

# Notices

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# Important Safety Information

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## Safety Instructions

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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.
- 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

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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.

## Laser Safety

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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

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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.

# Regulatory Compliance Statements

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## Wireless Guidance

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Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4 GHz Band, may be present (embedded) in your notebook system. The following section is a general overview of considerations while operating a wireless device.

Additional limitations, cautions, and concerns for specific countries are listed in the specific country sections (or country group sections). The wireless devices in your system are only qualified for use in the countries identified by the Radio Approval Marks on the system rating label. If the country you will be using the wireless device in, is not listed, please contact your local Radio Approval agency for requirements. Wireless devices are closely regulated and use may not be allowed.

The power output of the wireless device or devices that may be embedded in your notebook is well below the RF exposure limits as known at this time. Because the wireless devices (which may be embedded into your notebook) emit less energy than is allowed in radio frequency safety standards and recommendations, manufacturer believes these devices are safe for use. Regardless of the power levels, care should be taken to minimize human contact during normal operation.

As a general guideline, a separation of 20 cm (8 inches) between the wireless device and the body, for use of a wireless device near the body (this does not include extremities) is typical. This device should be used more than 20 cm (8 inches) from the body when wireless devices are on and transmitting.

This transmitter must not be collocated or operate in conjunction with any other antenna or transmitter.

Some circumstances require restrictions on wireless devices. Examples of common restrictions are listed below:



Radio frequency wireless communication can interfere with equipment on commercial aircraft. Current aviation regulations require wireless devices to be turned off while traveling in an airplane. 802.11B (also known as wireless Ethernet or Wifi) and Bluetooth communication devices are examples of devices that provide wireless communication.



In environments where the risk of interference to other devices or services is harmful or perceived as harmful, the option to use a wireless device may be restricted or eliminated. Airports, Hospitals, and Oxygen or flammable gas laden atmospheres are limited examples where use of wireless devices may be restricted or eliminated. When in environments where you are uncertain of the sanction to use wireless devices, ask the applicable authority for authorization prior to use or turning on the wireless device.



Every country has different restrictions on the use of wireless devices. Since your system is equipped with a wireless device, when traveling between countries with your system, check with the local Radio Approval authorities prior to any move or trip for any restrictions on the use of a wireless device in the destination country.



If your system came equipped with an internal embedded wireless device, do not operate the wireless device unless all covers and shields are in place and the system is fully assembled.



Wireless devices are not user serviceable. Do not modify them in any way. Modification to a wireless device will void the authorization to use it. Please contact manufacturer for service.



Only use drivers approved for the country in which the device will be used. See the manufacturer System Restoration Kit, or contact manufacturer Technical Support for additional information.

# United States of America

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## Unintentional Emitter per FCC Part 15

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.

## Intentional emitter per FCC Part 15

Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4 GHz Band, may be present (embedded) in your notebook system. This section is only applicable if these devices are present. Refer to the system label to verify the presence of wireless devices.

Wireless devices that may be in your system are only qualified for use in the United States of America if an FCC ID number is on the system label.

The FCC has set a general guideline of 20 cm (8 inches) separation between the device and the body, for use of a wireless device near the body (this does not include extremities). This device should be used more than 20 cm (8 inches) from the body when wireless devices are on. The power output of the wireless device (or devices), which may be embedded in your notebook, is well below the RF exposure limits as set by the FCC.

This transmitter must not be collocated or operate in conjunction with any other antenna or transmitter.

Operation of this device 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 of the device.



Wireless devices are not user serviceable. Do not modify them in any way. Modification to a wireless device will void the authorization to use it. Contact manufacturer for service.



**FCC Statement for Wireless LAN use:**

“While installing and operating this transmitter and antenna combination the radio frequency exposure limit of 1mW/cm<sup>2</sup> may be exceeded at distances close to the antenna installed. Therefore, the user must maintain a minimum distance of 20cm from the antenna at all times. This device can not be collocated with another transmitter and transmitting antenna.”

## FCC Part 68

This equipment complies 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 (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.

# Canada

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## Unintentional Emitter per ICES-003

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

## Intentional Emitter per RSS 210

Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4 GHz Band, may be present (embedded) in your notebook system. This section is only applicable if these devices are present. Refer to the system label to verify the presence of wireless devices.

Wireless devices that may be in your system are only qualified for use in Canada if an Industry Canada ID number is on the system label.

As a general guideline, a separation of 20 cm (8 inches) between the wireless device and the body, for use of a wireless device near the body (this does not include extremities) is typical. This device should be used more than 20 cm (8 inches) from the body when wireless devices are on.

The power output of the wireless device (or devices), which may be embedded in your notebook, is well below the RF exposure limits as set by Industry Canada.

This transmitter must not be collocated or operate in conjunction with any other antenna or transmitter.

Operation of this device 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 of the device.



To prevent radio interference to licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.



Wireless devices are not user serviceable. Do not modify them in any way. Modification to a wireless device will void the authorization to use it. Contact manufacturer for service.

## **Telecommunications per DOC notice (for products fitted with an IC-compliant modem)**

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operation, and safety requirements. The Department does not guarantee the equipment will operate to the users' satisfaction.

Before installing this equipment, users should make sure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

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



To avoid electrical shock or equipment malfunction do not attempt to make electrical ground connections by yourself. Contact the appropriate inspection authority or an electrician, as appropriate.

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

## European Union

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The following information is only applicable to systems labeled with the CE mark .

### European Directives

This Information Technology Equipment has been tested and found to comply with the following European directives:

- EMC Directive 89/336/EEC with amending directives 92/31/EEC & 93/68/EEC as per
  - EN 55022 Class B
  - EN 61000-3-2
  - EN 61000-3-3
  - EN 55024
- Low Voltage Directive (Safety) 73/23/EEC as per EN 60950(A1/A2/A3/A4/A11)
- Radio and Telecom Terminal Equipment Directive 199/5/EC as per
  - CTR21 (if fitted with a modem device)
  - ETS 300 328 (if fitted with a 2.4 GHz band embedded wireless device)
  - ETS 301 489-1 (if fitted with a 2.4 GHz band embedded wireless device)
  - ETS 301 489-17 (if fitted with a 2.4 GHz band embedded wireless device)

### European Radio Approval Information (for products fitted with EU-approved radio devices)

This Product is a Notebook computer; low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4 GHz band, may be present (embedded) in your notebook system which is intended for home or office use. This section is only applicable if these devices are present. Refer to the system label to verify the presence of wireless devices.

Wireless devices that may be in your system are only qualified for use in the European Union or associated areas if a CE mark  with a Notified Body Registration Number and the Alert Symbol is on the system label.

The power output of the wireless device or devices that may be embedded in your notebook is well below the RF exposure limits as set by the European Commission through the R&TTE directive.

### **European States qualified under wireless approvals:**

**EU** Austria, Belgium, Denmark, Finland, France (with frequency restrictions), Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the United Kingdom.

**Accept EU** Iceland, Liechtenstein, Norway and Switzerland

### **European States with restrictions on use:**

**EU** In France, the frequency range is restricted to 2446.5-2483.5 MHz for devices above 10 mW transmitting power such as wireless LAN.

**Accept EU** No limitations at this time.

## **European Telecommunication Information (for products fitted with EU-approved modems)**

Marking by the symbol **CE** indicates compliance of this equipment to the Radio and Telecom Terminal Equipment Directive 1999/5/EC. Such marking is indicative that this equipment meets or exceeds the following technical standards:

CTR 21 – Attachment requirements for pan-European approval for connection to the analogue Public Switched Telephone Networks (PSTNs) of TE (excluding TE supporting voice telephony services) in which network addressing, if provided, is by means of Dual Tone Multi-Frequency (DTMF) signaling.



Although this equipment can use either loop disconnect (pulse) or DTMF (tone) signaling, only the performance of the DTMF signaling is subject to regulatory requirements for correct operation. It is therefore strongly recommended that the equipment is set to use DTMF signaling for access to public or private emergency services. DTMF signaling also provides faster call setup.

This equipment has been approved to Council Decision 98/482/EEC—“CTR 21” 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 termination point. In the event of problems, you should contact manufacturer Technical Support.

### VCCI Statement

This equipment is in the Class B category (Information Technology Equipment to be used in a residential area or an adjacent area thereto) and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment aimed at preventing radio interference in such residential areas. When used near a radio or TV receiver, it may become the cause of radio interference. Read instructions for correct handling.

#### 電波障害について

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

### Wireless Devices

Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4 GHz Band, may be present (embedded) in your notebook system. This section is only applicable if these devices are present. Refer to the system label to verify the presence of wireless devices.

Wireless devices that may be in your system are only qualified for use in Japan if a TELEC ID is on the system label.

#### **Operational guidelines for 2.4 GHz band wireless equipment (if equipped)**

This equipment uses the 2.4 GHz ISM frequency band. The ISM band is the industrial, scientific, and medical device band. Devices that might also use this band are microwave ovens, other LAN devices, amateur radio stations, licensed premises radio stations, and non-licensed specified low-power radio stations.

### Prior to setting up your device:

1. Make sure that there are no other devices in your area using the same frequency band.
2. Change the channel, location, or discontinue device use if you are interfering with any other radio station.
3. Contact manufacturer if you have any problems with this device.

### この機器の使用上の注意

この機器の使用周波数は2.4GHz帯です。この周波数では電子レンジ等の産業・科学・医療用機器のほか、他の同種無線局、工場の製造ライン等で使用されている免許を要する移動体識別用の構内無線局、免許を要しない特定小電力無線局、アマチュア無線局（以下「他の無線局」と略す）が運用されています。

1. この機器を使用する前に、近くで「他の無線局」が運用されていないことを確認して下さい。
2. 万一、この機器と「他の無線局」との間に電波干渉が発生した場合には、速やかにこの機器の運用を停止（電波の発射の停止）をして下さい。
3. 不明な点、その他お困りのことがおきたときは、この機器をお求めになった販売代理店までお問い合わせください。



この無線機器は2.4GHz帯周波数、DSSS変調方式を採用しており、与干渉距離は約40mです。

# Using Your Documentation

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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

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### 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.



**Technical Information:**

Informs you of special requirements or limitations for use of item(s).

### 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:



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:



means that you should press the **Fn** key and hold it and then press the **F5** 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



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

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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.

# Introducing Your Computer

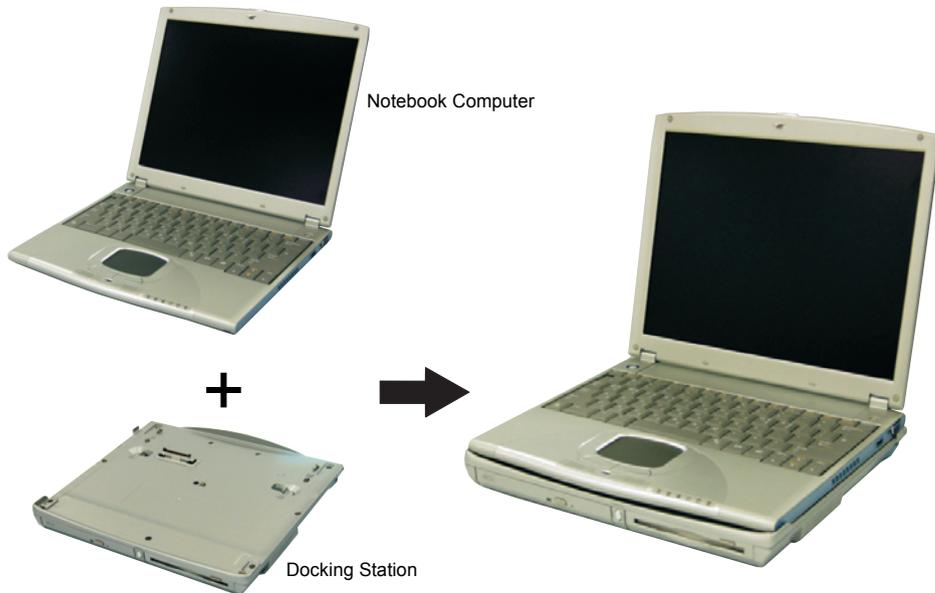
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Your lightweight portable notebook computer includes many features to meet your computing needs at home and/or on the road. The computer is a very slim lightweight notebook computer with a docking station that has peripheral devices that allow it to perform all of the functions of a desktop computer.

## Where Everything Is

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The following sections, *PC Equipment Locations* and *Docking Station Equipment Locations* will explain the details of the notebook computer and the docking station as well as other basic operations to dock and undock the computer.



## Notebook Equipment Location

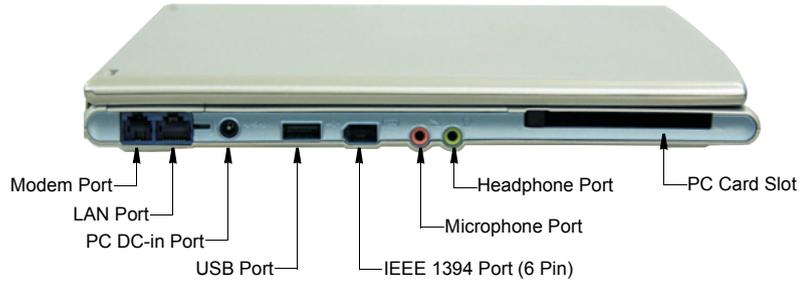
### Front Side



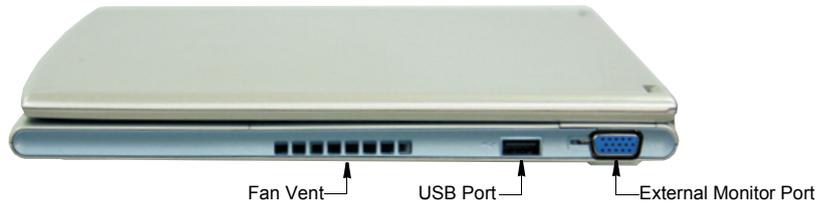
#### **Unavailable Ports while Notebook is docked**

The Lan and Video ports are unavailable on the Notebook while it is docked due to the configuration of the docking station, however they are duplicated on the docking station.

*Left Side*



*Right Side*



*Back Side*



*Bottom Side*

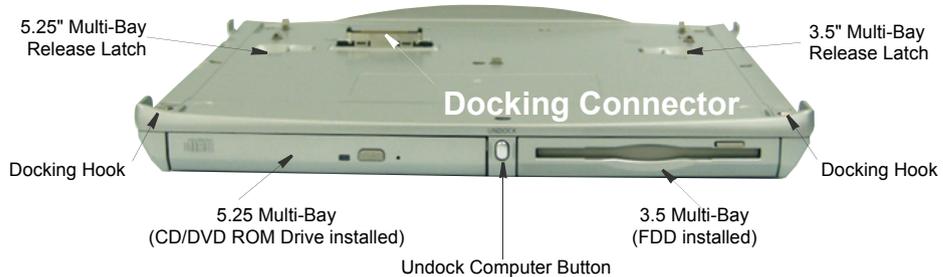
The figure below is the bottom view of the PC without the Docking Station attached.



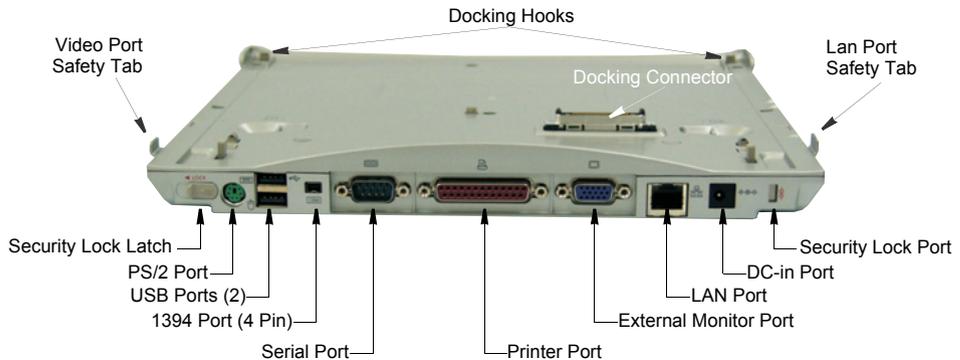
## Docking Station Equipment Location

### Front Side

The figures in this section show you the location of important items on the docking station. See “Using the Multi-Bays in the Docking Station” on page 34.



### Back Side



#### Notebook LAN/Video Port Safety

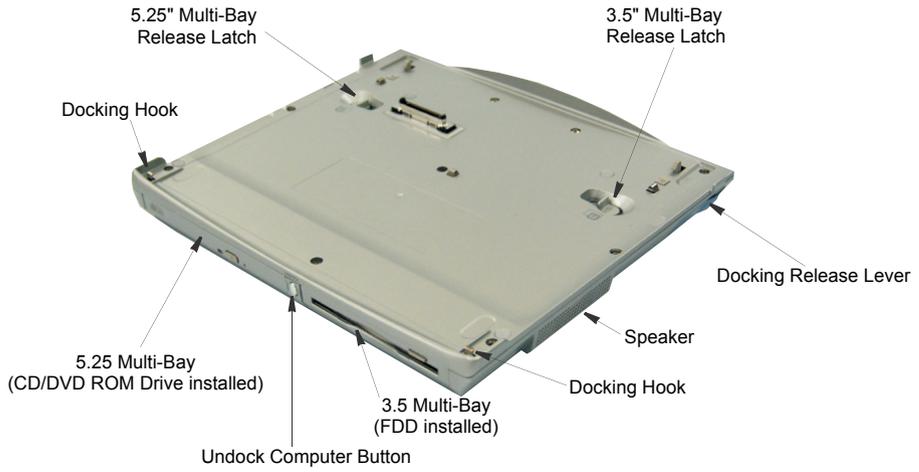
Do not dock your Notebook whilst the LAN and/or Video Port(s) are in use. You may cause sever damage to the connectors or plug.



#### LAN/Video Port Safety tabs

The LAN/Video Port Safety Tabs are to prevent the user from using them whilst the system is docked because the Notebook LAN and Video Ports are non-functional whilst the system is docked.

*Top Side*



*Bottom Side*



# Docking/Undocking your Computer

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The docking station allows you to use this system as a desktop PC.



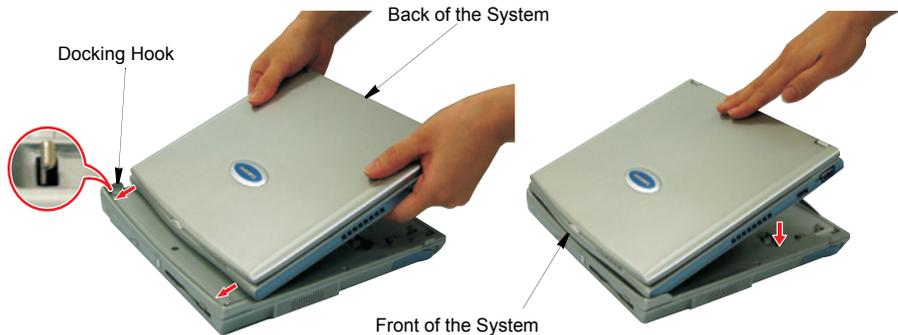
Connect the AC adapter to the docking station when it is connected to the computer.

## Docking your Computer

You may dock your computer while the computer is off or on, however the preferred and safer method is with the power off.

To install your computer into the docking station with the power off, complete the following:

1. Disconnect the AC adapter from the system.
2. Place the front part of a system onto the docking hooks at the front of the docking station.
3. Press down on the rear of the computer until it clicks fully home into the docking station.



To **dock your computer with the power on** simply place the computer on the docking hooks and press down on the area above the keyboard.



### Dock Change

When the docking station is connected properly the  icon is displayed in the start menu. Press the system on both sides, not the middle, to ensure that the docking connector is completely mated to the system. When the system is undocked the  icon will no longer be displayed in the start menu.

## Undocking your Computer



Do not detach the computer if battery power is less than 20% power. The system may crash and you will lose any unsaved data.

### *Power Off*

To remove your computer from the **docking station with the power off**, complete the following steps.

1. Turn off the system.
2. Disconnect the AC adapter.
3. Grab the two docking release levers and pull them out until they click. The computer will pop up approximately 1 cm.
4. Tilt the system up at the back.

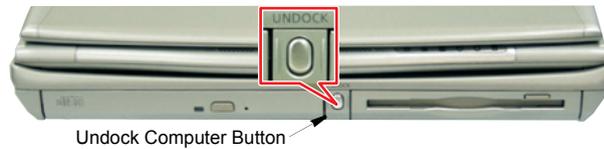


5. After tilting remove the system by sliding/lifting out toward the back of the docking station.
6. Connect the AC adapter to the system.

## Power On

To remove your computer from the docking station with the power on, complete the following steps:

1. Press the undock computer button on front of the docking station for one second.



- or -

1. Click **Start > Undock Computer** (☰).
2. When the “Undock Complete” message balloon is displayed on the screen, click  to close the message balloon.
3. Pull the two release levers outward until they click, the computer will pop up approximately 1 cm.
4. Tilt the system up at the back.
5. After tilting, remove the system by sliding/lifting out toward the back of the docking station.
6. Connect the AC adapter to the system.

# Using Your Computer for the First Time

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

## Installing the Battery

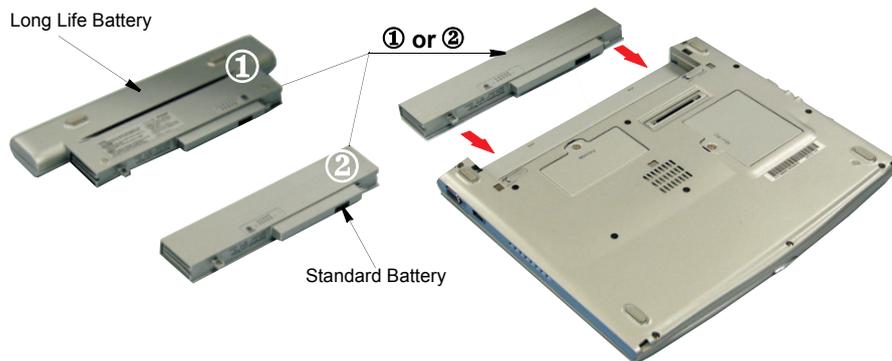
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The first step in using your notebook computer is to determine the normal use for your computer. Two batteries (Standard and Long Life) come with the computer and both go into the same slot. The standard battery may be used whether the computer is in the docking station or not. the long life battery may only be used when the PC is not in the docking station.



Ensure that both battery latches are slid fully toward the center of the computer.

The long life battery cannot be used with the PC in the docking station.



## 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 using the AC adapter.

**To attach the power cord complete the following:**



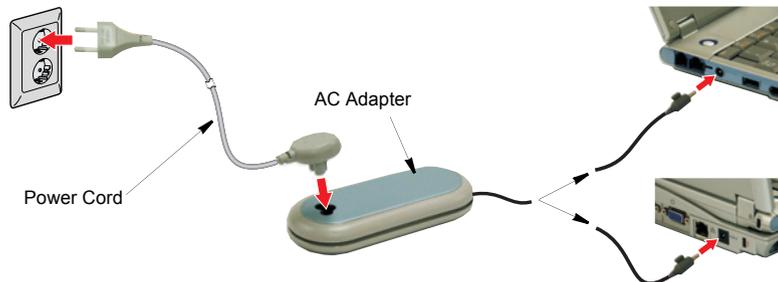
### Power Cords:

Many countries have different power cord configurations. Your computer should be supplied with the correct one for your area. If not contact the supplier. **DO NOT** wind the DC Output cable around the AC Adapter to prevent damage to AC adapter while operating your computer.

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



The power connector may be plugged into either the computer or the docking station. The preferred method when docked is to plug into the docking station.



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.



Ensure you charge the battery fully the first time you use it.

See “Using the Battery” on page 45 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 LCD display.
3. Press and then release the power button.

The power LED 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. There are several screens in the registration process. 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.

# 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.



If the system does not power off, then press and hold the power button for over 4 seconds.

See “Using Power Management Options” on page 57.

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 4 seconds to turn the computer off, waiting more than 5 seconds, and then pressing the power button to turn the computer on.



The power button has several functions other than just turning on and off your computer, see “Using Power Management Options” on page 57.

## Using the LCD Display

---

This section will discuss using/changing the LCD display:

The LCD display brightness adjustment is divided into 8 levels.

- The <Fn+F10> key combination decreases LCD brightness.
- The <Fn+F11> key combination increases LCD brightness.

The LCD display will automatically dim when you remove AC power to conserve battery power. If required, adjust the LCD brightness to a higher level when you are on battery power, however this will decrease battery life.



### **LCD Cleaning:**

Cleaning the LCD display should only be done with a soft cloth dampened with denatured alcohol or a proprietary LCD screen cleaner.



Even if you change the default LCD display brightness settings, the defaults listed above will be restored once you power off and then back on.

**Notice:** The limits of LCD manufacturing technology allow a maximum of 10 abnormal/bad pixels.

## Tips for Using Your Computer

---

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



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

- Follow all the instructions and cautions in your computer user documentation.
- The LCD display has a polarized surface and can be damaged easily. To prevent damage, avoid touching the LCD display screen.
- 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 right side of your computer is not blocked when you use the computer. Occasionally check the vents and remove any accumulated dust on the outside.

- Use only approved AC adapters, auto adapters, memory modules and other options.
- 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 a memory module, see “Installing a Memory Module” on page 66.)
- 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

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### Air Travel

**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.
- 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.

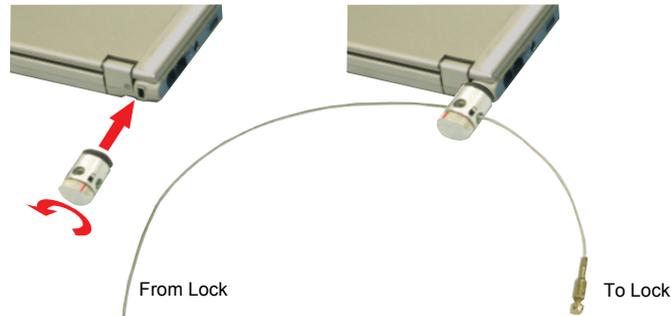
## Locking your Computer

As a precaution when you are travelling you should keep your computer as safe as possible. An option to do this is the *Security Lock System*. Follow the *Security Lock System* manufacturers instructions for specific installation and use.

There are two locking ports for your system. One is for the Notebook alone and the other locks the Notebook to the docking station and prevents the docking release levers from operating.

### To lock the Notebook Only:

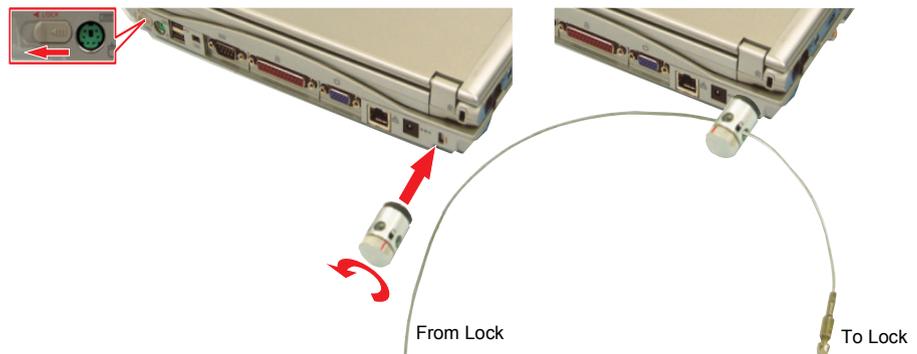
1. Insert the lock as instructed by the manufacturer.



2. Secure to a strong platform as instructed by the manufacturer.

### To lock the Notebook and Docking Station:

1. Dock your Notebook if not already done.
2. Slide the Docking Bay *Security Lock* latch to the left to open the Security Port opening. Insert the *Security Lock* as instructed by the manufacturer. This will lock the Notebook to the Docking station and disable the docking release levers.



3. Secure to a strong platform as instructed by the manufacturer.

## Handling Spills

---



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



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

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

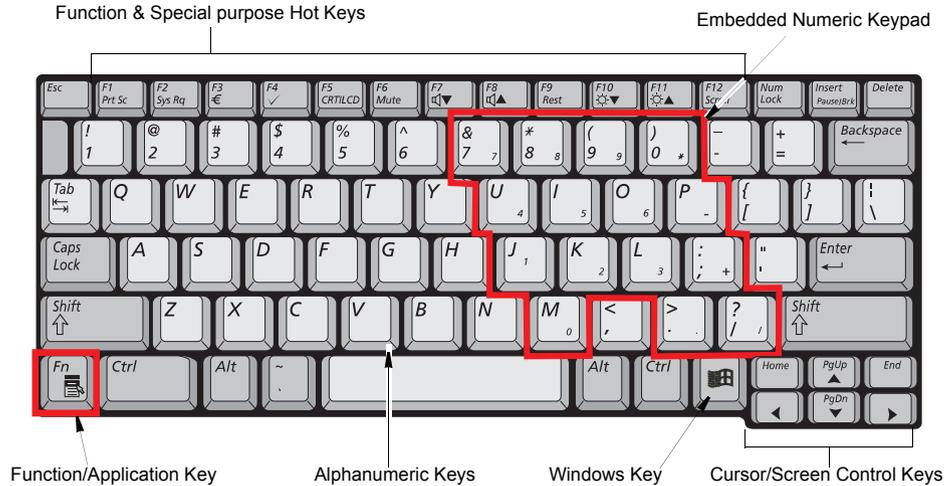
- If you spill liquid on the keyboard, drain as much of the liquid from the keyboard as possible. Be careful not to let the liquid drip onto the LCD panel. Allow the system to dry for several days before trying to use it.
- If you spill liquid on an external keyboard or keypad, unplug it and drain as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

# Using the Keyboard

Your computer has an 81-key keyboard. By pressing designated key combinations, you can have access to all the key functions of a full-sized keyboard.



Keyboard configuration is different from one country to another, however the operation of the keys and key combinations remain the same.



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 [QWERTY] and are used for text entry. The Windows key  opens Windows menus and performs other special functions.
- F1 to F12 and the Cursor/Screen Control keys, when pressed together with <Fn> key, enable special functions.
- The <Fn> Application/Fn key is used for quick access to shortcut menus and help assistants in Windows as well as standard Fn key combinations.



The F1 to F12 keys are assigned to different functions depending on the program in use, however the <F1> key is usually assigned to program help.

- Cursor and Screen control keys move the cursor. They may perform other functions, depending on your software.



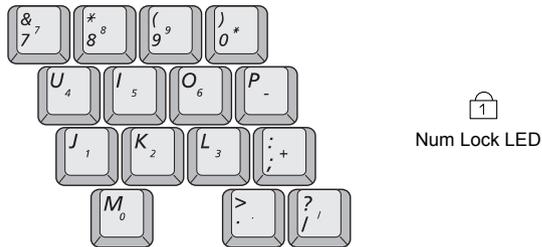
Do not allow liquid to drip into the keyboard or you may damage the keyboard.

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

## 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.



Press **<Num Lock>** to turn on the embedded numeric keypad. The numeric functions of the keypad are enabled and the Num Lock LED turns on. (See “Reading the System Status LEDs” on page 27 for the location of the Num Lock LED.)

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>**, this operation displays the letter **m**.

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

## Using Special Function Keys

The function key in combination with another key activates special functions.

Table 2. Description of Special Function Key Combinations

<Fn> Key Combinations	Key Name	Key Function	
<Fn+F1>	F1 Prt Sc	Print screen:	Takes a picture of the open screen, which you can paste into many graphics programs.
<Fn+F2>	F2 Sys Rq	System request:	Reserved for use in software programs.
<Fn+F4>	F4 ✓	SENS keyboard:	Gives the user the ability to quick launch a program using the <b>SENS keyboard</b> key combination.
<Fn+F5>	F5 CRT/LCD	CRT/LCD:	Switches the display between the LCD, the external monitor, and simultaneous display on both the LCD and the external monitor.
<Fn+F6>	F6 Mute	Mute:	Turns the audio output on and off.
<Fn+F7>	F7 🔊▼	Volume down:	Decreases the audio volume.
<Fn+F8>	F8 🔊▲	Volume up:	Increases the audio volume.
<Fn+F9>	F9 Rest	Rest:	Puts the computer into Suspend mode. To resume normal operation, press the power button. (See "Power Management" on page 46.)
<Fn+F10>	F10 ☀️▼	Brightness down:	Decreases the LCD brightness.
<Fn+F11>	F11 ☀️▲	Brightness up:	Increases the LCD brightness.
<Fn+F12>	F12 Scroll	Scroll:	In some applications, sets the cursor-control keys to scroll the page up or down while the cursor position does not change. Pressing key combination again turns off the scrolling function.
<Fn+PgUp>	PgUp ▲	PgUp:	In some applications, moves cursor up one screen, not necessarily a full page.
<Fn+PgDn>	PgDn ▼	PgDn:	In some applications, moves cursor down one screen, not necessarily a full page.



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

## Internet Quick Start Button

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Use the internet quick start button to start your connection to the internet just by pressing one button.



## User Defined Key (SENS Keyboard)

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You may program the <Fn+F1> key combination or the “Internet Quick Start Button” to start any program you have installed on your computer.

**To reprogram the Sens Keyboard, follow the steps below:**

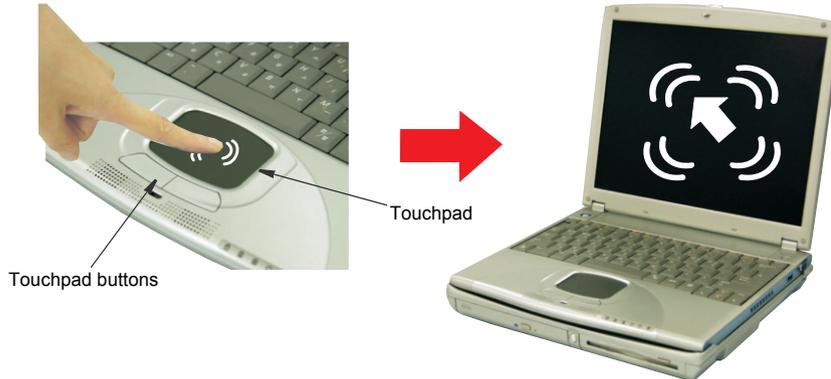
1. Double-Click  icon on the Windows taskbar, the **Key Setting** window is displayed.



2. Select **Button** you wish to reprogram from the drop down menus in the **Key Setting** window.
3. Use the **Browse** button to locate the program you wish to assign to the **SENS Keyboard** button selected.
4. Click on your program choice to select it.
5. Click **Open**.
6. Click **OK** to close window and complete programming the **Sens Keyboard**.

# 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.



### Touchpad Precautions:

Do not use sharp, magnetic or heavy items on your touchpad doing so may cause damage.

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

The following sections will basically explain how to use the touchpad.

Table 3. Using the Touchpad

Action	Process and Comment
<b>Click/Tap</b>  	<p><b>Process</b>            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 <i>clicking</i>.</p> <p><b>Comment</b>            This will cause a process to begin or select an object on the screen.</p>

Action	Process and Comment
<p data-bbox="358 230 518 256"><b>Double-Click/Tap</b></p> 	<p data-bbox="668 244 743 265"><b>Process</b></p> <p data-bbox="668 265 1248 331">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 <i>Double-clicking</i>.</p> <p data-bbox="668 343 758 364"><b>Comment</b></p> <p data-bbox="668 364 1122 385">This will cause a process to begin or open a file folder.</p>
<p data-bbox="358 552 458 578"><b>Click-Hold</b></p> 	<p data-bbox="668 565 743 586"><b>Process</b></p> <p data-bbox="668 586 1108 607">Depress the left touchpad button and do not release.</p> <p data-bbox="668 619 758 640"><b>Comment</b></p> <p data-bbox="668 640 1262 685">This is used to move/drag objects to new locations. See "Drag (Move)" on page 25.</p>
<p data-bbox="358 720 465 746"><b>Right-Click</b></p> 	<p data-bbox="668 734 743 755"><b>Process</b></p> <p data-bbox="668 755 1262 821">Position the pointer over the object. Quickly press and release the right button once. This action is called <i>Right-clicking</i>.</p> <p data-bbox="668 833 758 854"><b>Comment</b></p> <p data-bbox="668 854 1248 899">This is usually used to obtain information about an object or access a short cut menu.</p>



### 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 to change the view on the desktop, complete the following:

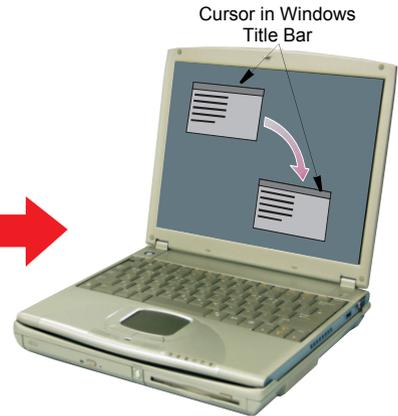
1. Click the **window title bar** or **icon** in the bottom of the window which you want to drag using the touchpad.
2. Press the left touchpad button and hold it.

### 3. Drag the window using the touchpad.

① Click the **Window Title Bar** and Hold



② Drag your finger to move the window

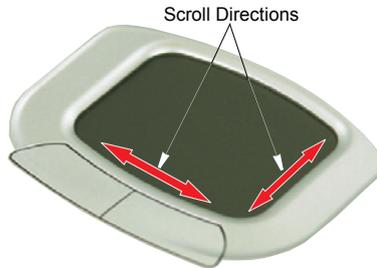


#### **Area or multiple item selection:**

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.

## Scroll

The touchpad has a scroll function. Scroll along the right edge of the touchpad to scroll up and down. Scroll along the bottom edge of the touchpad to scroll right and left. However, this function may not work in some programs.



#### **Touchpad Buttons:**

You can use the buttons below the touchpad in the same way you would use standard wheel mouse buttons. For more information on these features and other features supported by your mouse driver such as button assignment, see the Mouse properties in the Control Panel.

If the scroll function does not work, you must install the “Touchpad Driver” from the system software CD, however, bear in mind all programs do not support scrolling.

# Reading the System Status LEDs

System Status LEDs show the status of computer functions.



Table 4. LED Functions

LED	Name	Function
	<b>Num Lock</b>	Changes a portion of the keyboard to a numeric keypad. See "Using the Numeric Keypad" on page 21.
	<b>Caps Lock</b>	Changes all alpha or letter input into capital letters. No changes occur to numeric and special keys.
	<b>Scroll Lock</b>	Scroll lock in certain software.
	<b>Power</b>	<b>Green:</b> - System power on. <b>Blinking:</b> - Standby mode
	<b>HDD</b>	Using Hard disk.
	<b>AC Adapter/ Battery Charging</b>	<b>Green:</b> - Battery Fully Charged / AC Plugged In <b>Amber:</b> - Battery Charging <b>LED Off:</b> - AC Unplugged

# Connecting to the Internet

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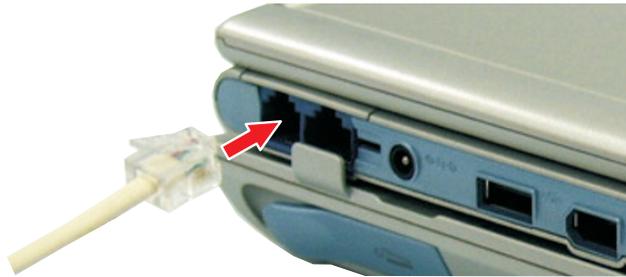
This section explains how to connect you to the internet. For details on how to establish the connection contact the Internet Service Provider [**ISP**] or system administrator [**SysAdmin**].

## Using the Modem

---

Install the Modem cable by simply plugging the cable into the modem slot as shown in the figure below.

Your Notebook computer will have a Modem/LAN installed.



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 **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:**

Follow the instructions below.

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.



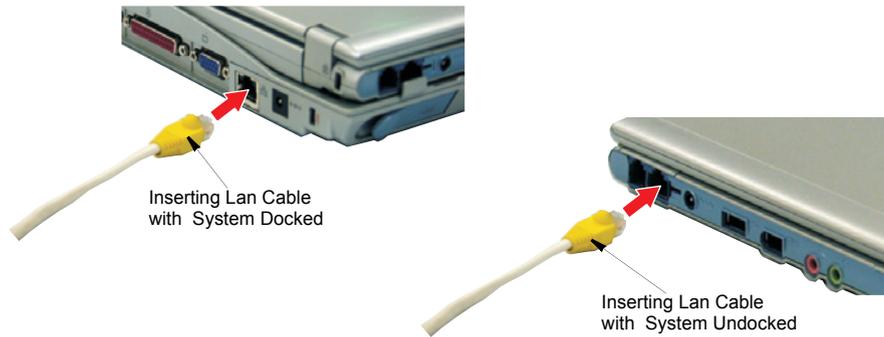
**MODEM Notes:**

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

---

Install the LAN cable by simply plugging the cable into the slot on the left side of the computer if undocked or the back of the docking station.



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.



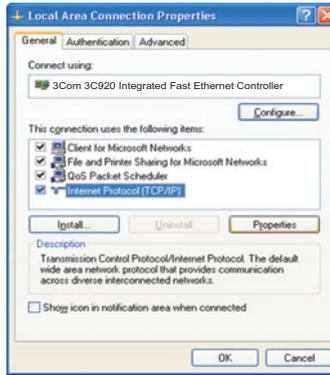
**Network Protocols:**

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

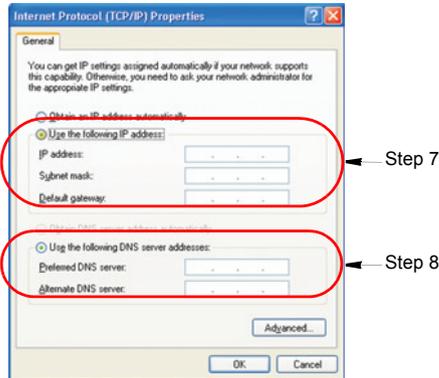
## Configuring Network Environment

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 (Factory Option)

Your computer's wireless 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 wireless LAN connection, proceed as outlined in "Configuring Network Environment" below.



### FCC statement for Wireless LAN use:

"While installing and operating this transmitter and antenna combination the radio frequency exposure limit of 1mW/cm<sup>2</sup> may be exceeded at distances close to the antenna installed. Therefore, the user must maintain a minimum distance of 20cm from the antenna at all times. This device can not be co-located with another transmitter and transmitting antenna."

The table below shows the Windows taskbar icons for the wireless LAN.

Icon	Name	Description
	Connection Established	Displays if connection is available.
	Connection Unavailable	Displays if connection is unavailable.

### To display relative Signal Strength:

1. Double Click the  icon in the taskbar to display the Wireless Network Connection Status window. This window also displays connection *Status, Speed, Duration and Activity.*



### Network Protocols:

You may need to consult your System Administrator if their network network protocols and settings are required for your wireless LAN environment.

## Configuring Network Environment

Configure the Wireless Network Adapter as follows:

1. Click **Start > Control Panel > Network and Internet Connections**
2. Click  icon (Network Connections)

3. Double-Click the Wireless Network Connection icon. The *Connect to Wireless Network* window pops up.



4. Select one of the available networks in the *Available networks* section, if displayed.



**No networks are displayed**

Office - Consult your system administrator.

Home - Verify your access point is working properly.

5. Click the **Connect** button. The Wireless Network Connection icon in the control panel will show your connection is *Enabled*. You may proceed using the network as normal wired LAN connections.

**Change Wireless Network Access Point as follows:**

1. Right Click the **Wireless Network Connection** icon.
2. Click *View Available Wireless Networks*. The *Connect to Wireless Network* window pops up.
3. Select the new network from the available networks in the *Available networks* section, if displayed.
4. Click **Connect** button. The Wireless Network Connection icon in the control panel will show your connection is *Enabled*. You may proceed using the network as normal wired LAN connections.

# Using the Multi-Bays in the Docking Station

---

Your computer includes the docking station that holds a 5.25" and a 3.5" device in the two multi-bays. Below is a listing of the device types you may install in your docking station.

The default system is purchased with CD-ROM and FDD devices.

<b>5.25" Devices:</b>	<b>CD-ROM drive</b>	<b>DVD-ROM drive</b>	<b>CD/DVD-Combo</b>
	<b>CD-RW/DVD Combo</b>	<b>2nd HDD</b>	

<b>3.50" Devices:</b>	<b>FDD</b>
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## Changing Devices

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This section will discuss changing the 5.25" and 3.5" devices.

### Changing a 5.25" Device

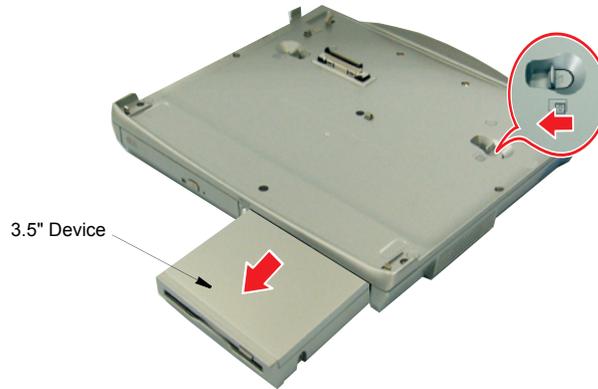
To change from one 5.25" device to another simply follow the steps below:



1. Turn off the system.
2. Detach the system from the docking station.
3. Slide the 5.25" multi-bay latch toward the middle of the multi-bay.
4. The device will pop out approximately 2cm.
5. Remove the device.
6. Insert the new 5.25" device into the multi-bay until the multi-bay latch clicks.

## Changing a 3.5" Device

The method of changing a 3.5" device is same as changing a 5.25" device except you have to use 3.5" multi-bay latch instead of 5.25"s.



# Using the Disk Drives

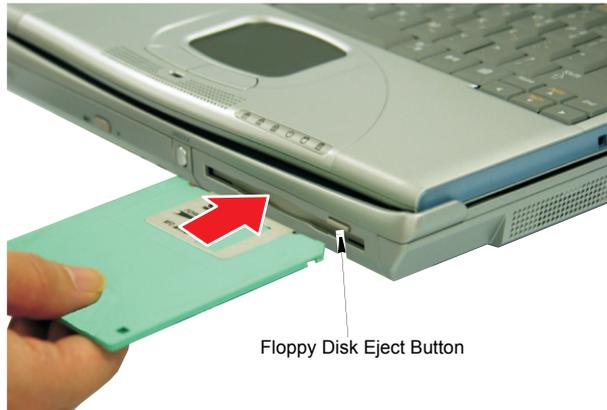
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## Using the Floppy Disk Drive

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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.



### **External USB FDD Drive:**

There are two limitations for using an external USB FDD Drive.

1. Drive can ONLY be used with system USB port.
2. Booting your system with the USB FDD (DOS Mode) will cause the loss of hot plug-in capability.

## 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.



### **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. See your operating system documentation for more information on running programs.

# Working with PCMCIA (PC) Cards

---

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

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

## **Your computer includes the following PC Card support:**

- One PC-Card slot: You can install Type I or II cards in the slot.
- CardBus hardware and software: CardBus enables the computer to use 32-bit PCMCIA Cards. Windows 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 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, oil, water, magnets, and static electricity away from PC Cards.
- When a card is not in use, carry it in its protective carrying case.
- Some PC Cards include cables that extend from the back of the cards. Be careful not to bend or put excessive strain on these cables.

## Using PC Cards

---

You can install PC Cards while the computer is on.

### **To insert a PC Card into a slot:**

1. If the “Slot Guard” is in place, remove it.
2. Align the card with a slot and insert the card into the slot until it locks in place. See “Using PC Cards” on page 38.



Windows automatically assigns computer resources (such as communication ports and memory addresses) to the 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.

# Multimedia Functions/Equipment

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## 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 Digital & Home Theater System (S/PDIF Port)

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This product supports 5.1 channel output, which is a basic function for home theater systems and DVD drives. It provides 3D surround sound and a vivid screen.



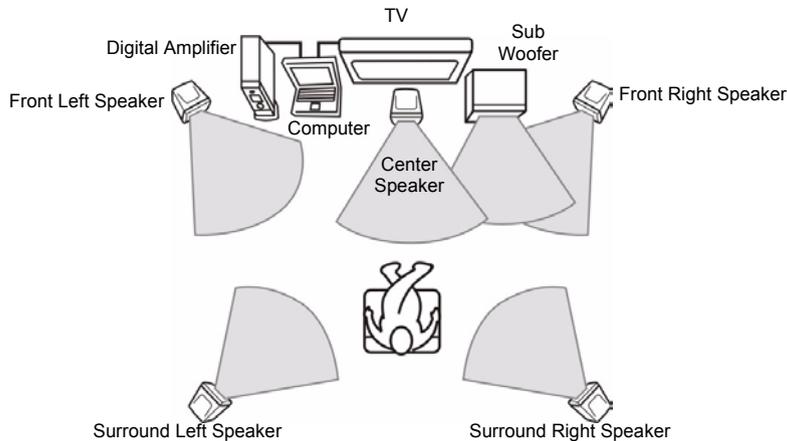
Home theater system usually consists of a TV, DVD, 5.1 channel speakers, and a digital amplifier to provide a high-resolution vivid (MPEG2) picture and 3D surround sound (Dolby 5.1 or DTS). With a home theater system, you can enjoy the same vivid picture and sound in your home that you would in a movie theater.

You will need the following to enjoy a home theater system:

- 5.1 channel speaker system / Digital amplifier (Purchased separately).
- DVD drive and DVD Program (Option).

### Setting Up Your Home Theater

1. Connect the digital amplifier to the S/PDIF port on the left side of the docking station.
2. Connect the speakers to the digital amplifier.



If your computer supports a TV-Out port, you can connect and enjoy a large screen.

After connecting the TV, you will need to select the TV as the display device using the Windows Display Properties window.



**After making all connections, ensure you enable S/PDIF:**

- a. Enable S/PDIF in Windows.
- b. Enable S/PDIF in the DVD program.

When purchasing a 5.1 channel speaker system, make sure it supports a S/PDIF (coaxial) port.

## Using the S/PDIF Connection

1. Click **Start > All Programs > Accessories > Entertainment > Volume Control**, the *Master Volume* control window pops up.



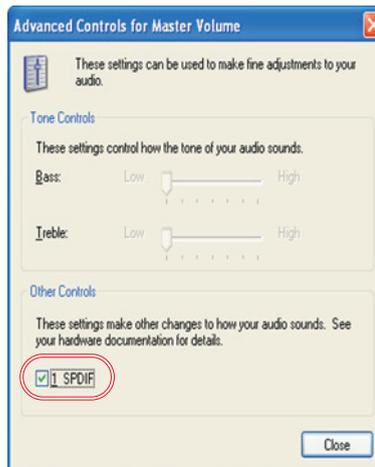
**Operating systems other than Windows XP**

If you are using an operating system other than Windows XP, double click volume icon in the taskbar.



If your **Advanced Controls** is not available (grayed out), insure you have the video drivers installed that were provided on the software CD.

2. Click **Options > Advanced Controls**.
3. Click the **Advanced** button and the *Advanced Controls for Master Volume* window pops up.
4. Verify the “1 SPDIF” check box is checked.





To enjoy the 5.1 channel speaker quality fully, your DVD titles and CDs must support 5.1 channels.

## Enabling S/PDIF on the DVD Program

When using 5.1 channel speakers, you will need to install the “Power DVD” program on the DVD Installation CD (supplied Separately) and then set it up as described below:

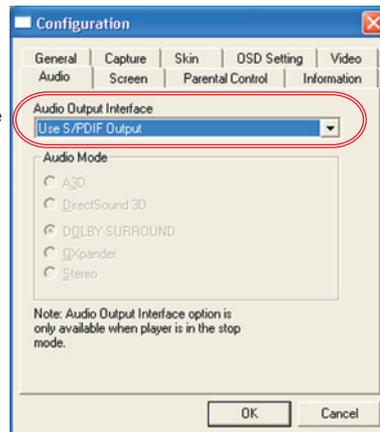
1. Run the “Power DVD” program and click the settings button., the configurations window pops up.



Settings Button

2. On the “Audio tab”, change the *Audio Output Interface* setting to “Use S/PDIF Output”.

Audio Output Interface



3. You are ready to enjoy your home theater system with your own DVD's.



- If you have enabled S/PDIF in the DVD program, the computer speakers and headphone are not functional.
- To control the sound volume on your 5.1 channel speaker system, use the control on the digital amplifier. (Please refer to the speaker manual.)

## Volume Control

---

### Using the Keyboard

Changing the volume with your keyboard.

Use <Fn+F7> to decrease the volume or <Fn+F8> 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.

## IEEE 1394 Connections

---

There are two 1394 connections on your system. There is a 6 pin connection on the left side of the Notebook and a 4 pin connection on the back of the docking station.

The IEEE 1394 is a very fast external bus standard that supports data transfer rates of up to 400 Mbps (400 million bits per second). A single 1394 port can be used to connect up to 63 external devices. In addition to its high speed, 1394 also supports *isochronous data* -- delivering data at a guaranteed rate. This makes it ideal for devices that need to transfer high levels of data in real-time, such as video devices. Like USB, 1394 supports both Plug-and-Play and hot plugging, and the six pin also provides power to peripheral devices.

## Movie Maker

---

You can edit audio and video data using this Movie Maker that is 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 an 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:

- 1.5 hours with the computer off (Standard battery) and 2.5 hours (Long Life battery).
- 4 hours with the computer on (Standard battery) and 5 hours (Long Life battery).

While the battery is charging normally, the battery Status LED on the computer is amber (See "Reading the System Status LEDs" on page 27 for the location of the battery Status LED). When the battery is fully charged, the LED 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 10°C or over 32°C.
- If you will not be using the computer for a long period of time (a month or more), you should completely charge the battery. After you have done so, remove the battery from the unit.



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.

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.

## Increasing Battery Life

---

If you plan to use your notebook computer without the docking station, increase battery life using the following methods.

### General Environment

Using the methods below you can increase battery life by as much as 1.5 times.

- Detach the docking station.
- Detach any unnecessary USB and PS/2 devices - (camera, mouse, keyboard etc.)
- Do not use any Multimedia programs - (Windows Media Player, audio/video CDs) unless absolutely necessary.

### Adjust LCD Brightness

Reducing the LCD display brightness will reduce the power consumption of the battery.

To reduce the LCD display brightness use the <Fn+F10> key combination.

### Power Management

The power options panel enables you to reduce the time until your computer goes into standby mode for example. See “Using Power Management Options” on page 57 for instructions on how to use this battery saving tool.

To change the time until your computer goes into reduced power modes, use the system power management function.

1. Click **Start > Control Panel > Performance and Maintenance**.
2. Click **Power Options**.

## Battery Calibration

Calibrating your battery once a month is one of the recommended methods of increasing your computer's battery life. To calibrate the battery complete the following steps:



### Calibration Notes:

You should start the battery calibration process with a fully charged battery, battery status LED is green. The power meter may not show 100%.

Before you commence the battery calibration process you should fully charge, then fully discharge and finally fully recharge the battery again.

1. Disconnect the AC power adapter after turning off the system.
2. Restart your computer and press <F2> to enter BIOS setup.
3. Using the arrow keys, highlight **Run Battery Learning** in the **Power** menu.
4. Press <Enter> to start calibration process. The calibration usually takes 2 to 3 hours depending on the current battery charge.
5. When the calibration process is complete, recharge the battery fully.

## 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.

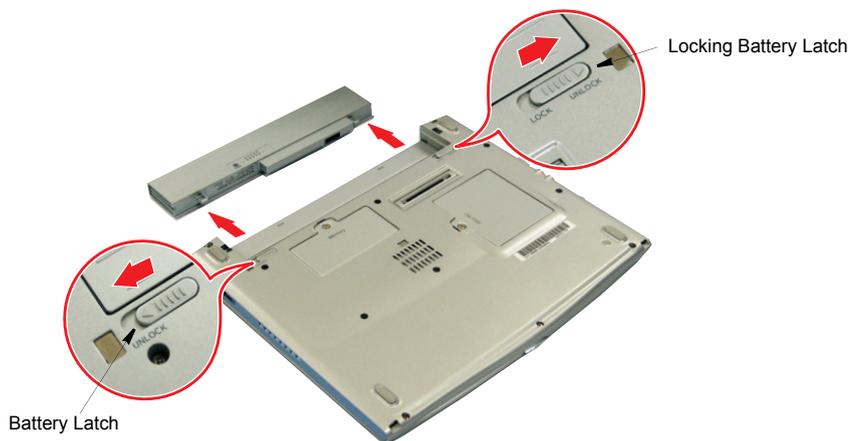
## Removing the Battery

---

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 and close the LCD display panel.
2. Undock the computer if docked. See "Docking/Undocking your Computer" on page 8.
3. Turn the computer over so that the bottom of the unit is facing up.
4. Slide the locking battery latch to the unlock position.



5. Slide and hold the remaining battery latch outward and slide the battery out of the compartment.

## Installing the Battery

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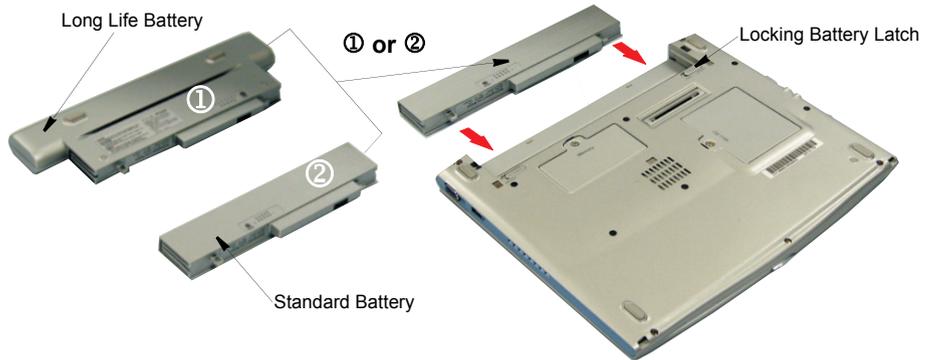
### To install the battery pack, follow the steps below:



Insert the battery into the battery compartment. Ensure the correct orientation so that the battery fits in its slot properly.

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 into the battery pack into the compartment. Ensure the battery is fully inserted into the compartment.

3. Slide the battery pack latches toward the center of the computer. Make sure the locking battery latch is in the lock position.



## 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 for standard battery (undocked), 1 1/2 hours on standard battery (docked) and approximately 5 hours for the long life battery (undocked).



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

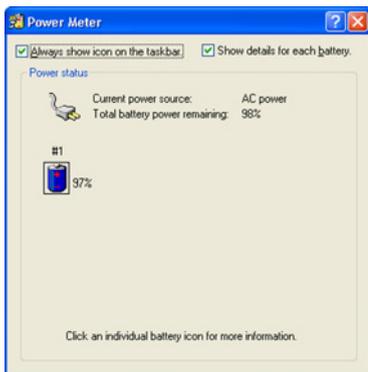
## Power Management

To change the time until your computer goes into reduced power modes, use the system power management function.

1. Click **Start > Control Panel > Performance and Maintenance**.
2. Click **Power Options**.

## 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 > Performance and Maintenance > 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.

## Spare Battery Charge

You may determine the charge of your spare battery prior to use by simply pushing the target symbol  above the word **PUSH** located on the bottom of the battery. Green LEDs will be illuminated to show you the percent charge remaining in the battery.



## 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> and hold until the System Setup screen appears.

*Table 5. System Setup Menus*

<b>Menu</b>	<b>Function</b>
<b>Main</b>	Changes the basic system .
<b>Advanced</b>	Configures advanced features on your computer.
<b>Security</b>	Enables security features, including passwords and backup and virus-check reminders.
<b>Power</b>	Configures power-management features.
<b>Boot</b>	Specifies the order of boot devices and configures boot features.
<b>Exit</b>	Specifies how to exit System Setup.

To open the menu you need to use, use the left or right arrow keys to select the menu name.

Table 6. System Setup Navigation Keys

Navigation Key	Function
<F1>	Displays the General Help window.
<Esc>	Exits the current menu.
<Left Arrow> or <Right Arrow>	Selects different menus. Pressing the <b>ESC</b> key at the Main menu brings you to the Exit menu.
<PgUp> or <PgDn>	Moves the cursor up and down between fields.
<Tab>	Moves the cursor forward through the cells for a highlighted field. If the field has only one cell, the <b>Tab</b> key moves the cursor down to the next field.
<Minus> or <F5>	Scrolls backwards through the options for the highlighted field.
<Plus> or <F6>	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 three (3) options: Removable Devices, CD-ROM/DVD Drive, and Hard 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> to select the **Boot** menu.
3. Highlight the option with <PgUp> or <PgDn> keys.
4. Press <Shift + Plus> keys until the option moves up in the list to the desired position **or** press <Minus> key until the option moves down in the list to the desired position.
5. Press <Esc> to return to the Exit menu.
6. Press <Enter> or <F10> to exit and save your changes.
7. 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

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This section describes the security options provided with your computer.

## 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.

## 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, you will have to contact the reseller of your computer and possibly take or send it in to them so that you can access the computer again.

## Creating a Password

---

**To create a password follow the instructions below:**

1. At startup, press <F2> to open **System Setup**.
2. Use <Right Arrow> to select the **Security** menu.



### **Precautions for Password Entry:**

You can enter letters or numbers, but you cannot use the function keys, such as the Shift key. 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. 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.

3. Use <PgDn> to select **Set Supervisor Password** or **Set User Password**.
4. Press <Enter>. The **Set Password** dialog box appears.
5. Type a password from four to eight characters.

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.
8. Press <Enter> again to return to the **Security** menu.
9. Press <Esc> to go to the Exit menu.
10. Press <Enter> or <F10> to exit and save your changes.
11. Press <Enter> again to restart the computer.

## Deleting a Password

---

To delete the password follow the steps below:

1. At startup, press <F2> to open **System Setup**.
2. Type your **password** when prompted and press <Enter>.
3. Use <Right Arrow> to select the **Security** menu.
4. Use <PgDn> 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.
9. Press <Enter> again to return to the Security menu.
10. Press <Esc> to go to the Exit menu.
11. Press <Enter> or <F10> to exit and save your changes.
12. Press <Enter> again to restart the computer.



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

# 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.

## 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.



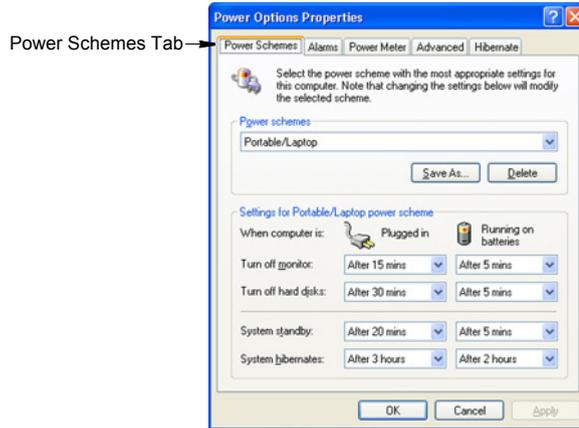
### **Changing Devices:**

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.



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.

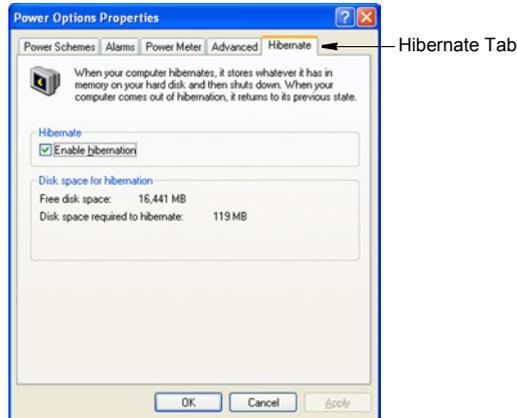
#### **Hibernate Mode** (*Power Management or Manual Method*)

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.



### If You Reinstall Windows:

You should re-establish hibernate in power options by opening **Power Options Properties** window and click on the **Hibernate** tab then click “Enable Hibernation”.



### 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+F9>** key combination will not activate Standby or Hibernate modes whilst you are playing a multimedia program or have an active USB device connected.

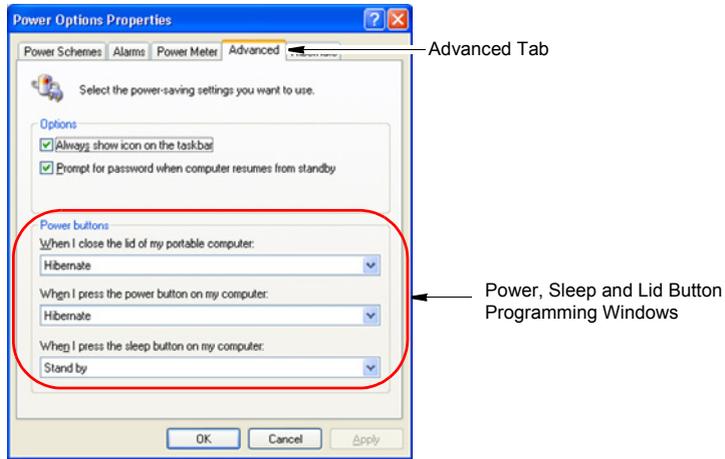
## Advanced Power Management Schemes

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This section discusses the advanced power management schemes. Three methods may be used to 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 (**Do nothing/Ask me what to do/Standby/Hibernate/Shut down**) assigned to the Power button and/or Rest <F9> key. Also select the action (**Do nothing/Standby/Hibernate**) associated with closing the computer lid.



The "Rest" key is assigned to the <Fn+F9> key combination. See "Basic Power Management Schemes" on page 57 for a better understanding 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.

# Installing a New HDD

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This section discusses installing a new HDD and other basic HDD operations.

## Installing/Reinstalling a HDD

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To install a new HDD you must contact your local service representative. He will do the physical change of the drive. You should complete the instructions below before you go to the service center.

**See the information below before you install your HDD:**

- Back up data files of your old hard drive.
- For system boot with CD-ROM, under the Boot menu in System setup, set Bootable CD Check to Enabled and set Boot Device Priority is ordered starting from the [DVD/CD-ROM].

When you are ready to install the new HDD use the Recovery CD-ROM to install the device driver.

## (Re)Installing Windows and Device Drivers

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Use the **System Recovery CD** to (re)install the **Operating System** and **System Software CD** to (re)install the 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.

# Video Features and Configuration

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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

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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 786,432 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  icon . The Display Properties window appears.
3. Click the **Settings** tab. The Settings screen appears.
4. Click the **Advanced** tab.
5. Click the **Intel(R) Graphics Technology** tab.
6. Click the **Graphics Properties Button**.
7. To change "Colors" and "Screen Area", select one from the appropriate drop down menu in the Settings box.
8. Click Apply
9. Click OK if satisfied with the changes.

## 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. Click the **Advanced** tab.
6. Click the **Intel(R) Graphics Technology** tab.
7. Click the **Graphics Properties Button**.

8. If the external monitor is correctly attached it will be displayed as an icon in the left hand side of the Devices tab.

**To change the Primary device or configuration on your system:**

1. Click on the icon for the device or configuration you wish to change to.
2. Click Apply
3. Click OK if satisfied with the changes otherwise they will return to previous selection in 15 seconds.

## **Return to Stand Alone Mode**

**To reset the system to Stand Alone mode:**

1. Click on the Notebook icon in the left hand side of the Devices tab.
2. Click Apply.
3. Click OK.

## **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+F10> to decrease the display brightness.
- Press <Fn+F11> to increase the display brightness.

# Using Options

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

- An extra AC adapter.
- A battery pack. [Standard or Long Life size]
- 128, 256 and 512 MB SDRAM memory modules that enable you to upgrade your computer's memory to a maximum of 640MB.
- Wireless LAN Card
- A CD-ROM drive module. [5.25" Multi-bay]
- A DVD-ROM drive module. [5.25" Multi-bay]
- A CD/DVD-ROM drive module. [5.25" Multi-bay]
- A CD-RW/DVD Combo drive module. [5.25" Multi-bay]
- 2nd HDD Pack [5.25" Multi-bay]

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

## Memory Module

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You can increase system *memory* by installing an optional 128, 256 or 512 MB memory module.



### **Memory Limitations:**

Certain applications require more memory to run. The requirements for most applications is listed on the box it is packed in. If your system does not have sufficient memory, you should upgrade as outlined in this section.

## **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.



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

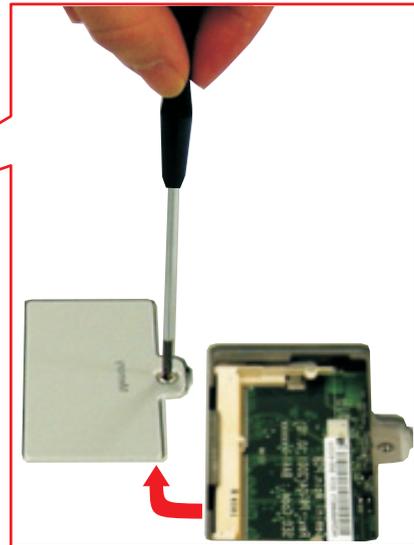
## Installing a Memory Module



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

### To install a memory module:

1. Turn off the computer, unplug the AC adapter and remove the battery.
2. Turn the computer over so that the bottom faces up.
3. Using a screwdriver, remove the screw that holds the memory-module compartment door in place.



4. Grasp the edge of the door and pull the door off the chassis.



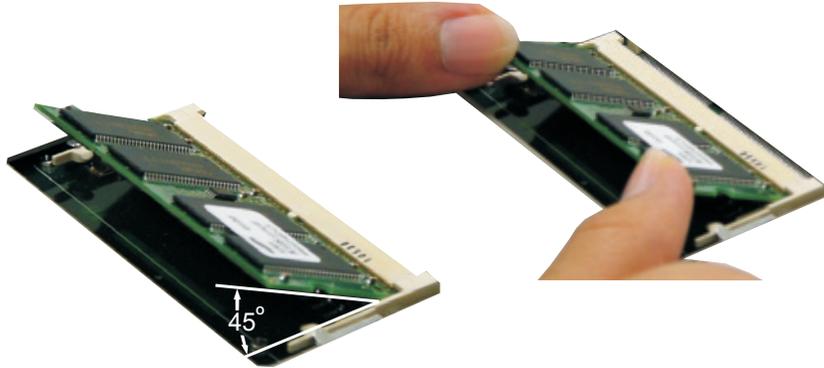
### Memory Module Precautions:

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.

5. Remove the installed module if necessary.
  - a. Pull the tabs on the connector slot outward slightly, until the edge of the memory module pops up.



- b. Hold the memory module by the edges and pull it forward out of the compartment.
6. Align the connector on the memory module with the connector of the slot.
7. Push the memory module into the slot at a slight angle until the connectors are fully engaged.



8. Push down on the edge of the memory module until the module snaps into place.
9. Align the memory module compartment door with the compartment and push the door down until it snaps into place.
10. Reinstall the screw you removed in step 2.
11. Re-install the computer battery and plug in the AC adapter.
12. Turn on the computer and perform a complete POST to check the memory integrity.

# Troubleshooting

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Complete the following in the order presented until your system is functioning properly. If all of the steps below fail then contact your local reseller for assistance.

▶ ***Questions and Answers***

Please see “Questions and Answers” on page 69 for assistance in correcting any computer operational problems.

▶ ***Check the Connections***

Verify all of the power and peripheral cables are securely plugged into their sockets and that your system and power supply is on.

▶ ***Norton AntiVirus***

Run Norton AntiVirus to insure a virus is not affecting your computer.

**To run Norton AntiVirus proceed as follows:**

Click **Start > Programs > Norton AntiVirus > Norton AntiVirus 2002**

▶ ***Windows Help and Support***

Run Windows Help and Support to find problem that may be affecting your computer.

**To run Windows Help and Support proceed as follows:**

Click **Start > Help**

▶ ***Reinstalling Software***

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 Precaution:**

Before you start restoring your windows operating system insure you backup all data on your hard drive.

*Samsung* is NOT responsible for any data loss.

## Questions and Answers

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### Operating System Problems

<b>Problem</b>	<b>Action</b>
<b>The computer does nothing when you turn it on.</b>	Has the battery run down? Connect the power cord to the computer and recharge the battery. Try turning on the computer again.
<b>Some of the letter keys type numbers instead of the indicated letters.</b>	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>.
<b>Battery power seems to run out faster than expected.</b>	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.
<b>Certain software programs “hang” during operations when there is no interaction with the keyboard or peripheral devices.</b>	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.
<b>PC Card does not work correctly.</b>	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.
<b>Your ATA or Compact Flashcard do not work.</b>	A patch is provided for these cards on the Recovery CD
<b>The System Setup settings are not retained when you turn off the computer.</b>	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.

<b>Problem</b>	<b>Action</b>
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

<b>Problem</b>	<b>Action</b>
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.

<b>Problem</b>	<b>Action</b>
<b>There is LCD or CRT has noise (speckles, lines or ragged edges) on the picture when playing a MPEG file with the Media player/ DVD software or using the USB camera.</b>	Adjust the resolution and the colour to 1400 x 1050 and 32 bit to display clearly, or avoid playing two programs at the same time.
<b>In DOS mode the CRT/LCD button does not work.</b>	The LCD only mode is not supported using this Key combination.
<b>If the connected CRT monitor display is not steady.</b>	<p>If the refresh rate is not optimal for the connected CRT, then this problem may occur.</p> <p><b>To correct this problem do the following:</b></p> <ol style="list-style-type: none"> <li><b>1.</b> Click <b>Start &gt; Settings &gt; Control Panel.</b></li> <li><b>2.</b> Double-click the <b>Display</b> icon to open the <b>Display properties.</b></li> <li><b>3.</b> Select <b>Settings</b></li> <li><b>4.</b> Click the <b>Advanced</b> button.</li> <li><b>5.</b> Click the Adapter tab</li> <li><b>6.</b> Adjust the Refresh rate to optimal or other selections until you see the CRT clearly.</li> </ol>

## **Modem Problems**

<b>Problem</b>	<b>Action</b>
<b>My modem doesn't connect to services or disconnects during communication</b>	<p>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.</p> <p>Check with your on-line service provider.</p>

Problem	Action
<p><b>When using a PBX phone system I can't dial on my modem.</b></p>	<p>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.     <b>(ATX3&amp;W)</b>            And add "9," as the external line prefix (example) of the phone number when using the dial command <b>"ATDT9, 123-4567"</b>.</p>
<p><b>Screen displays random or garbage characters during communications.</b></p>	<p>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.</p>
<p><b>Reports error message that insufficient Hard Disk space is available.</b></p>	<p>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. 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.</p>



**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)

# Reinstalling Software

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## Windows Application/Driver (Re)Installation

If you wish to reinstall drivers or applications, please use the **Software CD**.

If you wish to reinstall the Windows operating system, please use the **Recovery CD**.

### *Application/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.

### *Windows (Re)Installation*

**To reinstall the your Microsoft Windows XP Operating System:**

1. Start your computer.
2. Open the CD Drawer and insert the Recovery CD. Close the drawer.
3. When the Recovery Menu appears, select the option as required to restore your system. You have two options for system recovery. The **Standard** Installation and the **User** Installation.
  - The **Standard Installation** Option will **SAVE** all user data files on your hard disk and restore your operating system to normal.
  - The **User Installation** Option will **DESTROY** all data on your hard disk. If you have any data files or other software you do not wish to lose, make a backup of these files to a diskette or other medium using a backup utility before proceeding.  
*Samsung* is NOT responsible for any data loss.



You **MUST**, however reinstall all of your applications and drivers using the Software CD and other application software as required.



**If the Recovery Menu does not appear, proceed as follows:**

1. Restart your computer
2. Open the CD Drawer and insert the Recovery CD. Close the drawer.
3. You will see a message “Press any key to boot from the CD”, press any key.
4. You will be presented with the User Installation Option.

If your computer cannot boot from the CD, change the boot priority to the CD-ROM device as described in this manual.

# Specifications

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<b>Dimension</b>		
LCD viewing area	12.1"	
System (PC Only)	27.3 cm (w) x 22.8-23.4 cm (d) x 21-23.9 cm (h)	
System Docked	27.4 cm (w) x 23.8 cm (d) x 21.0 cm (h)	
Total Weight	2.24 Kg	
<b>Environment</b>		
Ambient temperature, operating	10 <sup>o</sup> -32 <sup>o</sup> C	
Ambient temperature, storage	-5 <sup>o</sup> -40 <sup>o</sup> 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	
<b>Lithium-Ion Smart Battery</b>	<b>Long Life</b>	<b>Standard</b>
Normal Weight	460g	200g
Nominal open circuit voltage	7.4 VDC, 7800 mAh	7.4 VDC, 3600mAh
Capacity, typical	58.0 whr	26.64 whr
Charging time, approximate, with computer turned off, typical	~3.0 hr	~1.5 hr
Charging time, approximate, with computer turned on, typical	~5.0 hr	~2.5 hr
Average battery life, with no power management enabled	~5.0 hr	~2.0 hr
<b>External AC Adapter</b>		
Operating voltage	100-240 VAC	
Line frequency	50-60 Hz	
Input current	1.2 A 100 VAC ~ 0.6 A 240 VAC	
Output current	3.2 A	
Output voltage	12.0 VDC	

# Abbreviations

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**Your computer's documentation uses the following abbreviations:**

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

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## **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.

**Intel® SpeedStep™**

Intel® SpeedStep™ will control the CPU speed on your system according to the source of power. (such as AC or DC power)

**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 800x600 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.