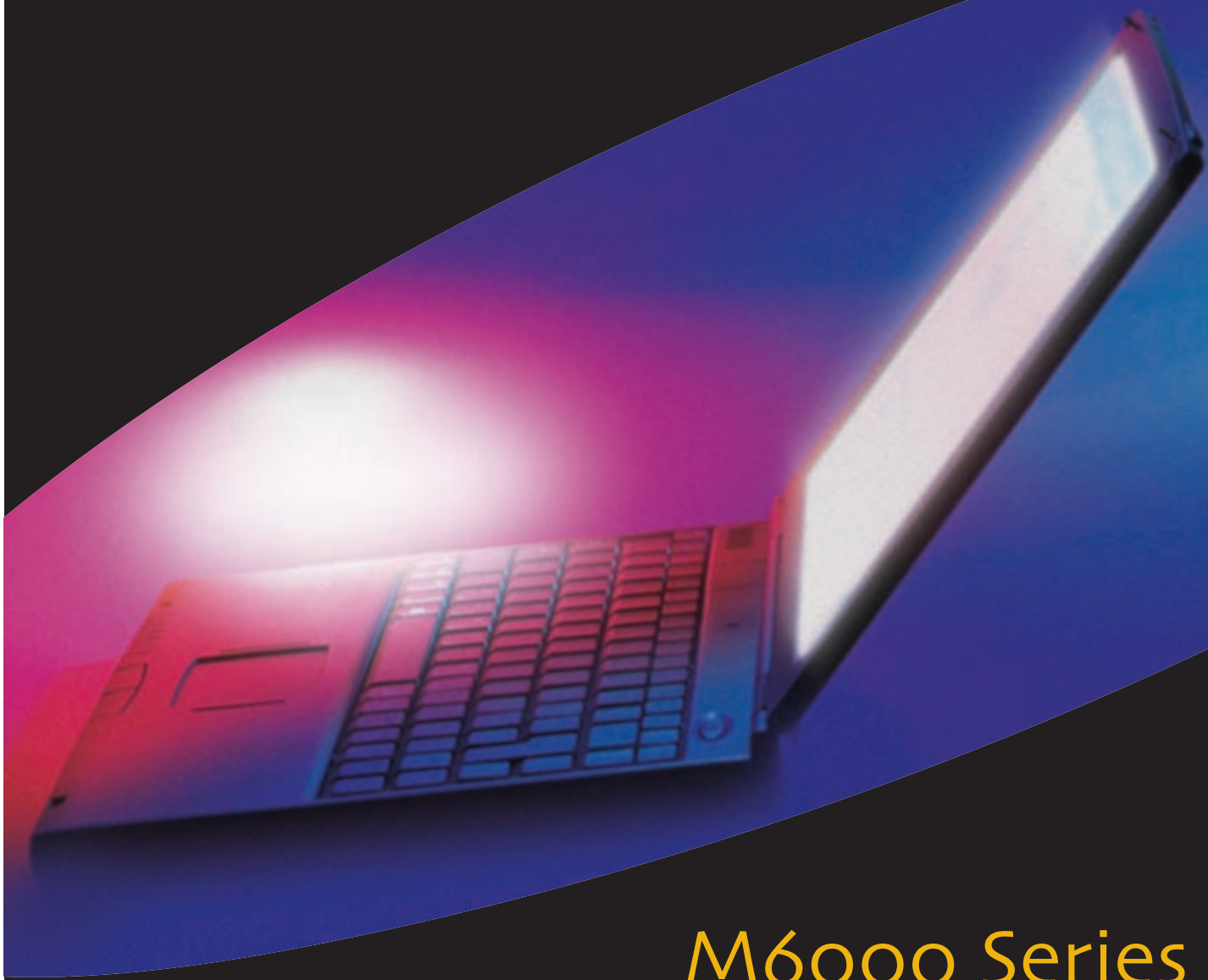


SAMSUNG

Notebook Series



M6000 Series
Users Manual

Challenge the Limits

First edition (January 1999)

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Federal Communications Commission (FCC)

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

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, it may cause harmful interference 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 users 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 your company. The correction will be the responsibility of the user. Use only shielded data cables with this system.

Description of EUT

Samsung M6000 Series Computers

Model Numbers

Samsung M6000 Series Computers

International

If your equipment has a CE Mark, please note the following International CE Mark information below .

CE Mark

Samsung Computers sold in Europe comply with the following directives and standards:

Directives

Low Voltage Directive 73/23/EEC

EMC Directive 89/336/EEC and Amending Directive 92/31/EEC

CE Marking Directive 93/68/EEC

Standards

Emissions

EN50081-1:1992(EN55022:1994+A1:1995 Class B)

EN61000-3Part2,3:1995

Safety

EN60950/A4:1997

Immunity

EN50082-1:1992

IEC801-2:1991/prEN55024-2:1992

IEC801-3:1984/prEN55024-3:1991

IEC801-4:1988/prEN55024-4:1992

Manufacturer

Manufactured by AST Ireland Ltd for Samsung Electronics Computer Division at:

Raheen Industrial Estate

Limerick

Ireland

Signed Declaration of Conformity Documents

Signed Declaration of Conformity documents for Samsung Notebook products are on file at the Samsung Electronics facility located at:

Samsung Electronics Co. Ltd

225 Hook Rise South

Surbiton,

London,

KT6 7LD

UK

CLASSILASERPRODUCT .

CAUTION

The laser beam used by this CD-ROM drive unit can be harmful to the eyes. Do not attempt to open the unit. All service procedures should be performed by an authorized dealer or distributor.

WARNING

Never use any optical instruments in conjunction with this unit. This will greatly increase the hazard to your eyes.

ADVARSEL

USYNLIGLASERSTRÅLINGVEDÅBNING,NÅRSIKKERHEDSAFBRYDEREER UDEAF FUNKTION.

SEIKKEINDISTRÅLEN-HELLERIKKEMEDOPTISKEINSTRUMENTER.

ADVARSEL

USYNLIGLASERSTRÅLINGNÅRDEKSELÅPNESOGSIKKERHEDSLÅSBRYTES. STIRRIKKEINNISTRÅLENELLERSEDIREKTEMEDOPTISKE INSTRUMENTER.

LUOKAN1LASERLAITE.

VAROITUS!

LAITTEENKÄYTTÄMINENMUULLAKUINTÄSSÄKÄYTTÖOHJEESSA MAINITULLATAVALLASAATTAALITSTAÄKÄYTTÄJÄN TURVALLISUUSLUOKAN1YLITTÄVÄLLENÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

KLASS1LASERAPPARAT.

VARNING

OM APPARATEN ANVÄNDSPÅ ANNATSÄTTÄNIDENNABRUKSANVISNING SPECIFICERATS,KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIGLASERSTRÅLNING,SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS1.

Labels appearing on the drives:

CAUTION-INVISIBLE LASER RADIATION WHEN OPEN.AVOID EXPOSURE TO BEAM.

VORSICHT! UNSICHTBARE LASERSTRAHLUNG TRITTAUS, WENN DECKEL GEÖFFNET. NICHT DEM STRAHL AUSSETZEN!

VARNING-OSYNLIGLASERSTRÅLNINGNÄRDENNADELÄR ÖPPNAD. STRÅLENÄRFARLIG.

ADVARSEL-USYNLIGLASERSTRÅLINGVEDÅBNING.UNDGÅUDS/ ETTELSEFORSTRÅLING.

CLASSILASERPRODUCT LASERSCHUTZKLASSE I PRODUKT TOEN 60825

Important Safety Instruction

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

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

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

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Using Your Documentation

Congratulations on your purchase of a Samsung M6000 computer! Whether you are new to using a portable computer or are an experienced user, your Samsung M6000 documentation can help you get the most from your computer.

To get up and running quickly, see your *Samsung M6000 Quick Start*. When you need more in-depth information, turn to your online *Samsung M6000 User's Manual*.

Opening the Online Manual

Your M6000 Series online manual is included on the computer's hard drive in PDF format. You can view the manual through the Adobe™ Acrobat™ Reader, which is also included on the hard drive.

To open the online manual:

1. Click the Start button on the Windows taskbar.
2. Select *Programs*.
3. Select *Samsung M6000 Online Manual* .
4. Click *Samsung M6000 Online Manual* in the Samsung M6000 Online Manual folder. Your online manual appears on the screen.

Getting Around in the Online Manual

Go to the Acrobat Reader Help for tips on using the Reader toolbar buttons to get around in the online manual.

To open the Help:

1. Click *Help* on the Acrobat Reader menu bar.
2. Click *Reader Online Guide* .

Using Hypertext Links in the Online Manual

Hypertext links are built into the online manual to take you quickly from one page of the manual to another. You can click on a hypertext link to go directly from the link to the topic connected to the link.

When the screen cursor is on a hypertext link, the cursor changes from an open hand to a hand with a pointing index finger. When you see the cursor change, click the link to jump to the linked topic:

- Click on a section title in the Contents to jump to that section in the manual.
- Click on a page number in the Index to jump to that page in the manual.
- Click on a cross-reference in the text to jump to the section that is referenced.

Special Features of the User's Manual

Three types of messages with icons appear in the manual:



A note informs you of special circumstances.



A caution warns you of possible damage to equipment.



A warning indicates the possibility of personal injury.

Keys that you need to press to perform certain functions are shown in the manual enclosed in angle brackets. For example,

<Ctrl>

indicates the control key (Ctrl on the computer's keyboard).

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

<Fn+F11>

means that you should press the Fn key and hold it and then press the F11 key.

If you are new to using computers, see the Glossary. The Glossary explains general computing terms that are used in this manual and tells you about some of the differences between portable computers and desktop computers.

Using the Software User Documentation

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

Visiting the Samsung Web Site

If you have an internet connection, you can visit the Samsung Website at:

<http://www.samsungpc.com>

Updates on your computer and other Samsung products are periodically added to the Website.

Introducing Your Computer

Your Samsung M6000 computer is a lightweight portable computer that includes features to meet your computing needs at home or on the road.

Figures 1 through 3 show you the features of your computer.

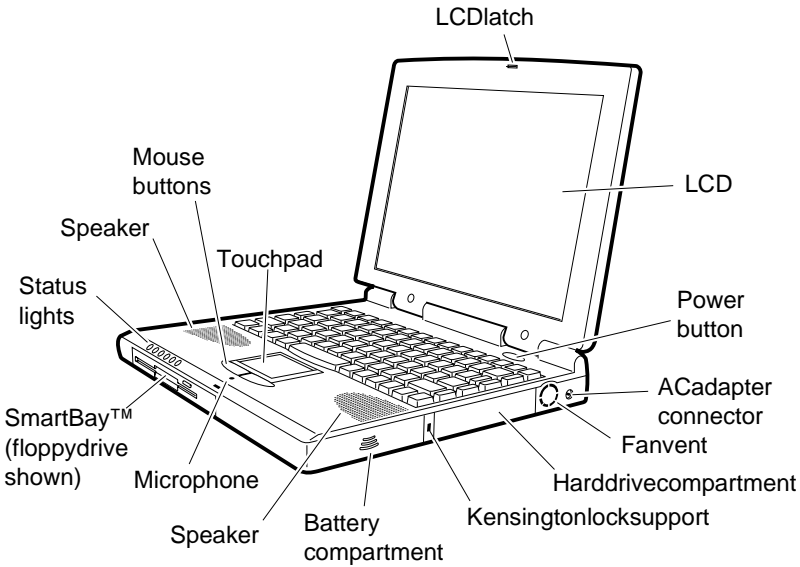


Figure 1. Front View of Computer

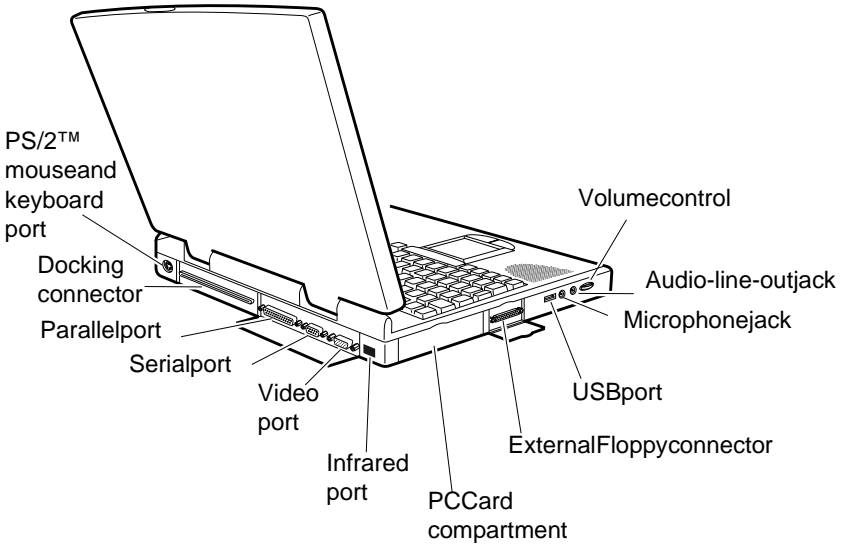


Figure 2. Back View of Computer

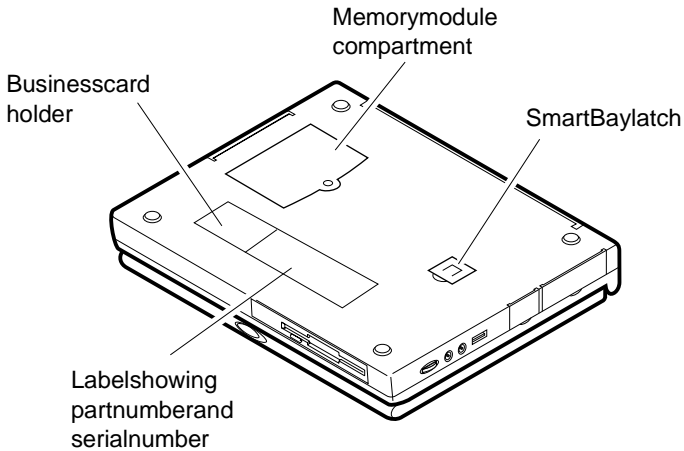


Figure 3. Bottom View of Computer

Using Your Computer for the First Time

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

Attaching the AC Adapter

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



All batteries lose their charge if they sit unused for an extended time period. When not used, your M6000 Series battery can discharge fully in 2 to 3 months. The battery may have discharged in the time it took for the computer to go from the factory to you.

To attach the AC adapter:

1. Plug the AC adapter into the power connector on the right side of the computer (Figure 4).
2. Connect the power cord to the AC adapter and then to an electrical outlet.

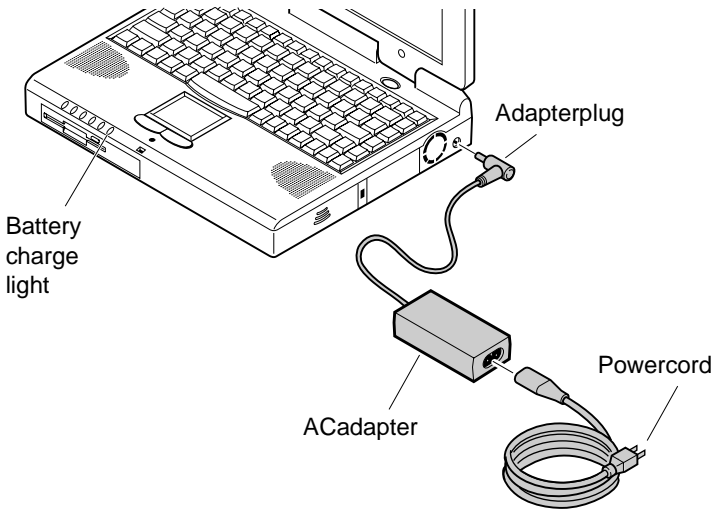


Figure 4. Connecting the AC Adapter

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

If the battery is fully depleted and the computer is turned off, the battery charges in about 3 hours. If the computer is turned on, the battery charges in about 6 hours. When the battery is charging, the battery charge light is amber. When the battery is fully charged, the light turns green.

See “Using the Battery” on page 36 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 cover latch to the right and hold it.
2. Lift up the LCD cover.
3. Press and then release the power button (Figure 5).

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

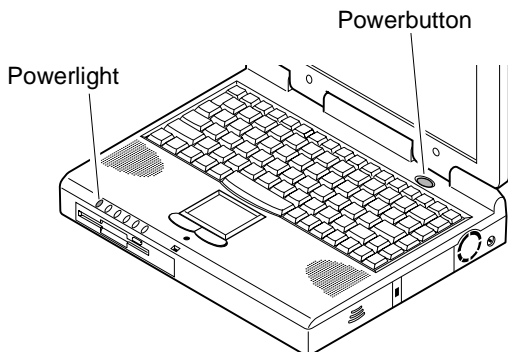


Figure 5. Turning On the Computer's Power

Understanding POST

When you turn on your computer, a routine called POST automatically runs to test the computer components. The Samsung logo appears on the screen during POST, if you press the *ESC* key while the Samsung logo is displayed you will see several messages on the screen (see "Boot Menu" on page 54 for information on disabling the logo screen). After POST is successfully completed, the computer beeps once.

Screen messages are built into the computer to report both normal and abnormal system conditions. If an error message appears, take any actions suggested in the message. If the message identifies the error condition but does not suggest any corrective action, write down the message and contact Samsung or an authorized Samsung service center for assistance. (See "Troubleshooting" on page 85 for information on contacting Samsung.)

Adjusting the LCD Display

You may wish to adjust the LCD display when you begin using your computer. A TFT LCD does not require adjustment for contrast because the contrast is set to remain at maximum.

To adjust the brightness of the LCD:

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

Turning Off Your Computer



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

To turn off the computer:

1. Click Start on the taskbar.
2. Click *Shut Down*.
3. Select the shutdown option.
4. Click OK or Yes.
 - If the operating system is Windows 98, the computer turns off.
 - If the operating system is Windows NT, you receive a shutdown message and must press the power button to turn off the computer.

Restarting Your Computer

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



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

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

To perform a warm (or soft) boot:

1. Click the Start button on the taskbar.
2. Click *Shut Down* .
3. Select *Restart the Computer* .
4. Click the Yes button.
5. Save your files if prompted. Your computer reboots.

You can also perform a soft boot by saving your files and pressing <Ctrl+Alt+Del> and then clicking on *Shut Down* .

You can perform a cold (or hard) boot by pressing the power button to turn the computer off, waiting five seconds, and then pressing the power button to turn the computer on.

Tips for Using Your Computer

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



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

- Follow all the instructions and cautions in your computer user documentation.
- The LCD has a polarized surface and can be damaged easily. To prevent damage, avoid touching the screen.
- Use only Samsung approved AC adapters, automobile adapters, airline adapters, and memory modules.

- Because a portable 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 helps to eliminate some heat. Make sure the fan vent on the side of your computer is not blocked when you use the computer. (See Figure 1 on page 4 for the location of the vent.) Occasionally check the vent and remove any accumulated dust on the outside.
- Avoid using or storing the computer in extremely hot or cold areas, such as a car on a hot day. Keep the computer away from heaters and out of direct sunlight. Exposure to excessive heat may damage computer components.
If you have left your computer in a hot place, let it cool down slowly to room temperature (with the LCD panel open) before using it.
- Do not remove the memory-module compartment door, or try to install a memory module when the computer is on. (See Figure 3 for the location of the door.)
(For information on installing memory modules, see “Memory Modules” on page 92.)
- Set up your computer work area to avoid physical strain. Sit with your back straight and supported by your chair. Adjust your chair or work table so that your arms and wrists can remain in a relaxed position, parallel with the floor. Avoid bending or twisting your wrists as you work. Your hands should “float” slightly above the keyboard. Refer to a book on office ergonomics for more information on setting up your work area.
- Take frequent breaks from working at the computer to rest your eyes and stretch your muscles.
- Remember to save your data files frequently and to make backup copies of your files.

Traveling with Your Computer

If you are traveling by airplane, follow these tips:

- Take the computer with you as carry-on luggage. Do not check the computer with your baggage.

- Allow the computer and disk 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 AC adapter is easily accessible. You may be required to turn on the computer for airport security personnel.
- Be prepared to turn off the computer during takeoff and landing.
- Contact your airline for information about using an optional airline adapter to power your computer while traveling by airplane.

Handling Spills

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

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



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

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



Some liquids damage the polarized LCD screen. If your screen is damaged, contact your

authorized Samsung service center for a replacement.

Storing the Computer for Long Periods

If possible, leave the AC adapter connected to the computer when the computer is not in use. This helps extend the life of the battery and keeps the battery fully charged.

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

Using the Keyboard

Your computer has an 87/88-key keyboard (Figure 6). By pressing designated key combinations, you can have access to all the key functions of a full-sized keyboard.

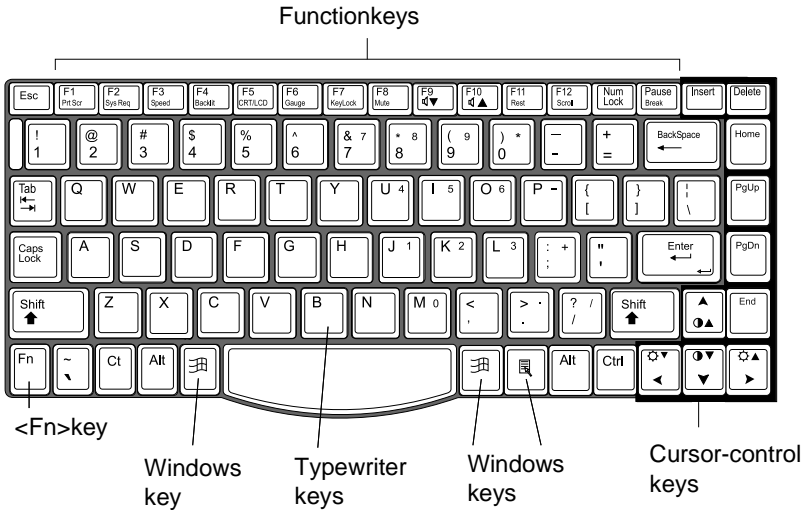


Figure 6. Keyboard



Although the layout of the keys on your computer's keyboard is different from that on a desktop computer's keyboard, the keyboard feels like a full-sized keyboard when you use it. The distance between the keys (the pitch) is the same as on a full-size keyboard (19mm). The travel, or space the key goes down when pressed, is also the same (3mm).

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

- Full-sized typewriter keys are arranged like a standard typewriter keyboard and are used for text entry.

- Function keys, when pressed together with the <Fn> key, enable special functions.
- Cursor control keys move the cursor. They may perform other functions, depending on your software.
- Windows keys open Windows menus and perform other special functions.

To clean the computer keyboard, use slightly damp cotton swabs. Scrub the keys and the surface around the keys. Do not allow liquid to drip into the keyboard or you may damage the keyboard.

Using the Numeric Keypad

Your keyboard includes a numeric keypad, which is a group of keys that you can set to type numbers and mathematical symbols, such as the plus sign (Figure 7). A number or symbol on the right corner of each keypad key shows its numeric function.

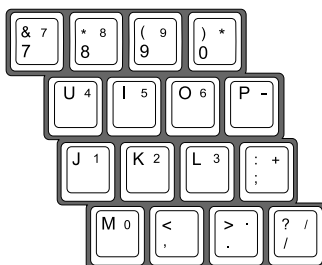


Figure 7. Numeric Keypad

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



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

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

Using Special Function Keys

The <Fn> key activates special functions when it is pressed in combination with another key. Table 1 shows the special key combinations.

Table 1. Description of Special Function Keys

<Fn>Key Combination	Function
<Fn+F1>	<i>Printscreen:</i> In Windows 98 or Windows NT, takes a picture of the open screen and puts it on the clipboard.
<Fn+F2>	<i>System request:</i> Reserved for use in software programs.
<Fn+F3>	<i>Speed:</i> Enables and disables the Battery Power Saving mode. This key combination functions only when the computer is run from the battery. The options are Turbo and Non-turbo. Press <Fn+F3> to change the Battery Power Saving mode to their next settings. Press <Fn+F3> again to return the Power Saving mode to their previous settings.
	An icon of a dripping water faucet indicates that Battery Power Saving mode is Non-turbo mode.
	
	An icon of a water faucet with water running at full force indicates that Battery Power Saving mode is Turbo mode.
	
	This key combination changes Battery Power Saving modes only until you turn your computer off and then back on again.
<Fn+F4>	<i>Backlight:</i> Turn the LCD display off. Press any key (except the <Fn> key) to turn the LCD display back on.
<Fn+F5>	<i>CRT/LCD:</i> Switches the display between the LCD, the external monitor, and simultaneous display on both the LCD and the external monitor.
<Fn+F6>	<i>Gauge:</i> Displays the battery gauge in the upper-right corner of your screen. The gauge closes in a few seconds. (See "You can monitor the charge of the battery pack installed in your computer through the battery gauge." on page 39 for more information on the battery gauge.)

<Fn+F7>	<i>KeyLock</i> : Locks the keyboard and activates password protection. Type your password and press <Enter> to unlock the keyboard. The <Fn+F7> key combination has no effect unless a password is enabled in System Setup. The NumLock, CapsLock, and Scroll Lock lights blink when the keyboard is locked.
<Fn+F8>	<i>Mute</i> : Turns the audio output on and off.
<Fn+F9>	<i>Volume down</i> : Decreases the audio volume.
<Fn+F10>	<i>Volume up</i> : Increases the audio volume.
<Fn+F11>	<i>Rest</i> : Puts the computer into rest or suspend mode. To resume normal operation from rest, press the power button. (See "Power Menu" on page 52 for more information about the rest mode.)
<Fn+F12>	<i>Scroll</i> : In some applications, sets the cursor-control keys to scroll the page up or down while the cursor position does not change. Pressing <Fn+F12> again turns off the scrolling function.
<Fn+Up Arrow>	<i>Contrast up</i> : Increases the LCD contrast. Contrast adjustment is not needed on a TFTLCD.
<Fn+Down Arrow>	<i>Contrast down</i> : Decreases the LCD contrast. Contrast adjustment is not needed on a TFTLCD.
<Fn+Right Arrow>	<i>Brightness up</i> : Increases the LCD brightness.
<Fn+Left Arrow>	<i>Brightness down</i> : Decreases the LCD brightness.

Using the Touchpad

Your computer is equipped with the SmartPoint™ touchpad, which is an integrated pointing device that is used to perform standard mouse functions (Figure 8). The touchpad is an advanced and reliable pointing device that works with a touch of your finger.

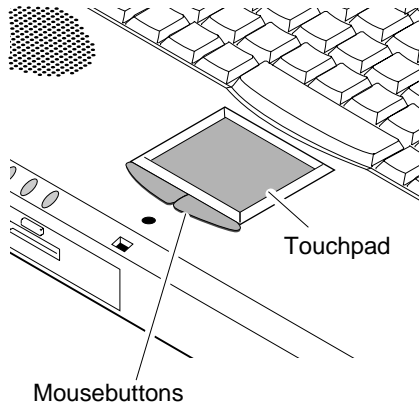


Figure 8. Touchpad

To use the touchpad:

- Place your finger on the pad and move your finger in the direction you want the cursor to move. The faster you move your finger, the faster the cursor moves across the screen.
- Roll your finger from side to side to move the cursor short distances.
- Quickly tap your finger on the touchpad to click an item.
- Tap your finger twice to double-click an item.
- Tap and drag your finger on the touchpad to click and drag an item.
- Press on the touchpad gently. The touchpad responds to light pressure.

You can also use the buttons at the bottom of the touchpad in the same way you use standard mouse buttons.

For information on attaching and using another pointing device or keyboard with your computer, see “Connecting Peripheral Devices” on page 22.

Reading the System Status Lights

System status lights show the status of computer functions. The lights appear on the left edge of the computer (Figure 9). Table 2 describes the meaning of the lights.

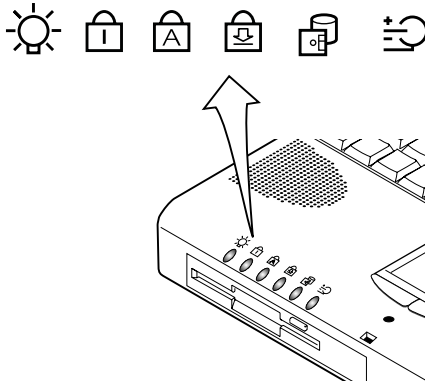








Figure 9. System Status Lights

Table 2. System Status Lights

Icon	Function of Light
	<i>Powerlight:</i> Light is on when the computer's power is on. The light blinks once every second when the battery is low. The light blinks once every three seconds when the system is in rest mode.
	<i>NumLocklight:</i> Light is on when the embedded numeric keypad is activated. See "Using the Numeric Keypad" on page 15 for a description of the keypad.
	<i>CapsLocklight:</i> Light is on when the capslock function is activated. When the function is activated, all alphabetic characters you type will be in uppercase.
	<i>ScrollLocklight:</i> Light is on when the scrolllock function is activated. The scrolllock function affects cursor movement and text scrolling in some applications. This is a software-specific key. Refer to the appropriate software manuals for a description of the <Scroll> key.
	<i>Drivelight:</i> Light is on when the hard drive or floppy drive is being accessed. Do not turn your computer off when this light is on. When the light is amber, the floppy drive is being accessed. When the light is green, the hard drive is being accessed. For a CD-ROM drive, check the light on the drive itself to see if the drive is being accessed.
	<i>Battery charge light:</i> Light gives information about the battery charge when the AC adapter is connected. When the battery is charging, the light is amber. When the battery is fully charged, the light turns green.

Connecting Peripheral Devices

The connectors on your computer enable you to attach peripheral devices to the computer (Figure 10).



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

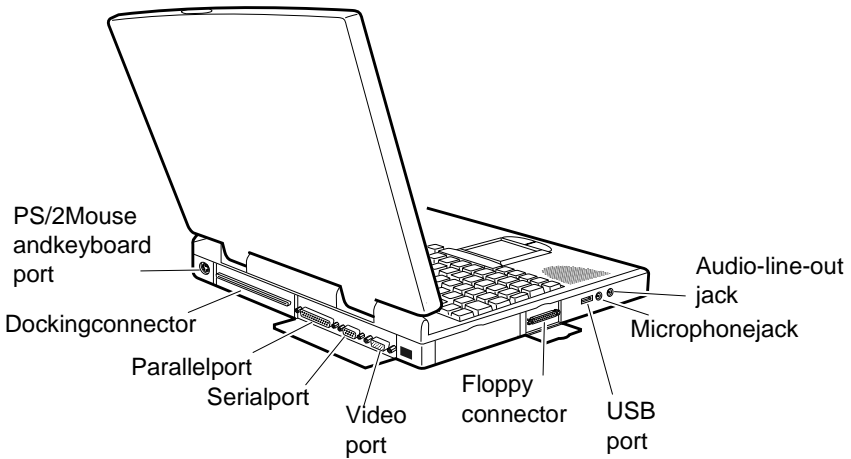


Figure 10. Peripheral Connectors

Table 3 shows the icons located near each connector and tells you the devices that you can attach to the connectors.

Table 3. Connecting Peripheral Devices

Icon	Connector
	<i>Audio-line-outjack:</i> Connect stereo headphones or speakers to this jack. Speakers connected to this jack override the onboard speakers.
	<i>Microphonejack:</i> Connect an external microphone to this jack. A microphone connected to this jack overrides the internal microphone.
	<i>USBport:</i> Connect USB devices to this port. USB input/output devices include keyboards, pointing devices, and monitors.
	<i>Floppyconnector:</i> Connect one end of the floppy cable to this connector and the other end to the floppy drive to use the drive outside of the SmartBay. See “Connecting the Floppy Drive to the Floppy Connector” on page 24 for more information.
	<i>Videoport:</i> Plug the interface cable of an external monitor into this 15-pin connector and then plug the monitor power cord into a grounded outlet.
	<i>Serialport:</i> Plug a serial device, such as a serial printer, into this 9-pin port. If the device has a 25-pin connector, you need a 25-to-9-pin serial adapter.
	<i>Parallelport:</i> Plug a parallel device, such as a parallel printer or network adapter, into this 25-pin port.
	<i>Dockingconnector:</i> Connect a docking option to this connector. See “Docking Options” on page 97 for more information.
	<i>PS/2mouseandkeyboardport:</i> Connect a PS/2-compatible mouse or external keyboard or keypad to this port. Make sure your computer is turned off when you attach peripherals to the port. You can use the computer's touchpad and a PS/2 keyboard at the same time. If you attach a PS/2 mouse to the port, the computer's touchpad is disabled.

Connecting the Floppy Drive to the Floppy Connector

Some M6000 computers ship from the factory with both a floppy drive and a CD-ROM drive included. These systems also ship with a floppy cable.



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

To use the floppy drive and the CD-ROM drive at the same time, install the CD-ROM drive in the SmartBay. Then attach the floppy drive to the external floppy connector. Attach one end of the floppy cable to the floppy drive and the other to the external floppy port on the computer (Figure 11).

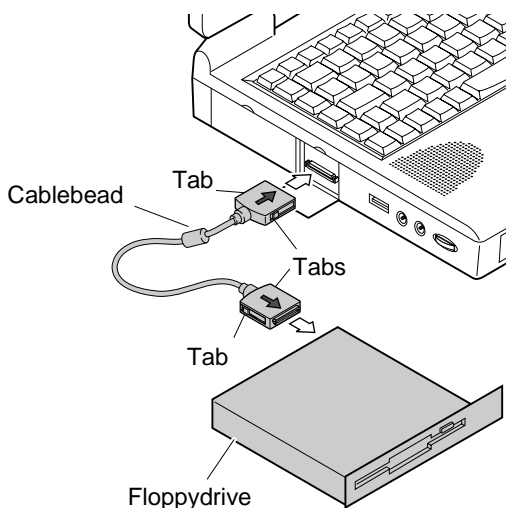


Figure 11. Attaching the Floppy Drive to the Floppy Connector

The floppy cable must be inserted as shown in Figure 11. To insert the cable correctly, make sure that

- The arrows printed on the cable connectors are both facing upward.

- The cable bead is close to the computer, not the floppy drive.



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

To remove the cable:

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

Using the SmartBay

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

- Floppy drive: shipped installed in your computer.
- CD-ROM drive: shipped with some M6000 Series computers.
- Optional secondary hard drive: available as an option for your computer.



Makesurethatthecomputer'spowerisoff beforeyouremoveorinstalladeviceinthe SmartBay.

To remove a device from the SmartBay:

1. Turn the computer's power off.
2. Close the LCD panel, and turn the computer over so that the bottom of the unit faces up.
3. Pull up on the SmartBay latch (Figure 12). The device in the SmartBay pops partially out of the bay.

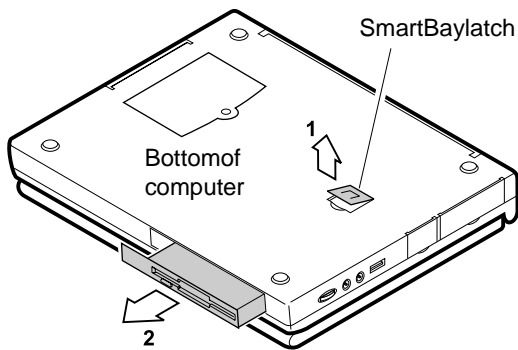


Figure 12. Removing a Device from the SmartBay

4. Pull the device out of the bay.

To install a device in the SmartBay:

1. Turn the computer's power off.
2. Place the device into the bay.
3. Push the device in until it is flush with the chassis.
4. Push down on the Smart Bay latch until the latch snaps into place.

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

Using the Floppy Drive

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

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



The floppy drive in your portable computer is smaller but more power-efficient than a floppy drive in a desktop computer. To get the best performance from your floppy drive, handle the drive carefully when installing or removing it and use high-quality floppy disks.

The floppy drive fits in your computer's SmartBay and can also be attached by cable to a connector on the outside of the computer. For information on installing the floppy drive, see "Using the SmartBay" on page 26 and see "Connecting the Floppy Drive to the Floppy Connector" on page 24.

To use a floppy disk, insert it into the floppy drive (Figure 13).

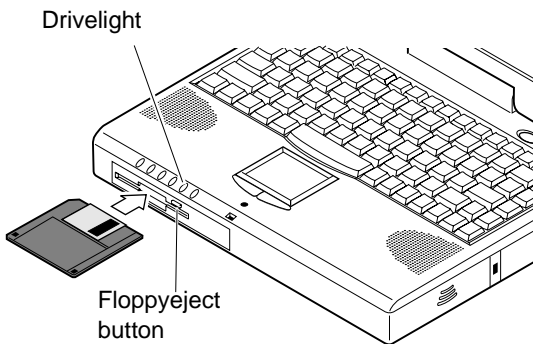


Figure 13. Inserting a Floppy Disk

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

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

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

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



Magnetic fields can destroy the information on a disk.

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

Using the CD-ROM Drive

Some M6000 Series computers ship from the factory with a CD-ROM drive included. The CD-ROM drive fits into the computer's SmartBay. For information on installing the CD-ROM drive, see "Using the SmartBay" on page 26.

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

1. Press the button on the CD-ROM drive, and the tray slides out. (Do not lean on the tray; it does not support much weight.)
2. Insert a CD, label side up (or remove disc, if you have finished using it).
3. Push the tray in gently to close the drive tray (Figure 14).

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

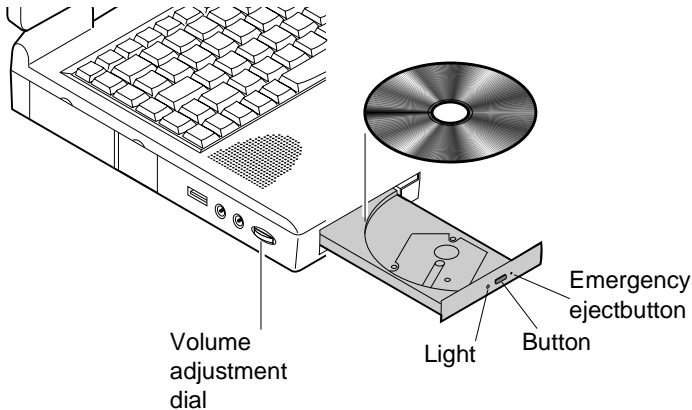


Figure 14. Using the CD-ROM Drive

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

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

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



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

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

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

To play an audio compact disc:

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

The disc begins to play.

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

2. To adjust the sound, use the volume adjustment dial on the side of the computer or press the following key combinations:
 - <Fn+F9> decreases volume.
 - <Fn+F10> increases volume.

To remove the CD:

1. Click the CD Player button on the Windows taskbar to open the CD Player window (Figure 15).

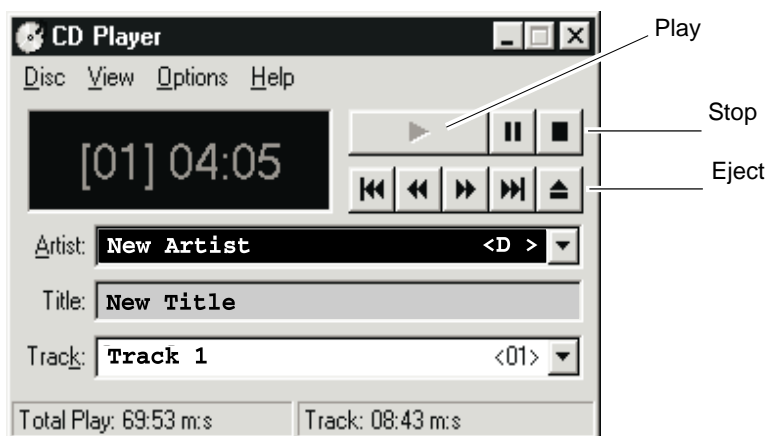


Figure 15. CD Player Window

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

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

Using the Hard Drive

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

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

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



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

The drive in your computer is divided into partitions. Each partition is 2 GB or less so that the partitions can use a 16-bit file allocation table (FAT-16). The table enables the partitions to locate files and directories.

Your computer recognizes each partition as a separate drive, for example, if a hard drive has two partitions, they could be recognized as drive C and drive D.

Although Windows 98 can work with FAT-16 or FAT-32 (a 32-bit file allocation table), there are software compatibility issues with FAT-32. Older software that you may have (16-bit software) requires FAT-16 to run.

Removing the Hard Drive



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

To remove the hard drive from the computer:

1. If you are installing a new hard drive, backup the application and data files on the old hard drive before removing it from the computer.
2. Turn the computer's power off.
3. Close the LCD panel, and turn the computer over so that the bottom of the unit faces up.
4. Remove the screw that holds the hard drive in place (Figure 16).

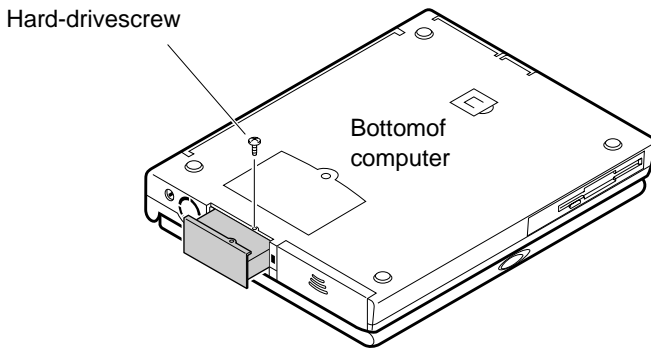


Figure 16. Removing the Hard Drive

5. Pull the hard drive out of the computer.

Installing a Hard Drive

To install a hard drive:

1. Remove the old hard drive from the computer as described in the previous section.

2. Slide the new drive into the hard drive compartment. Make sure the drive is pushed back as far as it will go.
3. Install the screw that holds the hard drive in place.
4. If you intend to use save to disk mode, see “Creating a Save to Disk Partition” on page 65.
5. Format your drive and reinstall your files.

Using the Battery

Your computer uses a smart rechargeable lithium-ion battery pack for power when the AC adapter is not attached to an electrical outlet.

Charging the Battery

Your computer's battery starts charging automatically when you connect the AC adapter to the computer. If the computer is off, the battery charges faster than if the computer's power is on.

Approximate charging times for your battery are

- 3 hours with the computer off
- 6 hours with the computer on

While the battery is charging, the battery charge light on the computer is amber (see Figure 9 on page 20 for the location of the battery charge light). When the battery is fully charged, the light changes to green.

You can also use the optional external battery cradle to charge the battery while it is not in the computer. (See "Battery Cradle" on page 96 for more information.)

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

Follow these rules for charging your battery:

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



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

Safely Using the AC Adapter and Batteries

Follow these guidelines to safely use the AC adapter and batteries:

- Turn your equipment off and unplug the AC adapter if you accidentally:
 - Expose the equipment to liquid.
 - Drop, jar, or damage the computer.
- Use only Samsung-approved AC adapters and automobile and airline adapters.
- Do not disassemble the battery, heat it above 122°F (50°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 state and local requirements when you dispose of the old battery.

Removing and Installing the Battery

Your computer comes with the battery pack installed. To remove the battery pack:

1. Turn the computer's power off.
2. Close the LCD panel, and turn the computer over so that the bottom of the unit faces up.

3. Slide the battery compartment cover straight up and off the computer (Figure 17).

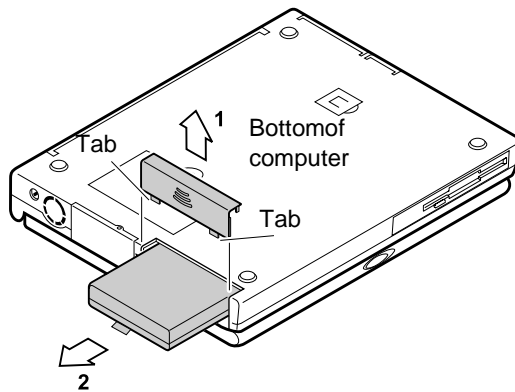


Figure 17. Removing the Battery Pack

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

To reinstall the battery pack:

1. Turn the computer's power off.
2. Close the LCD panel and turn the computer over so the bottom of the unit faces up.
3. Slide the battery pack into the compartment. Make sure the battery is fully inserted into the compartment.
4. Align the tabs on the battery compartment cover with the slots on the battery compartment.
5. Push the cover straight down until it snaps into place.

Monitoring the Battery Charge

Battery life is affected by factors such as the power-management settings in System Setup, the applications you use, and the brightness and contrast settings of the LCD. Under normal usage, the battery charge lasts approximately 2 hours.



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

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

Using the Battery Gauge

You can display the battery gauge while you are in any program. Press <Fn+F6> to display the battery gauge on the LCD (Figure 18).



Figure 18. Battery Gauge

The gauge has two sections:

- The top section of the gauge shows a picture of a battery to indicate that the computer is operating from the battery.
- The bottom section of the gauge shows you the amount of battery charge remaining.

While the battery gauge is displayed, all keys are disabled. The battery gauge closes in a few seconds.



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

battery for 10 minutes before you check the battery gauge.

Using the Main Battery Lights

There are four battery status lights on the main battery that indicate if the main battery is charging and the amount of battery charge remaining.

To see how much charge remains in the main battery, remove the battery (See “Removing and Installing the Battery” on page 37 for more information.) and press the battery status button. Each light indicates a 25 percent charge. For example, if three lights are on, the battery has a 75 percent charge. The battery status lights automatically turn off two seconds after you release the battery status button.

Using Power Profiler to Monitor the Battery

Power Profiler enables you to set power-management options for computers shipped with Windows NT installed. To use Power Profiler to monitor the battery charge, place the cursor on the battery icon in the right corner of the taskbar. Power Profiler shows you the amount of battery charge remaining.

The color of the battery icon also indicates approximate battery charge:

- Green: Charge is adequate to power computer.
- Yellow: Charge is low.
- Red: Charge is very low.

You can determine at what battery charge level Power Profiler shows the low and very low colors. The default setting for the very low level is 20 percent battery charge remaining.

To set battery monitoring options in Power Profiler:

1. Double-click the Power Profiler battery icon to open the software.
2. Click the Battery tab.
3. Set options under *Battery Status and Alarm Settings*.

For more information on Power Profiler, see the Help option in the Power Profiler software.

Battery Warnings

Your computer gives you the following low-battery warnings (Table 4).

Table 4. Battery Warnings

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

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

- The battery temperature is over 95°F (35°C) or below 41°F (5°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-saving options. The settings you choose are stored in battery-maintained memory (CMOS memory) that saves the information even when the computer's power is turned off. When your computer is turned back on, your computer 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 on your computer.

You can use the configuration listing at the back of this manual to record information specific to your computer. (See "Recording the Computer Hardware Configuration" on page 109.) Fill it out as you complete your System Setup configuration. This list helps you describe your computer if you must contact your authorized Samsung reseller for service or product information.

Starting System Setup

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

The top of the System Setup screen has a menu bar with these selections listed in Table 5.

Table 5. System Setup Menus

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

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

Table 6 lists the keys you can use to navigate through System Setup.

Table 6. System Setup Navigation Keys

Navigation Key	Alternate Key	Function
<F1>	<Alt+H>	Displays the General Help window.
<Esc>		Exits the current menu.
<Left Arrow> and <Right Arrow> keys	Keypad arrow keys	Select a different menu.
<Up Arrow> and <Down Arrow> keys	Keypad arrow keys	Moves the cursor up and down between fields.

<Tab>		Movesthecursorforwardthroughthe cellsforahighlightedfield.Ifthefield hasonlyonecell,the<Tab>keymoves thecursordowntothenextfield.
<Tab+Shift>		Movesthecursorbackwardthroughthe cellsforahighlightedfield.Ifthefield hasonlyonecell,the<Tab+Shift>key combinationmoveshecursortothe previousfield.
<Home>	<PgUp>	Movesthecursortothe fieldatthetopof thewindow.
<End>	<PgDn>	Movesthecursortothe fieldatthe bottomofthewindow.
<F5>	<->	Scrollsbackwardsthroughtheoptions forthehighlightedfield.
<F6>	<+>or <Space>	Scrollsforwardthroughtheoptionsfor thehighlightedfield.
<F9>		Setstheparametersforthe current menutotheirdefaultvalues.
<F10>		ExitsSystemSetupandsavesthe changes. -
<Enter>		Executescommandsoropensa submenu.

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

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

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

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

Main Menu

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

SystemTime: Sets your computer to the time that you specify, usually the current time. Enter the hour, minute, and second in the format *hh:mm:ss*. Use a 24-hour clock. Use the tab key to move between the hour, minute, and second cells. Use the hyphen key <-> or <Space>bar to decrease or increase the numbers.

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

DisketteA: Specifies a drive type for floppy drive A. Drive A is the floppy drive that is inserted in the Smart Bay of your computer. *Diskette* A options are *Not Installed* and *1.44/1.25MB 3 1/2* (default).

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

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

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

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

You do not need to configure the drive that came with your computer.



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

Each IDE adapter field calls up a submenu. The following fields are found in the submenu:

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

To configure a drive that is not one of the 39 standard drive types, specify *User*. Manually enter the number of cylinders, heads, and sectors for your drive. Refer to your drive's user documentation or look on the drive to obtain this information. If no drive is installed or if you are removing a drive and not replacing it, select *None*.

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

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

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

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

LBAMode Control: Enables or disables 28-bit addressing of the hard drive, without regard for cylinders, heads, and sectors. Note that enabling this field may decrease the access speed of the hard drive. The default is *Disabled*.

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

Transfer Mode: Selects the method for transferring data between the hard drive and system memory. Refer to your drive's user documentation to specify the correct option for this field. Options are *Standard*, *Fast PIO1*, *Fast PIO2*, *Fast PIO3*, *Fast PIO4*, *FPIO3/DMA1* and *FPIO4/DMA2*. The default setting for this field depends on the type of hard drive installed in your computer.

SMART Monitoring: SMART (self-monitoring analysis and reporting technology) software monitors the performance of your computer's IDE hard drive. When the SMART Device Monitoring field is disabled, you receive a warning message if the SMART software detects an impending drive failure. This field is for reference only.

UltraDMA Mode: Enables the hard drive to use ultraDMA transfer mode to transfer data between the drive and system memory. The default setting is *Disabled*.

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

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

Advanced Menu

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

Plug&PlayO/S: Enables you to set the parameters for peripheral ports. Set this field to *No* if your computer uses an operating system that is not plug and play compliant, such as Windows NT. With an operating system that is not plug and play compliant, you manually change the settings for the COM1, COM2, and LPT ports. The BIOS will recognize the new settings. Windows 98 automatically configures the ports regardless of the setting of this field.

PS/2MouseConfig: Enables or disables the touchpad mouse or keyboard port. Options are *External* (default), *DualMouse* and *Disabled*. If you set this field to *External*, the touchpad mouse is disabled when an external mouse is attached. If you set this field to *Disabled* a device attached to the port will not function, but you will free up an IRQ (interrupt request line) for use by another device. If you set this field to *DualMouse*, the touchpad mouse is enabled when an external mouse is attached.

USBdevice: Configures the USB controller. The options for this field are *Enabled* (default) and *Disabled*. When the *USBdevice* field is set to *Enabled*, the computer's operating system uses the default configuration for the controller. If you select *Disabled*, you free up an IRQ for use by another device.

ScreenExpansion: Enable the expansion of the screen during boot. When your computer starts, the screens are in 640x480 resolution during boot and then automatically change to the resolution you have specified in the Windows settings. When this field is disabled, the opening screens are expanded beyond 640x480. The default is *Enabled*.

DisplayControl: Enable you to set the default display. Options are *LCD*, *CRT* and *Both*. Choose *LCD* to use the built-in display only, *CRT* to use an external monitor only or *BOTH* to have both built-in and external displays used as the default display. If you select *CRT* and no external monitor is attached you will see no display until you attach the external monitor. The default is *Both*.

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

The submenu contains these fields:

SerialportA: Configures serialportA. The options for this field are *Enabled* (default) and *Disabled*. If you set this field to *Enabled*, you can set the *BaseI/OAddress* field to *3F8IRQ4* (default), *2F8IRQ3*, *3E8IRQ4*, or *2E8IRQ3*. When the field is set to *Enabled*, the computer's operating system uses the default configuration or the configuration you choose. If you select *Disabled*, you free up an IRQ for use by another device.

Infraredport: Configures the infrared port. The options for this field are *Enabled* and *Disabled* (default). If you set this field to *Enabled*, you can set the *BaseI/OAddress* field and the *Mode* field. Settings for the *BaseI/OAddress* are *3F8IRQ4*, *2F8IRQ3* (default), *3E8IRQ4*, or *2E8IRQ3*. The mode is fixed to *FIR* (fast infrared). *FIR* enables you to set the *DMA channel* to 3 or 1.

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

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

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

Floppydiskcontroller: Configures the floppy disk controller. The options for this field are *Enabled* (default), *Auto*, and *Disabled*. When the *Floppydiskcontroller* field is set to *Enabled*, the computer's operating system uses the default configuration for the controller. Selecting *Auto* enables the operating system or the BIOS to configure the port.

MemoryCache: Opens a submenu that enables or disables external cache memory. Cache memory improves system performance by keeping frequently used computer instructions in memory with a faster access time than DRAM.

Thesubmenufieldsare:

MemoryCache : Enables (default)or disablesyourcomputer's (level2)cachememory.Normally,donotdisablethecache memoryunlessaprogram'sdocumentationspecifiesthatthe computercachememorymustbedisabled.

CacheMemoryRegion: Enablesor disables(default)caching ofshadowedoptionROMsinthefollowingregions:CC00-CFFF,D000-D3FF,D400-D7FFandD800-DBFF

LocalBusIDEadapter: EnablestheintegratedIDElocalbus adapters.Optionsare *Enabled*(default)and *Disabled*.TheEnabled optionenablesboththeprimaryIDEadapter(fortheharddrive)and thesecondaryIDEadapter(fortheCD-ROMdrive)onthecomputer.

LargeDiskAccessMode: Enablesyourcomputer'soperatingsystem toworkwithdriveslargerthan540MB.Choose *DOS*(default)for Microsoftoperatingsystems.Choose *Other*foranyotheroperating systems.

SecurityMenu

Selecting *Security*fromthemenubardisplaystheSecuritymenu.Your computer'sadvancedsecuritysystemallowsyoutosettwodifferent passwordstopreventunauthorizedaccesstosystemresources,data, andSystemSetup.FromtheSecuritymenu,youcanenableabout password,diskaccess,asystembackupreminder,andaviruscheck reminder.

Securityfieldsmarkedwithanasteriskcanonlybechangedifyoustart SystemSetupwithasystemsUPERVISORpasswordorinopasswordsare ineffect.Youcannotaccessthesefieldswithauserpassword.

SetUserPassword: .Enablesyoutosetauserpasswordtocontrol accesstothesystematboot.See“Creating>Password”onpage57for instructionsonsettingapassword.Theuserpasswordallowsrestricted accesstheSystemSetupSecuritymenu;theuserhasaccesonlyto changinghisownpasswordandtoenablingordisabling *Passwordon boot*.AsUPERVISORpasswordMUSTbesetbeforeauserpasswordcanbe set

SetSupervisorPassword: * Enables you to set the supervisor password to control access to the System Setup utility. See “Creating a Password” on page 57 for instructions on setting a password.

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

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

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

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

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

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

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

- *Daily*: Every day when you start your computer for the first time, the prompt appears.

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

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

Power Menu

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

If your computer shipped with Windows 98 installed, Windows 98 Power Management works with the settings in the Power Management option on the Control Panel.

Power Savings: Sets the Power Management Mode. Choosing modes changes the system power management settings. The options are *Maximum Power Savings* (default), *Maximum Performance*, *Disabled* and *Customized*. *Maximum Power Savings* conserves the greatest amount of system power while *Maximum Performance* conserves power but allows greatest system performance. To alter these settings, choose *Customized* and to turn off power management choose *Disabled*.

Battery Power Saving Mode: Enables and disables turbo mode. The options are *Turbo* (default) and *Non-Turbo*. If you set this field to *Turbo*, the microprocessor and hard driver run at full speed, unless affected by other power-saving settings. If you set this field to *Non-Turbo*, the microprocessor and the hard driver run at low speed, unless there is user input or device activity.

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

specify a *StandbyTimeout* delay time off from 1 to 16 minutes. The default is *1Minute*.

Suspend Mode: Specifies the type of suspend mode your computer enters:

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

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

AutoSuspendTimeout: Sets the period of computer inactivity (no user input or device activity) that must pass before your computer enters suspend mode. You can disable this option by selecting *Off*, or you can specify a *StandbyTimeout* delay time off from 5 to 60 minutes. The default setting is *5min*.

ResumeOnModemRing: Enable the computer to resume operation from suspend mode in the event of modem communication. The computer will resume only if the *Suspend Mode* field is set to *PowerOnSuspend*, not *SaveToDisk*. The default setting is *Off*.

ResumeOnTime: Enable the computer to resume operation from suspend mode at a scheduled time. The computer will resume only if the *Suspend Mode* field is set to *PowerOnSuspend*, not *SaveToDisk*. If you set this field to *On*, you must set the *ResumeTime* field as well. The default setting is *Off*.

ResumeTime: Specifies the time for your computer to automatically resume from suspend mode. Enter two-digit numbers to indicate the hour, minutes, and seconds in the format *hh:mm:ss*. Use a 24-hour clock. Use the tab key to move between the hour, minute, and second

cells. Use the hyphen key <-> or <Space> bar to decrease or increase the numbers.

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

Boot Menu

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

Quiet Boot Mode: Enables the Samsung logo screen during POST. The options are *Enabled* (default) and *Disabled*. To view the POST screen during boot choose *Disabled*.

Quick Boot Mode: Enables certain diagnostic tests to be skipped during POST and the system boots faster. The options are *Enabled* (default) and *Disabled*.

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

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

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

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

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

The default setting is *1. ATAPI CD-ROM Drive*, *2. Diskette Drive* and *3. Hard Drive*. With these default settings, your computer first attempts to boot from a bootable CD-ROM. If a bootable CD-ROM is not

inserted in the CD-ROM drive, the computer will attempt to boot from the floppy drive and then the hard drive.

Exit Menu

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



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

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

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

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

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

Save Changes: Saves your selections without exiting System Setup. When you select this option and press <Enter>, a message appears asking if you want to save configuration changes. Choose *Yes* and press

<Enter> to save changes and remain in System Setup. Choose *No* and press <Enter> to discard changes and remain in System Setup.

Battery Calibration: Enables you to discharge the system battery completely for more accurate battery level detection. This option only works with the SMART battery.

Using System Security

This section describes these 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. (See “Security Menu” on page 50 for a complete list of System Setup security fields.)

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

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

Creating a Password

To create a password:

1. At startup, press <F2> to open System Setup.
2. Use the <Right Arrow> key to select the Security menu.
3. Use the <Down Arrow> key to select *Set Supervisor Password* or *Set User Password*.
4. Press <Enter>. The Set Password dialog box appears.
5. Type a password of up to seven characters. You can enter letters or numbers, but you cannot use the function keys, such as <Shift>. Your computer does not distinguish between

capitalized and lowercase letters in your password. As you type the password, the cursor moves but your password does not appear on the screen.

6. Press <Enter> after you have typed your password. The computer prompts you to reenter your password for verification.
7. Type your password again and press <Enter>. A message appears telling you that the changes have been saved. Press <Enter> again to return to the Security menu.
8. Press <Esc> to go to the Exit menu.
9. Select *Exit Saving Changes*, press <Enter>, and press <Enter> again to restart the computer.

Deleting a Password

To delete the password:

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

Requiring a Boot Password

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

To enable the prompt, select the option *Enabled* in the *Password on boot* field in System Setup. For more information about the *Password on boot* field, see “Security Menu” on page 50.

Locking the Hard Drive Boot Sector

If you have an supervisor password, you can lock the hard drive boot sector to protect against viruses or alterations.

To lock the hard drive boot sector, select the option *Write protect* in the *Fixed disk boot sector* field in System Setup. For more information about the *Fixed disk boot sector* field, see “Security Menu” on page 50.

Locking the Floppy Drive

If you have an supervisor password, you can lock the floppy drives so that a user with only a user password cannot load personal software, which may introduce a virus into the computer.

To enable the floppy lock, select the option *Supervisor* in the *Lock Floppy* field in System Setup. For more information about the *Lock Floppy* field, see “Security Menu” on page 50.

Locking the Keyboard

The keyboard lock enables you to protect your system when you walk away from it for a time. To use the keyboard lock, you must first enable a password through System Setup. (See “Creating a Password” on page 57 for instructions. To lock your keyboard, press <Fn+F7>. To unlock your keyboard, type your password and press <Enter>

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, LCD panel, and other components. Power-management options slow down or shut off system components when the components are not being used.

Power management slows down system performance. Your computer runs fastest with the AC adapter attached, when no power management is in effect.

If your computer shipped with Windows 98 installed, Windows 98 Power Management works with the settings in the Power Management option on the Control Panel. If your computer uses DOS or Windows 95, Power Management works with the settings in System Setup.

If your computer shipped from the factory with Windows NT installed, Power Profiler power management software was included.



Some applications may require the computer to run at full speed to operate correctly. If you experience any problems with an application, try disabling power management.

When running the computer from the battery, you can press <Fn+F3> to set the computer to full speed.

Non-Turbo Mode

In non-turbo (or idle) mode, the microprocessor and hard drive run at slow speed unless there is user input or device activity. To enable non-turbo mode, set the *Battery Power Saving Mode* field in System Setup to *Non-Turbo*.

When you touch the touchpad or press a key or when there is device activity, the computer returns to full-speed (turbo) operation.

Standby Mode

The *StandbyTimeout* field in System Setup enables you to specify the time period that the computer can remain idle (no user input or disk activity) before the computer enters standby mode. You can disable this option by selecting *Off*, or you can specify a *StandbyTimeout* delay time off from 1 to 16 minutes.

In standby mode, the system and video memory and the video controllers slow down. The LCD backlight, hard drive, floppy drive, PC Card controller, and some other devices turn off to save energy. DPMS (a form of monitor power management) to an external monitor is invoked.

To resume from standby, touch the touchpad. Do not press any key on your keyboard.



If you press a key to resume from standby, your computer will recognize the function of the key you pressed and perform that function. For example, if you press <N> and a document is open, an “n” is typed into your document.

If you enable both standby and suspend modes, your computer enters standby when the delay time you chose for standby has elapsed, and then enters suspend mode when the delay time you chose for suspend mode has elapsed.

Suspend Mode

The *SuspendTimeout* field in System Setup enables you to specify the time period the computer can remain idle (no user input or device activity) before the computer enters suspend mode. You can disable this option by selecting *Off*, or you can specify a *SuspendTimeout* delay time off from 5 to 60 minutes.

The *SuspendMode* field in System Setup defines what type of suspend mode your computer enters:

- *PowerOnSuspend* : This mode saves power by turning off the microprocessor and DMA clocks, video, and all controllable peripheral devices. The computer still uses some power while

in this mode. If you leave your computer in power on suspend for several days without the AC adapter attached, the computer's battery will discharge.

- **Save To Disk** : This mode provides the greatest power-saving capabilities by essentially turning off your computer. In this mode, all system logic (except for your computer wakeup circuitry and battery charger) is turned off. During a save to disk mode, the DRAM and video memory are saved to the hard drive and are restored when your computer resumes operation.

You can press <Fn+F11> to manually place your computer into suspend mode.



When you use the <Fn+F11> key combination, your computer may postpone entering suspend mode during critical operation, such as reading from or writing to the hard drive.

To resume to full-power mode, press the power button.

Once all devices return to full-power mode, all active software applications and system states are restored to exactly how they were before your computer entered suspend mode.

When your computer enters or resumes from save to disk mode, screens appear indicating system status. These status screens do not appear when the computer enters or resumes from power on suspend.

Suspend Mode Precautions

Observe the following precautions when using suspend mode:

- Save all open files before you press <Fn+F11> to manually place your computer into suspend mode.
- If you purchased a new hard drive, make sure that you create a save to disk partition equal to the amount of system memory plus 2MB before you enable save to disk mode. See “Creating a Save to Disk Partition” on page 65 for more information.
- Don't try to resume to full-power mode using battery power if the battery charge is low. If the battery charge is too low, the system may not be able to resume fully. Plug in the AC adapter

if your computer cannot resume normal operation because of a low battery charge.



When your computer is in power on suspend or save to disk mode, do not connect or remove any devices (including PC Cards or memory modules) because you may damage the computer or resume to full power may fail. If a floppy disk is in the floppy drive, do not remove it or switch it with another disk.

However, you can plug in the AC adapter if the resume to full power fails because of a low battery charge.

When the computer is in save to disk mode, you can remove and replace the battery.

Using Power Profiler

Power Profiler enables you to set power-management options for computers shipped with Windows NT installed. To open the Power Profiler window, double-click the battery icon on the right corner of the Windows taskbar. If you click the icon with the right mouse button, a menu appears with an option to put the computer in suspend (suspend mode).

Click the Standard tab in Power Profiler to set timeouts for the LCD and the hard drive. You can also set power management to be enabled *Always*, *Battery Only*, or *Never*. The Advanced screen in Power Profiler enables resume from suspend options, and the Battery screen enables options to conserve battery life.

Keep the following in mind when using Power Profiler:

- If you disable power management in Power Profiler, the setting overrides any power-management settings in System Setup.
- If you enable LCD and hard drive timeouts in Power Profiler and the standby timeout in System Setup, the LCD and hard drive turn off when the shortest timeout period in either program passes.
- If you disable the *Resume on Time* field in System Setup, the same field in Power Profiler is also automatically disabled. An

easy way to work with these two fields is to set the resume time to 0 in System Setup and set the actual resume time that you desire in Power Profiler.

- To enable your computer to resume from suspend on a modem ring, enable the *Resume on Modem* field in System Setup and the same field in Power Profiler.



Power Profiler maintains the accuracy of the system clock when the computer resumes from suspend mode. If Power Profiler is closed or removed from your hard drive, your system clock may not be accurate when your computer resumes from suspend mode.

For more information on Power Profiler, see the Help option in the Power Profiler software.

Creating a SavetoDisk Partition

The hard drive shipped in your computer has a saveto disk partition in which data from system and video memory is stored during saveto disk mode. The partition is the maximum size needed for your computer and supports system memory of 256MB. You can add memory modules to your computer without changing the size of the partition.

If you add a new hard drive to your computer, you can create a saveto disk partition on the new hard drive using the Phoenix PHDISK utility, provided with your computer.



If you do not intend to use saveto disk mode, you do not need to create a saveto disk partition.

If you want to put programs or files from your current hard drive onto the new hard drive, do the following before creating a saveto disk partition on the new drive:

- Backup data files on your old hard drive.
 - For Windows 98, you can use the Microsoft Backup Utility. To open the Microsoft Backup utility, click the Start button on the Windows 98 taskbar, select *Programs*, select *Accessories*, select *System Tools*, and click *Backup*.
 - For Windows NT, you can use the Windows NT Backup Utility to backup data files. The Backup Utility requires a tape drive. You can also backup files to a network.

To create the saveto disk partition on the new drive:



To create a saveto disk partition, you need a DOS bootable disk that contains FDISK and the Format command. This disk is not provided with the Windows NT Operating System.

1. Create a Phoenix PHDISK utility disk from the Samsung Restore CD-ROM.

2. Turn off the computer, remove your old hard drive, and insert the new one into your computer. (See “Using the Hard Drive” on page 33 for instructions.)
3. If you have a CD-ROM drive, install the CD-ROM drive in the Smart Bay and attach the floppy drive to the external floppy connector. (See “Using the Smart Bay” on page 26 and see “Connecting the Floppy Drive to the Floppy Connector” on page 24 for instructions.)
4. Under the Boot menu in System Setup , set *Diskette Drive* as the first boot device and *CD-ROM Drive* as the second. (see “Using System Setup” for information on setting options.)
5. Insert the bootable disk into the floppy drive and start your computer.
6. After your system boots, remove the startup disk from the floppy drive and insert the PHDISK disk.
7. At the A: prompt, type:

```
phdisk /c 266240 /p
```

and then press <Enter>.

PHDISK automatically creates a save to disk partition of the maximum size for your computer.

When the save to disk partition has been created, the following message appears:

```
Save to disk partition created  
successfully
```

8. Remove the PHDISK floppy disk from the floppy drive and insert the startup disk.
9. Use the FDISK utility in DOS to create user partitions on your drive, and then restart your computer. Be careful not to delete the non-DOS partition that you just created with PHDISK.
10. Use the Format command to format the new partitions, and then restart your computer.
11. Remove the startup disk and turn off your computer.
12. Do one of the following to reinstall your applications:

- If you have a CD-ROM drive, insert your restore CD in the CD-ROM drive and start the computer.

Follow the directions included with the restore CD to restore your operating system and factory-installed programs.

- If you do not have a CD-ROM drive, restore your applications from the backup floppy disks you created.

13. Reinstall any data files that you backed up.



If you do not intend to use the save to disk mode, you can delete the save to disk partition on a Samsung hard drive using PHDISK/delete. Then you can repartition and reformat the save to disk partition for some other application. Backup your hard drive before deleting the partition if you feel unsure of how to do this.

Changing the Video Configuration

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

The following sections describe the display capabilities of your computer.

Resolution and Color Depth

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

Your LCD screen is either SVGA or XGA:

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

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

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

24-bit color uses the RGB color model.

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

Table 7 lists the basic video mode capabilities and maximum colors supported by your computer.

Table 7. Video Driver Capabilities

Software Drivers	Resolution Supported	Number of Colors
Windows 98	512x384, 640x350, 640x400, 640x480, 720x480, 800x600, 864x480, 1024x600, 1024x768, 1152x864, 1280x1024, 1600x1200	256
	512x384, 640x350, 640x400, 640x480, 720x480, 800x600, 864x480, 1024x600, 1024x768, 1152x864, 1280x1024, 1600x1200	65,536
	512x384, 640x350, 640x400, 640x480, 720x480, 800x600, 864x480, 1024x600, 1024x768, 1152x864, 1280x1024	16.8million
	512x384, 640x350, 640x400, 640x480, 720x480, 800x600, 864x480, 1024x600, 1024x768, 1152x864	16.8million
Windows NT@4.0	640x480, 800x600, 1024x768, 1152x864, 1280x1024, 1600x1200	256
	640x480, 800x600, 1024x768, 1152x864, 1280x1024, 1600x1200	65,536
	640x480, 800x600, 1024x768, 1152x864, 1280x1024	16.8million
	640x480, 800x600, 1024x768, 1152x864	16.8million

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

Configuring Display Features

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

Selecting a Monitor Type

When you attach an external monitor to your computer, Windows 98 automatically selects display settings for it (this feature is not available

in Windows NT). If you wish, you can adjust the display settings by selecting a monitor type:

1. Click the **Start** button on the Windows 98 taskbar.
2. Select *Settings*.
3. Click *Control Panel*. The Control Panel window appears.
4. Double-click the **Display** icon. The Display Properties window appears.
5. Click the **Settings** tab. The Settings screen appears.
6. Click the **Advanced Properties** button. The Advanced Properties screen appears.
7. Click the **Monitor** tab.
8. Click the **Change** button. The *Update Device Driver Wizard* screen appears.
9. Click the **Next** button.
10. Select the *Display a list of all the drivers in a specific location* radio button and click the **Next** button.
11. Select the *Show all hardware* radio button.
12. Select a manufacturer and model setting that matches your external monitor. Your computer has an intelligent video chip set that automatically matches your LCD panel resolution and frequency when an external monitor is not present.
13. Click the **Next** button.
14. The *Update Device Driver Wizard* screen appears showing the driver location of the device you have selected. Click the **Next** button.
15. Click the **Finish** button. Follow any prompts that appear on the screen.

Changing Color Depth and Resolution

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

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

2. Select *Settings*.
3. Click *ControlPanel* .TheControlPanelwindowappears.
4. Double-clicktheDisplayicon.TheDisplayPropertieswindow appears.
5. ClicktheSettingstab.TheSettingscreenappears.
6. Tochangethecolordepth,clickthearrownextto *Colorpalette* andselectthecolordepthyouwant.
7. Tochangetheresolution,clickanddragtheknobunderthe *Screenarea* untilyouselecttheresolutionyouwant.
8. ClicktheOKbutton.
9. Followthepromptsthatappearonthescreen.

Working with PCCards

By installing PCCards, you can add functions to your portable computers similar to those found on add-in boards for desktop computers. Available PCCards include:

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

Your computer includes the following PCCard support:

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



To use the CardBus and zoomed video technology, install the CardBus and zoomed video drivers provided with your PCCard. If no drivers were supplied with your card, contact the PCCard manufacturer. ATA and modem PC Cards do not require extra drivers.

The following section tells you how to work with PCCards.

Maintaining PCCards

To maintain your PCCards, follow these guidelines:

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

Using PCCards

You can install PCCards while the computer is on.

To insert a PCCard into a slot:

1. Open the slot door.
2. Align the card with the slot and insert the card into the slot until it locks in place (Figure 19).

The eject button for the card slot flips outward when you install a card. If you close the PCCard compartment door, the button flips inward. You need to flip the button outward and then push the button to eject the card.

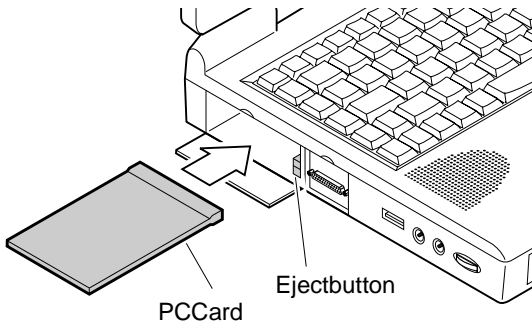


Figure 19. Inserting a PCCard

Windows98

Windows98 automatically assigns computer resources (such as communication ports and memory addresses) to a PCCard installed in your computer. For further information on configuring a PCCard in Windows98, see the index entry *PCCard* in the Windows Help. Windows98 also handles power management for PCCards.

To remove a PCCard from your computer:



Use the following procedure to remove PCCards, or you may lose data that is being stored to a card.

1. Click the PCCard icon on the taskbar.
2. Click *Stop* for the card you want to remove. A message appears telling you it is OK to remove the card.
3. Push the card eject button on the side of the PCCard slot.
4. Pull the card out of the PCCard slot.

WindowsNT

Systemsoft Card Wizard is shipped with notebook computers that use WindowsNT as the operating system. When you install a PCCard, Card Wizard attempts to configure it automatically. If Card Wizard

successfully assign system resources to your card, the computer beeps twice.

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

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

Follow these guidelines when using PC Cards with Card Wizard:

- LAN (local-area network) cards can be inserted while the computer is on but should be removed only when the system is turned off.
- SCSI cards should be inserted at start-up to enable Windows NT to find the device attached to the SCSI card. SCSI cards can be removed when the computer is turned off. If you suspend a computer without the SCSI card installed, a message may appear telling you that a service did not start. You can ignore this message.
- Modem and ATA cards can be inserted and removed while the computer is on.



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

To stop and remove a PC Card from your computer:

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

For more information on using the Card Wizard program, see the Card Wizard Help.

Updating the System BIOS

Your computer uses flash BIOS, which enables you to update the BIOS easily from a floppy disk. If Samsung releases a BIOS update for your computer, copy the disk image to your hard drive from

- The Samsung Website:
<http://www.samsungpc.com/>

Performing the BIOS Update

Before performing the BIOS update, please note the following rules:

- Do not interrupt the power while updating the BIOS. Interrupting the power may create a fatal error, causing your computer to become inoperable once it has been turned off. If the power is interrupted, turn off your computer and call your authorized Samsung Service Center.
- If your computer is connected to a docking device, disconnect it.
- Do not attempt a BIOS update unless the AC adapter is connected.
- Under the Boot menu in System Setup, set *Diskette Drive* as the first boot device. (See “Boot Menu” on page 54 for information on setting the option.)
- Write down your System Setup settings before you perform a BIOS update. (See “Recording the Computer Hardware Configuration” on page 109.)

To perform the BIOS update:

1. Attach the AC adapter to your computer, plug the adapter into an electrical outlet, and turn on the computer.
2. Copy the BIOS disk image from the Samsung Website onto your computer's hard drive.
3. Insert a formatted floppy disk in the floppy drive.
4. Click the Start button on the Windows taskbar and click *Run*.

5. Type the path to the extract utility. The utility is in the BIOS update files you copied to the hard drive.
6. Click the OK button.
7. Follow the instructions on the screen to make your BIOS update disk.
8. Leave the disk in the computer and suspend or turn off the computer.
9. Follow the instructions on the screen to complete the BIOS update.
10. After the BIOS update is completed, enter System Setup and set the following fields:
 - Check the *SystemTime* and *SystemDate* fields to make sure they display the current time and date.
 - Set the *Plug&PlayO/S* . Windows NT 4.0 does not support plug and play technology.
 - Set *Infraredport* (in the *I/O Device Configuration* submenu). Setting the port to *Disabled* disables the infrared link and frees an IRQ for another device. If you purchase infrared software, you can use the infrared link with Windows NT.
 - Set *USBDevice* to *Disabled*. Setting the port to *Disabled* frees an IRQ for another device. USB devices are not supported by Windows NT 4.0.
 - Set the *LPTMode* field (in the *I/O Device Configurations* submenu) to Bi-directional.

restore other fields to the settings noted on your configuration listing if you wish.

Troubleshooting the BIOS Update

If the flash BIOS update was not successful, make sure that

- You have the right update BIOS for your machine.
- You have completely inserted the disk into the floppy drive.
- The BIOS update disk has not been damaged or corrupted.
- The AC adapter is not connected.

Then try the BIOS update again. If the problem continues, contact your authorized Samsung reseller.

About Drivers and System Resources

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

Drivers

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

Different drivers are used by different operating systems. If you need drivers for an operating system other than Windows 98 or Windows NT, check the Drivers directory in your restore CD-ROM. Drivers for some other operating systems are included there.

IRQs

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

The number of IRQs available for any computer is limited by industry standards. Because it ships with numerous features, the M6000 Series computer uses most of the available IRQs. If you add another device to your computer, you may need to disable an existing device to free up an IRQ for the new device. IRQ resources are of particular concern when the computer is attached to a docking device.

The IRQs that are used by your computer are listed in Table 8.

Table 8. Samsung M6000 Series IRQs

IRQ	Component(Windows98)	Component(WindowsNT)
0	Systemtimer	Systemtimer
1	Keyboard	Keyboard
2	InternalController	InternalController
3	COM2,COM4	(available)
4	COM1,COM3	COM1,COM3
5	Sound	Sound
6	Floppycontroller	Floppycontroller
7	LPT1(parallelport)	LPT1(parallelport)
8	CMOS/Clock	CMOS/Clock
9	USB	(available)
10	(available)	(available)
11	CardBus	CardBus
12	Touchpad,PS/2mouse	Touchpad,PS/2mouse
13	Numericdataprocessor	Numericdataprocessor
14	IDE1(harddrive)	IDE1(harddrive)
15	IDE2(CD-ROMdrive)	IDE2(CD-ROMdrive)

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

Enabling the Infrared Port

If your computer's operating system is Windows 98, you can enable and use the infrared port. The Windows NT 4.0 operating system does not support infrared.

If you are unable to transfer files with the infrared port, check the following:

- Make sure the *Infrared* port field in System Setup is set to *2F8, IRQ3*. The field is in the *Advanced Menu* under *I/O Device Configuration*.
- The receiving device must be positioned properly. There must be no more than three feet of distance between the computer's infrared port and the receiving infrared device.
- The sending and receiving devices need to be on the same level vertically. Place them on the same table if possible.
- Make sure the infrared ports on the sending and receiving devices face each other, with no more than a 30-degree angle between the two infrared ports.
- Make sure that nothing is obstructing the file transfer path between the computer's infrared port and the receiving infrared device.

If you still cannot transfer a file, see the documentation for the infrared software.

Making Backup Disks

All M6000 Series computers that ship from the factory include one Microsoft Windows 98 or Windows NT 4.0 CD-ROM and one restore CD-ROM. Computers shipped with Windows 98 installed include a Boot Floppy diskette. The restore CD-ROM contains a copy of the applications and drivers needed for computer's operating system.

In the unlikely event that programs on the computer hard drive become corrupted or are erased, you can use the Microsoft Operating System CD-ROM and the restore CD-ROM to reinstall them. To restore software, follow the directions included with the restore CD-ROM.

Service Pack 3 for Windows NT

Microsoft® Service Pack 3 (SP3) is included with computers shipped from the factory with Windows NT installed. Anytime you change or add component to your Windows NT system, you need to reinstall SP3.

The version of SP3 on your computer's hard drive includes the correct video driver for your system. If possible, always install this version on your computer.

To install SP3:

1. Run the executable file. On your computer's hard drive this file is located at D:\SP3\I386\update.
2. Follow the instructions on the screen with these exceptions:
 - a. When you are prompted to overwrite the uninstall directory, click the Yes button.
 - b. When a prompt identifies your pcmcia.sys file as an OEM-installed file and asks you to overwrite the version of the file on your system with the service pack version, click the No button.



If you overwrite the pcmcia.sys file on your computer, you may be unable to use your computer.

If you install SP3 from any source other than your computer's hard drive, the video driver that was installed on your computer at the factory is overwritten. After you install the service pack, you must reinstall the video driver the first time you restart your computer:

1. As the computer starts, select *Windows NT Workstation Version 4.00 [VGA mode]* as the operating system and press <Enter>.
2. Log on to the computer as supervisor. The Invalid Display Settings window appears.
3. Click the OK button. The Display Properties window appears.



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

4. Click the Display Type button. The Display Type window appears.
5. Click the Change button. The Change Display window appears.

6. Click the *Havedisk* button. If the driver is on a floppy disk insert it into the floppy drive or if you want to use the original factory driver insert the Samsung Restore CD-ROM into the CD-ROM drive. Click the *Browse* button and locate the driver you want to install. Click the OK button.

The following line appears under the *Display* option: *ATI Technologies Inc. 3DRageLTPro.*

7. Click OK. The Third-Party Driver window appears.
8. Click Yes. The driver is copied. A window appears telling you the driver has been successfully copied.
9. Click OK. Remove the disk from the floppy drive. Close the open windows on the screen.
10. Click Yes when prompted to restart the computer. As the computer restarts, select *Windows NT Workstation Version 4.00* as the operating system and press <Enter>.
11. Log on as supervisor. The Invalid Display Settings window appears.
12. Click the OK button. Click the Test button at the Display Properties window and follow any directions on the screen to finish setting the display properties.



If you install any future service packs on your computer, make sure that, when you are prompted, you do not overwrite the *pcmcia.sys* file, or you may be unable to use your computer.

Troubleshooting

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

1. Consult the following sections for advice on how to handle system problems.
2. If you have an internet connection, visit the Samsung Website:
<http://www.samsungpc.com>
Updates on your system and other Samsung products are periodically added to the Website.
3. If steps 1 and 2 do not help you to resolve the problem, contact your Samsung reseller for assistance or call the Samsung Product Support Hot-Line, see your warranty card for contact details.

Operating Problems

This section tells you what to do if you have problems running your computer. If any problem persists after you take corrective action, contact your reseller for assistance.

The computer does nothing when you turn it on.

Has the battery run down? Connect the AC Adapter or auto/airline adapter to get power and recharge the battery. Try turning on the computer again.

The computer is not behaving as expected.

Operating your computer at high speed with the cache enabled may cause system instability and incompatibility with some operating systems. If your computer is not behaving as expected and no error messages appear, disable the *External Cache* setting in the *Memory Cache* field of System Setup.

Nothing appears on the LCD panel when you turn on the computer.

Adjust the brightness on the LCD. Are you using an external monitor? If so, press <Fn+F5> to return to the LCD panel.

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.

The external monitor displays flashes or waves.

Check the cables between the monitor and the computer. Are they properly installed?

Some of the letter keys type numbers instead of the indicated letters.

Is the NumLock light on? If so, the numeric keypad on the keyboard is active. To return the keypad keys to typing letters, press <NumLock>.

Battery power seem to run out faster than expected.

If you are running the computer from the battery rather than the AC adapter, make sure that you set the *Battery Power Saving Mode* field in System Setup to *Non-Turbo*. This setting enables the microprocessor and the hard drive to slow down when the computer is idle.

You can also enable other power-saving options through System Setup. Set the timeout times in the *Standby Timeout* and *Suspend Timeout* fields to the shortest times to ensure maximum power savings.

Certain software programs “hang” during operations when there is no interaction with the keyboard or peripheral devices.

Your computer may be in standby or suspend mode. Tap the touch pad to resume from standby or press the power button to resume from suspend.

A serial or parallel device attached to a serial or parallel port on the rear panel of the system unit does not work properly.

Check the attached device. Is it turned on? Is the cable properly installed between the device and the port? If you are using an operating system that is not plug and play compliant, make sure the *Plug & Play O/S* field in System Setup is set to *No*. Check to make sure that the port is enabled in System Setup.

APC card does not work correctly.

Make sure that the PCCard is inserted right side up in the PCCard slot. Check that the card is inserted fully into the slot. If you are using a PCCard modem, check the modem cable connections. If you are using an operating system that is not plug and play compliant, make sure the *Plug & Play O/S* field in System Setup is set to *No*.

The System Setup settings are not retained when you turn off the computer.

The CMOS battery inside the computer may need to be replaced. The CMOS battery provides power to save the system BIOS information when the computer is turned off. Normally, the CMOS battery lasts for several years. Do not attempt to open the chassis and replace this battery yourself or your warranty is void. Have an authorized Samsung service center replace the CMOS battery.

Infrared Problems

If your computer's operating system is Windows 98, you can enable and use the infrared port.

If you are unable to transfer files with the infrared port, check the following:

- The receiving device must be positioned properly. There must be no more than three feet of distance between the computer's infrared port and the receiving infrared device.
- The sending and receiving devices need to be on the same level vertically. Place them on the same table if possible.
- Make sure the infrared ports on the sending and receiving devices face each other, with no more than a 30° angle between the two infrared ports.
- Make sure that nothing is obstructing the file transfer path between the computer's infrared port and the receiving infrared device.
- Check to see if the *InfraredPort* field in System Setup is set to *2F8,IRQ3*.

If you still cannot transfer a file, see the documentation for the infrared software.

Using Options

You can order the following options for your Samsung M6000 Series computer from your authorised Samsung reseller:

- An extra AC adapter.
- An auto/airline adapter that enables you to charge the computer's battery and operate the computer while in an automobile or an airplane.
- An extra battery pack.
- An upgraded hard drive. Optional hard drives are available to fit in the hard drive compartment or the SmartBay.
- 32, 64 and 128 MB SDRAM memory modules that enable you to upgrade your XGA (13.3"/14.1" LCD) computer's memory.
- 32 and 64 ED memory modules that enable you to upgrade your SVGA (12.1" LCD) computer's memory.
- A battery cradle that charges the battery outside the computer.
- An external numeric keypad.
- A CD-ROM drive and floppy cable for computers that do not ship with these items.
- Docking options that enable you to use your computer like a desktop computer.

The options that are available may change periodically. Contact your Samsung reseller for updated information.

AC Adapter

The optional AC adapter operates in the same way as the adapter that came with your computer does. See "Attaching the AC Adapter" on page 6 for information about the AC adapter.

Auto/AirlineAdapter

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

- In an automobile, through the +12 volt cigarette lighters socket.
- In an airplane that is equipped with a portable computer connector (Figure 20).

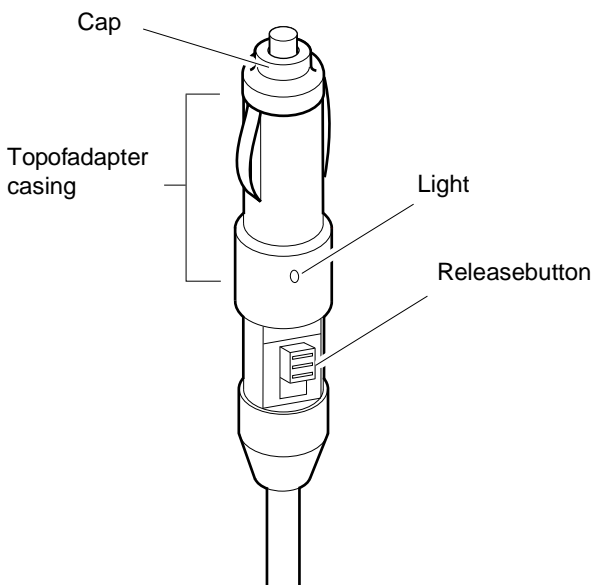


Figure 20. Auto/Airline Adapter

Portable computer connectors on airplanes differ. You may need to remove the top of the adapter casing to use the adapter on certain airplanes.

To remove the top of the adapter casing:

1. Press and hold the release button on the adapter.
2. Pull the top of the adapter casing off.



Contact your airline for information on using an airline adapter on your flight.

To use the adapter:

1. Plug the adapter cable into the AC adapter connector on the computer.
2. Connect the adapter to the cigarette lighters socket or the portable computer connector on the airplane.

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

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

- Check the adapter connections.
- If you are in an automobile, turn on the automobile's ignition to supply power to the adapter. In some vehicles, power to the cigarette lighters socket is always on and you do not need to turn on the ignition.
- If you are in an airplane, ask your flight attendant when power will be activated to the portable computer connector. The connector may not be activated at certain times during your flight.
- If the previous procedures do not activate the adapter, you may need to change the fuse in the adapter. To remove the fuse from the adapter, unscrew the adapter cap with a pair of pliers and remove the cap. Replace the fuse with an 8 amp fuse. In an automobile, you may need to replace the fuse in the cigarette lighters socket.

When you connect the adapter to the cigarette lighter or the airplane connector, the battery starts charging immediately.



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

Battery Pack

You can order another lithium-ion battery pack for your computer. See “Using the Battery” on page 36 for information on the battery.

Hard Drives

You can order optional hard drives for your system. A hard drive can be installed in the hard-drive compartment to replace your existing hard drive or you can order a hard drive that fits in the SmartBay. See “Installing a Hard Drive” on page 34 for information on installing a new drive in the hard-drive compartment. See “Using the SmartBay” on page 26 for information on installing a device in the SmartBay.

Memory Modules

You can increase system memory by installing optional memory modules. You can install 32, 64 or 128 MB SDRAM SODIMM modules in systems with XGA (13.3”/14.1”) LCDs. You can install 32 or 64 MB EDOSODIMM modules in systems with VGA (12.1”) LCDs. Install memory modules in any combination of sizes but do not mix EDO and SDRAM modules.



To avoid possible system problems, do not mix EDO and SDRAM SODIMM modules, use only Samsung approved memory modules in your computer.

Before You Install Memory



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

- Before you remove the memory module compartment door, turn off the computer, unplug the AC adapter or auto/airline adapter, 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.

Installing a Memory Module



Handle memory modules carefully. Hold them only by the edges.

To install a memory module:

1. Turn the computer over so that the bottom faces up.
2. Using a Phillips screwdriver, remove the screw that holds the memory-module compartment door in place (Figure 21).

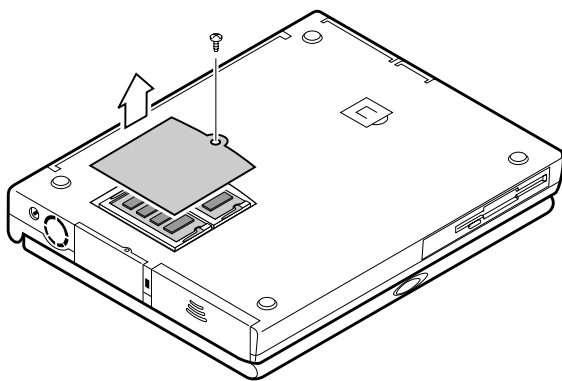


Figure 21. Removing the Memory Module Compartment Door

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



When removing modules, pull on the plastic portion of the connector slot tab only. Do not

pull on the metal part of the tabs, or you may damage the tabs.

- a. Pull the tabs on the connectors slot outwards slightly, until the edge of the memory module pops up (Figure 22).

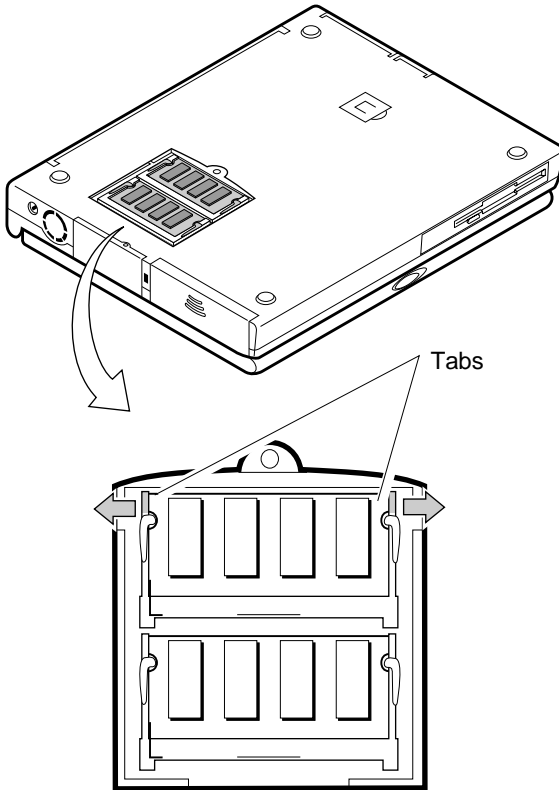


Figure 22. Removing a Memory Module

- b. Hold the memory module by the edges and pull it forward out of the compartment.
5. Align the connector on the memory module with the connector of the slot.
 6. Push the memory module into the slot at a slight angle until the connectors are fully engaged (Figure 23).

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

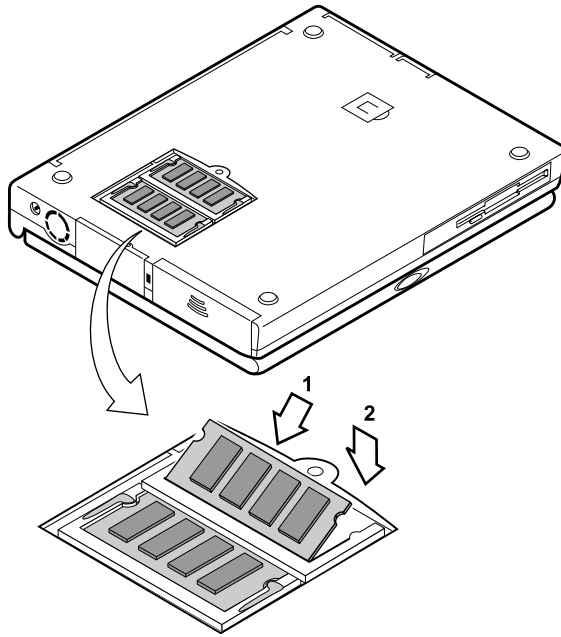


Figure 23. Installing a Memory Module

8. Align the memory module compartment door with the compartment and push the door down until it snaps into place.
9. Reinstall the screw you removed in step 2.
10. Turn on the computer and perform a complete POST to check the memory integrity.

BatteryCradle

The external battery cradle enables you to charge the computer battery outside of the computer.

To charge a battery in the battery cradle:

1. Insert the battery into the cradle, contact end first (Figure 27):

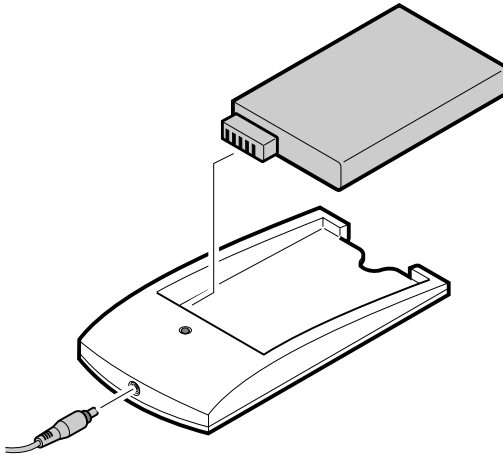


Figure 24. Battery Cradle

2. Attach the computer AC adapter to the connector at the back of the cradle, and plug the other end of the adapter into a grounded electrical outlet.

The indicator light on the cradle is green when the cradle's power is on. The light turns amber when the battery begins to charge.

3. When the indicator light on the cradle turns back to green, the battery is fully charged.

The battery is fully charged in approximately 3 hours.



Do not leave the battery cradle plugged into an electrical outlet for a long time if the battery cradle will not be used. Also do not store

batteries in the battery cradle for a long time. Otherwise the battery or the battery cradle may be damaged.

External Numeric Keypad

The external numeric keypad has the same features as the integrated keypad. The external keypad plugs into the PS/2 mouse and keyboard port.

CD-ROM Drive and Floppy Cable

If your system did not ship with a CD-ROM drive included, you can order a drive and a floppy cable. See "Using the Smart Bay" on page 26 for directions on installing the CD-ROM drive. See "Connecting the Floppy Drive to the Floppy Connector" on page 24 for directions on using the floppy cable.

Docking Options

Contact your reseller for a list of docking options available for your M6000 Series computer. User's manuals are included with the docking options.

Specifications

Table 9 gives the specifications for your computer.

Table 9. System Specifications

Dimension	
System with 12.1" TFT LCD	
Width	12.1in(30.9cm)
Height	1.65in(4.2cm)
Length	9.5in(24.1cm)
Weight(with floppy drive and battery installed)	6.20lbs(2.81Kg)
LCD viewing area(12.1TFT)	9.7x7.2in(246x184.5mm)
System with 13.3" TFT LCD	
Width	12.1in(30.9cm)
Height	1.65in(4.2cm)* 1.85in(4.7cm)**
Length	9.6in(24.5cm)* 9.5in(24.1cm)**
Weight(with floppy drive and battery installed)	6.39lbs(2.90Kg)* 6.53lbs(2.97Kg)**
LCD viewing area(13.3TFT)	10.6x7.9in(270.3x202.8mm)
*System with textured finish(available after 01/03/99)	
**System with painted finish	
System with 14.1" TFT LCD	
Width	12.1in(30.9cm)
Height	1.65in(4.2cm)
Length	9.6in(24.5cm)
Weight(with floppy drive and battery installed)	6.46lbs(2.93Kg)
LCD viewing area(14.1TFT)	11.2x8.4in(285.7x214.3mm)

Environment

Ambient temperature, operating	41°–95°F (5 °–35°C)
Ambient temperature, storage	14°–112°F (-10 °–44°C)
Relative humidity (noncondensing), operating	20–80%
Relative humidity (noncondensing), storage	15–95%
Altitude, operating	0 to 8,000 ft (0 to 2,348 m)
Altitude, storage	0 to 40,000 ft (0 to 12,192 m)
Shock, operating	10G for 11 ms half sine
Shock, nonoperating	60G for 11 ms half sine

Smart Lithium-Ion Battery

Weight	0.84 lbs (0.38 Kg)
Nominal open circuit voltage	10.8 V _{cc}
Capacity, typical	4800 mAh, 52 whr
Charging time, approximate, with computer turned off	3 hr
Charging time, approximate, with computer turned on	6 hr
Average battery life, with no power management enabled	3 hr

AC Adapter

Width	2.05 in (5.2 cm)
Height	1 in (2.6 cm)
Length	4.33 in (11 cm)
Weight	(0.21 kg)
Operating voltage	100 V _{AC} to 240 V _{AC}
Line frequency	50–60 Hz
Input current	1.3 A 100 V–0.9 A 240 V
Output current	2.63 A
Output voltage	19 V

Abbreviations

Your M6000 Series documentation uses the following abbreviations:

- A** Amperes
- AC** Alternating current
- APM** Advanced Power Management
- ATA** AT Attachment (refers to the hard-drive interface in an AT-compatible computer)
- BBS** Bulletin board system
- BIOS** Basic input/output system
- C** Centigrade
- CD** Compact disc
- CD-ROM** ... Compact disc read-only memory
- cm** Centimeters
- COM** Communication (as in communication port)
- CMOS** Complementary metal-oxide semiconductor
- CMYK** Cyan-Magenta-Yellow-black
- DC** Direct current
- dBA** Decibels acoustic
- DIN** Deutsche Industrie Normen Ausschuss (German electrical standards association)
- DMA** Direct memory access
- DPMS** Display power-management signaling
- DRAM** Dynamic random access memory
- ECP** Extended capabilities port
- EPP** Enhanced parallel port
- F** Fahrenheit
- FIR** Fast infrared
- ft** Feet
- g** gram
- G** Gravity
- GB** Gigabytes
- hr** hour

Hz Hertz
IDE Integrateddriveelectronics
in Inches
I/O Input/Output
IrDA InfraredDataAssociation
IRQ Interruptrequestline
Kb/sec Kilobitspersecond
KB Kilobytes
kg Kilograms
LAN Local-areanetwork
lbs Pounds
LBA Logicalblockaddressing
LCD Liquid-crystaldisplay
m Meters
mA Milliampere
mAh Milliamperehour
MB Megabyte
Mb/sec Megabitspersecond
MHz Megahertz
MIDI Musicalinstrumentdigitalinterface
mm millimeter
MPU Microprocessorunit
ms Millisecond
PDF Portabledocumentformat
PC Personalcomputer
PCI Peripheralcomponentinterconnect
PCMCIA ... PersonalComputerMemoryCardInternational
 Association
POST Power-onself-test
PS/2 PersonalSystem/2
RAM Random-accessmemory
RGB Red-Green-Blue
ROM Read-onlymemory
SRAM Staticrandom-accessmemory

SVGASupervideographicsarray
TFT Thin-filmtransistor
USBUniversalserialbus
V Volt
VAC Voltagealternatingcurrent
VCC Voltagecollectorcurrent
VDC Voltagedirectcurrent
VGA Videographicsarray
whr Watthour
XGA Extendedgraphicsarray

Glossary

AC adapter

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

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 for 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 98 operating system provides 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.

Conventional memory

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

CMYK

A color model in which all colors are described as a mixture of four process colors—Cyan, Magenta, Yellow and Black. CMYK is the standard color model used in offset printing for full-color documents. Printed colors look the same as what appears on the screen.

Disc

A compact disc (CD).

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.

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 portable computer. Because hard drives in portable 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 portable computer.

I/O

Input/output. Refer 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

phosphordotsonthebackofthescreen.Thephosphordotslight uptoshowtheimage.LCDsusealiquid-crystalsolutionbetween twosheetsofpolarizingmaterial.Electriccurrentpassingthrough theliquidalignsthecrystalssothatlightcanorcannotpass throughthem,creatinganimage.

MB

1,024kilobytes.

Megabit

1,048,576bitsorabout128kilobytes.

Operatingsystem

Aprogramthatsupervisesthecomputer'soperation,including handlingI/O.Applicationprogramsanduserscanrequest operating-systemservices.Ausermightrequestoperation-system servicestocopyfilesorformatadisk.Anapplicationprogram mightusetheoperatingsystemtoobtainkeyboardinput,write datatoafile,orwritedata toascreen.

PCCard

PCCardstandsforpersonalcomputercard.ThePersonal ComputerMemoryCardInternationalAssociation(PCMCIA) definesthestandardsusedtodevelopallPCCards.PCCardtypes include:modems,Ethernetadapters,SCSIadapters,ATAcards, andmemorycards.

PCslot

ThePCslotisthehardwareslotinthecomputerwherethePC Cardisplayed.

Pixel

Apixelisanindividualdotinagraphicdisplayedonyour computer.Thepixelsaresoclosetogetherthattheylookasthough theyareconnected.AnLCDscreendisplays thousandsormillions ofpixels.

PlugandPlay

Aplugandplayoperatingsystemautomaticallyconfigures computercomponentstoworkwithyoursystem.Withthistypeof operatingsystem,younormallydonotneedtosetjumperson devicesorsetmemoryaddressesorIRQs.

POST

POST stands for power-on-self-test. POST is a test performed by the computer whenever you turn on the power. POST checks system integrity.

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 512KB).

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.

RGB

A color model generally used by display devices. Colors are described as a mixture of Red, Blue and Green.

TFT (thin film transistor) LCD

ATFTLCD uses a separate transistor circuit to control each pixel. This technology provides the best resolution for an LCD screen. A TFTLCD 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.

Recording the Computer Hardware Configuration

In the spaces provided, write the System Setup program settings. If your computer ever loses configuration information, you can enter the information from this section into System Setup to store it.

MAIN MENU

Diskette A: Not Installed 1.44/1.25MB3 1/2

PRIMARY MASTERSUBMENU

Primary Master:

Type: _____ Cylinders: _____

Heads: _____ Sectors: _____

Multi-Sector Transfers: _____

LBAModeControl: Enabled Disabled

32BitI/O: Enabled Disabled

TransferMode: Standard

FastPIO1 FastPIO2

FastPIO3 FastPIO4

FPIO3/DMA1 PIO4/DMA2

UltraDMA: Enabled Disabled

SECONDARY MASTERSUBMENU

Secondary Master:

Type: _____ Cylinders: _____

Heads: _____ Sectors: _____

Multi-Sector Transfers: _____

LBAModeControl: Enabled Disabled

32BitI/O: Enabled Disabled

TransferMode: Standard

FastPIO1 FastPIO2

FastPIO3 **FastPIO4**
 FPIO3/DMA1 **PIO4/DMA2**
UltraDMA: **Enabled** **Disabled**

MEMORYCACHESUBMENU

MemoryCache: **Enabled** **Disabled**
CacheMemoryRegion:
CC00-CFFF: **Disabled** **WriteThrough**
 WriteProtect **WriteBack**
D000-D3FF: **Disabled** **WriteThrough**
 WriteProtect **WriteBack**
D400-D7FF: **Disabled** **WriteThrough**
 WriteProtect **WriteBack**
D800-DBFF: **Disabled** **WriteThrough**
 WriteProtect **WriteBack**

ADVANCEDMENU

Plug&PlayO/S: **Yes** **No**
PS/2Mouse: **Enabled** **Disabled**
DualMouseMode: **Enabled** **Disabled**
ScreenExpansion: **Enabled** **Disabled**
DisplayControl: **LCD** **CRT** **Both**

I/ODEVICECONFIGURATIONSUBMENU

SerialportA: **Enabled** **Disabled** **Auto**
BaseI/Oaddress: **3F8,IRQ4** **F8,IRQ3**
 3E8,IRQ4 **2E8,IRQ3**
InfraredportB: **Enabled** **Disabled**
BaseI/Oaddress: **3F8,IRQ4** **F8,IRQ3**

3E8,IRQ4 2E8,IRQ3
Mode: FIR
DMAChannel: DMA1 DMA3
Parallelport: Enabled Disabled Auto
Mode: Bi-directional Outputonly
 EPP ECP
BaseI/Oaddress: 378,IRQ7 78,IRQ5
 278,IRQ7 278,IRQ5
 3BC,IRQ7 3BC,IRQ5
 DMAChannel: DMA1 DMA2 DMA3
FloppyDiskController: Enabled Disabled Auto
USBDevice: Enabled Disabled Auto

I/ODEVICECONFIGURATIONSUBMENU

Sound: Enabled Disabled
 BaseI/Oaddress: 220-22F 240-24F
 260-26F 280-28F
 MPUI/Oaddress: 300-301 310-311
 320-321 330-331
 Interupt: IRQ5 IRQ7 IRQ9
 IRQ10 IRQ11
 FMI/Oaddress: 388-38B 390-393
 398-39B 3A0-3A3
 DMAChannel: DMA0 DMA1 DMA3
 DMAChannel: DMA0 DMA1 DMA3
LocalBusIDEadapter: Both Disabled
LargeDiskAccessMode: DOS Other

SECURITYMENU

- Passwordonboot:** Enabled Disabled
- Fixeddiskbootsector:** Normal WriteProtect
- Disketteaccess:** User Supervisor
- Viruscheckreminder:** Daily Weekly Monthly
 Disabled
- Systembackupreminder:** Daily Weekly Monthly
 Disabled

POWERMENU

- PowerSavingsMode:** Max.PowerSavings Max.Performance
 Disabled Customized
- BatteryPowerSavingMode:** Turbo Non-Turbo
- HardDiskTimeout:** Off Time_____
- StandbyTimeout:** Off Time_____
- SuspendMode:** Suspend SaveToDisk
- AutoSuspendTimeout:** Off Time_____
- ResumeOnModemRing:** On Off
- ResumeOnTime:** On Off
- ResumeTime:**_____

BOOTMENU

QuietBootMode: **Enabled** **Disabled**
QuickBootMode: **Enabled** **Disabled**
FloppyCheck: **Enabled** **Disabled**
SummaryScreen: **Enabled** **Disabled**

BOOTDEVICEPRIORITYSUBMENU

Booptoption1: _____

Booptoption2: _____

Booptoption3: _____

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