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Important Safety Information

Safety Instructions

Your system is designed and tested to meet the latest standards for safety of information technology equipment. However, to ensure safe use of this product, it is important that the safety instructions marked on the product and in the documentation are followed.

Always follow these instructions to help guard against personal injury and damage to your system.

Setting Up your System

- Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.
- Do not use this product near water or a heat source such as a radiator.
- Set up the system on a stable work surface.
- The product should be operated only with the type of power source indicated on the rating label.
- Ensure that the electrical outlet you are using to power your equipment is easily accessible in case of fire or short circuit.
- If your computer has a voltage selector switch, make sure that the switch is in the proper position for your area.
- Openings in the computer case are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space, at least 6 inches (15 cm), around the system for ventilation when you set up your work area. Never insert objects of any kind into the computer ventilation openings.
- Ensure that the fan vents on the bottom of the casing are clear at all times. Do not place the computer on a soft surface, doing so will block the bottom vents.
- The computer product is equipped with a three-wire power cord to make sure that the product is properly grounded when in use. The plug on this cord will fit only into a grounding-type outlet. This is a safety feature. If you are unable to insert the plug into an outlet, contact an electrician to install the appropriate outlet.

- If you use an extension cord with this system, make sure that the total ampere rating on the products plugged into the extension cord does not exceed the extension cord ampere rating.

Care During Use

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill anything on the system. The best way to avoid spills is to not eat or drink near your system.
- Some products have a replaceable CMOS battery on the system board. There is a danger of explosion if the CMOS battery is replaced incorrectly. Replace the battery with the same or equivalent type recommended by the manufacturer. Dispose of batteries according to the manufacturer's instructions. If the CMOS battery requires replacement insure that a qualified technician performs the task
- When the computer is turned off, a small amount of electrical current still flows through the computer. To avoid electrical shock, always unplug all power cables, remove the battery and modem cables from the wall outlets before cleaning the system.
- Unplug the system from the wall outlet and refer servicing to qualified personnel if:
  - The power cord or plug is damaged.
  - Liquid has been spilled into the system.
  - The system does not operate properly when the operating instructions are followed.
  - The system was dropped or the casing is damaged.
  - The system performance changes.

Replacement Parts and Accessories

Use only replacement parts and accessories recommended by manufacturer.

To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

Do not use this product in areas classified as hazardous. Such areas include patient care areas of medical and dental facilities, oxygen rich environments, or industrial areas.

Battery Disposal

Do not put rechargeable batteries or products powered by non-removable rechargeable batteries in the garbage.

Contact the Samsung Helpline for information on how to dispose of batteries that you cannot use or recharge any longer.

Follow all local regulations when disposing of old batteries.

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.

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.

Federal Communications Commission Part 68 Statement

Note:

This equipment compiles with part of the FCC rules. On the back of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number(REN) for this equipment. If requested, this information must be provided to the telephone company.

This equipment uses the following USOC jacks : RJ11C

An FCC compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or promises wiring using a compatible modular jack which is Part 68 compliant. See Installation Instructions for details.

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

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

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

If trouble is experienced with this equipment (SENS Modem) for repair or warranty information, please contact your local distributor. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

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

No repairs may be done by the customer.

This equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be any number for which charges exceed local or long-distance transmission charges.)

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

CTR21 Statement

The equipment has been approved in accordance with Council Decision 98/482/EC for pan-European single terminal connection to the public switched telephone network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In the event of problems, you should contact your equipment supplier in the first instance.

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 Communications du Canada.

Laser Safety

All systems equipped with CD or DVD drives comply with the appropriate safety standards, including IEC 825. The laser devices in these components are classified as “Class 1 Laser Products” under a US Department of Health and Human Services (DHHS) Radiation Performance Standard. Should the unit ever need servicing, contact an authorized service location.

Laser Safety Note:
Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure. To prevent exposure to laser beams, do not try to open the enclosure of a CD or DVD drive.

Power Cord Requirements

The power cord set (wall plug, cable and AC adapter plug) you received with your computer meets the requirements for use in the country where you purchased your equipment.

Power cord sets for use in other countries must meet the requirements of the country where you use the computer. For more information on power cord set requirements, contact your authorized dealer, reseller, or service provider.

General Requirements

The requirements listed below are applicable to all countries:

- The length of the power cord set must be at least 6.00 feet (1.8m) and a maximum of 9.75 feet (3.0m).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
- The power cord set must have a minimum current capacity of 7 A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the computer.

Country-Specific Power Cord Set Requirements

The requirements listed below are applicable to the specific country listed:

Country	Accrediting Agency	Applicable Note Numbers
Australia	EANSW	**1**
Austria	OVE	**1**
Belgium	CEBC	**1**
Canada	CSA	**2**
Denmark	DEMKO	**1**
Finland	FIMKO	**1**
France	UTE	**1**
Germany	VDE	**1**
Italy	IMQ	**1**
Japan	JIS	**3**
The Netherlands	KEMA	**1**
Norway	NEMKO	**1**
Sweden	SEMKO	**1**
Switzerland	SEV	**1**
United Kingdom	BSI	**1**
United States	UL	**2**

Notes:

1. Flexible cord must be Type HO5VV-F, 2-conductor, 1.0 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

2. Flexible cord must be Type SVT or equivalent, No.18 AWG. Wall plug must be a two-pole grounding type.

3. Appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. Flexible cord must be Type VCT or VCTF, 2-conductor, 0.75 mm^2 conductor size. Wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15 A, 125V) configuration.

Using Your Documentation

Congratulations on your purchase of a notebook computer with the Windows® XP operating system. Whether you are new to using a portable computer or are an experienced user, this user's manual can help you get the most from your computer.

Manual Documentation Conventions

Information Icons

Three icons and their associated messages appear in this manual. The information icons are placed before the step/information they apply to:

Warning:
Indicates the possibility of personal injury.

Caution:
Warns you of possible damage to equipment or data.

Note:
Informs you of special circumstances.

Keyboard Conventions

Keys that you need to press to perform certain functions are displayed in the manual using a small graphic of the button. For example:

<Ctrl>

indicates the control key (**Ctrl** on the keyboard).

If you need to press two keys at the same time, the key names are shown joined by a plus sign. For example:

<Alt+PgUp>

means that you should press the **Alt** key and hold it and then press the **PgUp** key.

CD-ROM Device Naming Convention

In many installation programs you will have to get a program from the CD-ROM device. The program installation sequence assumes that the CD is drive d:\, however this is not always the case. The name of the CD-ROM drive is the letter following the letter assigned to your last HDD. For instance, if you have one HDD with two partitions, the HDD is drives C: and D: and the CD-ROM drive is then drive E.

Touchpad Conventions

You may be asked to click or double-click on items on the display screen. As a general note the touchpad actions act much in the same way as a wheel mouse, any differences are explained fully.

The object that needs to be clicked upon will be displayed in **Bold** text or shown in a small figure such as the **"Start Button"** shown on the right =>.

Table 1. Touchpad Click Conventions

Action	Process
Click	Depress the touchpad left button and release
Double-Click	Quickly click the left touchpad button two times

Windows Conventions:
Almost all "Windows" programs will display the name/function of a button or icon if you place the touchpad pointer on the item you want information about.

Software User Documentation

Your computer is shipped from the factory with several software programs installed. The software may include its own online or printed documentation. Refer to the documentation or the Help options in the software for more information.

The figures and illustrations in this manual may not be identical to those on your system.

General Icon Note:
Some of the Icons used in Windows XP may be placed on the taskbar by selecting **(ex: Place the volume icon in the taskbar)** in the properties dialog box.

Windows XP

Windows® XP has a fresh new look and is more intuitive. You are provided with an animated tour as well as much more extensive help to complete your computing requirements.

To view the tour, click **Start > All Programs > Accessories > Tour Windows XP**. The tour provides you with a good overall understanding of the Windows® XP operating system.

To access the help menus, Click **Start > Help and Support**. The "Help and Support Center" is designed to help you find answers to your Windows® XP questions easily and quickly.

The new or upgraded features of Windows® XP are shown in the table below:

To obtain more detail on the features, use the tour and the help menus.

New Features:

- Taskbar Grouping
- Integrated CD Burning
- Troubleshooters
- Remote Desktop
- Hot Docking
- Device Driver Rollback
- Internet Connection Firewall
- Remote Assistance

Upgraded/Improved Features:

- Fresh Visual Design
- Start Menu
- My Documents
- Multitasking
- Easily Publish Information to the Web
- Improved File Association Handling
- DualView
- Network Connections
- Offline Files and Folders
- Offline Viewing
- Synchronization Manager
- Improved Power Management
- Hibernate
- Advanced Configuration and Power Interface (ACPI)
- System Restore
- Enhanced Device Driver Verifier
- Encrypting File System (EFS) with Multi-user Support
- Increased Application Compatibility
- Support for Latest Hardware Standards
- Improved Help and Support Services
- Automatic Updates
- Windows Update Improvements
- Setup with Dynamic Update

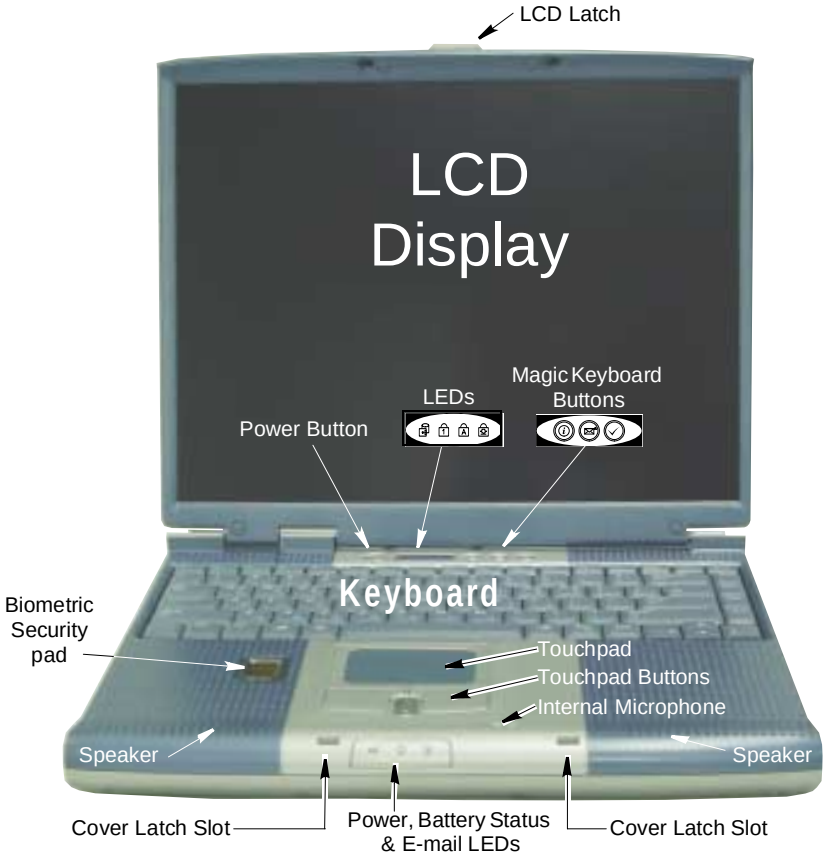
Introducing Your Computer

Your computer is a lightweight portable computer that includes features such as a Biometric (fingerprint) security system, wireless LAN capability, Dolby stereo support and CD-ROM and floppy drives to meet your computing needs at home or on the road.

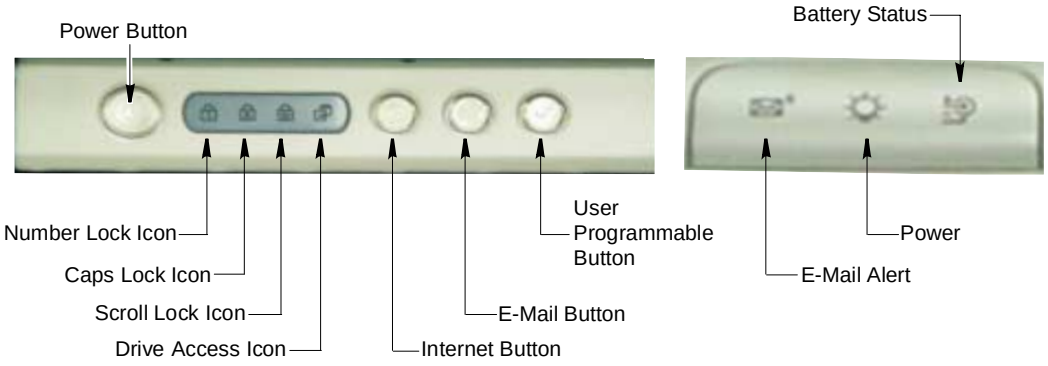
Where Everything Is

The next 7 figures will explain the location of all of the buttons, LEDs and equipment needed to operate your notebook computer.

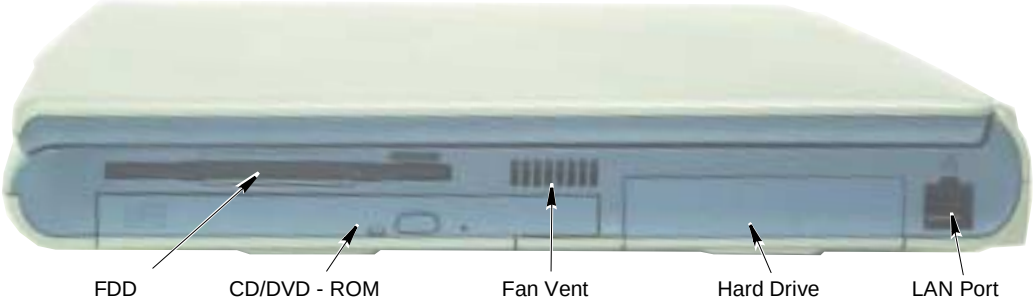
Front



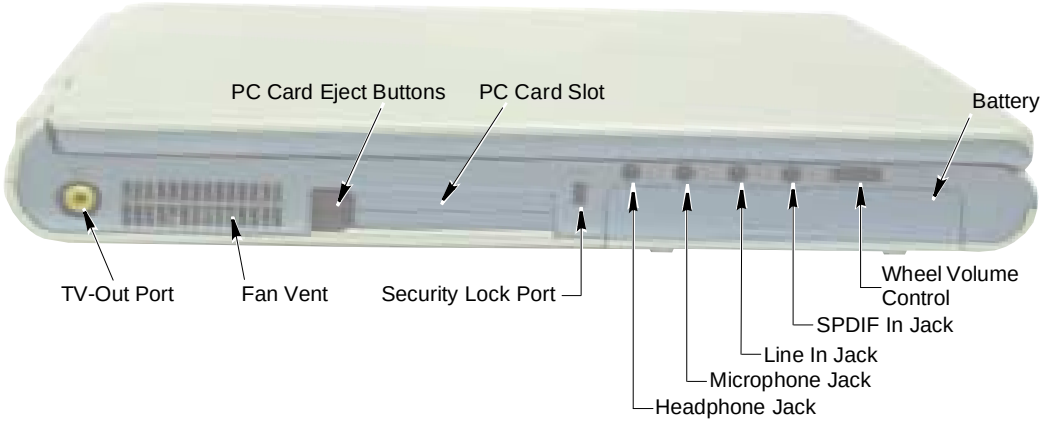
Buttons and LEDs



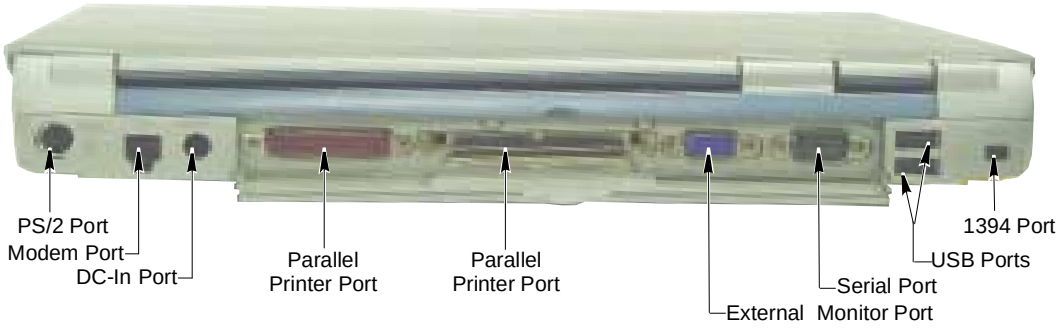
Right Side



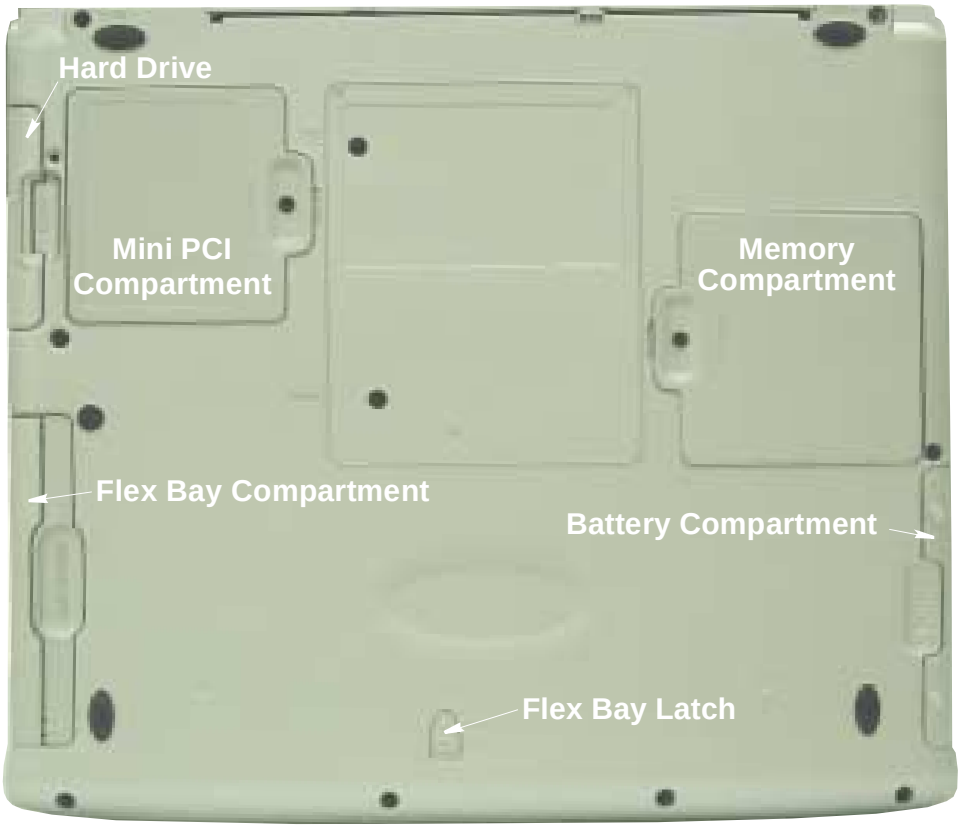
Left Side



Back Side



Bottom


Hard Drive
Mini PCI Compartment
Memory Compartment
Flex Bay Compartment
Battery Compartment
Flex Bay Latch

Using Your Computer for the First Time

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

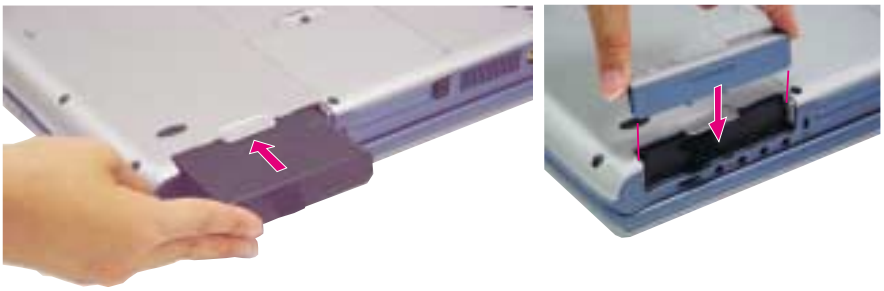
Installing the Battery

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.

Insert the battery into the battery compartment, ensuring the correct orientation so that the battery fits in 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.



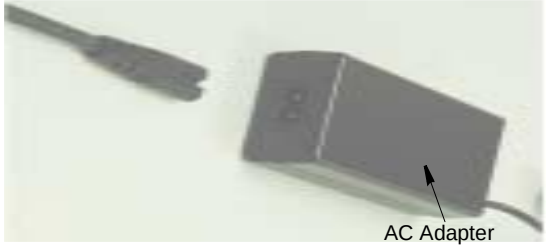
Attaching the AC Adapter

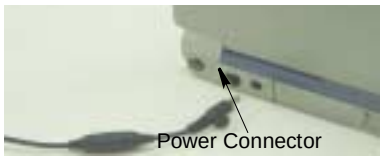
Your computer runs on power from the battery in the computer or from an electrical outlet. The first time that you use your computer, fully charge the battery by attaching the power cord to the computer and to an electrical outlet.

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.
2. Connect the power cord to the AC adapter and then to an electrical outlet.





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.

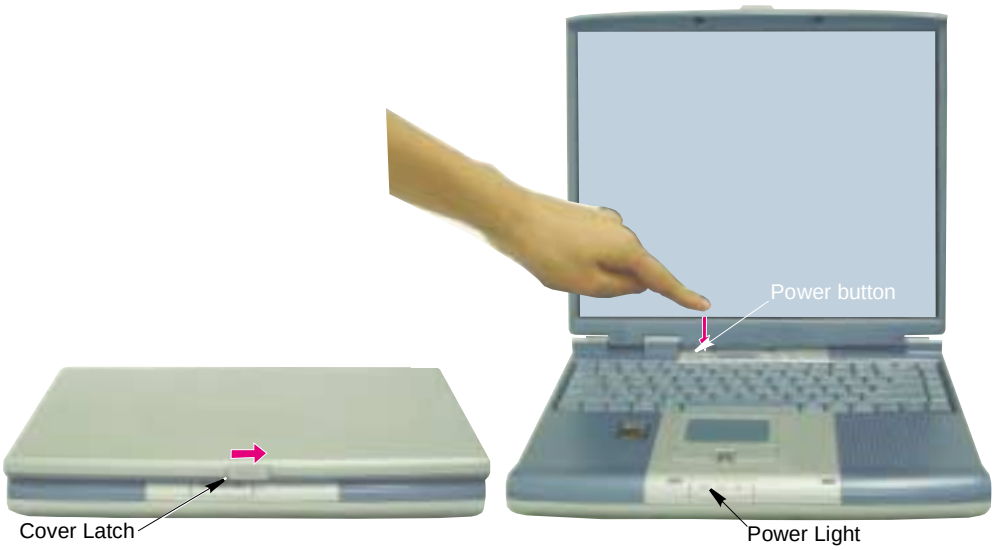
See "Using Power Management Options" on page 52 for more information on using your computer's battery.

Turning On the Computer

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

1. Slide the LCD latch, located on the front of the cover to the right.
2. Lift up the cover.
3. Press and then release the power button.

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



Initial Computer Startup:
The first time you start your computer you will see the operating system registration screens. Simply read each screen and follow the simple directions. You must complete this process in order to use your computer. A tutorial is provided if you require it.

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.

Turning Off Your Computer

Prior to shutting down your computer ensure all of your data and current work are saved. The system will ask if you wish to save any unsaved work, saving your work first will speed the shutdown process.

To turn off the computer, complete the following steps:

1. Click on the taskbar.

If you need to restart your computer after software (re)installation or because it is not responding select the **Restart** option in step 3 below.

2. Click **Shut Down Computer** to display the shutdown popup window shown below..

3. Click **Turn Off** to complete the shutdown sequence.

Power Off:
If the system does not power off, then press and hold the power button for over 5 seconds. See "Using Power Management Options" on page 52.

Power Button Functions:
The power button has several functions other than just turning on and off your computer, see "Using Power Management Options" on page 52.

You can also perform a soft boot by saving your files and pressing <Ctrl+Alt+Del> to pop-up the "Windows Task Manager" window.
Click **Shut Down** > **Restart**.

You can perform a cold boot by pressing the power button for more than 5 seconds to turn the computer off, waiting more than five seconds, and then pressing the power button to turn the computer on. The system may perform some extra checks during the restart.

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 authorised manufacturer 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 approved AC adapters, auto adapters, memory modules and other options.
- 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 heat. Make sure the fan vent on the left side of your computer is not blocked when you use the computer. 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.
  (For information on installing memory modules, see “Installing a Memory Module” on page 67.)
- 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.

Travelling with Your Computer

If you are travelling by air, 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.
- Please collect your computer immediately after X-ray scanning, this is a high theft area for portable computers.
- 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 or a proprietary LCD screen cleaner. 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.

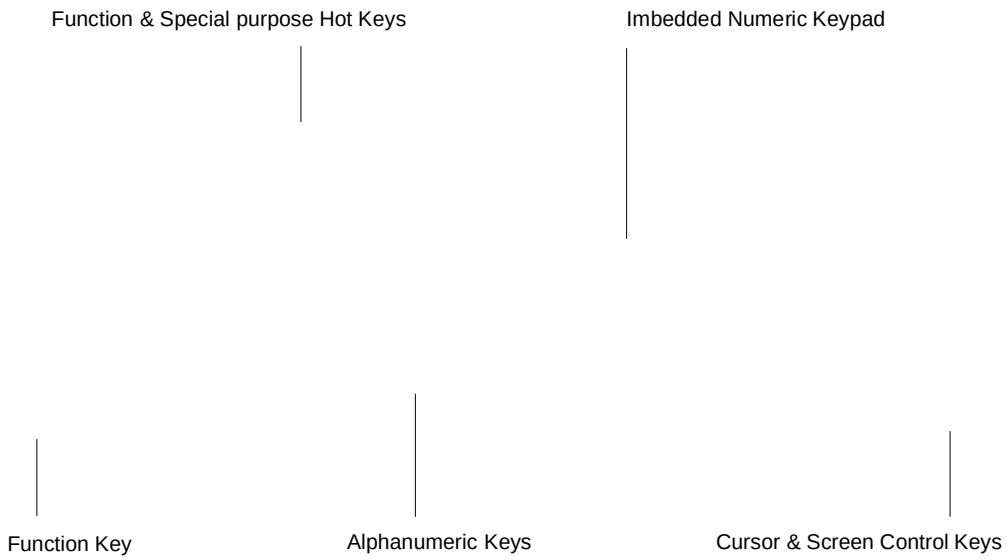
Storing the Computer for Long Periods

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.

Using the Keyboard

Your computer has an 87/88-key keyboard. By pressing designated key combinations, you can have access to all the key functions of a full-sized keyboard.



Although the layout of the keys on your computer's keyboard is different from that on a desktop computer's keyboard, the keyboard feels like a full-sized keyboard when you use it.

The keys on the keyboard can be grouped into the following categories:

- Full-sized Alphanumeric typewriter keys are arranged like a standard typewriter keyboard and are used for text entry. The Windows keys on either side of the spacebar open Windows menus and perform other special functions.
- Function keys, when pressed together with the <Fn> key, enable special functions.
- Cursor and Screen control keys move the cursor. They may perform other functions, depending on your software.

To clean the computer keyboard, use slightly damp cotton swabs. Scrub the keys and the surface around the keys.

Do not allow liquid to drip into the keyboard or you may damage the keyboard.

Using the Numeric Keypad

Your keyboard includes a numeric keypad, which is a group of keys that you can set to type numbers and mathematical symbols, such as the plus sign. A number or symbol on the right corner of each keypad key shows its numeric function.

Num Lock LED

Press <Num Lock> to turn on the embedded numeric keypad. The numeric functions of the keypad are enabled and the Num Lock light turns on.

While the numeric functions are enabled, you can temporarily return a key to its normal function by pressing <Fn> and the key. For example to type the letter *m*, press <Fn+m>.

To turn the numeric keypad off, press <Num Lock> again. The Num Lock light turns off.

Using Special Function Keys

The <Fn> key activates special functions when it is pressed in combination with another key.

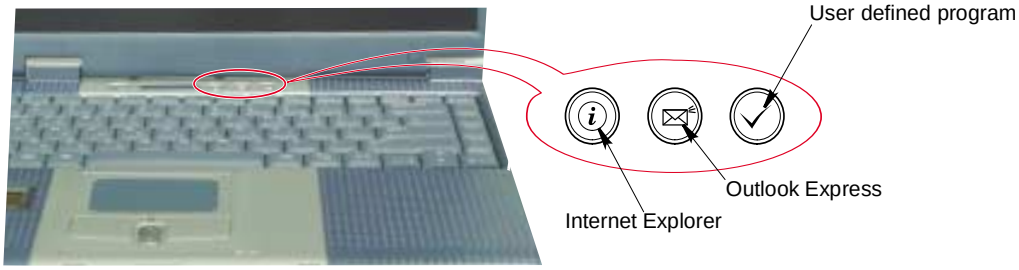
Table 2. Description of Special Function Keys

<Fn> Key Combination	**Function**
<Fn+F1>	*Print screen:* Takes a picture of the open screen, which you can paste into the Paint program.
<Fn+F2>	*System request:* Reserved for use in software programs.
<Fn+F5>	*CRT/LCD:* Switches the display between the LCD, the external monitor, and simultaneous display on both the LCD and the external monitor.
<Fn+F6>	*Gauge:* Displays the battery gauge in the upper-right corner of your screen. The gauge closes in a few seconds, or you can press <Esc> to close the gauge. (See "Monitoring the Battery Charge" on page 42 for more information on the battery gauge.)
<Fn+F7>	*KeyLock:* Locks the keyboard and activates password protection. Type your password and press <Enter> to unlock the keyboard. The <Fn+F7> key combination has no effect unless a password is enabled in System Setup. The Num Lock, Caps Lock, and Scroll Lock lights blink when the keyboard is locked.
<Fn+F8>	*Mute:* Turns the audio output on and off.
<Fn+F9>	*Volume down:* Decreases the audio volume.
<Fn+F10>	*Volume up:* Increases the audio volume.
<Fn+F11>	*Rest:* Puts the computer into Suspend mode. To resume normal operation from rest, press the power button. (See "Using Power Management Options" on page 52 for more information about the rest mode.)
<Fn+F12>	*Scroll:* In some applications, sets the cursor-control keys to scroll the page up or down while the cursor position does not change. Pressing <Fn+F12> again turns off the scrolling function.
<Fn+Right Arrow>	*Brightness up:* Increases the LCD brightness.
<Fn+Left Arrow>	*Brightness down:* Decreases the LCD brightness.

When you press a function key combination, the system sound may be temporarily muted.

User Defined Buttons (Magic Keyboard)

You may program the three buttons to the left of the power button to start any program you have installed on your computer.



The default settings for these buttons are:

Internet E-Mail - Outlook User Programmable

To reprogram the Magic Keyboard, follow the steps below:

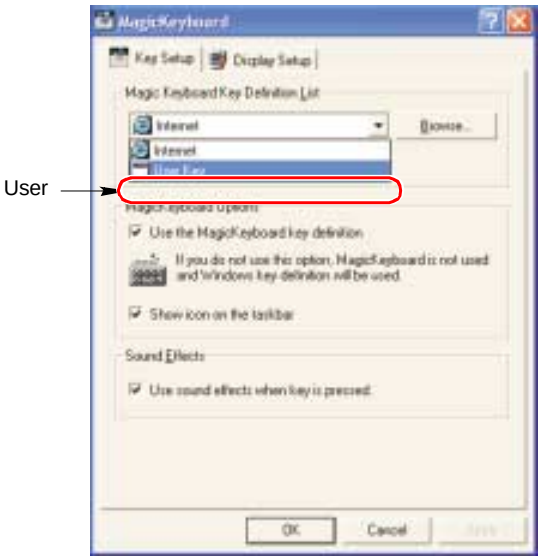
1. Double-Click icon on the Windows taskbar

- or -

1. Click **Start** > **Control Panel** > **Other Control Panel Options**.

2. Click icon.

3. Select **User** from the drop down menu.



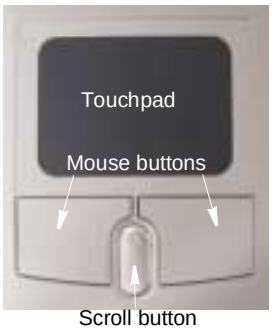
4. Use the **Browse** button to locate the program you wish to assign to the **Magic Keyboard** User programmable button.

5. Click on your program choice to select it.
6. Click **OK**.
7. Click **OK** to close window and complete programming the **Magic Keyboard**.

Button Programming Notes:
You may also program the internet button to open your preferred internet browser program and/or program the E-Mail button for the E-Mail program you wish to use.

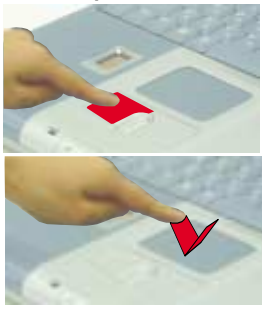
Using the Touchpad

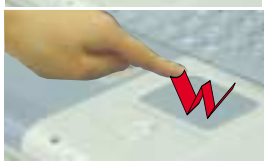
Your computer is equipped with a touchpad, which is an integrated-pointing device that is used to perform standard mouse functions. The touchpad is an advanced and reliable pointing device that works with a touch of your finger.



Press on the touchpad gently. The touchpad responds to light pressure.

Table 3. Using the Touchpad

Action	Process and Comment
Click/Tap 	**Process** Depress the touchpad left button and release or position the pointer over the object and Quickly tap the touchpad once with your finger. This action is called *clicking*. **Comment** This will cause a process to begin or select an object on the screen.

Action	Process and Comment
Double-Click/Tap 	**Process** Quickly click the left touchpad button two times or position the pointer over the object and Quickly tap the touchpad twice with your finger. This action is called *Double-clicking*. **Comment** This will cause a process to begin or open a file folder.
Click-Hold	**Process** Depress the left touchpad button and do not release. **Comment** This is used to move/drag objects to new locations. See "Drag (Move)" on page 22.
Right-Click	**Process** Position the pointer over the object. Quickly press and release the right button once. This action is called *Right-clicking*. **Comment** This is usually used to obtain information about an object or access a short cut menu.
Scroll up	**Process** Place your finger on the top half of the button to scroll up the current window. **Comment** Moves the current window down**.**
Scroll down	**Process** Place your finger on the bottom half of the button to scroll up the current window. **Comment** Moves the current window up.

PS/2 Mouse:

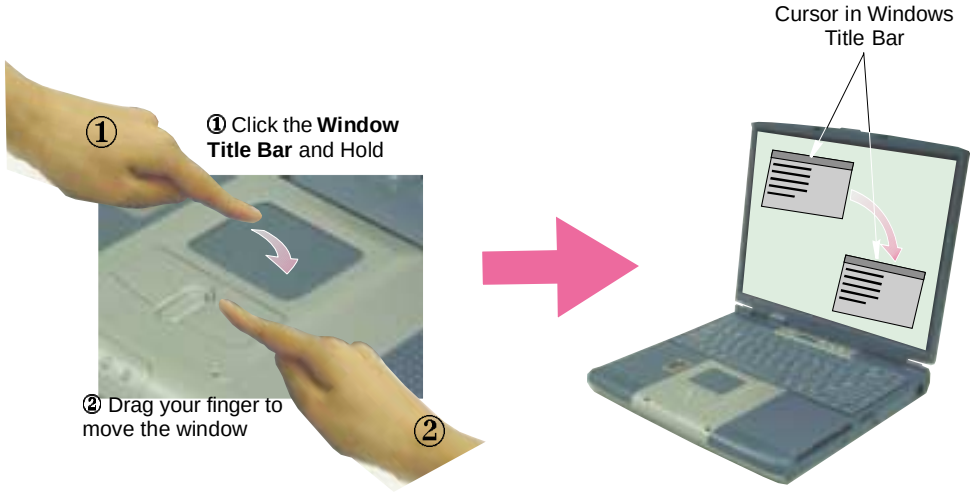
You may change the setup in **Setup** > **Advanced Menu**

Disabled prevents both the touchpad and external PS/2 port from functioning. Single mouse (default) enables the external PS/2 port or the touchpad, and external PS/2 port has priority. Dual Mouse allows the use of both the touchpad and PS/2 port.

Drag (Move)

To move a window on the desktop, complete the following:

1. Click the **window title bar** or **icon** in the bottom of the window which you want to drag using the touchpad.
2. Press the left touchpad button and hold it.
3. Drag the window using the touchpad.



Area or Multiple item selection:
The drag function may be used to select an area or multiple items in an area by clicking in one area and then dragging to create a selection window. The items inside the window will be selected.

Reading the System Status Lights

System Status lights show the status of computer functions.

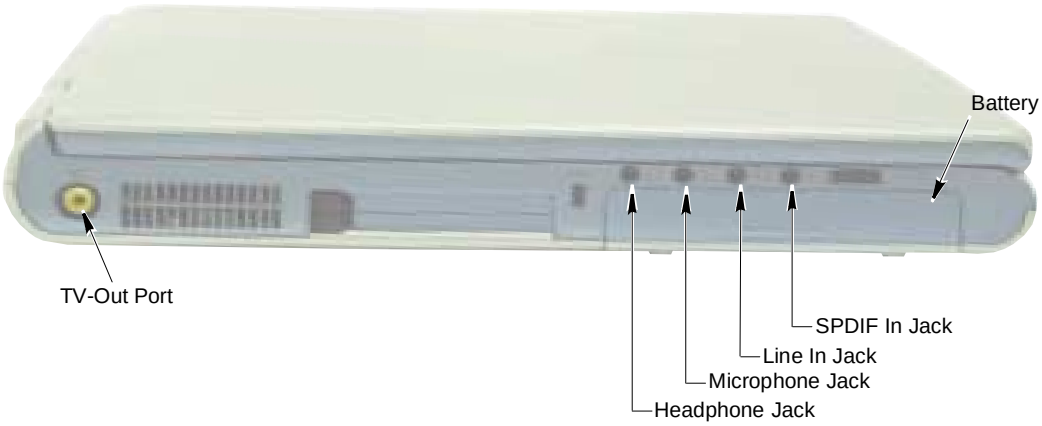
Table 4. System Status Lights

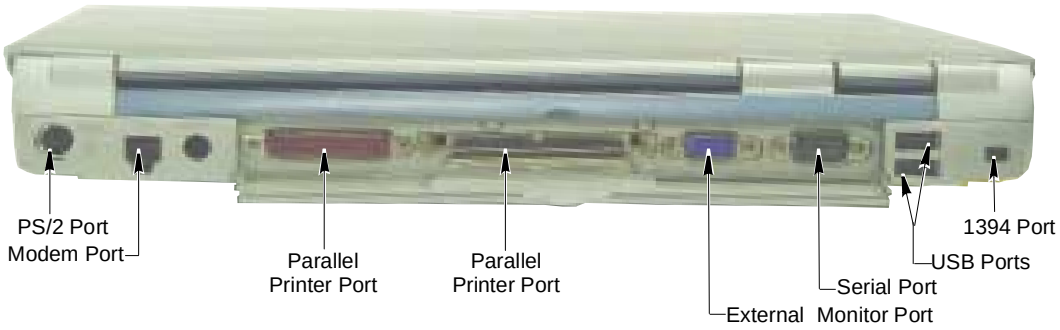
LED	Name	Function
	Num Lock	Changes a portion of the keyboard to a numeric keypad. See "Using the Numeric Keypad" on page 16.
	Caps Lock	Changes all alpha or letter input into capital letters. No changes occur to numeric and special keys.
	Scroll Lock	Scroll lock in certain software.
	Drive Access	Using the Disk Drives. Blinking Green - HDD is being accessed Blinking Amber - FDD or CD-ROM is being accessed
	E-mail Alert	The Light comes on when e-mail arrives. To use this function, you must register an E-mail Account in the *Register E-mail Account* window. To register an E-mail account Select: Start > All Programs > StartUp > Internet Launcher.
	Power	Green - System power on. Blinking - Standby mode.
	Battery Status	Green - No battery pack installed/battery fully charged. Amber - Charging.

Connecting Peripheral Devices

The connectors on your computer enable you to attach peripheral devices to the computer.

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.



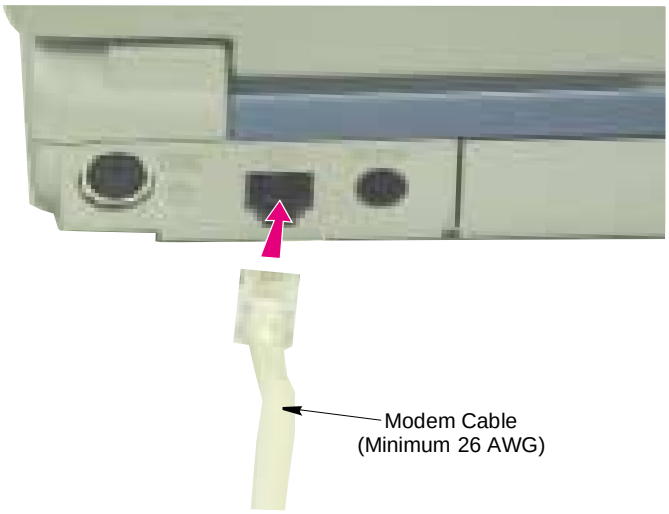


Connecting to the Internet

This section explains how to connect you to the internet. For details on how to establish the connection contact the Internet Service Provider [**ISP**] or system administrator [**SysAdmin**].

Using the Modem

Install the Modem cable by simply plugging the cable into the slot in the back of the computer.



1. Contact your Internet Service Provider to obtain information or CD required to make the connection in your area.
2. After the cable is connected create a “Dialup” connection by clicking **Start** > **Control Panel** > **Network and Internet Connections**.
3. Click **Set up or change your Internet connection** > **Setup** to start the connection wizard.
4. Follow the instructions in provided in the **Make New Connection** wizard.

Precautions Before Use

Country Selection

Country Selection:
Because your computer is very mobile you must ensure you select the *country you are calling from* is selected correctly, otherwise you may experience connection problems.

To change the country selection proceed as follows:

1. **Start** > **Control Panel** > **Network and Internet Connections**.
2. Click Phone and Modem Options.
3. Click on the connection you wish to edit in the **Locations:** box.
4. Click **Edit** in the **Dialing Rules** Tab
5. Select the **Country/region** you are calling from in the **General** tab.
6. Click **OK** to close the "Edit Locations" box.
7. Click **OK** to close “Phone and Modem Options” box.

Digital Phone Lines:
If you connect the modem to a digital phone line (such as a company 4-wire system), the modem may be damaged.

DOS support

- **Windows XP:** Does not support pure DOS mode and the modem does not support a DOS box in Windows. So you cannot use a communication application which runs under DOS.

Using the Modem on a PBX system

If you use a Windows Communication Program:

1. Click **Start** > **Control Panel** > **Network and Internet Connections**.
2. Click Phone and Modem Options.
3. Click **Properties** in the **Modems tab** section.
4. Check off “Wait for dial tone before dialing” check box in the **Modem tab** section.
5. Click **OK** to close the dialog box.
6. Click **OK** to close “Modem Properties” dialog box.

If you use a simple terminal program (i.e. hyper terminal):

Type the “ATX3&W” or “ATX3” command as an initialization command.

MODEM Notes:

1. In order to use the 56K feature, be sure to check if the standards supported by the on-line service provider and the modem are identical.
2. If you use a PBX phone system, you can not connect using the 56K mode.
3. Internationally connected calls will be limited to 33.6K (Max.)

Using the LAN

You may connect to the network using either a LAN cable or by establishing a wireless connection.

Cable Connection

Install the LAN cable by simply plugging the cable into the slot in the back of the computer.

Your computer’s LAN adapter is ready to use for most situations, however if your system does not have a DHCP server or you wish to personally configure your LAN connection, proceed as outlined in “Configuring Network Environment” below.

Network Protocols:
You may need to consult your SysAdmin if their network protocols and settings are required for your LAN environment.

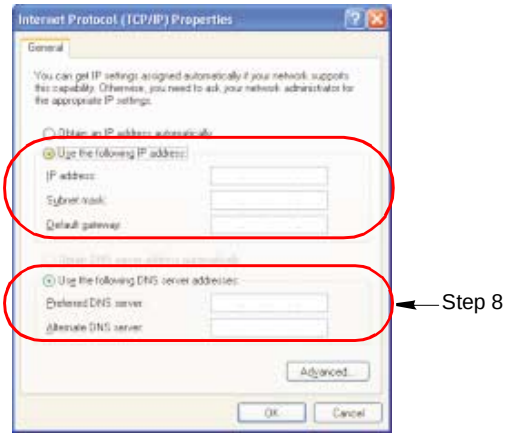
Configuring Network Environment

Configure the Network Adapter as follows:

1. Click **Start** > **Control Panel** > **Network and Internet Connections**

2. Click icon (Network Connections)
3. Double-Click the icon (Labeled Local Area Network)
4. Select **Internet Protocol (TCP/IP)** in the "This connection uses the following items:" box.

5. Click **Properties**. The TCP/IP Properties window opens.



6. Click "Use the following IP address" in the **General** tab
7. In the "Use the following IP address" box, enter your **IP address:, subnet mask:** and **Default Gateway:**.
8. In the "Use the following DNS server addresses" box, Enter your **Preferred DNS server:** and **Alternate DNS server:**.
9. Click **OK** when you finish the TCP/IP set-up.

Wireless Connection

Using the Flex-Bay

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

- CD-ROM drive: shipped with some computers and also available as an option.
- DVD-ROM: shipped with some computers and also available as an option.
- Optional secondary hard drive: available as an option for your computer.
- Superdisk LS-120: available as an option for your computer.

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

Remove/Install a Flex-Bay Device - Power On

You can use the Softex Bay Manager utility to hot-swap your devices in the flex-bay.

To start the Softex Bay Manager utility:

1. Click **Start** > **Control Panel** > **Other Control Panel Options** > **Softex Bay Manager**.

   - or -

2. Double-Click the SwapBay icon in the windows taskbar.

To remove a device:

1. Start the *Softex Bay Manager Utility*.

You do not have to turn the computer over or tip it on its side to change devices. Simply tilt the computer up at the front about 10 cm and locate the Flex-Bay latch. See Figure below for the location of the Flex-Bay latch. The computer in the figure is tilted on its side for clarity.

2. Click *Remove / Swap*. A Device Change popup window stating, "Please wait until the system processes the device change" appears then another popup window appears and says, "Please remove or swap your bay device(s) now and press OK."
3. Tilt the computer up & locate the smart bay latch.
4. Slide and hold the device latch toward the front of the computer.
5. Slide the device out.
6. Click *OK*. The message "Please wait until the system processes the device change" appears again.
7. Click ***OK*** to close the *Softex Bay Manager Utility*.

To insert a device:

1. Open the *Softex Bay Manager Utility*.

You do not have to turn the computer over to change devices. Simply tilt the computer up and locate the Flex-Bay latch. See "Bottom" on page 7 for the location of the Flex-Bay latch.

2. Click *Device Insert*. A popup window appears stating "Please insert your device(s) into the bay now and click OK."

3. Insert the device.
4. Click ***OK*** to allow your computer to detect the device. The message “Please wait until the system processes the device change” appears.
5. Click ***OK*** to close the *Softex Bay Manager Utility*.

Remove/Install a Flex-Bay Device - Power Off

Remove a Device:

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. Tilt the computer up & locate the smart bay latch.
4. Slide and hold the device latch toward the front of the computer.
5. Slide the device out.

Install a Device:

1. Turn the computer’s power off.
2. Carefully slide the device into the bay.
3. Push the device in until it is flush with the chassis and the Flex-Bay latch snaps into place. Your computer’s operating system automatically recognizes the device in the Flex-Bay and configures your computer accordingly when power is restored.

Using the Disk Drives

Using the Floppy Disk Drive

Your computer comes with a 1.44 MB, 3.5-inch, floppy drive.

To use a floppy disk in your computer, insert it into the floppy drive.

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

To protect the data on your floppy disks, follow the manufacturers guidelines.

Using the CD/DVD-ROM Drive

Compact discs are designed so that you can easily insert one into the computer when you need it, and then remove it. See "Using the Flex-Bay" on page 29 for information on installing the DVD-ROM drive into the computer.

DVD Notes:
A DVD player is a factory option and if you ordered this option you will have to install the provided DVD software to view the DVD Title.

1. Press the button on the CD-ROM or DVD-ROM drive, and the tray slides out. (Do not lean on the tray; because it will not support much weight.)

CD/DVD Drive Warnings:
Do not place reflective objects other than the CD/DVD disks in the disk slot because of possible hazardous laser emissions. The laser beam used in this CD/DVD-ROM drive is harmful to the eyes. Do not attempt to disassemble the CD/DVD-ROM drive. Refer servicing to your authorized service center.

Do not touch the CD/DVD lens, doing so may damage the device.

CD/DVD Precautions:
The tray may be stuck, in which case straighten out a paper clip, insert it into the Emergency Eject hole in the front of the CD/DVD-ROM and push it until the tray ejects.

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

To clean a CD/DVD, wipe from the center outwards with clean and dry cloth.

Remove the CD/DVD when the drive activity LED is off.

2. Insert a CD/DVD, label side up (or remove a disc, if you have finished using it).

3. Push the tray in gently to close the drive tray.

Install and/or start a CD-based program as you would run a program on a floppy disk.

Working with PC Cards

When you install PC Cards, you cad add a multitude of functions to your notebook computer similar to those found on add-in boards for desktop computers. There are many PC Cards on the market, the supported PC Cards are listed below:

- Input/output, such as modem, network, video capture, and SCSI cards.
- Storage, such as hard drive and flash memory cards.

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:
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 XP supports 32-bit and 16-bit PC Cards.
- Zoomed video: Both 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.

Maintaining PC Cards

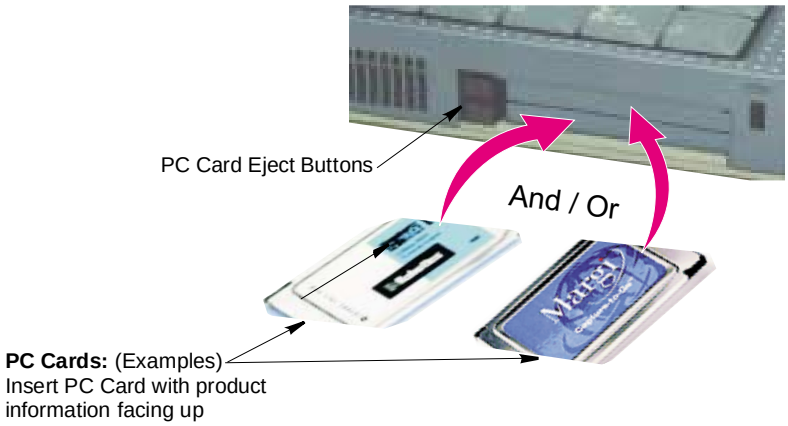
To maintain your PC Cards, follow these guidelines:

- 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

To insert a PC Card into a slot:

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



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

To remove a PC Card from your computer:

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

1. Click icon on the taskbar.
2. Select the card currently in use, and click the Stop button.

The eject button for the card slot operates in two steps, therefore to remove a PC Card:

3. Push the eject button once to pop it outward then push the eject button again to eject the card.
4. Pull the card out of the PC Card slot.

Multi Media Functions/Equipment

Media Player

You can play video and audio CD files with the Windows Media Player, as well as watching TV, video and listening to the radio through internet. The on-board audio hardware and software of your computer enable the computer to play audio/video compact discs. The instructions to play a video CD-ROM are the same as the instructions for the audio CD below. If you wish to do so, you can attach external speakers to the Headphone jack.

Playing a Audio/Multimedia CD

To play an CD follow the instructions below:

1. Insert a compact disc into your CD-ROM drive.
2. Press the button on the CD-ROM drive to open the CD-ROM device.
3. Insert a CD, label side up.
4. Carefully push the tray in to close the drive tray. The Windows Media Player button appears on the taskbar if not already there, and the music begins to play. If the disk does not play click **Start** > **All Programs** > **Accessories** > **Entertainment** > **Windows Media Player**.

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

Removing the Audio/Multimedia CD

To remove the CD follow the instructions below:

1. Click **Start** > **All Programs** > **Accessories** > **Entertainment** > **Windows Media Player** to open the Windows Media Player window, if not already open.
2. Click **Stop** in the Windows Media Player window or simply close the Windows media player.
3. Press the button on your CD-ROM drive. The drive tray opens and you can remove the CD from the CD-ROM drive.
4. For more information on playing compact discs, see the Help menu in the Windows Media Player window.

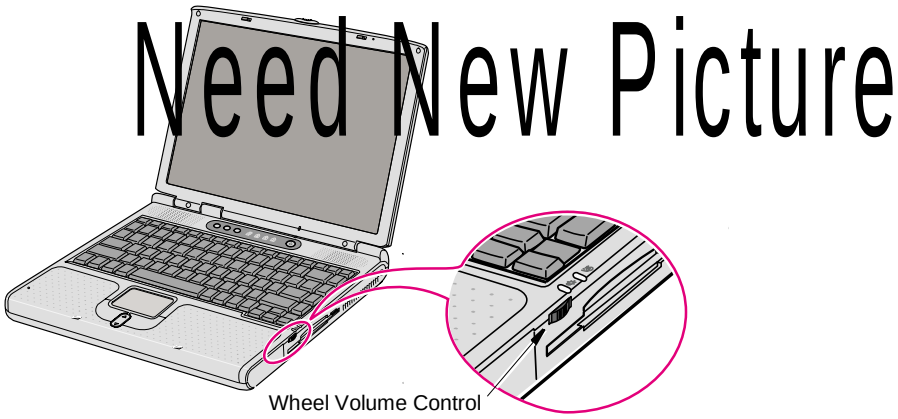
Dolby Stereo

Your computer supports Dolby Stereo through a SPDIF connector, located next to the volume control wheel on the left side of the computer. You must have a 3.5mm (mono)- to RCA cable to use this port.

Volume Control

Using the Wheel Volume Control

Simply turn the wheel located on the left side of the computer.



Using the Keyboard

Changing the volume with your keyboard.

Use <Fn+F9> to decrease the volume or <Fn+F10> to increase the volume.

Using the Volume Control Icon

Double-Click icon in the active program tray. The **Volume Control** window pops up. Use this window to adjust the volume. You can pop up a simple volume slider by a single click icon.

Movie Maker

You can edit audio and video data using this Movie Maker included with Windows XP. It is also possible to make a slide show with each frame or picture.

To start the program:

Click **Start** > **All Programs** > **Accessories** > **Windows Movie Maker**.

Please refer to the on-line help manual to operate the Windows Movie Maker.

Using the Battery

Your computer uses a smart rechargeable Lithium-ion (Li-ion) battery pack for power when the AC adapter is not attached to an electrical outlet. The smart battery gives a accurate measurement of the current battery capacity which helps extend operating time by enabling effective power management in operating systems that take advantage of the accurate information supplied by the battery.

Charging the Battery

Your computer's battery starts charging automatically when you connect the power 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 the 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. 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 5°C or over 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:

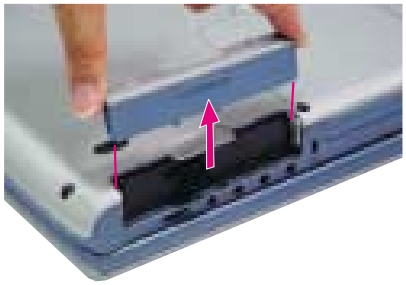
- Turn off your computer and unplug it if you accidentally:
  - Expose the equipment to liquid.
  - Drop, jar, or damage the computer.
- Use only approved battery chargers.
- Do not disassemble the battery, heat it above 100°C, or burn it. The battery used in this computer may cause a fire or chemical 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

Your computer comes with the battery pack inserted in the computer.

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.



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

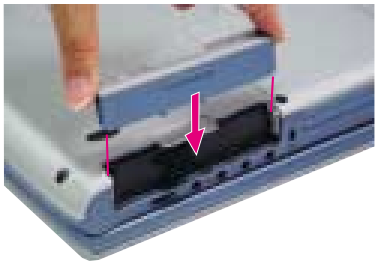
Installing the Battery

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.

Insert the battery into the battery compartment, ensuring the correct orientation so that the battery fits in 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.



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 by using the Power Meter or Battery Gauge.

Power Meter

The Power Meter displays the charge of the batteries and the current source of computer power, AC or batteries. You may monitor the battery charge or usage by using the “Power Meter”. To access the power meter click icon on the task bar or click **Start** > **Control Panel** > **Power Options** > **Power Meter** tab.

The Power Status icons shown below are displayed during Battery Charging Operations

At ~15% and 10% remaining battery power the current power source and the battery Icons respectively change to the icon shown below and you should follow the instructions in “Battery Warnings” section below

You may also check battery charge by moving the cursor to the icon, a small dialog box will display the % of charge.

Battery Gauge

You may display the battery gauge while you are in any program by pressing <Fn+F6>. While the battery gauge is being displayed, all keys except <Esc> are disabled. The battery gauge is only displayed for a few seconds.

The battery gauge will display three of the four icons shown below in the following order: **Power Source, Save Level then Battery Level**.

Power Source:

- Indicates that the computer is powered by the AC adapter.

- Indicates that the computer is powered by the battery.

Battery Level:

- The top/right section indicates the approximate amount of the primary battery charge remaining.

Battery Warnings

If the battery charge is low (about 10%) you have approximately 5–10 minutes of battery life left. **You should:**

- Save your work and,
- Connect the power cord to the computer or turn off the computer and install a fully charged battery.

You can adjust the battery alarm features by using the operating systems power management program (**Start** > **Control Panel** > **Power Options** in Windows).

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 below 10°C or over 32°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 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.

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 5.

Table 5. 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 6. 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. Pressing <ESC> at the Main menu brings you to the Exit 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.
<Tab+Shift>		Moves the cursor backward through the cells for a highlighted 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.

Changing Booting Priority

The Boot menu in System Setup enables you to select the booting device and to set booting options.

Boot Device Priority field enables:
You to select the order in which the computer attempts to boot from different devices. The field has Four (4) options: **Diskette Drive, Removable Devices, Hard Drive and ATAPI CD/DVD Drive**.

To change the booting device priority, choose the device positions by completing the following:

1. At startup, press <F2> to open **System Setup**
2. Use <Right Arrow> or <Left Arrow> to select the **Boot** menu.
3. Press <Enter> in the **Boot Device Priority** field.
4. Highlight the option with the <PgUp> or <PgDn> keys.
5. Use <-> or <+> keys to move the boot device up or down in the list of options.
6. Press <Esc> to return to the Boot menu.

The default settings are:
1. Diskette Drive, 2. Removable Devices, 3. Hard Drive. 4. ATAPI CD/DVD Drive.

7. Press <Esc> to go to the exit menu.
8. Select Exit Save Changes, press <Enter>.
9. Press <Enter> again to restart the computer.

If you want to start the system using a bootable CD, change the CD-ROM Drive to be the first priority and make sure that Auto is set in the Type field of the Secondary Master Submenu at Main page.

Using System Security

This section describes the security options provided with your computer. Your computer has two types of security. The first is the standard BIOS security which is fairly standard on all computers. The second is a more advanced Biometric security system which reads your fingerprint(s). In this case you do not have to worry about your password being lost or stolen.

Bios Security

The BIOS security methodology is explained below.

System Passwords

The computer provides two levels of password security: administrative-level (supervisor) and user-level (user). Either password prevents unauthorized access to the computer. The supervisor password enables full access to all System Setup fields. The user password enables full access to only the *Set User Password* and *Password on boot* security fields and read access to all other System Setup fields.

If multiple users have access to the computer (such as in a network environment), a supervisor password can prevent unauthorized access to certain security options.

Choose the type of password security that is appropriate for your work. If you want to set a user password, you must set a supervisor password first.

If You Forget Your Password

It is very important that you do not forget your password. If you do, you cannot access your system. Write your password down and keep it in a safe place. If you do forget and cannot find the written note, please contact the Samsung Helpline. Please have your receipts available to verify the type and model of your computer. You may be charged for password removal.

Creating a Password

To create a password:

1. At startup, press <F2> to open System Setup.
2. Use the <Right Arrow> key to select the Security menu.
3. Use the <Down Arrow> key to select *Set Supervisor Password* or *Set User Password.*
4. Press <Enter>. The Set Password dialog box appears.

5. Type a password of up to seven characters. You can enter letters or numbers, but you cannot use the function keys, such as <Shift>. Your computer does not distinguish between capitalized and lowercase letters in your password. As you type the password, the cursor moves but your password does not appear on the screen.
6. Press <Enter> after you have typed your password. The computer prompts you to reenter your password for verification.
7. Type your password again and press <Enter>. A message appears telling you that the changes have been saved. Press <Enter> again to return to the Security menu.
8. Press <Esc> to go to the Exit menu.
9. Select *Exit Saving Changes*, press <Enter>, and press <Enter> again to restart the computer.

Deleting a Password

To delete the password:

1. At startup, press <F2> to open System Setup.
2. Type your password when prompted and press <Enter>.
3. Use the <Right Arrow> key to select the Security menu.
4. Use the <Down Arrow> key to select *Set Supervisor Password* or *Set User Password.*
5. Press <Enter>. The computer prompts you to enter the current password.
6. Press <Enter>. The computer prompts you to enter a password. Do not type anything.
7. Press <Enter>. The computer prompts you to re-enter the password. Do not type anything.
8. Press <Enter>. A message appears telling you that the changes have been saved. Press <Enter> again to return to the Security menu.
9. Press <Esc> to go to the Exit menu.
10. Select *Exit Saving Changes*, press <Enter>, and press <Enter> again to restart the computer.

Requiring a Boot Password

After you create a supervisor or user password, you can enable the computer to prompt for a password each time it starts.

To enable the prompt, select the option *Enabled* in the *Password on boot* field in System Setup. For more information about the *Password on boot* field.

Locking the Keyboard

The keyboard lock enables you to protect your system when you walk away from it for a time. To use the keyboard lock, you must first enable a password through System Setup. (See "Creating a Password" on page 49 for instructions. To lock your keyboard, press <Fn+F7>. To unlock your keyboard, type your password and press <Enter>.

Biometric Security

The Biometric security methodology is explained below.

Using Power Management Options

Your computer includes **Power Management** options that can help the battery charge last longer and extend the life of the battery. Power-management options will slow down or shut off system components when the components are not being used.

Power management may slow down system performance. Your computer runs fastest with the power cord attached, when power management is disabled.

In the next sections, basic and advanced methods of power management will be discussed.

Intel® SpeedStep™

There are two methods to change the Intel® SpeedStep™ setting, they are explained below.

BIOS Interface

Intel® SpeedStep™ will control the CPU speed on your system according to the kind of power supply as part of power saving management.

To use this function, your system must meet the conditions below:

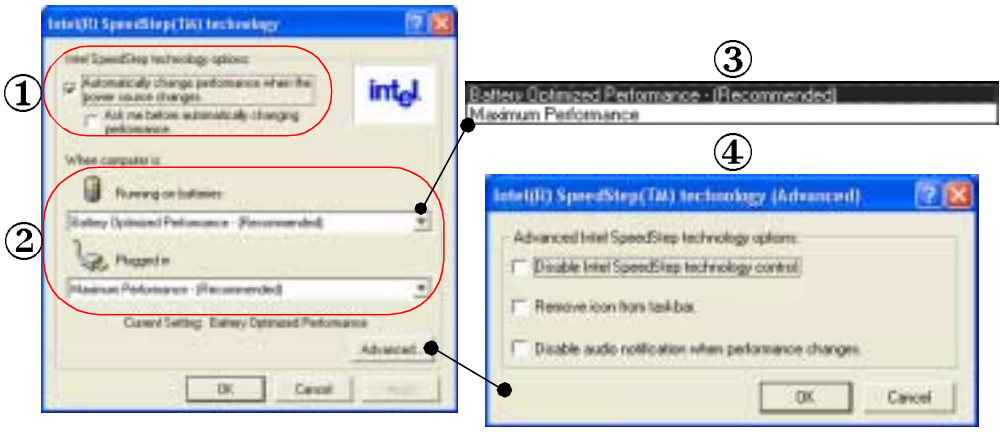
- Intel® SpeedStep™ supporting CPU
- Application for Intel® SpeedStep™ function
- BIOS Support

To start or verify Intel® SpeedStep™ is operational complete the following:

1. Start your computer and press <F2> to enter BIOS setup.
2. Go to System Power menu
3. Select the Intel® SpeedStep™ field and select one of the following options:
   - **Performance:** The CPU runs at high speed regardless of the type of power supply. Battery life is the shortest.
   - **Battery:** The CPU runs at low speed regardless of the type of power supply. Battery life is the longest.
   - **Automatic:** The CPU speed is changed according to the type of power supply. (It is recommended you select this option)
   - **Disabled:** Disables this function
4. Press <F10> to save and exit system setup

Task Bar Interface

You may change the Intel® SpeedStep™ setting by double clicking on the icon on the task bar. This will open the **Intel® SpeedStep™ technology** popup window.



The following will explain each of the above numbered items.

1. This option will allow automatic or "Ask me before automatically changing" CPU speed changes based on the power supply source.
2. Each power supply option has a drop down window and when you click on the arrow the drop down selector appears, displayed in number ③ above. These options allow the user to set operation of the CPU based on the power supply source.
3. These are the available options for each type of supplied power.
4. The **Intel® SpeedStep™ technology [Advanced]** popup window has 3 options that are self explanatory.

Basic Power Management Schemes

This section discusses the basic schemes of power management when the computer is operating on battery power or using AC power.

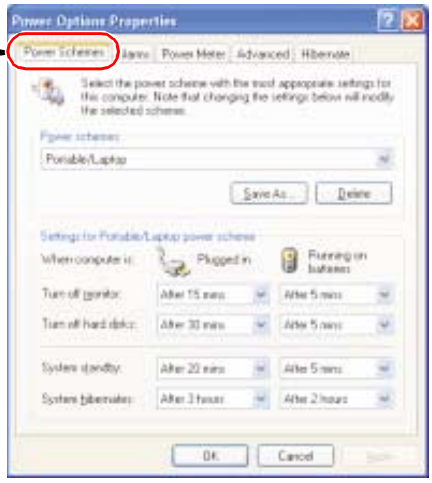
Standby vs. Hibernation
Standby unlike hibernation mode does not store unsaved information on your hard disk; it's stored only in the computer memory. If there is an interruption in power, the information is lost. So before putting your computer on standby, you should save your files.

Changing Devices:
Do not change PC Cards while in standby or hibernate modes.

To enter the power management window complete the following:

1. Click **Start** > **Control Panel** > **Performance and Maintenance**.
2. Click icon to display the **Power Options Properties** window.
3. Click the **Power Schemes** tab to display the basic power management options.

Power Schemes Tab



4. Select the time that you wish each of the following actions to occur in **Battery** and **AC power** mode.
   - Turn off monitor:
   - Turn off hard disks:
   - System standby:
   - System hibernates:

Turning off the monitor and HDDs will save a substantial battery power, therefore when in battery only mode select the shortest time practical.

❁ **Hibernate Mode** (*Power Management or Manual Method*)

When hibernation is used, your computer turns off and when you power up again, everything is restored exactly as you left it—including programs and documents you may not have saved or closed. Everything in memory gets saved to the HDD, and the monitor and hard disk get turned off.

Frequent Interruptions:
If you experience frequent interruptions, you might also consider putting your computer into automatic hibernation after a specified number of minutes using the power management options.

❁ **Standby Mode** (*Power Management or Manual Method*)

Standby is used mainly for conserving battery power in your notebook computer. It also gives you the benefit of getting right back to your work without waiting for the computer to restart. Standby turns off your monitor and hard disks, placing your entire system in a low-power state. When you return to your computer, restores your desktop exactly as you left it. It is recommended that you do not enter standby mode with less than 20% battery power.

5. Click **OK** to set your power management options and close the window.

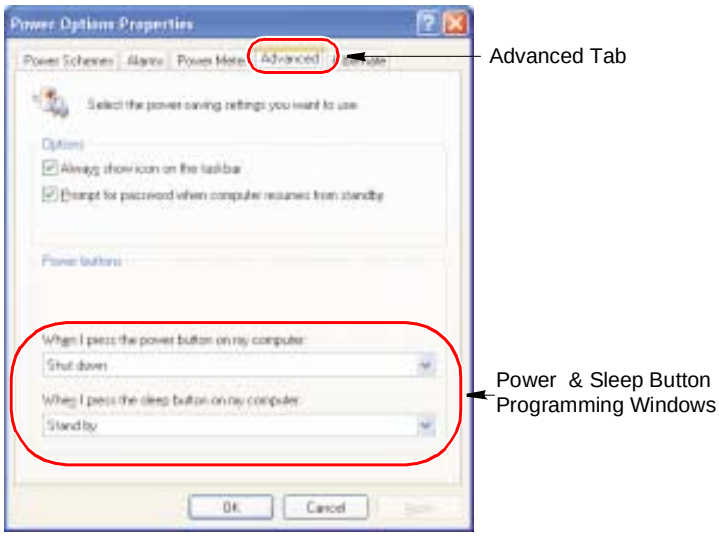
Rest Key:
The manual <Fn + F11> key combination will not activate Standby or Hibernate modes whilst you are playing a multimedia program or have an active USB device connected.

Advanced Power Management Schemes

This section discusses the advanced power management schemes. There are two buttons that you can use to manually conserve power.

To enter the power management window complete the following:

1. Click **Start** > **Control Panel** > **Performance and Maintenance**.
2. Click icon to display the **Power Options Properties** window.
3. Click the **Advanced** tab to display the advanced power management options.



4. Select the mode (**Standby/Hibernate/Power Off**) assigned to the Power button and/or Rest <F11> key.

The "Rest" key is assigned to the <Fn+F11> key combination.

See "Basic Power Management Schemes" on page 54 for meaning of Standby and Hibernate modes.

5. Click **OK** to set your power management options and close the window.

You can return to normal operation after you have used one of the "Power Management" buttons by quickly pushing and releasing the **Power** button.

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.

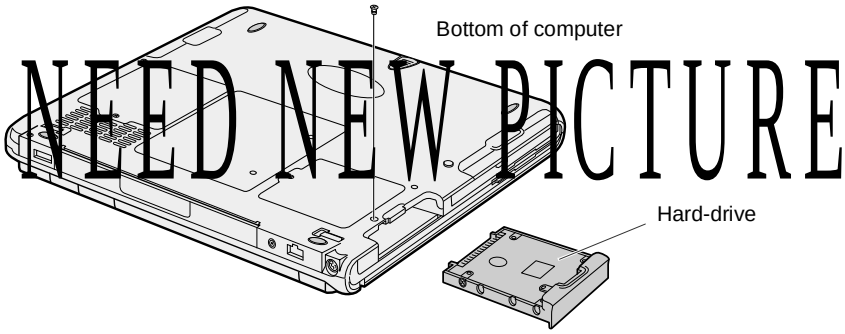
The hard drive that comes with your computer has already been formatted. Do not format the hard drive. Doing so destroys all data contained on the drive. If you need to format a new drive, or want to erase all data on your existing hard drive, refer to the manual for your operating system.

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.
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.



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 required install windows and appropriate device drivers according to the instructions below.

(Re)Installing Windows and Device Drivers

Use System Recovery CD to (re)install OS and System Software CD to (re)install device' drivers.

The System Recovery CD is used to (re)install the OS and System Software to a new HDD or recover from a system crash.

Notebook computers that ship from the factory include System Recover CD-ROM and System Software CD-ROM, which contains a copy of the applications and drivers needed for computer's operating system.

In the unlikely event that programs on the computer hard drive become corrupted or are erased, you can use the System Recovery CD-ROM to reinstall your operating system and then System Software CD-ROM to reinstall your original applications and drivers.

Video Features and 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 Colour 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 XGA. In XGA, the screen has a maximum display of 1024x768, about 800,000 pixels.

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

- 16-bit colour can support 64 K (65,536) colours.
- 32-bit colour can support 16 M (16.8 million) colours.

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.

Display Resolution Notes:
When Windows XP is initially installed it will automatically adjust the resolution to maximum available.

Changing Colour Depth and Resolution

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

1. Click **Start** > **Control Panel** > **Appearance and Themes**.
2. Click the display icon. The Display Properties window appears.
3. Click the **Settings** tab. The Settings screen appears.

4. To change the colour depth, click the arrow next to the **Colour quality** palette and select the available colour depth you want.
5. To change the resolution, click and drag the slider under the **Screen resolution** until you select the available resolution you want.
6. Click **OK**.
7. Follow the prompts that appear on the screen.

Using Dual View Mode

Single View mode is the basic display mode which displays same view on all the display devices connected to a system.

Dual View mode is the “Extended screen mode” supported in Windows, which displays separate views on each display devices connected to a system.

The default setting on your system is Single View mode.

Setting Dual View Mode

To set Dual View mode on your system:

1. Connect peripheral display device such as monitor or TV to your system and start the system.
2. Select **Start** > **Control Panel** > **Appearance and Themes**.
3. Click icon. The Display Properties window appears.
4. Click the **Settings** tab. The Settings screen appears.
5. Check **Extend my Windows desktop onto this monitor**.
6. You can drag the second monitor image to position where you want your extended screen space with respect to the primary monitor (usually the LCD).

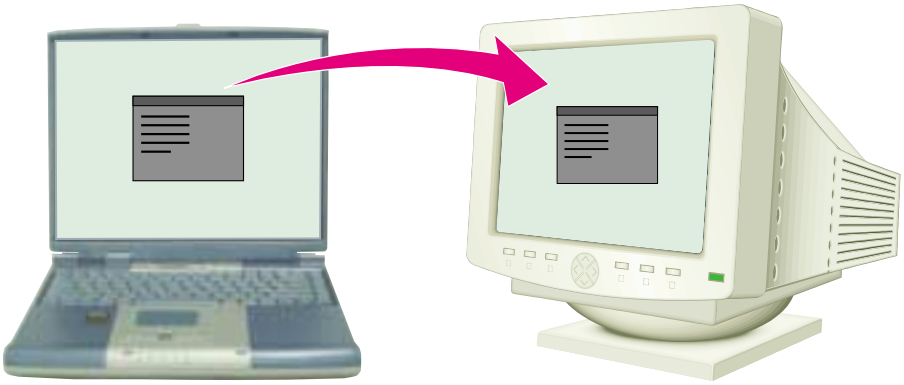
To confirm whether the system is set properly with Dual View mode:

1. Open **Display properties** and click **Settings** tab.
2. Place the cursor on the first monitor picture and click and hold over a second, a number **1** will be shown on the first actual monitor screen. And place the cursor on the second monitor picture and click and hold over a second, then digit number **2** will be shown on the second actual monitor screen.
3. The monitor displays digit number 1 is the primary monitor and number 2 is the secondary monitor.
   In **Windows explorer**, the program is displayed on the primary monitor, if you can drag it to the secondary monitor, then Duo View mode is now working properly.

The secondary monitor has a display of 256 colours (colour depth) and 640x480 pixels (resolution) at first. The colour depth and resolution of primary/secondary monitors are separately changeable.

To reset the system to Single View mode:

1. Start **Display properties**.
2. Click **Settings** tab.
3. Click the second monitor among two monitor pictures.
4. Uncheck **Extend my Windows desktop onto this monitor**.
5. Click **OK**.



Using the TV-Out Port

Using the TV-out port, a compatible TV or other compatible display device can be connected and an image displayed. No Audio is transmitted through the TV-Out port. To check if and how your TV displays the TV-out signal see the documentation included with your TV.

To enable TV-out:

1. Connect the TV to the TV-Out port using an appropriate cable.
2. Click **Start** > **Control Panel** > **Appearance and Themes**.
3. Click **Display** > **Settings**
4. Ensure **Extend my Windows desktop onto this monitor** box is unchecked.
5. Click **Advanced** > **S 3DuoVue**.
6. Click the check box to the left of the text “TV”.
7. Follow the screen prompts and the LCD screen display will be duplicated on the television.

If the TV symbol is grayed out then the system has not detected a TV, check that the TV standard in the System Setup is set correctly and that the TV is turned on and connected properly. You can not use TV-out port in DOS mode.

8. Click **Apply** or **OK**.

Using Options

You can order the following options for your Notebook computer from your authorised reseller:

- An extra AC adapter.
- An auto adapter that enables you to charge the computer's battery and operate the computer while in an automobile.
- An extra battery pack.
- An upgraded hard drive. Optional hard drives are available to fit in the hard drive compartment or the Flex-Bay.
- 32, 64 and 128 MB SDRAM memory modules that enable you to upgrade your computer's memory to a maximum of 256MB.
- A CD-ROM drive module.
- A DVD-ROM drive module.
- A Superdisk LS-120 drive.
- Docking options that enable you to use your computer like a desktop computer.
- Wireless LAN

The options that are available may change periodically. Contact your reseller for updated information on current and new options.

AC Adapter

The optional AC adapter operates in the same way as the adapter that came with your computer does. See "Attaching the AC Adapter" on page 9 for information about the AC adapter.

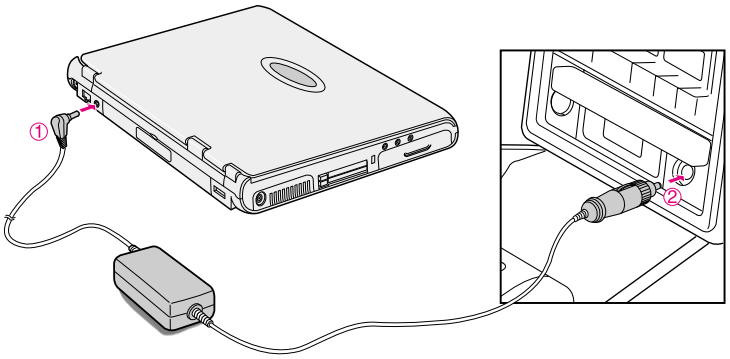
Auto Adapter

The auto adapter enables you to power your computer and charge the computer battery.

- In an automobile, through the +12 volt cigarette lighter socket.

To use the adapter:

1. Plug the adapter cable into the AC adapter connector on the computer.
2. Connect the adapter to the cigarette lighter socket.



The light on the adapter is green when the adapter is working properly. The light may be red for a few seconds when you first plug in the adapter or while you use the adapter. This is normal. If the light remains red, check to make sure the adapter is connected correctly.

If the adapter is plugged in and the adapter light does not turn on:

- Check the adapter connections.
- If you are in an automobile, turn on the automobile's ignition to supply power to the adapter. In some vehicles, power to the cigarette lighter socket is always on and you do not need to turn on the ignition.
- If the previous procedures do not activate the adapter, you may need to change the fuse in the adapter. To remove the fuse from the adapter, unscrew the adapter cap with a pair of pliers and remove the cap. Replace the fuse with an 8 amp fuse. In an automobile, you may need to replace the fuse in the cigarette lighter socket.

When you connect the adapter to the cigarette lighter, the computer's battery starts charging immediately.

To prevent loss of data and possible damage to the computer, unplug the auto adapter when starting and stopping the automobile engine.

Battery Pack

You can order another smart lithium-ion battery pack or dumb Ni-MH pack for your computer. See "Using Power Management Options" on page 52 for information on the battery.

Hard Drives

You can order optional hard drives for your system. A hard drive can be installed in the hard-drive compartment to replace your existing hard drive or you can order a hard drive that fits in the Flex-Bay. See "Installing a Hard Drive" on page 58 for information on installing a new drive in the hard-drive compartment. See "Using the Flex-Bay" on page 29 for information on installing a device in the Flex-Bay.

Memory Modules

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

To avoid possible system problems, use only approved memory modules in your computer.

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:

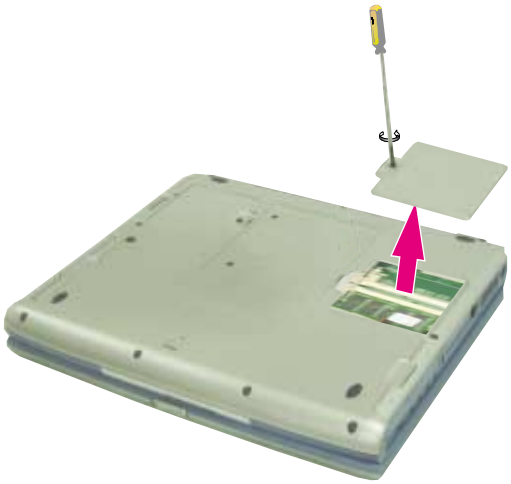
- Before you remove the memory module compartment door, turn off the computer, unplug the power cord, and remove the battery. Also, disconnect any peripheral devices.
- Before handling a memory module, discharge any static electricity by touching a grounded surface or using a grounding wrist strap.
- 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.

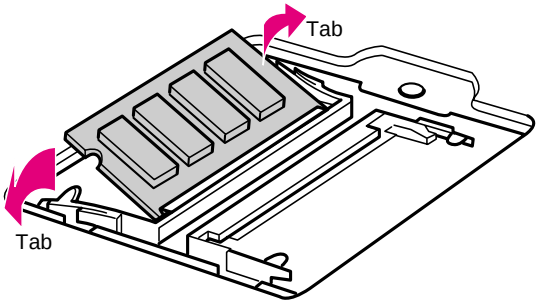


3. Grasp the edge of the door and pull the door off the chassis.
4. Remove installed modules if necessary:

Memory Module Precautions:
When removing the module, pull on the plastic portion of the connector slots tabs only. Do not pull on the metal part of the tabs, this may damage the tabs.

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

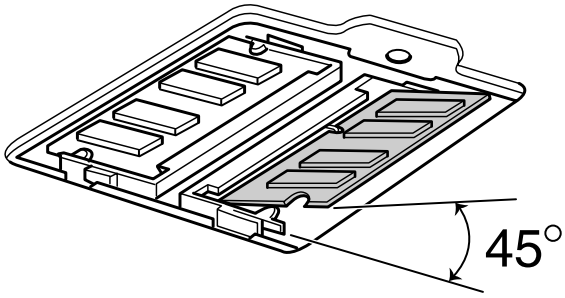
Need NEW Picture

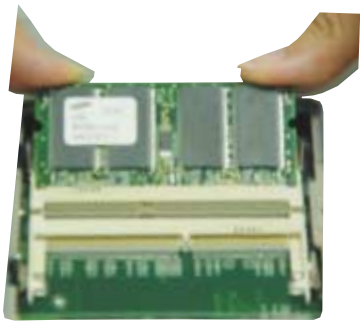


b. Hold the memory module by the edges and pull it forward out of the compartment.

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.





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

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.

CD-ROM Drive

If your system did not ship with a CD-ROM drive included, you can order a drive. See "Using the CD/DVD-ROM Drive" on page 33 for directions on installing the CD-ROM drive.

DVD-ROM Drive Module

If your system did not ship with a DVD-ROM drive included, you can order a drive. The DVD-ROM drive module can be inserted into your computer exactly as you would insert a CD-ROM. See "Using the CD/DVD-ROM Drive" on page 33 for directions on installing and using the CD-ROM drive. There is DVD software included with the drive that will enable you to play DVD movies from the DVD-ROM drive.

Superdisk LS-120 Drive

The LS-120 drive enables you to store 120 MB of data on a single, 3.5-inch LS-120 diskette. It is backward compatible with standard HD 1.44MB 3.5-inch diskettes and it can read and write to them up to three times faster. The LS-120 drive fits in the Flex-Bay, see "Using the Flex-Bay" on page 29

If you want to boot from LS-120, you have to disable "Diskette A:" in BIOS setup Boot menu.

Docking Options

Contact your reseller for a list of docking options available for your Notebook computer. User's manuals are included with the docking options.

Wireless LAN

This option will allow wireless connection to a network in work as well as home environments. To setup and use the Wireless LAN, please refer to the user manual provided at the time of purchase.

Troubleshooting

If you ever have difficulty running your computer, follow these steps:

1. Consult the following sections for advice on how to handle system problems.
2. Refer to warnings, cautions and notes within applicable portion of this manual.
3. Refer to “Windows” and other “Program” manuals as applicable.
4. If steps 1 to 3 do not resolve the problem, contact the Samsung Helpline.

Operating Problems

This section answers most of the frequently asked questions associated with simple problems you may encounter while using your computer. This covers the most common problems and give the best solution to that problem. However, if you experience a problem not discussed here, please contact the Samsung Helpline.

Problem	Action
The computer does nothing when you turn it on.	Has the battery run down? Connect the power cord to the computer and recharge the battery. Try turning on the computer again.
Some of the letter keys type numbers instead of the indicated letters.	Is the Num Lock light on? If so, the numeric keypad on the keyboard is active. To return the keypad keys to typing letters, press <Num Lock>.
Battery power seems to run out faster than expected.	If you are running the computer from the battery rather than the power cord, make sure that you set the Idle Mode field in System Setup to On. This setting enables the microprocessor and the hard drive to slow down when the computer is not busy.
Certain software programs “hang” during operations when there is no interaction with the keyboard or peripheral devices.	Your computer may be in Suspend or Rest mode. Tap the touchpad to resume from Suspend or press the power button to resume from rest.
PC Card does not work correctly.	Make sure that the PC Card is inserted left side up in the PC Card slot. Check that the card is inserted fully into the slot. If you are using a PC Card modem, check the modem cable connections.

Problem	Action
Your ATA or Compact Flashcard do not work.	A patch is provided for these cards on the Recovery CD
The System Setup settings are not retained when you turn off the computer.	The CMOS battery inside the computer may need to be replaced. The CMOS battery provides power to save the system BIOS information when the computer is turned off. Normally, the CMOS battery lasts for several years. Do not attempt to open the chassis and replace this battery yourself or your warranty is void. Have an authorized the manufacturer's service center replace the CMOS battery.
No sound.	Verify if the mute check box is checked or the volume is not turned down in the pop up menu by clicking the speaker icon of the task bar.
System/BIOS behaves erratically	If you caused an abnormal power interruption (i.e.. removing battery while on battery power), you may cause BIOS data corruption.

Video Problems

Problem	Action
Nothing appears on the LCD panel when you turn on the computer.	Adjust the brightness on a TFT LCD. Are you using an external monitor? If so, press <Fn+F5> to return to the LCD panel.
Error Message when entering Power Management while in Multimonitor mode.	If the secondary monitor is set to 256 colours, this error message could appear. Change the colour of the secondary monitor to 'high colour (16 bit)'.
Nothing appears on the external monitor when you switch the display to it.	Is the monitor properly connected to the computer? Is the monitor's power cord connected to an AC wall outlet? Check the brightness and contrast controls on the monitor. Does the program appear on the LCD panel instead of the external monitor? If so, press <Fn+F5> to switch to the monitor. Try turning the monitor off and on again.
Only the LCD Display works when system returns from Power management mode while in Multimonitor mode.	The system resets to the original BIOS setup when the system returns from the power management mode. If the Display mode, in the Advanced menu of BIOS setup is set to LCD, then only the LCD will be turned on when the system wakes up. Set the Display mode in the BIOS to Both to turn on the LCD & CRT on wakeup.
The external monitor displays flashes or waves.	Check the cables between the monitor and the computer. Are they properly installed?
Cannot toggle between CRT and LCD while playing the 3D game.	If you are using the Multimonitor mode, you can not use the <Fn+F5> key combination and also you cannot use this function in 3D games using Direct-X.
There is LCD or CRT has noise (speckles, lines or raged edges) on the picture when playing a MPEG file with the Media player/ DVD software or using the USB camera.	Adjust the resolution and the colour to 1024 x 768 and 16 bit to display clearly, or avoid playing two programs at the same time.
In DOS mode the CRT/LCD button does not work.	The LCD only mode is not supported using this Key combination.

Problem	Action
If the connected CRT monitor display is not steady.	If the refresh rate is not optimal for the connected CRT, then this problem may occur. **To correct this problem do the following:** **1.** Click **Start** > **Settings** > **Control Panel.** **2.** Double Click the **Display** icon to open the **Display properties**. **3.** Select **Settings** **4.** Click the **Advanced** button. **5.** Click the Adapter tab **6.** Adjust the Refresh rate to optimal or other selections until you see the CRT clearly.

Modem Problems

Problem	Action
My modem doesn't connect to services or disconnects during communication	If your modem has difficulty in connecting to on-line services and sustaining communications, first check if other devices are connected and remove them. Also remove any extension leads. Interference from certain devices or poor line power conditions may degrade the quality of your connection. Under these conditions gradually reduce the communication speed of your modem until a reliable connection is achieved. Check with your on-line service provider.
When using a PBX phone system I can't dial on my modem.	If you use a PBX phone system you may need to press a number i.e. '9' to connect to an external line, you should enter the following command before trying the connection and check modem initialization. (***ATX3&W***) And add “9,” as the external line prefix (example) of the phone number when using the dial command “***ATDT9, 123-4567***”.
Screen displays random or garbage characters during communications.	After your modem has connected to the on-line service, your screen may display garbage characters or after-images in screen transitions. This problem is caused by a mismatch of the terminal modes between communications service and communications programs. You need to match the terminal modes to each other. Refer to the user's guide of the communications program you're using.
Reports error message that insufficient Hard Disk space is available.	Delete the unnecessary messages or data you received by Modem or Fax every one to three months as required. If you're using the internet, many picture and data files can get downloaded to your HARD DISK every time you visit a home page, which will consume a lot of your HARD DISK space. Delete the unnecessary messages or data you received by Modem or Fax every one to three months as required. For more detailed information about the method of deleting, refer to the help of the Web browser you've been using or your user's guide.

FAX Problems:
Depending on telephone line status, or types of Fax machines/programs that send/receive the Fax, Fax transmission/reception may not work correctly. In that case, please try other Fax programs. (e.g. Win Fax)

Windows & Device Drivers

If for some reason your system crashes you may corrupt your HDD, Windows Operating system and/or some of your device drivers. If this is the case, use **System Recovery CD** to reinstall **OS** and **System Software CD** to reinstall the corrupt device drivers.

System Recovery CD:
The System Recovery CD WILL erase ALL of your data and programs currently installed on your computer.

The System Recovery CD is used to reinstall the OS and the System Software CD for a new HDD or to recover from a system crash.

Windows Driver (Re)Installation

Simply install the driver(s) according to the instructions below:

1. Insert the **System Software** CD-ROM.
2. Follow the directions provided in the opening window.

Samsung may, from time to time, issue updated drivers. These are posted on the Samsung Support website at www.samsungpc.com

When updating drivers, please select the “Supported” driver with the *highest* revision number.

Specifications

Dimension	
* LCD viewing area	
LCD viewing area (14.1 TFT)	285.7 x 214.3 mm
LCD viewing area (15” TFT)	304.8 x 228.6 mm
* All-In-One type computer	
Width	31.65 cm
Depth	26 cm
Height	38.4 cm
Weight (with integrated floppy drive, Li-Ion battery & 14.1” TFT LCD & weight saver)	3200 g
Environment	
Ambient temperature, operating	10°–32°C
Ambient temperature, storage	-5°–40° C
Relative humidity (noncondensing), operating	20–80%
Relative humidity (noncondensing), storage	5–90%
Altitude, operating	0 to 2,348 m
Altitude, storage	0 to 12,192 m
Shock, operating	10 G for 11 ms half sine
Shock, nonoperating	60 G for 11 ms half sine
Lithium-Ion Smart Battery	
Normal Weight	450g
Nominal open circuit voltage	11.1 VDC
Capacity, typical	6000 mAhr, 66.6whr
Charging time, approximate, with computer turned off , typical	3.0 hr
Charging time, approximate, with computer turned on , typical	5.0 hr
Average battery life, with no power management enabled	3.0 hr
External AC Adapter	
Operating voltage	100-240 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

Abbreviations

A . . . . . Amperes
AC . . . . . Alternating current
ACPI . . . . . Advanced Configuration and Power management Interface
APM . . . . . Advanced Power Management
ATA. . . . . AT attachment (refers to the hard-drive interface in an AT-compatible computer)
ATAPI. . . . . AT attachment packet interface
BBS . . . . . Bulletin board system
BIOS . . . . . Basic input/output system
C . . . . . Centigrade
CD . . . . . Compact disc
CD-ROM . . Compact disc read-only memory
cm . . . . . Centimeters
COM . . . . . Communication (as in communication port)
CMOS . . . . . Complementary metal-oxide semiconductor
DC . . . . . Direct current
DMA . . . . . Direct memory access
DPMS . . . . . Display power-management signaling
DRAM. . . . . Dynamic random access memory
DSTN . . . . . Double layer super twist nematic
ECP . . . . . Extended capabilities port
EPP . . . . . Enhanced parallel port
g . . . . . gram
G . . . . . Gravity
GB . . . . . Gigabytes
hr . . . . . hour
Hz . . . . . Hertz
IDE . . . . . Integrated drive electronics
I/O . . . . . Input/output
IRQ . . . . . Interrupt request line

ISA . . . . . Industry Standard Architecture
KB . . . . . Kilobytes
kg. . . . . Kilograms
LAN. . . . . Local-area network
lb.. . . . . Pounds
LBA. . . . . Logical block addressing
LCD. . . . . Liquid-crystal display
m . . . . . Meters
mA. . . . . Milliampere
mAhr. . . . . Milliampere hour
MB. . . . . Megabyte
mm . . . . . millimeter
MPEG . . . . . Motion Picture Experts Group
MPU . . . . . Microprocessor unit
ms . . . . . Millisecond
PDF . . . . . Portable document format
PC . . . . . Personal computer
PCI . . . . . Peripheral component interconnect
PCMCIA. . . Personal Computer Memory Card International Association
POST. . . . . Power-on self-test
PNP . . . . . Plug and play
PS/2 . . . . . Personal System/2
RAM . . . . . Random-access memory
ROM . . . . . Read-only memory
SVGA . . . . . Super video graphics array
TFT . . . . . Thin-film transistor
USB . . . . . Universal serial bus
V . . . . . Volt
VAC . . . . . Voltage alternating current
VCC . . . . . Voltage collector current
VDC . . . . . Voltage direct current
whr . . . . . Watt hour

Glossary

AC adapter

The AC (or alternating current) adapter regulates current coming into your computer from the wall outlet. The current at the wall outlet is alternating current and needs to be changed by the adapter to DC (direct current) before your computer can use it for power.

ACPI

ACPI (Advanced Configuration and Power Interface)- a method for describing hardware interfaces in terms abstract enough to allow flexible and innovative hardware implementations and concrete enough to allow shrink-wrap OS code to use such hardware interfaces.

BIOS

BIOS stands for basic input/output system. The BIOS is software (often called firmware) that is independent of any operating system. It enables the computer to communicate with the screen, keyboard, and other peripheral devices without using programs on the hard disk.

The BIOS on your computer is flash BIOS, which means that it has been recorded on a flash memory chip that can be updated if needed.

Boot

To start your computer. A cold boot resets the entire computer and runs through all computer self-tests. A warm boot clears out computer memory only.

Boot disk

A disk containing operating system programs required to start your computer. A boot disk can be a floppy disk, hard drive, or compact disc.

Byte

The basic unit of measure for computer memory. A character—such as a letter of the alphabet—uses one byte of memory. Computer memory is often measured in kilobytes (1,024 bytes) or megabytes (1,048,576 bytes).

Each byte is made up of eight bits. For more information on bytes and bits, see an introductory book on computers.

Cache memory

Cache is very fast, zero-wait-state memory located between the microprocessor and main memory. Cache reduces the average time required by the microprocessor to get the data it needs from the main memory by storing recently accessed data in the cache.

CardBus

CardBus technology enables the computer to use 32-bit PC Cards. Hardware in the computer and the Windows operating system provide support for the 32-bit cards. The voltage of 32-bit cards (3.3 volts) is lower than that of 16-bit cards (5 volts). The 32-bit cards can transmit more data at a time than the 16-bit cards, thus increasing their speed.

CMOS memory

CMOS (complementary metal oxide semiconductor) memory is powered by the CMOS battery. The System Setup settings and other parameters are maintained in CMOS memory. Even when you turn your computer off, the information in CMOS memory is saved.

COM port

COM stands for communication. COM ports are the serial ports in your computer.

Compact Disc

A compact disc (CD).

Conventional memory

The first 640 KB of system memory. Operating systems and application programs can directly access this memory without using memory-management software.

Disk

The device used by the computer to store and retrieve information. *Disk* can refer to a floppy disk, hard disk, or RAM disk.

Disk cache

A software device that accumulates copies of recently used disk sectors in RAM. The application program can then read these copies without accessing the disk. This, in turn, speeds up the performance of the application.

A cache is a buffer for transferring disk sectors in and out of RAM. Data stored in a disk cache is a copy of data already stored on the physical disk.

DMA (direct memory access)

A method of transferring data from a device to memory without having the data pass through the microprocessor. Using DMA can speed up system performance.

DPMS

Display Power Management Signalling. Displays or monitors that comply with this can be managed by the Power Management features found in the system setup.

Floppy disk

A removable disk, also called *floppy* or *diskette*.

Hard drive

Also called *fixed* disk. A hard drive is connected to the computer and can be installed or removed. Data written to a hard drive remains until it is overwritten or corrupted.

The 2.5-inch hard drive in your computer was designed for use in a notebook computer. Because hard drives in notebook computers are smaller than those in desktop computers, their maximum storage capacity may be less than that of desktop hard drives. However, because of their smaller size, the drives handle shock and vibration better than larger drives, which is important for a notebook computer.

I/O

Input/output. Refers to peripheral devices, such as printers, that are addressed through an I/O address.

I/O address

I/O stands for input/output. Peripheral devices, such as printers, are addressed through the I/O port address.

IRQ (interrupt request line)

The IRQ is a hardware line that a device uses to signal the microprocessor when the device needs the microprocessor’s services. The number of IRQs is limited by industry standards.

LCD (liquid-crystal display)

The LCD screen on your computer differs from the display screen of a desktop monitor. Most desktop monitors use CRT (cathode-ray tube) displays, which work by moving an electron beam across phosphor dots on the back of the screen. The phosphor dots light up to show the image. LCDs use a liquid-crystal solution between two sheets of polarizing material. Electric current passing through the liquid aligns the crystals so that light can or cannot pass through them, creating an image.

MB (megabyte)

1,024 kilobytes.

Megabit

1,048,576 bits or about 128 kilobytes.

Operating system

A program that supervises the computer's operation, including handling I/O. Application programs and users can request operating-system services. A user might request operation-system services to copy files or format a disk. An application program might use the operating system to obtain keyboard input, write data to a file, or write data to a screen.

PC Card

PC Card stands for personal computer card. The Personal Computer Memory Card International Association (PCMCIA) defines the standards used to develop all PC Cards. PC Card types include: modems, Ethernet adapters, SCSI adapters, ATA cards, and memory cards.

PC slot

The PC slot is the hardware slot in the computer where the PC Card is placed.

Pixel

A pixel is an individual dot in a graphic displayed on your computer. The pixels are so close together that they look as though they are connected. An LCD screen displays thousands or millions of pixels.

Plug and Play

A plug and play operating system automatically configures computer components to work with your system. With this type of operating system, you normally do not need to set jumpers on devices or set memory addresses or IRQs.

RAM (random access memory)

The computer's system memory, including conventional and extended memory. You can write to and read from RAM. Information stored in RAM is temporary, and is erased when the system is turned off.

Refresh rate

The refresh rate is the rate at which the image on the LCD screen is rewritten to the screen. A fast refresh rate helps keep the image from flickering.

Resolution

The resolution is the sharpness or clarity of the image on your LCD screen. Resolution is measured by the number of pixels the computer’s screen can display. For example, a resolution of 800 x 600 means that the screen can display 800 pixels in row and can display 600 rows. The more pixels displayed, the higher the resolution and the better the image.

ROM (read-only memory)

Permanent computer memory dedicated to a particular function. For example, the instructions for starting the computer when you first turn on power are contained in ROM. You cannot write to ROM. (ROM is not the same as RAM).

Sector

Also known as *disk sector*. The portion of a track that is numbered and can hold a specified number of characters (usually 512 KB).

Shadow RAM

A write-protected area of RAM that contains a copy of the BIOS. As the computer boots, the BIOS is copied from its permanent location in ROM to RAM. The BIOS can be executed much faster in RAM than in ROM. The BIOS remains in shadow RAM until you turn off the computer.

TFT (thin film transistor) LCD

A TFT LCD uses a separate transistor circuit to control each pixel. This technology provides the best resolution for an LCD screen. A TFT LCD is also sometimes called an active matrix LCD.

Zoomed video

Zoomed video technology enables zoom video PC Card to transfer data directly from the card to video and audio systems without going through the microprocessor. This process improves video performance. Video conferencing and real-time multimedia devices, such as video cameras, are supported by zoom video.