures your computer accordingly.

To use the floppy drive and the CD-ROM drive at the same time in 2-spindle type computer, install the CD-ROM drive in the drive bay. Then attach the floppy drive to the external floppy connector.

Using the SmartBay Utility

If your computer shipped with Windows 98, you can use the SmartBay utility to hot-swap your devices.

To remove the device from the drive bay:

1. Double click *SmartBay Hotswap Utility* on the Windows.

To remove an device:

1. Open the *SmartBay Hotswap Utility*.
2. Select *Remove Device* and click *Ok*.
3. Click *Yes* on the confirmation screen
4. Remove the device by either disconnecting the cable from the computer or from the device.
5. Click *Ok*.

To insert an device:

1. Open the *SmartBay Hotswap Utility*.
2. Select *Insert Device* and click *Ok*.
3. Connect the device to the computer using the device cable. Make sure all connectors are correctly attached.
4. Click *Ok* to allow your computer to detect the device.

If you have difficulty in getting an device detected, go through the Remove procedure and then the Insert procedure again.

Using the Hard Drive

Your computer includes a removable IDE (integrated drive electronics) hard drive. The IDE hard drive can store the data and programs your computer uses. The drive plugs into a connector on the system board.

Although the storage capacity of hard drives varies according to model, any hard drive holds much more than a floppy disk does. Also, the computer reads and works with a hard drive more rapidly than with a floppy disk.

Once information is saved on a hard drive, it remains there until it is overwritten. Hard drive heads park automatically when you turn off your computer.

The hard drive that comes with your computer has already been formatted. Do not format the hard drive. Doing so destroys all data contained on the drive. If you need to format a new drive, or want to erase all data on your existing hard drive, refer to the manual for your operating system.

Removing the Hard Drive

To prevent loss of data and damage to the disk, do not remove the hard drive while the computer's power is on and do not drop or jar the hard drive.

To remove the hard drive from the computer:

1. If you are installing a new hard drive, backup the application and data files on the old hard drive before removing it from the computer.

   In Windows 98, you can use the Microsoft Create System Disks Utility to back up application files and the Microsoft Backup Utility to back up data files.

   In Windows NT, you can use the Windows NT Backup Utility to backup data files. The Backup Utility requires a tape drive. You can also back up files to a network.

2. Turn the computer's power off.

3. Close the LCD panel, and turn the computer over so that the bottom of the unit faces up.
4. Remove the screw that holds the hard drive in place (Figure 18).

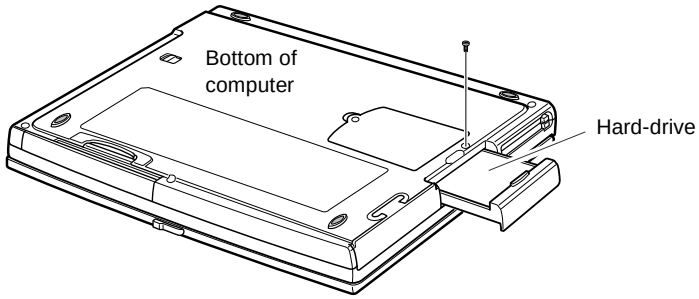


Figure 18. Removing the Hard Drive

5. Pull the hard drive out of the computer.

Installing a Hard Drive

To install a hard drive:

1. Remove the old hard drive from the computer as described in the previous section.
2. Slide the new drive into the hard drive compartment. Make sure the drive is pushed back as far as it will go.
3. Install the screw that holds the hard drive in place.
4. If you intend to use save to disk mode, see “Creating a Save to Disk Partition” on page 61.
5. Format your drive and reinstall your files.

Using the Battery

Your computer uses a rechargeable Lithium-ion (Li-ion) battery pack for power when the power cord is not attached to an electrical outlet.

Charging the Battery

Your computer's battery starts charging automatically when you connect the power cord to the computer and to an electrical outlet. If the computer is off, the battery charges faster than if the computer's power is on.

Approximate charging times for Li-Ion battery are

- 3 hours with the computer off.
- 5 hours with the computer on.

While the battery is charging normally, the battery charge light on the computer is amber (See "System Status Lights" on page 19 for the location of the battery charge light). When the battery is fully charged, the light changes to green.

When you use a new battery pack for the first time or use a battery after a long period of storage, the initial battery life is shorter than normal. Normal battery life resumes after a few discharge-recharge cycles.

Follow these rules for charging your battery:

- A battery normally discharges power when not used for long periods of time. Be sure to recharge the battery every two months when it is not in use.
- Make it a practice to discharge your battery fully before recharging the battery. This can help extend the life of the battery.
- Do not attempt to charge the battery in temperatures of under 41° F (5° C) or over 95° F (35°C.)

All batteries eventually wear out and lose the ability to hold a charge. You may need to replace your battery pack after a year of average usage.

Safely Using the Battery

Follow these guidelines to safely use the battery:

- Turn off your computer and unplug it if you accidentally:
  - Expose the equipment to liquid.
  - Drop, jar, or damage the computer.
- Use only approved battery chargers.
- Do not disassemble the battery, heat it above 212° F (100° C), or burn it. The battery used in this computer may cause a fire or chemical burn if mistreated.
- Your computer's rechargeable battery may be considered hazardous waste. If you replace your battery with a new one:
  - Keep the old battery out of the reach of children.
  - Dispose of the old battery promptly.
  - Make sure that you follow all local requirements when you dispose of the old battery.

Removing the Battery

To remove the battery from the computer:

1. Turn the computer’s power off.
2. Close the LCD panel, and turn the computer over so that the bottom of the unit faces up.
3. Slide the battery compartment cover straight up and off the computer (Figure 19).

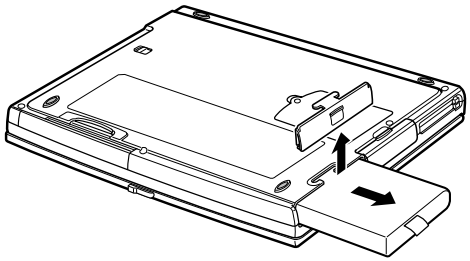


Figure 19. Removing the Battery Pack

4. Grasp the tab on the battery and pull the battery out of the compartment.

See ”Installing the Battery” for information on installing the battery.

Monitoring the Battery Charge

Battery life is affected by factors such as the power-management settings in System Setup, the applications you use, and the brightness settings of the LCD. Under normal usage, the battery charge lasts approximately 3 hours.

Battery life estimates are subject to variation. The actual life of your battery may be less than the estimates given in the manual.

You can monitor the charge of the battery pack installed in your computer through the battery gauge.

Using the Battery Gauge

Press <Fn+F6> to display the battery gauge on the LCD (Figure 20). You can display the battery gauge while you are in any program.

Figure 20. Battery Gauge

The gauge has two sections:

- The top section of the gauge shows an icon of a battery to indicate that the computer is powered by the battery or an icon of a power cord plug to indicate that the computer is powered by the internal AC adapter.
- The bottom section of the gauge shows you the approximate amount of battery charge remaining. This section of the gauge is only displayed if the computer is being powered by the battery.

While the battery gauge is displayed, all keys except <Esc> are disabled. The battery gauge closes in a few seconds, or you can press <Esc> to close it.

Because of the characteristics of battery cells, the battery gauge may be inaccurate for 10 minutes after you charge the battery. Wait until the computer has been operating from the battery for 10 minutes before you check the battery gauge.

Battery Warnings

Your computer gives you the following low-battery warnings (Table 5).

Table 5. Battery Warnings

Warnings	Condition	Action to Take
The computer beeps 5 times (low-pitched beeps). In Windows 98, a battery-low warning appears on screen.	Battery low: The battery charge is about 10 percent. Approximately 5–10 minutes of battery charge is left.	Save your work. Use the power cord to power the computer or turn off the computer and install a fully charged battery.
The computer beeps 5 times (high-pitched beeps), with a short time between beeps. After a short time, the computer automatically goes into rest mode.	Battery very low: The battery charge is about 3 percent.	Use the power cord to power the computer and charge the battery.

Above features are valid with only APM OS except Windows 98. In case of any ACPI OS and Windows 98 which is running on APM interface, you can adjust the battery alarm features by using OS specific power management program (Control Panel > Power management in Windows 95). But, in APM Windows 98, unlike ACPI OS, you should select the Rest mode of low battery situation (Power On Suspend/Save-to-Disk) only in BIOS setup.

If you cannot run your computer from the battery and the battery will not charge when you attach the power cord, the problem may be that

- The battery temperature is over 41° F (5° C) or below 95° F (35° C). If you think the battery temperature is too hot or too cold, turn off the computer, remove the battery, and let the battery reach room temperature. Then try charging the battery again.
- The battery is defective. Replace the battery with a new battery.

Using System Setup

The System Setup program enables you to configure your computer hardware and set security and power-savings options. The settings you choose are stored in battery-maintained CMOS (complementary metal-oxide semiconductor) memory that saves the information even when the computer's power is turned off. When your computer is turned back on, it is configured with the values found in this memory.

Run System Setup if you get a message prompting you to run the program. You may also want to run System Setup, particularly the first time you use your computer, to set the time and date, use security or power-management features, or alter the settings of other features.

Your computer's version of System Setup may not include all the fields listed here or may include additional fields. Field names and order of appearance can vary according to the version of the BIOS (basic input/output system) on your computer.

You can use the configuration listing at the back of this manual to record information specific to your computer. (see "Recording the Computer Hardware Configuration" .) Fill it out as you complete your System Setup configuration. This list helps you describe your computer if you must contact your authorized reseller for service or product information.

Starting System Setup

To start System Setup, turn on your computer and then press <F2> when prompted. The System Setup screen appears.

The top of the System Setup screen has a menu bar with the selections listed in Table 6.

Table 6. System Setup Menus

Menu	Function
Main	Changes the basic system configuration.

Advanced	Configures advanced features on your computer.
Security	Enables security features, including passwords and backup and virus-check reminders.
Power	Configures power-management features.
Boot	Specifies the order of boot devices and configures boot features.
Exit	Specifies how to exit System Setup.

To open a menu, use the left or right arrow keys to select the menu name and then press <Enter>.

Table 7 lists the keys you can use to navigate through System Setup.

Table 7. System Setup Navigation Keys

Navigation Key	Alternate Key	Function
<F1>	<Alt+H>	Displays the General Help window.
<Esc>		Exits the current menu.
<Left Arrow> and <Right Arrow> keys	Keypad arrow keys	Select a different menu.
<Up Arrow> and <Down Arrow> keys	Keypad arrow keys	Move the cursor up and down between fields.
<Tab>		Moves the cursor forward through the cells for a highlighted field. If the field has only one cell, the <Tab> key moves the cursor down to the next field.
<Tab+Shift>		Moves the cursor backward through the cells for a highlighted field. If the field has only one cell, the <Tab+Shift> key combination moves the cursor up to the previous field.
<Home>	<PgUp>	Moves the cursor to the field at the top of the window.
<End>	<PgDn>	Moves the cursor to the field at the bottom of the window.

<F5>	<->	Scrolls backwards through the options for the highlighted field.
<F6>	<+> or <Space>	Scrolls forward through the options for the highlighted field.
<F9>		Sets the parameters for the current menu to their default values.
<F10>		Sets the parameters for the current menu to their previous values.
<Enter>		Executes commands or opens a submenu.

A pointer symbol appearing to the left of a field indicates that you can open a submenu from this field. A submenu contains additional options for a field. To open a submenu, highlight the field and press <Enter>. Use the same keys to enter values and move from field to field within submenus as you use within menus.

When you highlight a field, information about the field appears on the right side of the screen. System Setup also provides a General Help screen that can be opened from any menu by pressing <F1> or <Alt+H>. The General Help screen lists the navigation keys with their corresponding alternates and functions.

When a scroll bar appears to the right of a help window, more information is available than can be displayed in the window. Use the <PgUp> and <PgDn> keys or the <Up Arrow> and <Down Arrow> keys to scroll through the entire help document. Press <Home> to display the first page, or press <End> to go to the last page. To exit the help window, press <Enter> or <Esc>.

If your computer will not boot after you have changed settings in System Setup and exited the program, reboot and press <F2> to reenter System Setup. Once in System Setup, you can try to change the values that caused your computer boot to fail. If the problem persists, press <F9> to load the default values.

Main Menu

When you open System Setup, the Main menu appears. You can make changes to your computer's basic system configuration from this menu. The fields displayed in this menu are described below.

System Time: Sets your computer to the time that you specify, usually the current time. Enter the hour, minute, and second in the format *hh:mm:ss.* Use a 24-hour

clock. Use the tab key to move between the hour, minute, and second cells. Use the hyphen key <-> or <Space> bar to decrease or increase the numbers.

System Date: Sets your computer to the date that you specify, usually the current date. Enter the month, day, and year in the format *mm:dd:yyyy*. Use the tab key to move between the month, day, and year cells. Use the hyphen key <-> or <Space> bar to decrease or increase the numbers. This field supports year dates of 2000 and beyond.

Diskette A: Specifies a drive type for floppy drive A. *1.44 MB, 3 1/2"(*default*)* floppy disk can be used.

Primary Master and **Secondary Master:** Your computer can support two IDE drives. The Main menu contains two IDE adapter fields to configure these drives. *Primary Master* defines the hard drive installed in the computer. *Secondary Master* defines the CD-ROM drive.

To configure a replacement or upgrade hard drive, move the cursor to select the *Primary Master* field in the System Setup Main menu, and then press the <Enter> key. The submenu appears.

Normally, you can use the *Auto* option of the *Type* field in the submenu to automatically set the values for the other fields in the submenu. Manually set the other fields in this submenu only if the drive you have installed in your computer is not recognized by System Setup.

After you make your selections from this submenu, press the <Esc> key to exit back to the Main menu.

Set the *Auto* option of the *Type* field in the Secondary Master submenu, if you want CD-ROM boot.

Before attempting to configure a hard drive, make sure you have the configuration information supplied by the manufacturer of the hard drive. Incorrect drive settings can cause your computer to malfunction.

Primary and Secondary Master field calls up a submenu. The following fields are found in the submenu:

Type: Configures the hard drive type. Normally, select *Auto* at this field to have your computer attempt to automatically detect the drive type and set the values for the remaining fields in this submenu

You can also enter the drive type number (1-39) for your drive or select *CD-ROM*. All remaining fields in this submenu are then filled with the correct values for the disk type. If you do not have the documentation that came with your upgrade hard drive, try to use the *Auto* option as described above.

To configure a drive that is not one of the 39 standard drive types, specify *User*. Manually enter the number of cylinders, heads, sectors per track, and write precompensation for your drive. Refer to your drive's user documentation or look on the drive to obtain this information.

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

Cylinders: *C*onfigures the number of cylinders for the hard drive. Refer to your drive's user documentation or look on the drive to obtain this information. Before you can make changes to this field, the *Type* field must be set to *User*.

Heads: *C*onfigures the number of read/write heads for the hard drive. Refer to your drive's user documentation or look on the drive to determine the correct value to enter for this field. Before you can make changes to this field, the *Type* field must be set to *User*.

***Sectors*:** Configures the number of sectors per track for the hard drive. Refer to your drive's user documentation or look on the drive to determine the correct value to enter for this field. Before you can make changes to this field, the *Type* field must be set to *User*.

Maximum Capacity: Shows the maximum capacity of the drive. This field is for reference only.

Multi-Sector Transfers: Sets the number of sectors per block to the highest number supported by the drive. Configuration options are *Disabled, 2 Sectors, 4 Sectors, 8 Sectors,* and *16 Sectors.*

LBA Mode Control: Enables or disables 28-bit addressing of the hard drive, without regard for cylinders, heads, and sectors. Note that enabling this field may decrease the access speed of the hard drive.

32 Bit I/O: Enables or disables 32-Bit I/O (input/output). When *Enabled*, your hard drive can work with applications with 32-bit input and output. If the field is *Disabled* (default), your computer works with 16-bit input and output and has lower performance.

***Transfer Mode*:** Selects the method for transferring data between the hard drive and system memory. Refer to your drive's user documentation to specify the correct option for this field. Options are *Standard, Fast PIO 1, Fast PIO 2, Fast PIO 3,* and *Fast PIO 4.*

Smart Monitoring: Defult setting is *Enabled*. Showes that Smart Monitoring function is used. This field is for reference only.

Ultra DMA Mode*:* Enables the hard drive to use ultra DMA (direct memory access) transfer mode to transfer data between the drive and system memory. Options are *Mode 0*, *Mode 1*, *Mode 2*, and *Disabled.*

Memory Cache: Enables or disables the external cache memory. Cache memory improves system performance by keeping frequently used computer instructions in memory with a faster access time than DRAM (dynamic random access memory). Normally, do not disable the cache memory unless a program's documentation specifies that the computer cache memory must be disabled.

System Memory: Displays the amount of conventional memory detected by your computer during startup. This field is for reference only.

Extended Memory: Displays the amount of extended memory detected by your computer during startup. This field is for reference only.

Advanced Menu

Selecting *Advanced* from the menu bar displays the Advanced menu.

Installed O/S: Select the operating system installed on your system which you will use most commonly. An incorrect setting can cause the unexpected system behavior.

PS/2 Mouse Configuration: *Disabled* prevents both the touchpad and external PS/2 port from functioning. *Single mouse* enables the external PS/2 port or the touchpad, and external PS/2 port has proirity. *Dual Mouse* allows the use of both the touchpad and PS/2 port.

Screen Expansion: Enables or disables the Screen Expansion mode. If you set this field to Enabled, system displays the VGA mode (DOS mode or 640x480 Graphic mode) to expansion mode.

TV Standard: Select TV standard such as *NTSC*(default), *PAL*, and *SCART-PAL*.

Display Control: Enables or disables the display using the LCD or external monitor. Or both(default) synchronizely.

I/O Device Configuration: Opens the *I/O Device Configuration* submenu if you press <Enter> when this field is highlighted. If you attempt to set two ports to the same settings, the fields will be marked with asterisks.

The submenu contains these fields:

Serial port: Configures serial port. The options for this field are *Enabled* (default), and *Disabled*. If you set this field to *Enabled*, you can set the *Base I/O Address* field to *3F8 IRQ4* (default), *2F8 IRQ3*, *3E8 IRQ4*, or *2E8 IRQ3*. When the field is set to *Enabled*, the computer's operating system uses the default configuration or the configuration you choose. If you select *Disabled*, you free up an IRQ for use by another device.

Infrared port: Configures the infrared port. The options for this field are *Enabled*, and *Disabled* (default). If you set this field to *Enabled*, you can set the *Base I/O Address* field and the *Mode* field and the *Mode* field. Settings for the *Base I/O Address* are *3F8 IRQ4*, *2F8 IRQ3* (default), *3E8 IRQ4*, or *2E8 IRQ3*. *Mode FIR* (fast infrared) enables you to set the *DMA channel* to 3 or 1.

When the *Infrared port* field is set to *Enabled*, the computer's operating system uses the default configuration or the configuration you choose. If you select *Disabled*, you free up an IRQ for use by another device.

Parallel port: Configures the parallel port. The options for this field are *Enabled* (default), and *Disabled*. If you set this field to *Enabled*, you can set the *Mode* field and the *Base I/O Address* field. Settings for the *Base I/O Address* are *378 IRQ7*(default), *378 IRQ5*, *278 IRQ7*, *278 IRO5*, *3RC IRQ7*, and *3RC IRQ5*. Settings for the *Mode* are *Output only*, *Bi-directional*, *EPP* (enhanced parallel port), and *ECP* (extended capabilities port). Selecting the ECP setting enables you to set the DMA Channel to 1, 2, or 3.

When the *Parallel port* field is set to *Enabled*, the computer's operating system uses the default configuration or the configuration you choose. If you select *Disabled*, you free up an IRQ for use by another device.

Floppy disk controller: Configures the floppy disk controller. The options for this field are *Enabled* (default), and *Disabled*. When the *Floppy disk controller* field is set to *Enabled*, the computer's operating system uses the default configuration for the controller.

Local Bus IDE adapter: Enables the integrated IDE local bus adapters. Options are *Enabled* (default) and *Disabled*.

Large Disk Access Mode: Enables your computer's operating system to work with drives larger than 540 MB. Choose *DOS* (default) for Microsoft operating systems. Choose *Other* for any other operating systems.

Security Menu

Selecting *Security* from the menu bar displays the Security menu. Your computer's advanced security system allows you to set two different passwords to prevent unauthorized access to system resources, data, and System Setup. From the Security menu, you can enable a boot password, disk access, a system backup reminder, and a virus check reminder.

Security fields marked with an asterisk can only be changed if you start System Setup with a system supervisor password or if no passwords are in effect. You cannot access these fields with a user password.

Set User Password: Enables you to set a user password to control access to the system at boot. See "Creating a Password" on page 53 for instructions on setting a password.The user password allows restricted access to the System Setup Security menu; the user has access only to changing his own password and to enabling or disabling *Password on boot.* A supervisor password must be set before a user password can be set

Set Supervisor Password:* Enables you to set the supervisor password to control access to the System Setup utility. See "Creating a Password" on page 53 for instructions on setting a password.

Password on boot: Determines whether the computer prompts for a password when starting up. The options are *Enabled* and *Disabled*. A supervisor password must be set before you can enable this option.

Fixed disk boot sector:* Enables you to write-protect the hard drive boot sector to protect against viruses and alterations. Only a user with the supervisor password can access this field. The options for this field are *Normal* (default) and *Write Protect.*

Diskette access:.* Enables you to restrict the use of floppy drives. When set to *Supervisor* (default), the use of floppy drives is restricted to a user with the supervisor password. A supervisor password must be enabled before the *Supervisor* option can take effect. When set to *User*, users with either type of password have access to floppy drives. If the field is set to *Supervisor* and a user password is enabled, the user must enter the supervisor password in order to boot from the floppy drive.

Virus check reminder:* Enables the computer to prompt you to scan the computer for viruses. The prompt appears each time you start your computer or reboot until you respond with *Y* (yes). The options for this field are:

- *Daily*: Every day when you start your computer for the first time, the prompt appears.
- *Weekly:* When you start your computer for the first time each week (after Sunday), the prompt appears.
- *Monthly*: When you start your computer for the first time each month, the prompt appears.
- *Disabled*: The prompt never appears. This is the default setting.

For a *Daily, Weekly,* or *Monthly* prompt to be accurate, *System Date* in the Main menu must be set to the current date.

System backup reminder:* Enables the computer to prompt you to backup your files. The prompt appears each time you start your computer or reboot until you respond with *Y* (yes). The options for this field are

- *Daily*: Every day when you start your computer for the first time, the prompt appears.
- *Weekly:* When you start your computer for the first time each week (after Sunday), the prompt appears.
- *Monthly*: When you start your computer for the first time each month, the system backup prompt appears.
- *Disabled*: The prompt never appears. This is the default setting.

For a *Daily, Weekly,* or *Monthly* prompt to be accurate, *System Date* in the Main menu must be set to the current date.

Power Menu

The Power menu of System Setup allows you to enable and adjust your computer's sophisticated power-saving features. Enabling these features extends the life of the battery.

If your computer shipped with Windows 98 installed, the Power Management works as the settings in Power Management option of Control Panel. But if your computer boots with DOS or Windows 95, Windows NT 4.0, the Power Management works as the settings in System Setup.

Power Savings Mode: Enables and disables Maximum Performance mode. The options are *Maximum Performance*, *Maximum Power Saving*(default), *Customized* and *Disabled*. If you set this field to *Maximum Performance*, the microprocessor and hard drive run at full speed, unless affected by other power-savings settings. If you set this field to *Maximum Power Saving*, the microprocessor and the hard drive run at slow speed, unless there is user input or device activity. Choose *Customized* to alter these settings and *Disabled* to turn off the Power management function.

Idle Mode: Turns on or off the idle mode power savings. *On* slows down the CPU during brief period when the system is not busy.

Standby Timeout: Sets the period of computer inactivity (no user input or device activity) that must pass before your computer automatically goes into standby mode. In standby mode some devices are turned off (including the LCD screen) and the microprocessor slows down. You can disable this option by selecting *Off*, or you can specify a *Standby Timeout* delay time of from 1 to 16 minutes. The default is *1 Minute*.

Rest Time out: Sets the period of computer inactivity from standby that must pass before your computer automatically goes into rest mode. When the rest timeout expired, your computer goes to the rest mode according to Rest Mode.

Rest Mode: Specifies the type of rest mode your computer enters:

- *Power On Suspend:* Saves power by turning off the microprocessor and DMA clocks, video, and all controllable peripheral devices. Some power is still used when your system is in this mode.
- *Save To Disk* (default)*:* Provides the greatest power-saving capabilities by essentially turning off your computer. In the save to disk mode, all system logic (except for your computer wakeup circuitry and battery charger) is turned off. During save to disk mode, the DRAM and video memory are saved to the hard drive and are restored when your computer resumes from rest.

  When the computer enters save to disk mode, it will not resume normal operation at a specified time no matter how the *Resume On Time* field is set.

Hard Disk Timeout: Sets the amount of time the hard disk needs to be inactive before it is turned off.

Resume On Modem Ring: Enables the computer to resume operation from rest mode in the event of modem communication. The computer will resume only if the *Rest Mode* field is set to *Power On Suspend*, not *Save To Disk*. The default setting is *Off*. Windows 98 do not use this item.

Resume On Time: Enables the computer to resume operation from rest mode at a scheduled time. The computer will resume only if the *Rest Mode* field is set to *Power On Suspend,* not *Save To Disk.* If you set this field to *On,* you must set the *Resume Time* field as well. The default setting is *Off.* Windows 98 do not use this item.

Resume Time: Specifies the time for your computer to automatically resume from rest mode. Enter two-digit numbers to indicate the hour, minutes, and seconds in the format *hh:mm:ss*. Use a 24-hour clock. Use the tab key to move between the hour, minute, and second cells. Use the hyphen key <-> or <Space> bar to decrease or increase the numbers.

You must set this option if you enable *Resume On Time*.

Thermal Control: Enables the computer to be slowed down when the CPU is overheated (default and recommanded). When you need special working, you can select *disabled.* In this case, the CPU temperature is not monitored.

Boot Menu

The Boot menu enables you to select a boot device and set boot options.

QuietBoot Mode: Enables ot Diables the display of the diagnostic screen during boot. If you select *Enabled*(default), the diagnostic screen is disabled.

QuickBoot Mode: Allows the system to skip certain tests while booting for decreasing the boot time.

Floppy check: Enables a check of the floppy drive during the tests performed by the computer at startup. When this field is enabled, a complete POST is performed at startup. The options are *Enabled* and *Disabled*(default).

Bootable CD check: Enables a check of the CD-ROM drive during the tests performed by the computer at startup. When this field is enabled, a complete POST is performed at startup. The options are *Enabled* and *Disabled*(default).

Summary screen: Displays the system configuration when the computer starts. The options are *Enabled* and *Disabled*(default).

Wake On Lan: Control magic packet. If a dock device included LAN controller is docked, the wake on Lan capabilities are available. This menu can be shown on docking.

Boot Device Priority: Enables you to select the order in which the computer attempts to boot from different devices. The field has three options: *Diskette Drive*, *Hard Drive*, and *ATAPI CD-ROM Drive*.

To choose a device as the first, second, or third boot device:

1. Press <Enter> at the *Boot Device Priority* field
2. Highlight the option with the <Up Arrow> or <Down Arrow> key.
3. Press the <Space> bar until the option moves up or down in the list of options and the number *1*, *2*, or *3* appears beside the option.
4. Press <Esc> to return to the Boot menu.

The default setting is *1.Diskette Drive , 2. Hard Drive*, and *3. ATAPI CD-ROM Drive.*

If you want to start the system by bootable CD, put the ATAPI CD-ROM Drive at first of the Boot Device Priority and set the Auto option of the Type field in the IDE Adapter 1 Submenu at Main page.

Exit Menu

Select *Exit* from the menu bar to display the Exit menu.

Pressing <Esc> does not exit this menu. You must select one of the options from this menu or a menu bar item to exit this menu.

Exit Saving Changes: Enables you to exit System Setup and saves your changes. When you select this item and press <Enter>, a message appears asking you if you want to save your changes and exit System Setup. Choose *Yes* and press <Enter> to save your changes and exit. Choose *No* and press <Enter> to remain in System Setup.

Exit Discarding Changes: Enables you to exit System Setup without saving your changes. When you select this item and press <Enter> a message appears asking you if you want to save changes before exiting. Choose *No* and press <Enter> to

exit without saving changes. Choose *Yes* and press <Enter> to save changes and exit.

Load Setup Defaults: Loads the default values for all System Setup parameters. When you select this option and press <Enter>, a message appears asking if you want to load the default configuration. Choose *Yes* and press <Enter> to load default settings and remain in System Setup. Choose *No* and press <Enter> to retain your changes and remain in System Setup.

Discard Changes: Enables you to discard the selections you have made and restore the values you previously saved. When you select this option and press <Enter>, a message appears asking if you want to load the previous configuration. Choose *Yes* and press <Enter> to load the previous settings and remain in System Setup. Choose *No* and press <Enter> to retain your changes and remain in System Setup.

Save Changes: Saves your selections without exiting System Setup. When you select this option and press <Enter>, a message appears asking if you want to save configuration changes. Choose *Yes* and press <Enter> to save changes and remain in System Setup. Choose *No* and press <Enter> to discard changes and remain in System Setup.

Smart Battery Calibration: Enables you to discharge the system battery completely for a more accurate battery level detection. This option only works with the smart battery if the AC Adapter is not plugged in.

Changing the Video Configuration

Your computer includes a TFT LCD or active-matrix display. The capabilities of the screen plus the video drivers installed on the computer determine the quality of the image your LCD can display.

The following sections describe the display capabilities of your computer.

Resolution and Color Depth

The resolution of the LCD is the sharpness of the image it can display. Resolution is measured by the number of pixels (individual dots) displayed on the entire screen. In general, the more pixels the LCD can display, the better the image.

Your LCD screen is either SVGA or XGA:

- The maximum display for the SVGA LCD screen is 800x600, about 480,000 pixels.
- The maximum display for the XGA LCD screen is 1024x768, about 800,000 pixels.

The number of colors the LCD can display is measured by how many bits the LCD uses to represent each pixel:

- 8-bit color can support 256 different colors.
- 16-bit color can support 64 K (65,536) colors.
- 24-bit color can support 16 M (16.8 million) colors.
- 32-bit color can support 16 M (16.8 million) colors.

24-bit color uses the RGB color model.

32-bit color uses the CMYK color model which gives better printed color matching.

Table 8 lists the basic video mode capabilities and maximum colors supported by your computer.

Table 8. Video Driver Capabilities

Software Drivers	Resolution Supported with 4MB(8MB) GRAM	Number of Colors
Windows 98	640x480, 720x480, 800x600, 848x480, 1024x768, 1152x864, 1280x1024, 1600x1200	256
	640x480, 720x480, 800x600, 848x480, 1024x768, 1152x864, 1280x1024, 1600x1200	65,536
	640x480, 720x480, 800x600, 848x480, 1024x768, 1152x864, 1280x1024, (1600x1200)	16.8 million (24 bit)
	640x480, 720x480, 800x600, 848x480, 1024x768, 1152x864, (1280x1024)	16.8 million (32 bit)
Windows NT® 4.0	640x480, 800x600, 1024x768, 1152x864, 1280x1024, 1600x1200	256
	640x480, 800x600, 1024x768, 1152x864, 1280x1024, 1600x1200	65,536
	640x480, 800x600, 1024x768, 1152x864, 1280x1024, (1600x1200)	16.8 million (24 bit)
	640x480, 800x600, 1024x768, 1152x864, (1280x1024)	16.8 million (32 bit)

All these video modes can be displayed on an external monitor. However, if you disconnect an external monitor that was attached to your computer and then start the computer, the LCD may revert to a different resolution than the one you chose for the external monitor.

Configuring Display Features

The following sections describe how to configure the display settings on your computer.

Selecting a Monitor Type

When you attach an external monitor to your computer, Windows 98 automatically selects display settings for it (this feature is not available in Windows NT). If you wish, you can adjust the display settings by selecting a monitor type:

1. Click the *Start* button on the Windows 98 taskbar.

2. Select *Settings*.
3. Click *Control Panel*. The Control Panel window appears.
4. Double-click the *Display* icon. The Display Properties window appears.
5. Click the *Settings* tab. The Settings screen appears.
6. Click the *Advanced* button. The Advanced Properties screen appears.
7. Click the *Monitor* tab.
8. Click the *Change* button. The *Update Device Driver Wizard* screen appears.
9. Click the *Next* button.
10. Select the *Display a list of all the drivers in a specific location* radio button and click the Next button.
11. Select the *Show all hardware* radio button.
12. Select a manufacturer and model setting that matches your external monitor. Your computer has an intelligent video chip set that automatically matches your LCD panel resolution and frequency when an external monitor is not present.
13. Click the *Next* button.
14. The *Update Device Driver Wizard* screen appears showing the driver location of the device you have selected. Click the Next button.
15. Follow any prompts that appear on the screen.

Changing Color Depth and Resolution

To change the color depth and resolution of your LCD or external monitor:

1. Click the *Start* button on the Windows taskbar.
2. Select *Settings*.
3. Click *Control Panel*. The Control Panel window appears.
4. Double-click the *Display* icon. The Display Properties window appears.
5. Click the *Settings* tab. The Settings screen appears.
6. To change the color depth, click the arrow next to *Color palette* and select the color depth you want.

7. To change the resolution, click and drag the knob under the *Screen area* until you select the resolution you want.
8. Click the OK button.
9. Follow the prompts that appear on the screen.

Changing the Video Driver

It is possible that you may want to update your video driver or that your installed video driver has become corrupt so that the display is unusable.

In Windows 98:

1. Click on the *Start Button*. The Start Menu appears.
2. Select *Settings* and click on *Control Panel*, double click on *Display*. The Display Properties window appears.
3. Click the *Advanced* button. The properties screen for your currently installed video driver appears
4. Select the *Adapter* menu.
5. Click the *Change* button. The Update Device Driver Wizard window appears.
6. Click the *Next* button.
7. Select *Display a list of all the drivers in a specific location, so you can select the driver you want*. Click the *Next* button.
8. Click the *Have disk* button. If the driver is on a floppy disk insert it into the floppy drive or if you want to use the origianl factory driver insert the Restore CD-ROM into the CD-ROM drive. Click the *Browse* button and locate driver you want to install. Click the OK button.
9. Select the new driver in the *Select Device* screen and click the *Ok* button.
10. Click the *Next* button to install the new driver and follow any directions on the screen to finish setting the display properties.

In Windows NT 4.0:

1. As the computer starts, select *Windows NT Workstation Version 4.00 [VGA mode]* as the operating system and press <Enter>.

2. Log on to the computer as supervisor. The Invalid Display Settings window appears.
3. Click the *OK* button. The Display Properties window appears.

If the Change Display window appears, go to step 6.

4. Select the *Settings* menu.
5. Click the *Display Type* button. The Display Type window appears.
6. Click the *Change* button. The Change Display window appears.
7. Click the *Have disk* button. If the driver is on a floppy disk insert it into the floppy drive or if you want to use the origianl factory driver insert the Restore CD-ROM into the CD-ROM drive. Click the *Browse* button and locate driver you want to install. Click the OK button.
8. A line similar to the following line appears under the *Display* option: *ATI Technologies Inc. 3D Rage LT Pro.*
9. Click OK. The Third-Party Driver window appears.
10. Click Yes. The driver is copied. A window appears telling you the driver has been successfully copied.
11. Click OK. Remove the disk from the floppy drive. Close the open windows on the screen.
12. Click Yes when prompted to restart the computer. As the computer restarts, select *Windows NT Workstation Version 4.00* as the operating system and press <Enter>.
13. Log on as supervisor. The Invalid Display Settings window appears.
14. Click the OK button. Click the Test button at the Display Properties window and follow any directions on the screen to finish setting the display properties.

Working with PC Cards

By installing PC Cards, you can add functions to your notebook computer similar to those found on add-in boards for desktop computers. Available PC Cards include:

- Input/output, such as modem, network, pager, video capture, and SCSI cards.
- Storage, such as hard drive cards.
- Combo cards, such as a combination modem and network card.

Your computer includes the following PC Card support:

- Two PC-Card slots: You can install Type I, II, or III cards in the slots. Type III cards are thicker than Types I and II. If you install a Type III card in the bottom slot, you cannot install a card in the top slot.
- CardBus hardware and software: CardBus enables the computer to use 32-bit PC Cards. Windows 98 supports 32-bit and 16-bit PC Cards. The SystemSoft® CardWizard™ for Windows NT program, provided with systems that ship from the factory with Windows NT installed, also supports both 16-bit and 32-bit cards.
- Zoomed video: Two PC Card slots and the video chip on your computer support zoomed video. When you install a zoom video PC Card in the upper or lower slot, data can be transferred directly from the PC Card to video and audio systems without going through the microprocessor. Video conferencing and real-time multimedia devices, such as video cameras, are supported by zoomed video.

To use the CardBus and zoomed video technology with Windows NT, install the CardBus and zoomed video drivers provided with your PC Card. If no drivers were supplied with your card, contact the PC Card manufacturer. ATA (AT attachment) and modem PC Cards do not require extra drivers.

Maintaining PC Cards

To maintain your PC Cards, follow these guidelines:

- Keep cards away from excessive heat, direct sunlight, and liquids.

- Do not drop, bend, flex, or crush cards when handling.
- Keep dust, magnets, and static electricity away from PC Cards.
- When a card is not in use, carry it in its protective carrying case.
- Some PC Cards include cables that extend from the back of the cards. Be careful not to bend or put excessive strain on these cables.

Using PC Cards

You can install PC Cards while the computer is on.

To insert a PC Card into a slot:

1. Push the slot door with a PC Card.
2. Align the card with a slot and insert the card into the slot until it locks in place (Figure 21).

The eject button for the card slot operates in two steps.

To remove a PC Card:

1. push the eject button once to pop it outward.
2. Push the eject button again, then the card will be ejected.

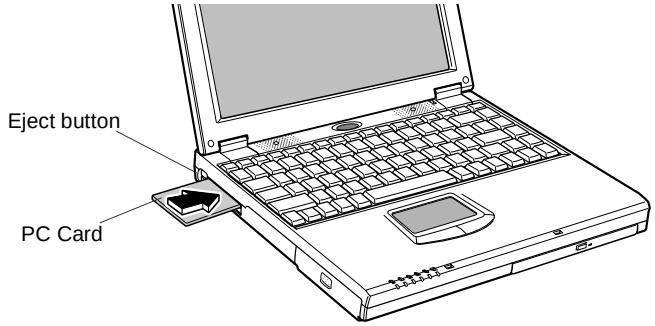


Figure 21. Inserting a PC Card

Windows 98

Windows 98 automatically assigns computer resources (such as communication ports and memory addresses) to a PC Card installed in your computer. For further

information on configuring a PC Card in Windows 98, see the index entry *PC card* in the Windows Help. Windows 98 also handles power management for PC Cards.

To remove a PC Card from your computer if your operating system is Windows 98:

Use the following procedures to remove PC Cards, or you may lose data that is being stored to a card.

1. Click the PC Card icon on the taskbar.
2. Select the name of the card you want to remove, and then click the Stop button.
3. Push the card eject button on the side of the PC Card slot when prompted to do so.
4. Pull the card out of the PC Card slot.

Windows NT

Systemsoft Card Wizard is shipped with this notebook computer that use Windows NT as the operating system. When you install a PC Card, CardWizard attempts to configure it automatically. If Card Wizard successfully assigns system resources to your card, the computer beeps twice.

If CardWizard cannot automatically configure your PC Card, the computer beeps once and a message appears telling you that the card has not been configured. Click the Wizard button on the CardWizard window. CardWizard then analyzes why the card was not configured and fixes the problem or gives you information to help fix the problem.

CardWizard works with the PowerProfiler program to manage PC Cards when the computer enters or resumes from rest mode. CardWizard gives you instructions to prevent loss of data before the computer enters rest mode or may stop the computer from entering rest mode. ATA and modem cards can enter rest mode.

Follow these guidelines when using PC Cards with CardWizard:

- Some of LAN (local-area network) cards can be inserted while the computer is on but should be removed only when the system is turned off.
- SCSI cards should be inserted at startup to enable Windows NT to find the device attached to the SCSI card. SCSI cards can be removed when the computer is turned off. If you restart your computer without the SCSI card

installed, a message may appear telling you that a service did not start. You can ignore this message.

- Modem and ATA cards can be inserted and removed while the computer is on.

Before you remove a modem or ATA card from your computer, stop the card through the CardWizard program or you may lose data.

To stop and remove a PC Card from your computer:

1. In the SystemSoft CardWizard screen, click with the right mouse button on the name of the card you want to remove.
2. Click Stop in the Actions menu. A red stop sign appears on the main screen when the card is stopped.
3. Click OK.
4. Push the card eject button on the side of the PC Card slot.
5. Pull the card out of the slot compartment.

For more information on using the CardWizard program, see the CardWizard Help.

Upgrading Memory

You can increase system memory by installing optional memory modules. You can install a 16, 32, 64, 128, or 256 MB module.

To avoid possible system problems, use only approved memory modules in your computer. Use the only one type memory module, either EDO or SDRAM.

Before You Install Memory

To prevent personal injury and damage to the equipment, follow the precautions listed here before installing a memory module.

Take the following precautions when installing a memory module:

- Before you remove the memory module compartment door, turn off the computer, unplug the power cord, and remove the battery. Also, disconnect any peripheral devices.
- Before handling a memory module, discharge any static electricity by touching a grounded surface or using a grounding wrist strap.
- Do not insert objects with conductive material, such as metal screwdrivers or graphite pencils, into the memory-module compartment.
- Be careful in handling the metal plate of the memory door.

Installing a Memory Module

Handle a memory module carefully. Hold them only by the edges.

To install a memory module:

1. Turn the computer over so that the bottom faces up.

2. Using a screwdriver, remove the screw that holds the memory-module compartment door in place (Figure 22).

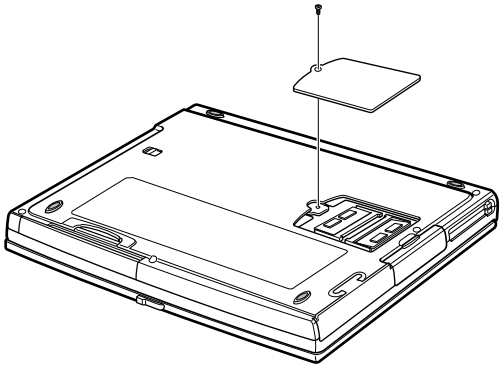


Figure 22. Removing the Memory Module Compartment Door

3. Grasp the edge of the door and pull the door off the chassis.
4. Remove installed modules if necessary:

When removing modules, pull on the plastic portion of the connector slots tabs only. Do not pull on the metal part of the tabs, or you may damage the tabs.

a. Pull the tabs on the connector slot outward slightly, until the edge of the memory module pops up (Figure 23).

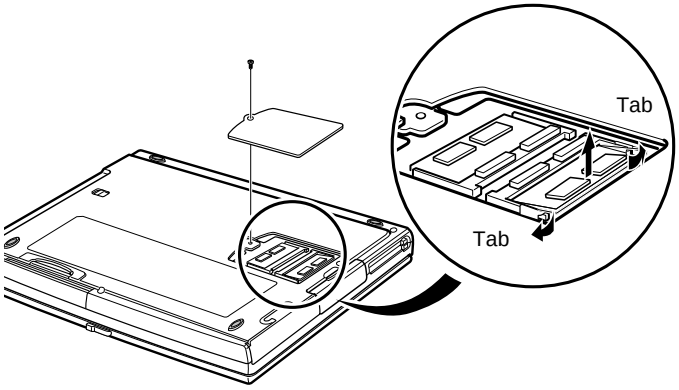


Figure 23. Removing a Memory Module

b. Hold the memory module by the edges and pull it forward out of the compartment.

5. Align the connector on the memory module with the connector of the slot.

6. Push the memory module into the slot at a slight angle until the connectors are fully engaged (Figure 24).

7. Push down on the edge of the memory module until the module snaps into place.

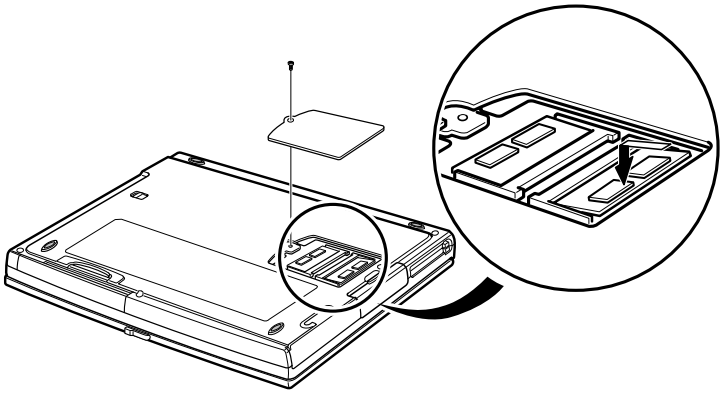


Figure 24. Installing a Memory Module

8. Align the memory module compartment door with the compartment and push the door down until it snaps into place.

9. Reinstall the screw you removed in step 2.

10. Turn on the computer and perform a complete POST to check the memory integrity.

About Drivers and System Resources

This section gives you basic information about drivers and system IRQs.

Drivers

A driver is a program that enables the operating system to work with a hardware device. Your computer includes drivers for the audio, video, infrared, touchpad, keyboard, CD-ROM drive, hard drive, floppy drive, and PC Card controller. When you add a device to your computer, such as a printer, you install a driver for that device. Different drivers are used by different operating systems.

IRQs

Most of the devices in your computer or connected to your computer need their own IRQ (interrupt request line). The IRQ is a hardware line that a device can use to send signals to the microprocessor. When the device needs the microprocessor's service, the device sends an interrupt request signal to the microprocessor.

The number of IRQs available for any computer is limited by industry standards. Because it ships with numerous features, this computer uses most of the available IRQs. If you add another device to your computer, you may need to disable an existing device to free up an IRQ for the new device. IRQ resources are of particular concern when the computer is attached to a docking device.

The default IRQ settings that are used by your computer are listed in Table 9 and Table 10.

Table 9. IRQs, Windows 98 Systems

IRQ	Component
0	System timer
1	Keyboard
2	Internal Controller
3	IrDA Port
4	COM 1, COM 3

IRQ	Component
5	Audio/USB
6	Floppy controller
7	LPT1 (parallel port)
8	CMOS/Clock
9	ACPI bus SCI IRQ
10	Reserved
11	CardBus/Modem
12	Touchpad, PS/2 mouse
13	Numeric data processor
14	IDE 1 (hard drive)
15	IDE 2 (CD-ROM drive)

Table 10. IRQs, Windows NT Systems

IRQ	Component
0	System timer
1	Keyboard
2	Internal Controller
3	COM 2, COM 4
4	COM 1, COM 3
5	Audio/USB
6	Floppy controller
7	LPT1 (parallel port)
8	CMOS/Clock
9	Available
10	Available
11	CardBus/Modem
12	Touchpad, PS/2 mouse
13	Numeric data processor
14	IDE 1 (hard drive)
15	IDE 2 (CD-ROM drive)

In Windows 98, you can configure a device so that the device is disabled when you connect your computer to a docking station but enabled when the computer is not connected to the docking station. With this configuration, an IRQ is available for a peripheral device that you connect to the docking station. See your Windows 98 manual for more information.

Specifications

Table 11 gives the specifications for 3-spindle type computer.

Table 11. System Specifications (3-spindle type computer)

Dimension	
Width	12.2 in (31.0 cm)
Height	1.56 in (3.97 cm)
Depth	9.96 in (25.2 cm)
Weight (with Li-Ion battery & 13.3 in TFT LCD & weight saver)	5.84 lb (2656 g)
LCD viewing area (13.3 TFT)	10.6 x 8.0 in (270.3 x 202.8 mm)
LCD viewing area (14.1 TFT)	11.2 x 8.4 in (285.7 x 214.3 mm)
Environment	
Ambient temperature, operating	50^{o}–90^{o} F (10^{o}–32^{o}C)
Ambient temperature, storage	23^{o}–104^{o} F (-5^{o}–40^{o} C)
Relative humidity (noncondensing), operating	20–80%
Relative humidity (noncondensing), storage	5–90%
Altitude, operating	0 to 8,000 ft (0 to 2,348 m)
Altitude, storage	0 to 40,000 ft (0 to 12,192 m)
Shock, operating	10 G for 11 ms half sine
Shock, nonoperating	60 G for 11 ms half sine
Litume-Ion Smart Battery	
Weight	0.92 lb (420 g)
Nominal open circuit voltage	11.1 VDC
Capacity, typical	5100 mAhr, 56.6whr
Charging time, approximate, with computer turned off	3.0 hr (Li-Ion)
Charging time, approximate, with computer turned on	5.0 hr (Li-Ion)

Average battery life, with no power management enabled	3.0 hr
External AC Adapter	
Operating voltage	100~120 VAC to 200~240 VAC
Line frequency	50-60 Hz
Input current	1.5 A 100 V ~ 0.8 A 240 V
Output current	3.15 A
Output voltage	19.0 VDC

Table 12 gives the specifications for 2-spindle type computer.

Table 12. System Specifications (2-spindle type computer)

Dimension	
Width	12.2 in (31.0 cm)
Height	1.3 in (3.29 cm)
Depth	9.96 in (25.2 cm)
Weight (with Li-Ion battery & 13.3 in TFT LCD & weight saver)	5.26 lb (2393 g)
LCD viewing area (13.3 TFT)	10.6 x 8.0 in (270.3 x 202.8 mm)
LCD viewing area (14.1 TFT)	11.2 x 8.4 in (285.7 x 214.3 mm)
Environment	
Ambient temperature, operating	50^{o}–90^{o} F (10^{o}–32^{o}C)
Ambient temperature, storage	23^{o}–104^{o} F (-5^{o}–40^{o} C)
Relative humidity (noncondensing), operating	20–80%
Relative humidity (noncondensing), storage	5–90%
Altitude, operating	0 to 8,000 ft (0 to 2,348 m)
Altitude, storage	0 to 40,000 ft (0 to 12,192 m)
Shock, operating	10 G for 11 ms half sine
Shock, nonoperating	60 G for 11 ms half sine

Litume-Ion Smart Battery	
Weight	0.92 lb (420 g)
Nominal open circuit voltage	11.1 VDC
Capacity, typical	5100 mAhr, 56.6whr
Charging time, approximate, with computer turned off	3.0 hr (Li-Ion)
Charging time, approximate, with computer turned on	5.0 hr (Li-Ion)
Average battery life, with no power management enabled	3.0 hr
External AC Adapter	
Operating voltage	100~120 VAC to 200~240 VAC
Line frequency	50-60 Hz
Input current	1.5 A 100 V ~ 0.8 A 240 V
Output current	3.15 A
Output voltage	19.0 VDC