

User's Manual
PORTÉGÉ R400

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TOSHIBA PORTÉGÉ R400 Portable Personal Computer User's Manual

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Preface

Congratulations on your purchase of the PORTÉGÉ R400 series computer. This powerful notebook computer provides excellent expansion capability, includes multimedia functionality, and is designed to provide years of reliable, high-performance computing.

This manual tells how to set up and begin using your PORTÉGÉ R400 computer. It also provides detailed information on configuring your computer, basic operations and care, using optional devices and troubleshooting.

If you are a new user of computers or if you're new to portable computing, first read over Chapter 2, *The Grand Tour* and Chapter 3, *Features, Utilities and Options* to familiarize yourself with the computer's features, components and accessory devices. Then read Chapter 1, *Getting Started* for step-by-step instructions on setting up your computer.

If you are an experienced computer user, please continue reading the preface to learn how this manual is organized, then become acquainted with this manual by browsing through its pages. Be sure to read the *Special features* section in chapter 3 to learn about features that are uncommon or unique to this computer, as well as the section on Chapter 7, *HW Setup & BIOS Setup*, to understand how to setup and configure these features.

Read Chapter 3, *Features, Utilities and Options* if connecting optional products or external devices.

Conventions

This manual uses the following formats to describe, identify, and highlight terms and operating procedures.

Abbreviations

On first appearance, and whenever necessary for clarity, abbreviations are enclosed in parentheses following their definition. For example: Read Only Memory (ROM). Acronyms are also defined in the Glossary.

Icons

Icons identify ports, dials, and other parts of your computer. The indicator panel also uses icons to identify the components it is providing information on.

Keys

The keyboard keys are used in the text to describe many computer operations. A distinctive typeface identifies the key top symbols as they appear on the keyboard. For example, **Enter** identifies the Enter key.

Key operation

Some operations require you to simultaneously use two or more keys. We identify such operations by the key top symbols separated by a plus sign (+). For example, **Ctrl + C** means you must hold down **Ctrl** and at the same time press **C**. If three keys are used, hold down the first two and at the same time press the third.

ABC

When procedures require an action such as clicking an icon or entering text, the icon's name or the text you are to type in is represented in the typeface you see to the left.

Display



ABC

Names of windows or icons or text generated by the computer that appear on its display screen are presented in the type face you see to the left.

Messages

Messages are used in this manual to bring important information to your attention. Each type of message is identified as shown below.



Pay attention! A caution informs you that improper use of equipment or failure to follow instructions may cause data loss or damage your equipment.



Please read. A note is a hint or advice that helps you make best use of your equipment.




Indicates a potentially hazardous situation, which could result in death or serious injury, if you do not follow instructions.

Terminology

This term is defined in this document as follows:

Start

The word "**Start**" refers to the "" button in Microsoft® Windows Vista™.

General Precautions

TOSHIBA computers are designed to optimize safety, minimize strain and withstand the rigors of portability. However, certain precautions should be observed to further reduce the risk of personal injury or damage to the computer.

Be certain to read the general precautions below and to note the cautions included in the text of the manual.

Creating a computer-friendly environment

Place the computer on a flat surface that is large enough for the computer and any other items you are using, such as a printer.

Leave enough space around the computer and other equipment to provide adequate ventilation. Otherwise, they may overheat.

To keep your computer in prime operating condition, protect your work area from:

- Dust, moisture, and direct sunlight.
- Equipment that generates a strong electromagnetic field, such as stereo speakers (other than speakers that are connected to the computer) or speakerphones.
- Rapid changes in temperature or humidity and sources of temperature change such as air conditioner vents or heaters.
- Extreme heat, cold, or humidity.
- Liquids and corrosive chemicals.

Stress injury

Carefully read the *Instruction Manual for Safety and Comfort*. It contains information on the prevention of stress injuries to your hands and wrists that can be caused by extensive keyboard use. Chapter 1, [Getting Started](#), also includes information on work space design, posture and lighting that can help reduce physical stress.

Heat injury

- Avoid prolonged physical contact with the computer. If the computer is used for long periods, its surface can become very warm. While the temperature will not feel hot to the touch, if you maintain physical contact with the computer for a long time, for example if you rest the computer on your lap or if you keep your hands on the palm rest, your skin might suffer a low-heat injury.
- If the computer has been used for a long time, avoid direct contact with the metal plate supporting the various interface ports as this can become hot.
- The surface of the AC adaptor can become hot when in use but this condition does not indicate a malfunction. If you need to transport the AC adaptor, you should disconnect it and let it cool before moving it.
- Do not lay the AC adaptor on a material that is sensitive to heat as the material could become damaged.

Pressure or impact damage

Do not apply heavy pressure to the computer or subject it to any form of strong impact as this can damage the computer's components or otherwise cause it to malfunction.

PC Card overheating

Some PC Cards can become hot during prolonged use which may result in errors or instability in the operation of the device in question. In addition, you should also be careful when you remove a PC Card that has been used for a long time.

Mobile phones

Please be aware that the use of mobile phones can interfere with the audio system. The operation of the computer will not be impaired in any way, but it is recommended that a minimum distance of 30cm is maintained between the computer and a mobile phone that is in use.

Instruction Manual for Safety and Comfort

All important information on the safe and proper use of this computer is described in the enclosed Instruction Manual for Safety and Comfort. Be sure to read it before using the computer.

Chapter 1

Getting Started

This chapter provides an equipment checklist, and basic information to start using your computer.



Some of the features described in this manual may not function properly if you use an operating system that was not pre-installed by TOSHIBA.

Equipment checklist

Carefully unpack your computer, taking care to save the box and packaging materials for future use.

Hardware

Check to make sure you have all the following items:

- PORTÉGÉ R400 Portable Personal Computer
- AC adaptor and power cord (2-pin plug or 3-pin plug)
- Tablet PC Pen



The Tablet PC Pen is included together with spare pen tips and a tip removal tool in a small case coming with the product.

Documentation

- PORTÉGÉ R400 Portable Personal Computer User's Manual
- PORTÉGÉ R400 Quickstart
- Instruction Manual for Safety and Comfort
- Microsoft Windows Vista Quick Start Guide
- Warranty information

If any of the items are missing or damaged, contact your dealer immediately.

Software

The following Windows® operating system and utilities are pre-installed.

- Microsoft® Windows Vista™
- TOSHIBA Value Added Package
- TOSHIBA Assist
- TOSHIBA ConfigFree
- TOSHIBA Tablet PC Extension
- TOSHIBA Tablet Access Code Logon Utility
- TOSHIBA HDD Protection
- TOSHIBA Disc Creator
- Fingerprint Utility
- Windows Mobility Center
- Online User's Manual

Backup media

- Product Recovery DVD-ROM

Getting Started



- *All users should be sure to read the section [Starting up for the first time](#).*
- *Be sure to read the enclosed Instruction Manual for Safety and Comfort for information on the safe and proper use of this computer. It is intended to help you be more comfortable and productive while using a notebook computer. By following the recommendations in it you may reduce your chance of developing a painful or disabling injury to your hand, arms, shoulders or neck.*

This section provides basic information to start using your computer. It covers the following topics:

- Operating the computer in Tablet mode
- Connecting the AC adaptor
- Opening the display
- Turning on the power
- Starting up for the first time
- Turning off the power
- Restarting the computer
- Restoring the pre-installed software



- Use a virus-check program and make sure it is updated regularly.
- Never format storage media without checking its content - formatting destroys all stored data.
- It is a good idea to periodically back up the internal hard disk drive or other main storage device to external media. General storage media is not durable or stable over long periods of time and under certain conditions may result in data loss.
- Before you install a device or application, save any data in memory to the hard disk drive or other storage media. Failure to do so may result in the loss of data.

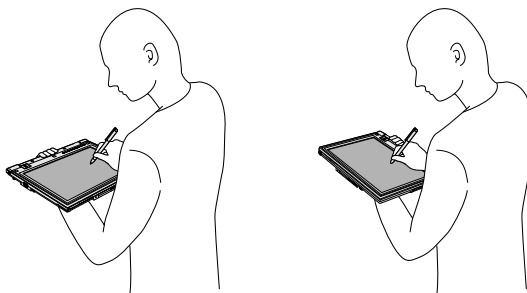
Operating the computer in Tablet mode



Your computer can be used in two ways, as an ordinary laptop PC and as a Tablet PC. You can use the computer as Tablet PC, operated with the supplied Tablet PC Pen, by turning the display panel by 180 degrees and closing it. Refer to [Changing to the Tablet mode](#) section in Chapter 4, [Operating Basics](#) for details on changing the mode.

When operating the computer in Tablet mode, follow the instructions below.

- Hold the computer firmly on your forearm. Do not block the vent.



- Remove the AC adaptor from the computer when using it in Tablet mode held in your forearm.
- Do not use the computer while walking or driving a car.
- Change to Laptop mode and turn off the computer before carrying it. Do not carry the computer with power on or in Sleep Mode. Do not carry the computer while the **Hard Disk Drive** indicator is glowing.
- Do not expose the computer to rapid temperature changes (such as would be the case if you brought the computer from a cold environment into a warm room). When rapid temperature changes are unavoidable, leave the computer for around two hours before turning it on to prevent the formation of condensation.
- Remove all external peripheral devices and their connection cables from the computer before carrying.

- Do not drop the computer or apply excessive impact to it. Do not leave the computer in a car or similar environment where it is exposed to direct sunlight.
- Do not put the computer in a bag when it is in Tablet mode.
- The display panel works as a touch sensitive digitizer screen. However, the outer edges of the screen may be less sensitive. Please keep the Tablet PC Pen inside the display area when you use it near the edges of the display panel. The position of the pen may not be recognized if you move the Tablet PC Pen too fast towards the outer edge. Please be sure to slide the Tablet PC Pen slowly in areas near the edges of the screen.

Use the Tablet PC Pen in the areas enclosed by the dotted line as shown in the following figure.

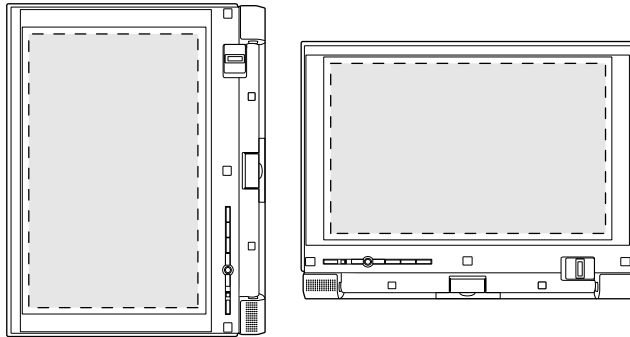


Figure 1-1 Use area of a Tablet PC Pen



Do not block the vent of the computer when holding it. If you continue to expose your skin to the hot air expelled from the vent for a long time, your skin might suffer low temperature injury.

Connecting the AC adaptor

Attach the AC adaptor when you need to charge the battery or you want to operate from AC power. It is also the fastest way to get started, because the battery pack will need to be charged before you can operate from battery power.

The AC adaptor can be connected to any power source supplying from 100 to 240 volts and 50 or 60 hertz. For details on using the AC adaptor to charge the battery pack, refer to Chapter 6, [Power and Power-Up Modes](#).



- *Always use the TOSHIBA AC adaptor that was included with your computer, or use AC adaptors specified by TOSHIBA to avoid any risk of fire or other damage to the computer. Use of an incompatible AC adaptor could cause fire or damage to the computer possibly resulting in serious injury. TOSHIBA assumes no liability for any damage caused by use of an incompatible adaptor.*
- *Never plug the AC adaptor into a power source that does not correspond to both the voltage and the frequency specified on the regulatory label of the unit. Failure to do so could result in a fire or electric shock, possibly resulting in serious injury.*
- *Always use or purchase power cables that comply with the legal voltage and frequency specifications and requirements in the country of use. Failure to do so could result in a fire or electric shock, possibly resulting in serious injury.*
- *The supplied power cord conforms to safety rules and regulations in the region the product is bought and should not be used outside this region. For use in other regions, please buy power cords that conform to safety rules and regulations in the particular region.*
- *Do not use a 3-pin to 2-pin conversion plug.*
- *When you connect the AC adaptor to the computer, always follow the steps in the exact order as described in the User's Manual. Connecting the power cable to a live electrical outlet should be the last step otherwise the adaptor DC output plug could hold an electrical charge and cause an electrical shock or minor bodily injury when touched. As a general safety precaution, avoid touching any metal parts.*
- *Never place your computer or AC adaptor on a wooden surface, furniture, or any other surface that could be marred by exposure to heat since the computer base and AC adaptor's surface increase in temperature during normal use.*
- *Always place your computer or AC adaptor on a flat and hard surface that is resistant to heat damage.*

Refer to the enclosed Instruction Manual for Safety and Comfort for detailed precautions and handling instructions.

1. Connect the power cord to the AC adaptor.

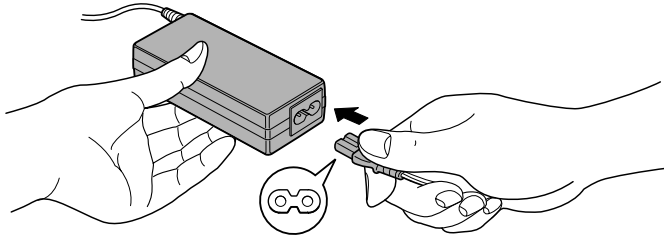


Figure 1-2 Connecting the power cord to the AC adaptor (2-pin plug)

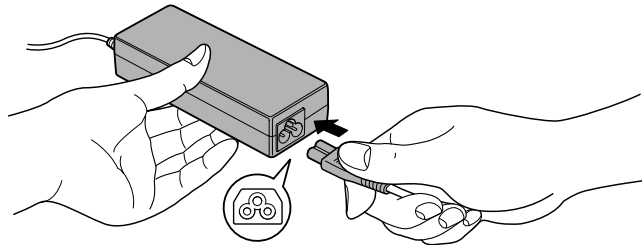


Figure 1-3 Connecting the power cord to the AC adaptor (3-pin plug)



Either a 2-pin or 3-pin adaptor/cord will be included with the computer depending on the model.

2. Connect the AC adaptor's DC output plug to the DC IN 15V jack on the back of the computer.

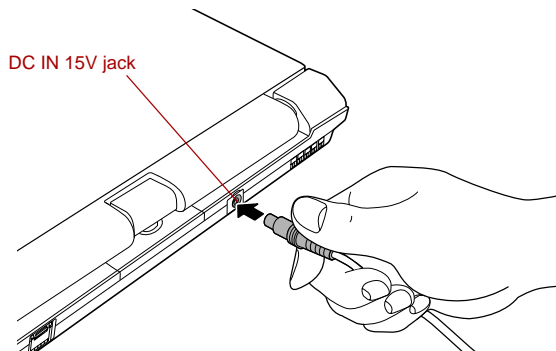


Figure 1-4 Connecting the adaptor to the computer

3. Plug the power cord into a live wall outlet - the **Battery** and **DC IN** indicators on the front of the computer should glow.

Opening the display

The display panel can be opened to a wide range of angles for optimal viewing.

1. While holding down the palm rest with one hand so that the main body of the computer is not raised, slowly lift the display panel - this will allow the angle of the display panel to be adjusted to provide optimum clarity.

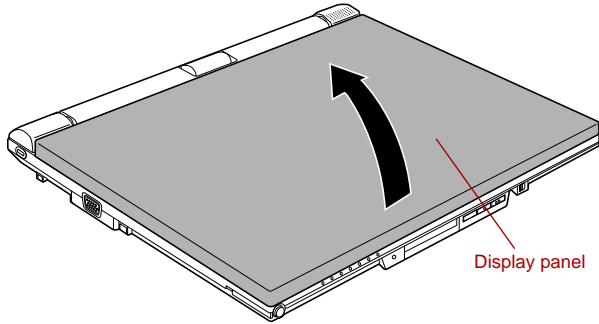


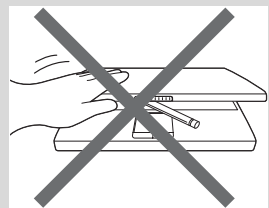
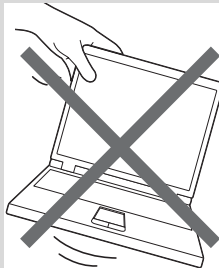
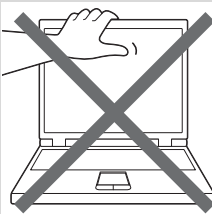
Figure 1-5 Opening the display panel



Use reasonable care when opening and closing the display panel. Opening it vigorously or slamming it shut could damage the computer.



- *Be careful not to open the display panel too far as this could put stress on the display panel's hinges and cause damage.*
- *Do not press or push on the display panel.*
- *Do not lift the computer by the display panel.*
- *Do not close the display panel with pens or any other objects left in between the display panel and the keyboard.*
- *When opening or closing the display panel, place one hand on the palm rest to hold the computer in place and use the other hand to slowly open or close the display panel (Do not use excessive force when opening or closing the display panel).*



Turning on the power

This section describes how to turn on the power - the **Power** indicator will then indicate the status. Please refer to the [Monitoring of power condition](#) section in Chapter 6, [Power and Power-Up Modes](#) for more information.



- After you turn on the power for the first time, do not turn it off until you have set up the operating system. Please refer to the section [Starting up for the first time](#) for more information.
- If a USB floppy diskette drive is connected, please make sure that it is empty - if a floppy diskette is in the drive, press the eject button and remove it.
- Volume cannot be adjusted during Windows Setup.

1. Open the display panel.
2. Slide the Power Button Lock Switch to the right.
3. Press the power button.

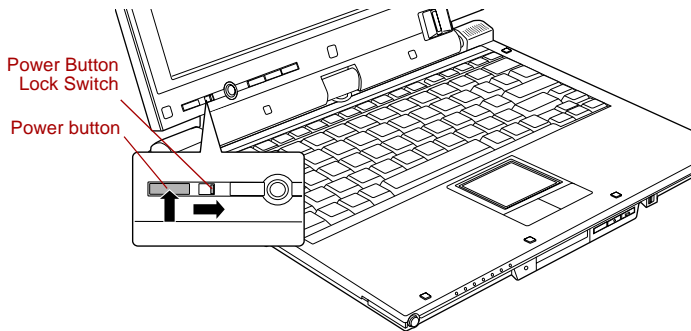


Figure 1-6 Turning on the power

Starting up for the first time

The Microsoft Windows Vista™ Startup Screen will be the first screen displayed when you turn on the power. Follow the on-screen instructions on each screen in order to properly install the operating system.



*When it is displayed, be sure to read the **Software License Terms** carefully.*

Turning off the power

The power can be turned off in one of three modes, either Shut Down (Boot) Mode, Hibernation Mode or Sleep Mode.


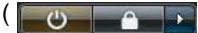
Shut Down mode (Boot Mode)

When you turn off the power in Shut Down Mode no data will be saved and the computer will boot to the operating system's main screen the next time it is turned on.

1. If you have entered data, either save it to the hard disk drive or to other storage media.
2. Make sure all disk activity has stopped before removing the CD/DVD or floppy diskette.



- *Make sure the **Hard Disk Drive** indicator is off. If you turn off the power while a disk (disk) is being accessed, you can lose data or damage the disk.*
- *Never turn off the power while an application is running. Doing so could cause loss of data.*
- *Never turn off the power, disconnect an external storage device or remove storage media during data read/write. Doing so can cause data loss.*

3. Click **Start**.
4. Click the arrow button () located in the power management buttons () and select **Shut Down** from the menu.
5. Turn off any peripheral devices connected to your computer.



Do not turn the computer or peripheral devices back on immediately - wait a short period to avoid any potential damage.

Sleep Mode

If you have to interrupt your work, you are able to turn off the power without exiting from your software by placing the computer into Sleep Mode. In this mode data is maintained in the computer's main memory so that when you turn on the power again, you can continue working right where you left off.



- When the AC adaptor is connected, the computer will go into Sleep Mode according to the settings in the Power Options (to access it, **Start** -> **Control Panel** -> **System and Maintenance** -> **Power Options**).
- To restore the operation of the computer from Sleep Mode, press the power button.
- If the computer enters Sleep Mode while a network application is active, the application might not be restored when the computer is next turned on and the system returns from Sleep Mode.
- To prevent the computer from automatically entering Sleep Mode, disable Sleep Mode within the Power Options (to access it, **Start** -> **Control Panel** -> **System and Maintenance** -> **Power Options**). However, please be aware that this configuration will nullify the computer's Energy Star compliance.
- To use the Hybrid Sleep function, configure it in the Power Options.



- Before entering Sleep Mode, be sure to save your data.
- Do not install or remove a memory module while the computer is in Sleep Mode. The computer or the memory module could be damaged.
- Do not remove the battery pack while the computer is in Sleep Mode (unless the computer is connected to an AC power source). Data in memory could be lost.

Benefits of Sleep Mode

The Sleep Mode feature provides the following benefits:




- Restores the previous working environment more rapidly than the Hibernation Mode feature.
- Saves power by shutting down the system when the computer receives no input or hardware access for the time period set by the System Sleep Mode feature.
- Allows the use of the panel power off feature.

Executing Sleep Mode



You can also enable Sleep Mode by pressing **Fn + F3** - please refer to Chapter 5, [The Keyboard](#), for further details.

You can enter Sleep Mode in one of four ways:

- Click **Start** then click the power button () located in the power management buttons (). Please note that this feature must be enabled within the Power Options (to access it, click **Start** -> **Control Panel** -> **System and Maintenance** -> **Power Options**).
- Click **Start** then click the arrow button () and select **sleep** from the menu.

- Close the display panel. Please note that this feature must be enabled within the Power Options (to access it, click **Start** -> **Control Panel** -> **System and Maintenance** -> **Power Options**).
- Press the power button. Please note that this feature must be enabled within the Power Options (to access it, click **Start** -> **Control Panel** -> **System and Maintenance** -> **Power Options**).

When you turn the power back on, you can continue where you left when you shut down the computer.



- *When the computer is in Sleep Mode, the power indicator will blink orange.*
- *If you are operating the computer on battery power, you can lengthen the overall operating time by turning it off into Hibernation Mode - Sleep Mode will consume more power while the computer is off.*

Sleep Mode limitations

Sleep Mode will not function under the following conditions:

- Power is turned back on immediately after shutting down.
- Memory circuits are exposed to static electricity or electrical noise.

Hibernation Mode

The Hibernation Mode feature saves the contents of memory to the hard disk drive when the computer is turned off so that, the next time it is turned on, the previous state is restored. Please note that the Hibernation Mode feature does not save the status of any peripheral devices connected to the computer.



- *Save your data. While entering Hibernation Mode, the computer saves the contents of memory to the hard disk drive. However, for safety sake, it is best to save your data manually.*
- *Data will be lost if you remove the battery or disconnect the AC adaptor before the save is completed. Wait for the **Hard Disk Drive** indicator to go out.*
- *Do not install or remove a memory module while the computer is in Hibernation Mode. Data will be lost.*

Benefits of Hibernation Mode

The Hibernation Mode feature provides the following benefits:


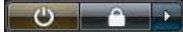
- Saves data to the hard disk drive when the computer automatically shuts down because of a low battery condition.
- You can return to your previous working environment immediately when you turn on the computer.
- Saves power by shutting down the system when the computer receives no input or hardware access for the time period set by the System Hibernate feature.
- Allows the use of the panel power off feature.

Starting Hibernation Mode



You can also enable Hibernation Mode by pressing **Fn + F4** - please refer to Chapter 5, [The Keyboard](#), for further details.

To enter Hibernation Mode, follow the steps below.

1. Click **Start**.
2. Click the arrow button () in the power management buttons () and select **Hibernate** from the menu.

Automatic Hibernation Mode

The computer can be configured to enter Hibernation Mode automatically when you press the power button or close the lid. In order to define these settings, you can follow the steps as described below:

1. Click **Start** and click the **Control Panel**.
2. Click **System and Maintenance** and click **Power Options**.
3. Click **Choose what the power buttons do** or **Choose what closing the lid does**.
4. Enable the desired Hibernation Mode settings for **When I press the power button** and **When I close the lid**.
5. Click the **Save changes** button.

Data save in Hibernation Mode

When you turn off the power in Hibernation Mode, the computer will take a moment to save the current data in memory to the hard disk drive. During this time, the **Hard Disk Drive** indicator will glow.

After you turn off the computer, and the content of memory has been saved to the hard disk drive, turn off the power to any peripheral devices.







Do not turn the computer or devices back on immediately. Wait a moment to let all capacitors fully discharge.

Restarting the computer

Certain conditions require that you reset the computer, for example if:

- You change certain computer settings.
- An error occurs and the computer does not respond to your keyboard commands.

If you need to restart the computer, there are three ways this can be achieved:

- Click **Start** then click the arrow button () in the power management buttons (  ) and select **Restart** from the menu.
- Press **Ctrl, Alt** and **Del** simultaneously (once) to display the menu window, then select **Restart** from the **Shut down options**.
- Press the power button and hold it down for five seconds. Once the computer has turned itself off, wait between ten and fifteen seconds before turning the power on again by pressing the power button.

System Recovery Options

About 1.5GB hidden partition is allocated on the hard disk drive for the System Recovery Options.

This partition stores files which can be used to repair the system in the event of a problem.



The System Recovery Options feature will be unusable if this partition is deleted.

System Recovery Options

The System Recovery Options feature is installed on the hard disk when shipped from the factory. The System Recovery Options menu includes tools to repair startup problems, run diagnostics or restore the system.

See the **Windows Help and Support** content for more information about **Startup Repair**.

The System Recovery Options can also be run manually to repair problems.

The procedure is as follows. Follow the instructions shown on the on-screen menu.

1. Turn off the computer.
2. While holding the **F8** key, turn the computer on.
3. The **Advanced Boot Options** menu will be displayed.
Use the arrow keys to select **Repair Your Computer** and press **Enter**.
4. Follow the on-screen instructions.

The Windows Vista™ CompletePC Backup feature can be used on Windows Vista™ Business Edition and Ultimate Edition.

Restoring the pre-installed software



An external optical disc drive that is sold separately and compatible to the computer is required to create the Recovery Discs. It can be purchased from TOSHIBA dealers.

■ *This machine supports the following optical disc drives for restoring the pre-installed software:*

External DVD Super Multi Drive PA3454U

External CD-RW/DVD-ROM Drive PA3438U

If pre-installed files are damaged, use the Product Recovery DVD-ROM to restore them. To perform this restoration, follow the steps below:



*When the sound mute feature has been activated by pressing the **Fn + Esc** key, be sure to disable this to allow sounds to be heard before starting the restore process. Please refer to Chapter 5, [The Keyboard](#), for further details.*



When you reinstall the Windows operating system, the hard disk will be reformatted and all data will be lost.

1. Load the Recovery Discs into the optical disc drive and turn off the computer's power.
2. While holding down the **F12** key on the keyboard, turn on your computer - when the **In Touch with Tomorrow TOSHIBA** logo screen appears, release the **F12** key.
3. Use the left and right cursors key to select the optical disc drive icon from the menu. Please refer to the [Boot Priority](#) section in Chapter 7, [HW Setup & BIOS Setup](#), for further information.
4. A menu will be displayed from which you should follow the on-screen instructions.
5. If your computer came with additional software installed, this software can not be recovered from the Product Recovery DVD-ROM. Re-install these applications (e.g. Works Suite, Games, etc.) separately from other media.

Chapter 2

The Grand Tour

This chapter identifies the various components of the computer - it is recommended that you become familiar with each before you operate the computer.

Legal Footnote (Non-applicable Icons)

For more information regarding Non-applicable Icons, please refer to Appendix G, [Legal Footnotes](#).

Front with the display closed

The following figure shows the computer's front with its display panel in the closed position.

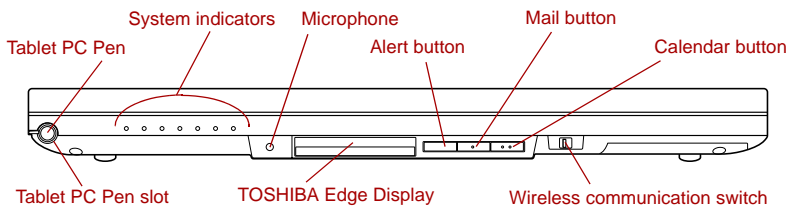


Figure 2-1 Front of the computer with display panel closed

Tablet PC Pen slot	The Tablet PC Pen slot provides storage for the Tablet PC Pen.
Tablet PC Pen	The Tablet PC Pen is stored within the front side of the computer and enables direct data entry through the display screen. Refer to the Using the Tablet PC Pen section in Chapter 4, Operating Basics .

System indicators	These LED indicators allow you to monitor the status of various computer functions and are described in more detail within the System indicators section.
Microphone	A built-in microphone allows you to record sound into your applications - please refer to the Sound System section in Chapter 4, Operating Basics for more information.
TOSHIBA Edge Display	Displays the time, remaining battery power, new mail notifications and calendar notifications. The TOSHIBA Edge display can be configured via the TOSHIBA Active Notification Settings. To access the TOSHIBA Active Notifications Settings, click Start -> Control Panel -> Hardware and Sound -> Windows SideShow .
Alert button	Pressing the alert button toggles mail notification and calendar notification alerts on and off.
Mail button	Press this button to select mail notification contents.
Calendar button	Press this button to select calendar event contents.
Wireless communication switch	Slide this switch to the left to turn off Wireless LAN and Bluetooth functions. Slide it to the right to turn on the functions. Only some models are equipped with Bluetooth and Wireless LAN functions.

Off  On



- *Turn Wi-Fi® and Bluetooth functionalities off when near a person who may have a cardiac pacemaker implant or other medical electric device. Radio waves may affect pacemaker or medical device operation, possibly resulting in serious injury. Follow the instruction of your medical device when using any Wi-Fi or Bluetooth or Wireless WAN functionality.*
- *Always turn off Wi-Fi or Bluetooth functionality if the computer is near automatic control equipment or appliances such as automatic doors or fire detectors. Radio waves can cause malfunction of such equipment, possibly resulting in serious injury.*
- *Do not use the Wi-Fi or Bluetooth functionalities near a microwave oven or in areas subject to radio interference or magnetic fields. Interference from a microwave oven or other source can disrupt Wi-Fi or Bluetooth operation.*

Left side

The following figure shows the computer's left side.

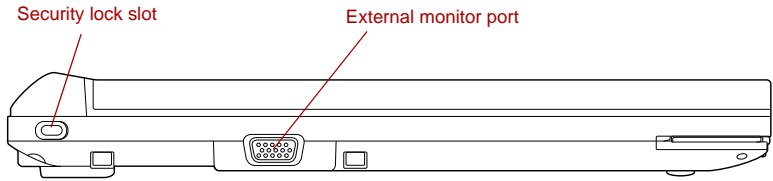


Figure 2-2 The left side of the computer



Security lock slot

A security cable can be attached to this slot and then connected to a desk or other large object in order to deter theft of the computer.



External monitor port

This port allows you to connect an external monitor to the computer.

Right side

The following figure shows the computer's right side.

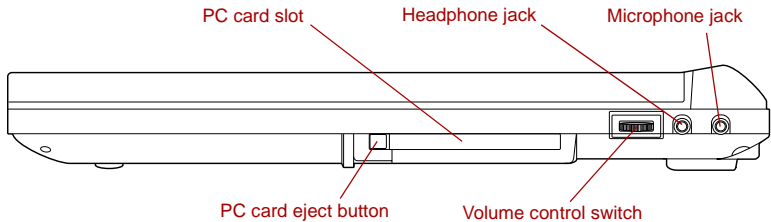


Figure 2-3 The right side of the computer



PC Card slot

This slot can accommodate a single Type II, 16-bit or 32-bit (CardBus) PC Card device.

PC Card eject button

This button is used in order to remove a PC Card from the PC Card slot.



Keep foreign metal objects, such as screws, staples and paper clips, out of the PC Card slot. Foreign metal objects can create a short circuit, which can cause damage and fire, possibly resulting in serious injury.



Volume control switch

Use this dial to adjust the volume of the internal monaural speaker and optional external stereo headphones (if connected).

Move the Volume control switch to the right to increase the volume and to the left to decrease the volume.

Press the Volume control switch to Mute the sound. Press the Volume control switch again to turn Mute off. The mute icon will be displayed when the Volume control switch is pressed. The same function can be performed by pressing the **Fn + Esc** keys. Refer to the *Hot keys* section in Chapter 5 for details on the **Fn + Esc** keys.



Headphone jack

A 3.5 mm mini headphone jack enables connection of stereo headphones.



Microphone jack

A 3.5 mm mini microphone jack enables connection of a three-conductor mini jack for monaural microphone input.

Back side

The following figure shows the computer's back side.

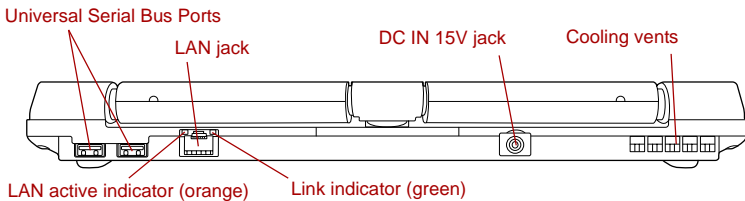


Figure 2-4 The back side of the computer



Universal Serial Bus (USB 2.0) ports

Two Universal Serial Bus ports, which comply to the USB 2.0 standard, are provided on the back side of the computer.



Keep foreign metal objects, such as screws, staples and paper clips, out of the USB connectors. Foreign metal objects can create a short circuit, which can cause damage and fire, possibly resulting in serious injury.



Please note that it is not possible to confirm the operation of all functions of all USB devices that are available. In view of this it may be noted that some functions associated with a specific device might not operate properly.



LAN jack

This jack lets you connect to a LAN. The adaptor has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T), Fast Ethernet LAN (100 megabits per second, 100BASE-TX) and Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T). Refer to Chapter 4, [Operating Basics](#), for details.



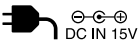
- *Do not connect any cable other than a LAN cable to the LAN jack. It could cause damage or malfunction.*
- *Do not connect the LAN cable to a power supply. It could cause damage or malfunction.*

Link indicator (green)

This indicator glows green when the computer is connected to a LAN and the LAN is functioning properly.

LAN active indicator (orange)

This indicator glows orange when data is being exchanged between the computer and the LAN.



DC IN 15V jack

The AC adaptor connects to this jack in order to power the computer and charge its internal batteries. Please note that you should only use the model of AC adaptor supplied with the computer at the time of purchase - using the wrong AC adaptor can cause damage to the computer.

Cooling vents

The cooling vents help keep the processor from overheating.



Do not block the cooling vents. Keep foreign metal objects, such as screws, staples and paper clips, out of the cooling vents. Foreign metal objects can create a short circuit, which can cause damage and fire, possibly resulting in serious injury.

Underside

The following figure shows the underside of the computer. You should ensure that the display is closed before the computer is turned over to avoid causing any damage.



Always make sure the display panel is closed in Laptop mode before turning the computer upside down.

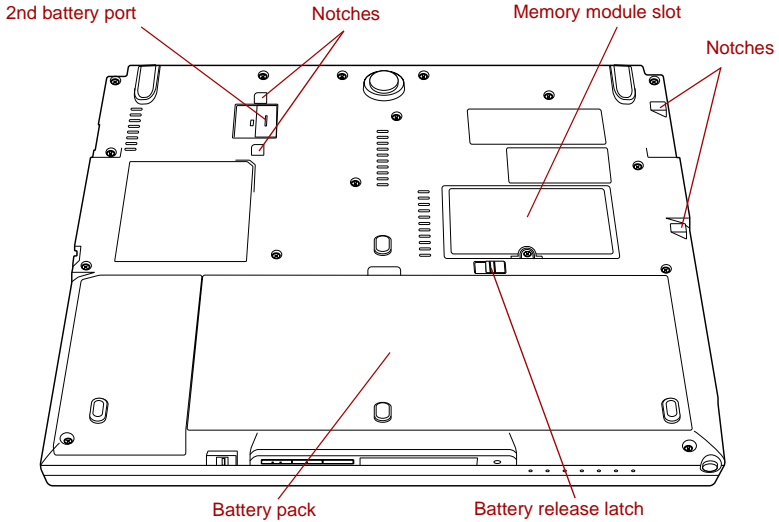


Figure 2-5 The underside of the computer



2nd battery port

Use this port to connect an optional 2nd Battery Pack.



Keep foreign metal objects, such as screws, staples and paper clips, out of the 2nd battery port. Foreign metal objects can create a short circuit, which can cause damage and fire, possibly resulting in serious injury.

Notches

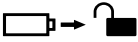
The notches on the computer are used to securely connect the 2nd Battery Pack to the computer.



Memory module slot

The slot B memory module is located here. The memory module slot allows installation, replacement and removal of an additional memory module.

Refer to the [Additional memory module](#) section in Chapter 3, [Features, Utilities and Options](#).



Battery release latch

Slide and hold this latch into its 'Unlock' position in order to release the battery pack ready for removal. For more detailed information on removing the battery pack please refer to Chapter 6, [Power and Power-Up Modes](#).

Battery pack

The battery pack provides power to the computer when the AC adaptor is not connected. For more detailed information on the use and operation of the battery pack please refer to Chapter 6, [Power and Power-Up Modes](#).

Front with the display open

This section shows the computer with the display panel open. In order to open the display, lift the display panel up and position it at a comfortable viewing angle for you.

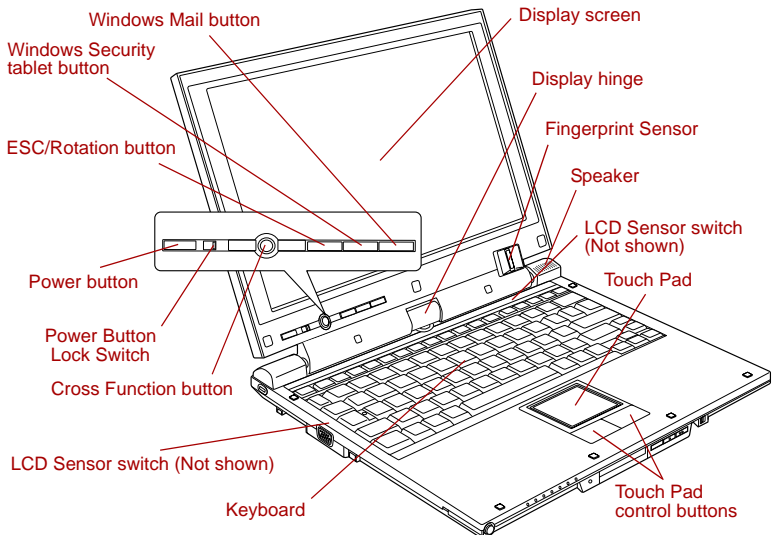


Figure 2-6 The front of the computer with the display panel open



Display hinge

The display hinge allows the display panel to be position at a variety of easy-to-view angles. Rotate the computer on this fulcrum point when switching between Tablet and Laptop modes.

Display screen Please be aware that, when the computer is operating on the AC adaptor, the image displayed on the internal screen will be somewhat brighter than when it operates on battery power. This difference in brightness levels is intended to save power when running on batteries. For more information on the computer's display, please refer to the [Display Controller and Video Mode](#) section in Appendix B.

Touch Pad The Touch Pad located in the center of the palm rest is used to control the movement of the on-screen pointer. For more information, please refer to the [Using the Touch Pad](#) section in Chapter 4, [Operating Basics](#).

Touch Pad control buttons The control buttons located below the Touch Pad allow you to select menu items or manipulate text and graphics as designated by the on-screen pointer.

Keyboard The internal keyboard provides the embedded numeric overlay keys, dedicated cursor control overlay keys, and  and  Keys. The keyboard is compatible with the IBM® enhanced keyboard. Refer to Chapter 5, [The Keyboard](#), for details.

Speaker The internal monaural speaker emits sound generated by your software as well as audio alarms, generated by the system.



Power button Press this button to turn the computer's power on and off.



Power Button Lock Switch This switch locks the Power button in order to prevent it from being accidentally pressed. Slide the switch to the left to lock the Power button.



Cross Function button Pressing this button automatically opens the Windows Mobility Center window.



ESC/Rotation button This button functions the same as the **ESC** key when tapped, or changes the orientation of the screen when pressed for more than a second.



Windows Security tablet button This button functions the same as the **Ctrl + Alt + Del** keys to show the Menu window.



Windows Mail button Pressing this button launches the Windows Mail application.

Fingerprint Sensor This sensor enables you to enroll and recognize a fingerprint.
For detailed information on Fingerprint Sensor, refer to Chapter 4, *Using the Fingerprint Sensor*.

LCD Sensor switch This switch senses when the display panel is either closed or opened and activates the Panel Power Off/On feature as appropriate. For example, when you close the display panel the computer enters Hibernation Mode and shuts itself down and then, when you next open the display, the computer will automatically start up and return you to the application you were previously working on.
You can specify within the Power Options. To access it, click **Start -> Control Panel -> System and Maintenance -> Power Options**.



Do not put any magnetic objects close to this switch as they may cause the computer to automatically enter Hibernation Mode and shut down even if the Panel Power Off feature is disabled.

Indicators

This section explains indicator functions.

System indicators

LED system indicators next to their respective icons, glow when specific computer operations are in progress.

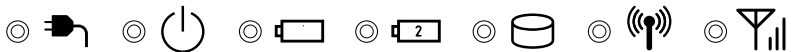


Figure 2-7 System indicators



DC IN

The **DC IN** indicator normally glows blue when power is being correctly supplied from the AC power adaptor. However, if the output voltage from the adaptor is abnormal, or if the computer's power supply malfunctions, this indicator will flash orange.



Power

The **Power** indicator normally glows blue when the computer is turned on. However, if you turn the computer off into Sleep Mode, this indicator will flash orange - approximately one second on, two seconds off - both while the system is shutting down and while it remains turned off.



Battery

The **Battery** indicator shows the condition of the battery's charge - blue indicates the battery is fully charged, orange indicates the battery is charging, and flashing orange indicates a low battery condition. Please refer to Chapter 6, [Power and Power-Up Modes](#) for more information on this feature.



2nd battery

The **2nd battery** indicator shows the condition of the charge of a 2nd Battery Pack. Blue means fully charged and orange means being charged. Refer to Chapter 6, [Power and Power-Up Modes](#).



Hard Disk Drive

The **Hard Disk Drive** indicator glows blue whenever the computer is accessing the built-in hard disk drive.



Wireless communication

The **Wireless communication** indicator blinks orange when the Bluetooth and Wireless LAN functions are turned on.

Only some models are equipped with Bluetooth, and Wireless LAN functions.



Wireless WAN

The Wireless WAN indicator glows or blinks blue when the Wireless WAN function is on.

The indicator will glow or blink in order to indicate the connection status of the Wireless WAN function.

A Wireless WAN card must be installed to use this function. Some models are equipped with a Wireless WAN card.

Blue: Ready to transmit and receive

No light: OFF

Slow blink: Searching for a connection point

Fast blink: Connected

Keyboard indicators

The following figures show the positions of the Caps Lock indicator and the keypad overlay indicators which show the following conditions:

- When the Caps Lock indicator glows, the keyboard will produce capitals when any letter is typed.
- When the Arrow Mode indicator glows, the keypad overlay allows you to use cursor functions.
- When the Numeric Mode indicator glows, the keypad overlay allows you to enter numbers.

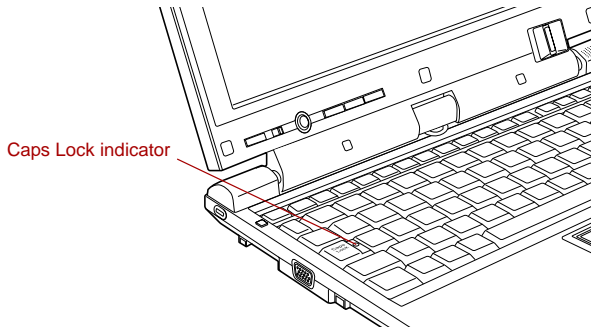


Figure 2-8 Caps Lock indicator

Caps Lock

This indicator glows green when letter keys are locked into their uppercase format.

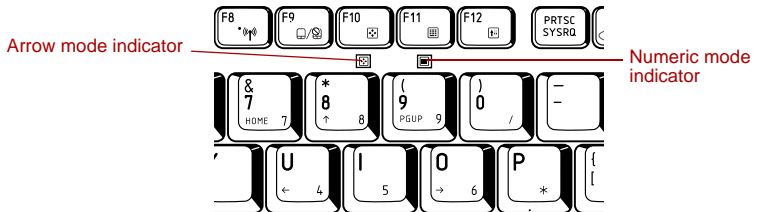


Figure 2-9 Keypad overlay indicators



Arrow mode

When the **Arrow mode** indicator lights green, you can use the gray labeled keys on the keypad overlay as cursor keys. Please refer to the [Keypad overlay](#) section in Chapter 5, [The Keyboard](#) for more information.



Numeric mode

When the **Numeric mode** indicator lights green, you can use the gray labeled keys on the keypad overlay for number entry. Please refer to the [Keypad overlay](#) section in Chapter 5, [The Keyboard](#) for more information.

AC adaptor

The AC adaptor can automatically adjust to any voltage ranging from 100 to 240 volts and to a frequency of either 50 or 60 hertz, enabling you to use this computer in almost all country/region. The adaptor converts AC power to DC power and reduces the voltage supplied to this computer.

To recharge the battery, simply connect the AC adaptor to a power source and to the computer. Please refer to Chapter 6, [Power and Power-Up Modes](#) for further information.

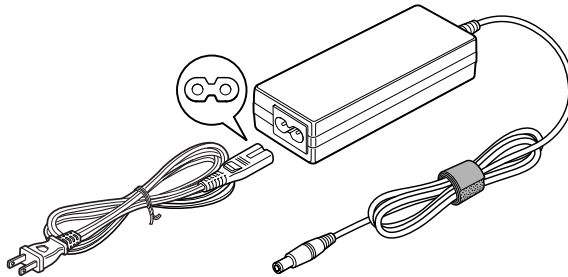


Figure 2-10 The AC adaptor (2-pin plug)

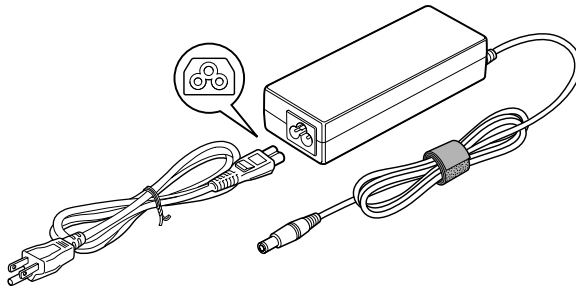


Figure 2-11 The AC adaptor (3-pin plug)



- Depending on the model in question, either a 2-pin or 3-pin adaptor/power lead will be bundled with the computer.
- Do not use a 3-pin to 2-pin conversion plug.
- The supplied power cord conforms to safety rules and regulations in the region the product is bought and should not be used outside of this region. In order to use the adaptor/computer in other regions, you should please buy a power cord that conforms to the safety rules and regulations in that particular region.



Always use the TOSHIBA AC adaptor that was included with your computer, or use AC adaptors specified by TOSHIBA to avoid any risk of fire or other damage to the computer. Use of an incompatible AC adaptor could cause fire or damage to the computer possibly resulting in serious injury. TOSHIBA assumes no liability for any damage caused by use of an incompatible adaptor.

Chapter 3

Features, Utilities and Options

Features

The computer extensively uses TOSHIBA's advanced Large Scale Integration (LSI), Complementary Metal-Oxide Semiconductor (CMOS) technology to provide compact size, minimum weight, low power usage, and high reliability, and incorporates the following features and benefits:

Processor

CPU

The computer is equipped with an Intel® processor.
Intel® Core™ Duo Processor, which incorporates 2MB Level-2 cache memory and supports Enhanced Intel® SpeedStep® Technology.



Some models in this series use Intel® Centrino® Duo Mobile Technology which is based on three separate components, the Intel® Core™ Duo processor, Intel® PRO/Wireless network connection and the Mobile Intel® 945 Express Chipset family.

Legal Footnote (CPU)

For more information on the CPU, please refer to Appendix G, [Legal Footnotes](#).

Memory

Slots	512, 1,024 or 2,048MB memory modules can be installed in the computer's two memory slots for a maximum of 4,096MB system memory.
Video RAM	The Video RAM capacity will differ depending on the system memory capacity in the computer. <ul style="list-style-type: none">■ If system memory is 512MB, a maximum of 64MB will be used as Video RAM.■ If system memory is 1024MB or more, a maximum of 256MB will be used as Video RAM.

Legal Footnote (Memory (Main System))

For more information regarding Memory (Main System), please refer to Appendix G, [Legal Footnotes](#).

Power

Battery pack	The computer is powered by one rechargeable lithium-ion battery pack.
2nd Battery Pack	This battery pack increases your computer's operating time when main battery pack is also installed.

Legal Footnote (Battery Life)

For more information regarding Battery Life, please refer to Appendix G, [Legal Footnotes](#).

RTC battery	The internal RTC battery backs up the Real Time Clock (RTC) and calendar.
AC adaptor	The AC adaptor provides power to the system and recharges the batteries when they are low. It comes with a detachable power cord which will either have a 2-pin or 3-pin plug enclosure. As the AC adapter is universal, it can receive a range of AC voltages from 100 to 240 volts, however you should note that the output current varies among different models. Using the wrong adapter can damage your computer. Refer to the AC adaptor section in Chapter 2, <i>The Grand Tour</i> .

Disks

Hard disk drive	The following hard disk drive is pre-installed in this computer. <ul style="list-style-type: none">■ 80.0 billion bytes (74.53 GB) Please note that part of the hard disk drive's overall capacity is reserved as administration space.
------------------------	---

Legal Footnote (Hard Disk Drive (HDD) Capacity)

For more information regarding Hard Disk Drive (HDD) Capacity, please refer to Appendix G, [Legal Footnotes](#).

Display

The computer's internal display panel supports high-resolution video graphics and can be set to a wide range of viewing angles for maximum comfort and readability.

Display panel	12.1" TFT LCD screen, 16 million colors, with a resolution of 1280 horizontal x 800 vertical pixels WXGA.
----------------------	---

Legal Footnote (LCD)

For more information regarding the LCD, please refer to Appendix G, [Legal Footnotes](#).

Graphics controller	The graphics controller maximizes display performance. Refer to Display Controller and Video Mode section in Appendix B for more information.
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Legal Footnote (Graphics Processor Unit ("GPU"))

For more information regarding the Graphics Processor Unit ("GPU"), please refer to Appendix G, [Legal Footnotes](#).

Sound

Sound system	The integrated sound system provides support for the computer's internal speaker and microphone, as well as allows an external microphone and headphones to be connected via the appropriate jacks.
---------------------	---

Communications

LAN	The computer has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T), Fast Ethernet LAN (100 megabits per second, 100BASE-TX) and Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T).
Bluetooth	Some computers in this series offer Bluetooth wireless communication functionality which eliminates the need for cables between electronic devices such as computers, printers and mobile phones. When implemented, Bluetooth provides a fast, reliable and secure means to achieve wireless communication in a small space.
Wireless LAN	Some computers in this series are equipped with a Wireless LAN card that is compatible with other LAN systems based on Direct Sequence Spread Spectrum/Orthogonal Frequency Division Multiplexing radio technology that complies with the IEEE 802.11 Standard (Revision A, B or G).

Legal Footnote (Wireless LAN)

For more information regarding Wireless LAN, please refer to Appendix G, [Legal Footnotes](#).

Wireless WAN	Some computers in this series are equipped with a Wireless WAN card. This card supports HSDPA and provides faster communications than previous Wireless WAN cards.
---------------------	--

Special features

The following features are either unique to TOSHIBA computers or are advanced features which make the computer more convenient to use.

Access each function using the following procedures.

*1 To access the Power Options, click **Start -> Control Panel -> System and Maintenance -> Power Options**.

Hot keys	Hot keys are specific key combinations that let you quickly change the system configuration directly from the keyboard without running a system program.
-----------------	--

Display automatic power off *1	This feature automatically cuts off power to the computer's display panel when there is no keyboard input for a specified time, with power being restored the next time a key is pressed. This can be specified in the Power Options.
HDD automatic power off *1	This feature automatically cuts off power to the hard disk drive when it is not accessed for a specified time, with power being restored when the hard disk drive is next accessed. This can be specified in the Power Options.
System automatic Sleep/Hibernation Mode *1	This feature automatically shuts down the system into either Sleep Mode or Hibernation Mode when there is no input or hardware access for a specified time. This can be specified in the Power Options.
Keypad overlay	A ten-key numeric keypad is integrated into the keyboard. Please refer to the Keypad overlay section in Chapter 5, The Keyboard , for information on using this feature.
Power on password	Two levels of password security, supervisor and user, are available to prevent unauthorized access to your computer.
Instant security	A specific hot key function automatically blanks the computer's display and locks the system providing data security.
Intelligent power supply *1	A microprocessor in the computer's intelligent power supply detects the battery's charge, automatically calculates the remaining battery capacity and protects electronic components from abnormal conditions such as a voltage overload from the AC adaptor. This can be specified in the Power Options.
Battery save mode *1	This feature lets you configure the computer in order to save battery power. This can be specified in the Power Options.
Panel power on/off *1	This feature automatically turns power to the computer off when the display panel is closed, and turns it back on when the display panel is opened. This can be specified in the Power Options.

Low battery automatic Hibernation Mode *1	When battery power is exhausted to the point that computer operation cannot be continued, the system automatically enters Hibernation Mode and shuts itself down. This can be specified in the Power Options.
Heat dispersal *1	To protect against overheating, the processor has an internal temperature sensor so that, if the computer's internal temperature rises to a certain level, the cooling fan is turned on or the processing speed is lowered. This can be specified in the Power Options.
TOSHIBA HDD Protection	This feature uses the acceleration sensor built in the computer to detect vibration and shocks, and automatically moves the hard disk drive's read/write head to a safe position in order to reduce the risk of damage that could be caused by head-to-disk contact. Refer to the Using the Hard Disk Drive (HDD) Protection section in Chapter 4, Operating Basics , for more details.



The TOSHIBA HDD Protection function does not guarantee that the hard disk drive will not be damaged.

Hibernation Mode	This feature lets you turn off the power to the computer without exiting from your software. The contents of main memory are automatically saved to the hard disk drive so that when you next turn the power on again, you can continue working right where you left off. Refer to the Turning off the power section in Chapter 1, Getting Started , for more details.
Sleep Mode	If you have to interrupt your work, you can use this feature to allow you to turn off power to the computer without exiting from your software. Data is maintained in the computer's main memory so that when you next turn on the power, you can continue working right where you left off.

TOSHIBA Value Added Package

This section describes the TOSHIBA Component features pre-installed on the computer.

TOSHIBA Power Saver	TOSHIBA Power Saver provides you with the features of more various power supply managements.
TOSHIBA Button Support	<p>This utility controls the following computer button functions.</p> <p>The applications associated with each of the following button can be assigned by the user.</p> <ul style="list-style-type: none"> ■ Windows Mail Button: Assign applications of functions to the 1 button (Windows Mail).
TOSHIBA Zooming Utility	This utility allows you to enlarge or reduce the icon size on the Windows Desktop, or the zoom factor associated with specific supported applications.
TOSHIBA PC Diagnostic Tool	The TOSHIBA PC Diagnostic Tool will display basic system configuration information and allow the functionality of some of the computer's built-in hardware devices to be tested.
TOSHIBA Password Utility	The TOSHIBA Password utility allows you to set a password in order to restrict access to the computer.
TOSHIBA Flash Cards	<p>This utility supports the following functions.</p> <ul style="list-style-type: none"> ■ Hot key function ■ TOSHIBA utility launcher function
HW Setup	This utility allows you to customize your hardware settings according to the way you work with the computer and the peripherals you use.
TOSHIBA Accessibility	The TOSHIBA Accessibility utility provides support to movement impaired users when they need to use the TOSHIBA Hot-key functions. In use, the utility allows you to make the Fn key 'sticky', that is you can press it once, release it, and they press one of the 'F' keys in order to access its specific function. When set, the Fn key will remain active until another key is pressed.

TOSHIBA Tablet PC Extension

This section describes the pre-installed TOSHIBA Component features that come with the computer. To access these components, click **Start -> All Programs -> TOSHIBA**.

TOSHIBA Rotation Utility

This utility controls the screen orientation setting for both Laptop mode and Tablet mode.

You can set four types of orientation setting:

- Primary landscape
- Primary portrait
- Secondary landscape
- Secondary portrait

The default setting of PC mode is Primary Landscape while that for Tablet mode is Primary Portrait.

TOSHIBA Accelerometer Utilities

When TOSHIBA Accelerometer Utilities is enabled, you can invoke the **Start** menu, switch active windows or launch predefined applications by shaking the computer vertically or horizontally, or by tilting it.

Utilities and Applications

This section describes the pre-installed utilities that come with the computer and details how to start them. For further information on their operation, please refer to each utility's online manual, help files or README.TXT file.

Fingerprint Utility

This product has a fingerprint utility installed for the purpose of enrolling and recognizing fingerprints which can then be linked to a username and password in order to remove the need to input these details from the keyboard. Just by swiping an enrolled finger against the fingerprint sensor, the following functions will be enabled:

- Logon to Windows and access a security enabled homepage through Internet Explorer.
- Files and folders can be encrypted/decrypted and third party access to them is prevented.
- Disable the password-protected screen-saver when returning from a power-saving mode such as Sleep Mode.
- Authentication of the User Password (and, if applicable, the HDD(Hard Disk Drive) Password) when booting up the computer (Power-on Security).
- Single Sign-on feature

Bluetooth Stack for Windows by Toshiba

This software enables communication between the computer and external Bluetooth devices such as printers and mobile phones.



Bluetooth functions cannot be used in models that do not have a Bluetooth module installed.

TOSHIBA Assist

TOSHIBA Assist is a graphical user interface that provides access to specific tools, utilities and applications that make the use and configuration of the computer easier.

TOSHIBA ConfigFree TOSHIBA ConfigFree is a suite of utilities that improve the ease and control of communication devices and network connections, help in the identification of communication problems and allow the creation of profiles if you need to switch between different locations and communication networks. To access this utility, click **Start -> All Programs -> TOSHIBA -> Networking -> ConfigFree**.

TOSHIBA Disc Creator You can create CD's and DVD's in a number of formats including audio CD's that can be played on a standard CD player, and data CD's/DVD's which can store copies of the files and folders on your computer's hard disk drive. This software can be used with an optional external DVD-ROM/CD-R/RW drive, or a DVD Super Multi drive.



- *The TOSHIBA Disc Creator can be used when an optional optical disc drive is connected to your computer.*
 - *Please ensure that it is used on a flat surface such as a table. If used when placed on an unstable location or if strong vibrations shake it during operation, the CD/DVD might be scratched and the drive might be damaged.*
-

Windows Mobility Center This section describes the Windows Mobility Center. Mobility Center is a utility for accessing several mobile PC settings quickly in one window. A default maximum of eight tiles are provided by the operating system, and an additional three tiles are added to your Mobility Center.

- **Ext.Screen Orientation:**
This can be used to switch the orientation of an external display connected to your **Tablet PC** between portrait and landscape modes.
 - **Lock Computer:**
This can be used to lock your computer without turning it off. This has the same function as the **Lock** button at the bottom of the right pane in the start menu.
 - **TOSHIBA Assist:**
This can be used to open **TOSHIBA Assist** if it is already installed in your computer.
-

TOSHIBA Tablet Access Code Logon Utility

If a Windows password has been set, you can logon to the operating system by entering a handwriting signature into the dialog box using the Tablet PC Pen when prompted.

Optional devices

Optional devices can expand the computer's capabilities and its versatility. This section describes the connection or installation of the following devices:

Cards/memory

- PC Card
- Additional memory module

Peripheral devices

- USB FDD Kit
- External monitor

Other

- Security lock

PC Card

The computer is equipped with a single PC Card slot that can accommodate a Type II format card. Any PC Card that meets industry standards, either manufactured by TOSHIBA or another vendor, can be installed as the slot supports 16-bit PC Cards and 32-bit CardBus cards. For reference, CardBus supports the newer standard of 32-bit PC Cards and provides superior performance for the greater demands of applications such as multimedia data transmission.



PC Cards can sometimes become hot during computer operation. Before you remove a PC Card always wait for it to cool. You could get burned removing a hot PC Card.

Inserting a PC Card

The Windows hot-install feature allows you to insert PC Cards while the computer is turned on.



Do not insert a PC Card while the computer is in Sleep Mode or Hibernation Mode as you may find that some cards do not work properly.

To insert a PC Card, follow the steps as detailed below:

1. Press the PC Card eject button to partially extend it out of the computer.
2. Press the extended PC Card eject button in order to eject the Dummy card partially out of the computer.
3. Grasp the Dummy card and draw it.

4. Insert the PC Card into the PC Card slot on the side of the computer.
5. Press the PC Card gently to ensure a firm connection is made.

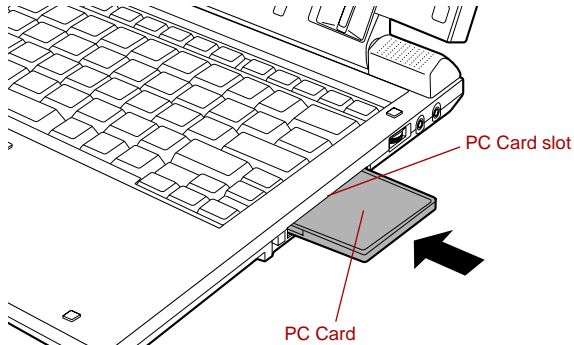


Figure 3-1 Inserting the PC Card

6. After inserting the PC Card you should refer to its documentation and also check the configuration in Windows in order to ensure that it is correct.

Removing a PC Card

To remove a PC Card, follow the steps as detailed below:

1. Open the **Safely Remove Hardware** icon on the Windows Task Bar.
2. Point to **PC Card** and click the left Touch Pad control button.
3. Press the PC Card eject button to partially extend it out of the computer.



If the PC Card is not inserted all the way into the computer, the eject button may not cause it to pop out sufficiently to allow it to be grasped. In this instance, simply push the PC Card firmly back into the computer and then press the eject button again.

4. Press the extended PC Card eject button in order to eject the PC Card partially out of the computer.
5. Grasp the PC Card and remove it.

6. Insert the Dummy card into the PC Card slot.



When you do not use a PC card, please be sure to insert a Dummy card.

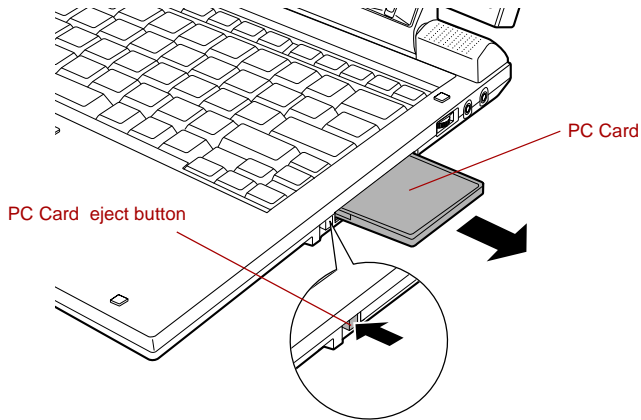


Figure 3-2 Removing the PC Card

Media care

Observe the following precautions when handling the PC Card.

PC Card care

- Do not twist or bend PC Cards.
- Do not expose PC Cards to liquids or store in humid areas or lay media close to containers of liquid.
- Do not touch the metal part of a PC Card or expose it to liquids or let it get dirty.
- After using PC Card, return it to its case.
- The PC Card is designed so that it can be inserted only one way. Do not try to force the PC Card into the slot.
- Do not leave a PC Card partially inserted in the slot. Press the PC Card until you hear it click into place.

PC Card memory care

- Set the write-protect switch to the lock position, if you do not want to record data.
- PC Card memories have a limited lifespan, so it is important to backup important data.
- Do not write to a PC Card memory if the battery power is low. Low power could affect writing accuracy.
- Do not remove a PC Card memory while read/write is in progress.



For more details on using PC Card memories, see manuals accompanying the cards.

Additional memory module

This computer is equipped with two memory slots; Slot A is beneath the keyboard and Slot B is in the underside of the computer.

You can install additional memory into the computer in order to increase the amount of system memory that is available. This section describes how to install and remove optional memory modules.



- *You should place a mat beneath the computer in order to prevent the computer's lid from becoming scratched or damaged when you are installing/replacing the memory module. In this instance you should avoid mats that are made of materials that hold or generate static electricity.*
- *When installing or removing a memory module, you must ensure that you do not touch any other internal areas of the computer.*
- *The Front Side Bus (FSB) Speed for this computer is 533MHz. While 667MHz memory modules can be installed, the FSB will depend on the computer.*
- *Insert the two memory modules of the same specifications and capacity into Slot A and Slot B respectively. The computer will operate in dual channel mode.
You can access the inserted memory modules efficiently in dual channel.*



- *Use only memory modules approved by TOSHIBA.*
- *Do not try to install or remove a memory module under the following conditions.*
 - a. *The computer is turned on.*
 - b. *The computer was shut down in either Sleep or Hibernation Mode.*
 - c. *Wake-up on LAN is enabled.*
 - d. *Wake-up on Wireless LAN is enabled.*
 - e. *The wireless communication switch is turned on.*
- *Be careful not to let screws or other foreign matter fall into the computer. It could cause malfunction or electric shock.*
- *Additional memory module is a precision electronic component that may be fatally damaged by static electricity. Since the human body can carry static electricity, it is important that you discharge yourself before touching or installing any additional memory modules. To discharge your body's static electricity, simply touch any metal close to you with bare hands.*

Point to note about memory module error

If you install a memory module that is not compatible with the computer, the **Power** indicator flashes (on for 0.5 seconds, off for 0.5 seconds) in the following ways;

- If there is only an error in Slot A: repeatedly flashes orange twice, then blue.
- If there is only an error in Slot B: repeatedly flashes orange, then blue twice.
- If there is an error in Slot A and in Slot B: repeatedly flashes orange twice, then blue twice.

In all instances you should shut down the computer and remove the incompatible module(s).



Use a point size 0 Phillips screwdriver to remove and fasten the screws - the use of an incorrect screwdriver can damage the screw heads.

Installing a memory module (Slot A)

To install a memory module, follow the steps as detailed below:

1. Set the computer to Boot Mode and turn its power off - make sure the **Power** indicator is off (refer to the [Turning off the power](#) section in Chapter 1, [Getting Started](#), if required).
2. Remove the AC adaptor and all cables and peripherals connected to the computer.
3. Turn the computer upside down and remove the battery pack (refer to [Replacing the battery pack](#) section in Chapter 6, [Power and Power-Up Modes](#), if required).



Always make sure the display panel is closed in Laptop mode before turning the computer upside down.

4. Turn your computer over.
5. Open the display panel.
6. Slip your finger under a notch at the end of the keyboard brace and lift up to release latches and remove the keyboard brace.

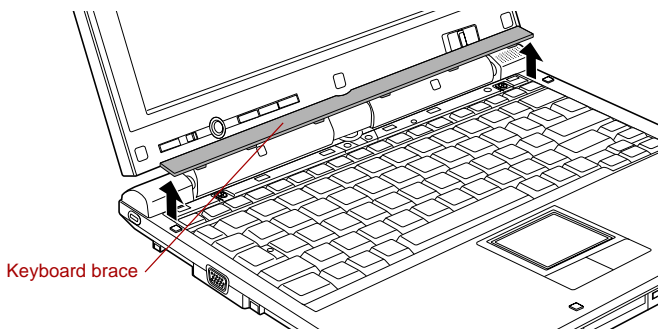


Figure 3-3 Removing the keyboard brace

7. Remove two screws securing the keyboard.



Use a point size 0 Phillips screwdriver.

8. Lift up the back of the keyboard, rotate it toward you and lay it face down on the palm rest.



■ *Never allow metal objects, such as screws, staples and paper clips, to enter the computer or keyboard. Foreign metal objects can create a short circuit, which can cause computer damage and fire, possibly resulting in serious injury.*

■ *When you move the keyboard forward, do not touch the keys. Doing so could cause misalignment. Hold the keyboard by the sides and lay it gently on the palm rest.*

■ *The keyboard is connected to the computer by a keyboard ribbon cable. Be careful not to apply tension to this cable when you lift up the keyboard. Do not try to disconnect this cable.*

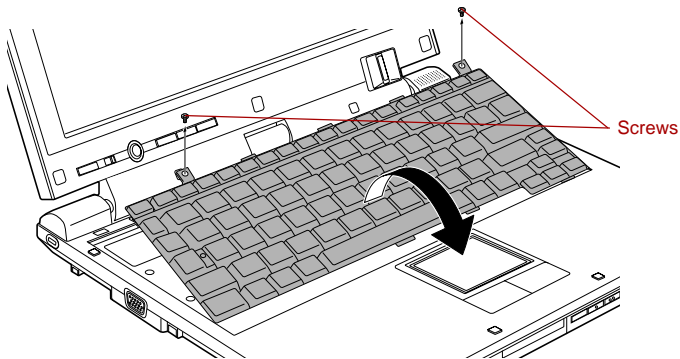


Figure 3-4 Removing two screws and rotate the keyboard

9. Raise the insulator sheet covering the memory module to appear the module. And keep the insulation sheet raised using adhesive tape.

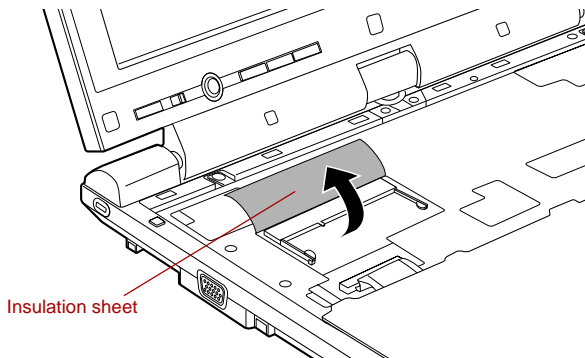


Figure 3-5 Raising the insulation sheet

- Align the notch of the memory module with that of the memory slot and gently insert the module into the slot at about a 45 degree angle before holding it down until the latches on either side snap into place.

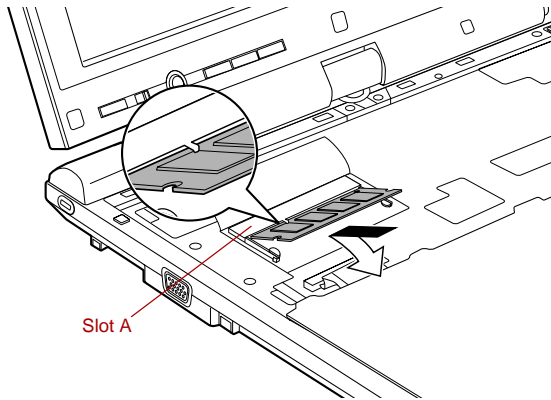


Figure 3-6 Installing the memory module



- Never allow metal objects, such as screws, staples and paper clips, to enter the computer or keyboard. Foreign metal objects can create a short circuit, which can cause computer damage and fire, possibly resulting in serious injury.
- Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.



Align the grooves along the edges of the memory module with the locking tabs on the connector and insert the module into the connector firmly - if you find it difficult to install the memory module, gently prise the locking tabs outwards using the tip of your finger.

Please also ensure that you hold the memory module along its left and right hand edges - the edges with the grooves in.

11. Seat the insulation sheet to cover the memory module.



Be sure to check that insulation sheet is returned to the original position to cover the memory module.

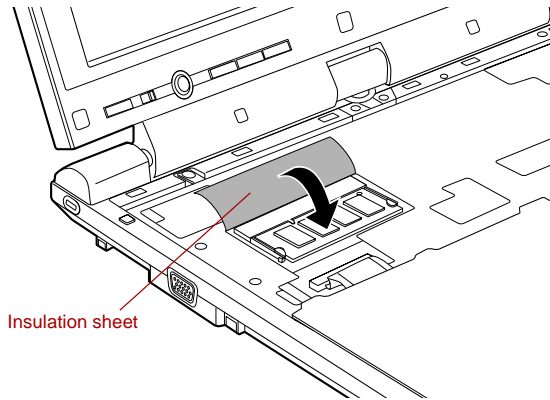


Figure 3-7 Seating the insulation sheet

12. Insert the tabs on the front of the keyboard into the corresponding notches on the computer and place the keyboard down.

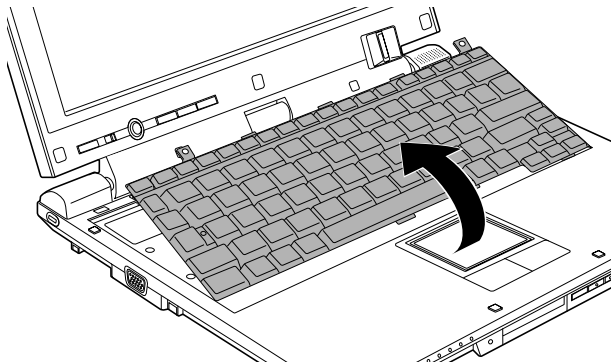


Figure 3-8 Replace the keyboard

13. Replace the keyboard and secure it using the two screws.



Be sure to use all two screws removed in step 7. Make sure no screw was dropped into the computer. Make sure no foreign matter can be found inside the computer.

14. Set the keyboard brace into its groove and hold down to secure the latches.
15. Install the battery pack. Refer to [Replacing the battery pack](#) section in Chapter 6, [Power and Power-Up Modes](#), for details.
16. Turn your computer over.

- Turn the computer on and make sure the added memory is recognized - to confirmed it, **Start -> Control Panel -> System and Maintenance -> System** icon.

Removing a memory module (Slot A)

To remove the memory module, follow the steps as detailed below:

- Set the computer to Boot Mode and turn its power off - make sure the **Power** indicator is off (refer to the [Turning off the power](#) section in Chapter 1, [Getting Started](#), if required).
- Remove the AC adaptor and all cables and peripherals connected to the computer.
- Turn the computer upside down and remove the battery pack (refer to [Replacing the battery pack](#) section in Chapter 6, [Power and Power-Up Modes](#), if required).



Always make sure the display panel is closed in Laptop mode before turning the computer upside down.

- Follow steps 4 through 9 in [Installing a memory module \(Slot A\)](#) to appear the memory module.
- Push the latches to the outside to release the memory module. A spring will force one end of the memory module up.
- Grasp the sides of the module and pull it out.



- *If you use the computer for a long time, the memory modules and the circuits locating close to the memory modules will become hot. In this case, let them cool to room temperature before you replace them. Or you will get burnt if you touch any of them.*
- *Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*

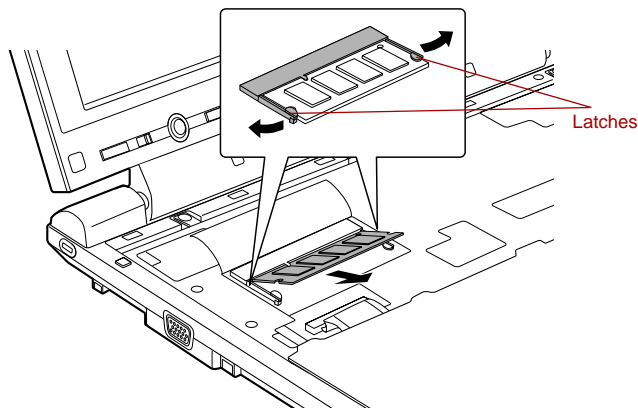


Figure 3-9 Removing the memory module

7. Rotate the keyboard back into place and secure the keyboard brace as described in the previous section.
8. Install the battery pack. Refer to [Replacing the battery pack](#) section in Chapter 6, [Power and Power-Up Modes](#), for details.
9. Turn your computer over.

Installing a memory module (Slot B)

To install a memory module, follow the steps as detailed below:

1. Set the computer to Boot Mode and turn its power off - make sure the **Power** indicator is off (refer to the [Turning off the power](#) section in Chapter 1, [Getting Started](#), if required).
2. Remove the AC adaptor and all cables and peripherals connected to the computer.
3. In Laptop mode, turn the computer upside down and remove the battery pack (refer to the [Replacing the battery pack](#) section in Chapter 6, [Power and Power-Up Modes](#), if required).
4. Loosen the screw securing the memory module cover in place - please note that this screw is attached to the cover in order to prevent it from being lost.



Use a point size 0 Phillips screwdriver.

5. Slide your fingernail or a thin object under the cover and lift it off.

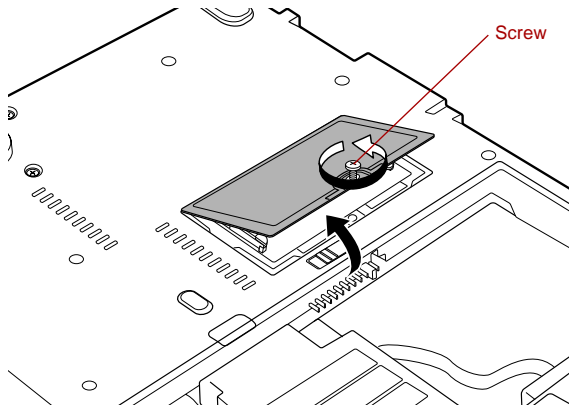


Figure 3-10 Removing the memory module cover

- Align the notch of the memory module with that of the memory slot and gently insert the module into the slot at about a 45 degree angle before holding it down until the latches on either side snap into place.

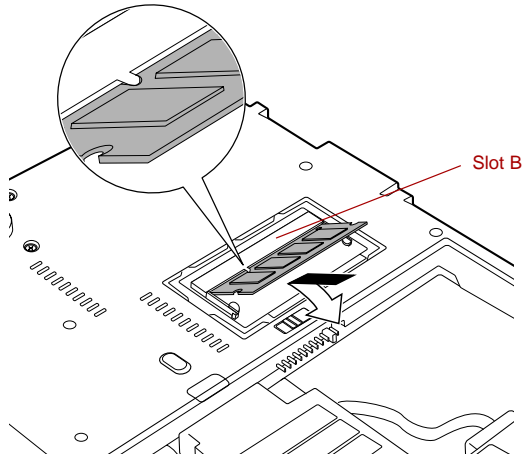


Figure 3-11 Seating the memory module



- *Never allow metal objects, such as screws, staples and paper clips, to enter the computer. Foreign metal objects can create a short circuit, which can cause computer damage and fire, possibly resulting in serious injury.*
- *Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*



Align the grooves along the edges of the memory module with the locking tabs on the connector and insert the module into the connector firmly - if you find it difficult to install the memory module, gently prise the locking tabs outwards using the tip of your finger.

Please also ensure that you hold the memory module along its left and right hand edges - the edges with the grooves in.

7. Seat the memory module cover in place and secure it with one screw.



Take care to ensure that the memory module cover is firmly closed.

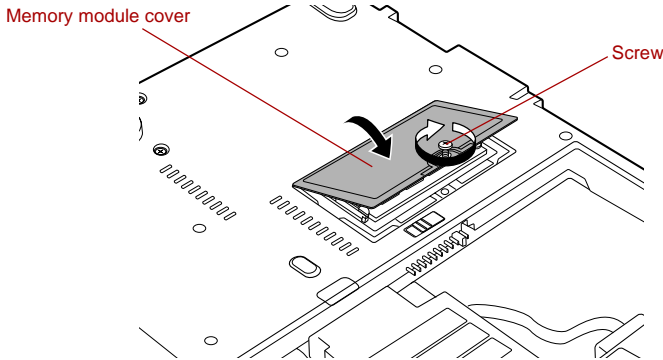


Figure 3-12 Seating the memory module cover

8. Install the battery pack - refer to [Replacing the battery pack](#) section in Chapter 6, *Power and Power-Up Modes*, if required.
9. Turn your computer over.
10. Turn the computer on and make sure the added memory is recognized - to confirmed it, **Start -> Control Panel -> System and Maintenance -> System** icon.

Removing a memory module (Slot B)

To remove the memory module, follow the steps as detailed below:

1. Set the computer to Boot Mode and turn its power off - make sure the **Power** indicator is off (refer to the [Turning off the power](#) section in Chapter 1, *Getting Started*, if required).
2. Remove the AC adaptor and all cables and peripherals connected to the computer.
3. Turn the computer upside down and remove the battery pack (refer to [Replacing the battery pack](#) section in Chapter 6, *Power and Power-Up Modes*, if required).
4. Loosen the screw securing the memory module cover in place - please note that this screw is attached to the cover in order to prevent it from being lost.
5. Slide your fingernail or a thin object under the cover and lift it off.
6. Push the latches away from the module in order to release it - a spring will force one end of the module up at an angle.

7. Grasp the module by its edges and remove it from the computer.



- *If you use the computer for a long time, the memory modules and the circuits locating close to the memory modules will become hot. In this case, let them cool to room temperature before you replace them. Or you will get burnt if you touch any of them.*
- *Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*

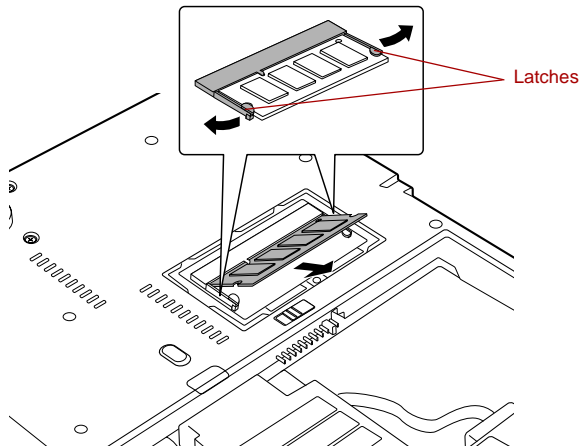


Figure 3-13 Removing the memory module

8. Seat the memory module cover in place and secure it with one screw.



Take care to ensure that the memory module cover is firmly closed.

9. Install the battery pack - refer to [Replacing the battery pack](#) section in Chapter 6, [Power and Power-Up Modes](#), if required.
10. Turn your computer over.

External monitor

An external analog monitor can be connected to the external monitor port on the computer. To connect a monitor, follow the steps as detailed below:

Connecting the monitor cable

1. Turn the computer's power off.
2. Connect the monitor cable to the external monitor port.

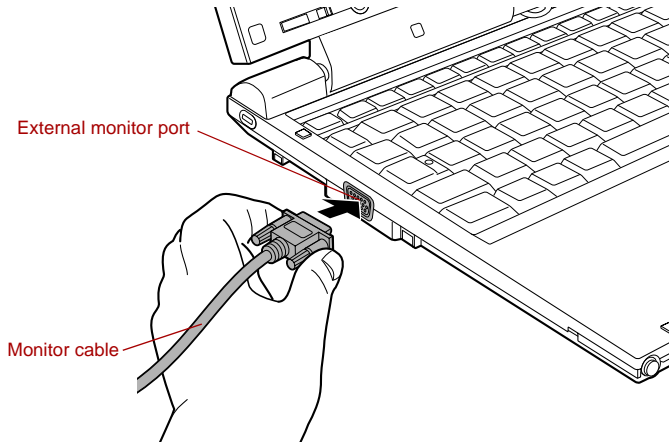


Figure 3-14 Connecting the monitor cable to the external monitor port

3. Turn the external monitor's power on.
4. Turn the computer's power on.

When you turn on the power, the computer will automatically recognize the monitor and determine whether it is a color or monochrome device. In the event that you find that there are issues getting an image displayed on the correct monitor, you should consider using the **Fn + F5** hot key to change the display settings (if you then disconnect the external monitor before you turn the computer's power off, be sure to press **Fn + F5** hot key again to switch to the internal display).

Please refer to Chapter 5, [The Keyboard](#), for further details on using hot keys to change the display setting.

USB FDD Kit

The USB floppy diskette drive accommodates either a 1.44MB or 720KB floppy diskette and connects to one of the computer's USB ports.

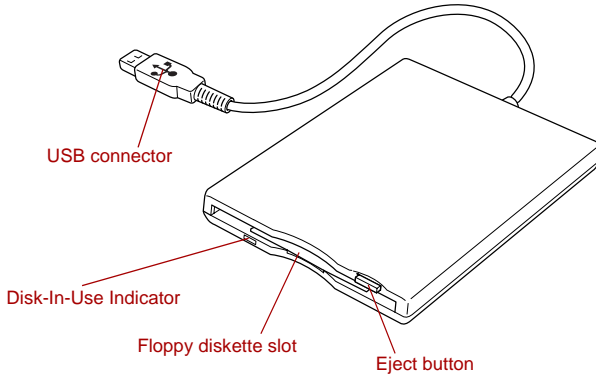


Figure 3-15 The USB floppy diskette drive

Connecting the USB floppy diskette drive

To connect the drive, plug the floppy diskette drive's USB connector into a computer's USB port.



Make sure the connector is properly aligned with the socket. Do not try to force the connection, doing so can damage the connecting pins.

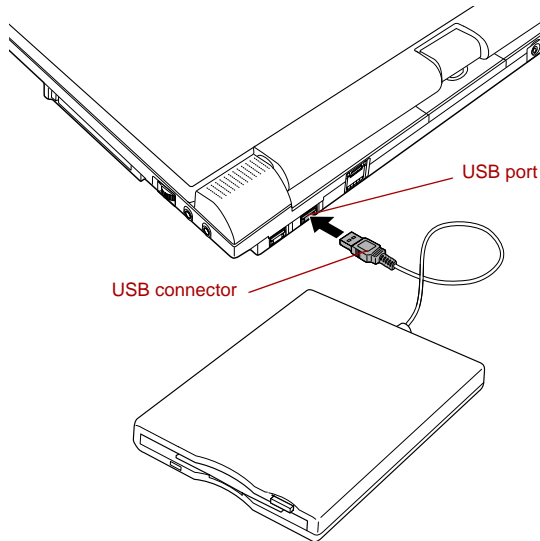


Figure 3-16 Connecting the USB floppy diskette drive



If you connect the USB floppy diskette drive after the computer has already been turned on, it will take about ten seconds for it to be recognized by the computer. Do not attempt to disconnect and reconnect the drive before this period has elapsed.

Disconnecting the USB floppy diskette drive

When you have finished using the USB floppy diskette drive, you can follow the procedures below in order to disconnect it:

1. Wait for the Disk-In-Use Indicator light to go out to make sure all floppy diskette activity has stopped.



If you disconnect the USB floppy diskette drive or turn off the power while the computer is accessing the drive you may lose data or damage the floppy diskette or the drive.

2. Click the **Safely Remove Hardware** icon on the Windows Task Bar.
3. Click the USB floppy diskette drive device that you want to remove.
4. Carefully pull the floppy diskette drive's USB connector out from within the computer's USB port.

Security lock

A security lock enables you to anchor your computer a desk or other heavy object in order to help prevent unauthorized removal or theft. The computer has a security lock slot on its left side into which you can attach one end of the security cable, while the other end attaches to a desk or similar object. The methods used for attaching security cables differ from product to product. Please refer to the instructions for the product you are using for more information.

Connecting the security lock

In order to connect a security cable to the computer, follow the steps as detailed below:

1. Turn the computer so its left hand side faces you.
2. Align the security cable with the 'lock hole' and secure it in place.

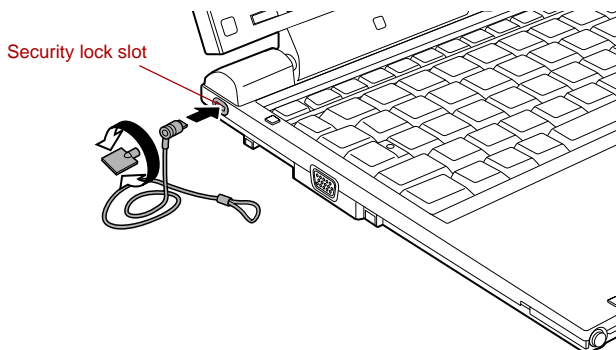


Figure 3-17 Security lock

Optional accessories

You are able to add a number of options and accessories in order to make your computer even more powerful and convenient to use. For reference, the following list details some of the items that are available from your reseller or TOSHIBA dealer:

DDR2-533 Memory Module	A 512MB or 1,024MB memory module (DDR2-533) can easily be installed in the computer.
DDR2-667 Memory Module	A 512MB, 1,024MB or 2,048MB memory module (DDR2-667) can easily be installed in the computer. The Front Side Bus (FSB) Speed for this computer is 533MHz. While 667MHz memory modules can be installed, the FSB will depend on the computer.
Universal AC Adaptor	If you frequently use your computer at more than one site, it may be convenient to purchase an additional AC adaptor to be kept at each site in order to remove the need to always carry the adaptor with you.
Battery Pack	An additional battery pack can be purchased for use as either a spare or replacement. Please refer to Chapter 6, <i>Power and Power-Up Modes</i> , for further information.
2nd Battery Pack	This battery pack increases your computer's operating time when a main battery pack is also installed. It is connectable to the 2nd battery port of the computer.
USB FDD Kit	The USB floppy diskette drive accommodates either a 1.44MB or 720KB floppy diskette through connection to one of the computer's USB ports. In use, please be aware that, while you cannot format 720KB floppy diskettes under Windows Vista™, you are able to read and write to diskettes that have already been formatted.
External DVD Super Multi Drive	The DVD Super Multi Drive can run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without an adaptor and connects to one of the computer's USB ports.
External CD-RW/DVD-ROM Drive	The External CD-RW/DVD-ROM Drive can run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without an adaptor and connects to one of the computer's USB ports.

**Bluetooth USB
Adaptor**

When connected to one of the computer's USB ports, the Bluetooth USB adaptor allows wireless communications to be carried out with Bluetooth-compatible equipment.

Tablet PC Pen

Additional Tablet PC Pens can be purchased from your TOSHIBA dealer for use as spare items (spare pen tips and a tip draw-out tool are included).

Chapter 4

Operating Basics

This chapter describes the basic operations of your computer and highlights the precautions that should be taken when using it.

Using the Touch Pad

To use the Touch Pad, simply touch and move your fingertip across it in the direction you want the on-screen pointer to go.

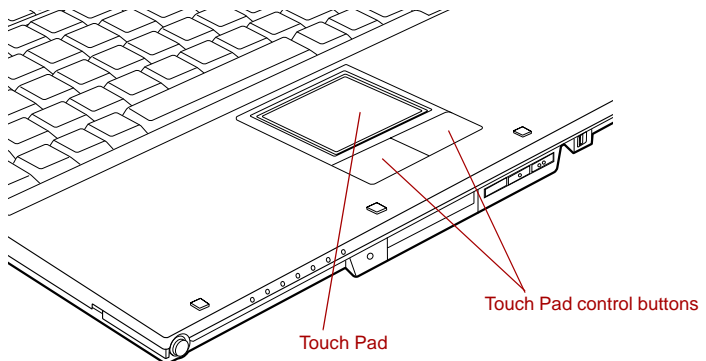


Figure 4-1 Touch Pad and Touch Pad control buttons

The two buttons below the Touch Pad are used like the buttons on a standard mouse - press the left button to select a menu item or to manipulate text or graphics designated by the pointer, and press the right button to display a menu or other function depending on the software you are using.



You can also tap the Touch Pad to perform functions similar to those of the left button on a standard mouse.

Click: Tap once

Double-click: Tap twice

Drag and drop: Tap to select the item(s) you want to move, leave your finger on the Touch Pad after the second tap and then move the item(s) to their new destination.

Using the Tablet PC Pen

You can use the Tablet PC Pen to execute actions and enter data. Hold the Tablet PC Pen in a natural position and tap, press or trace on the screen lightly. Before you begin using the your computer for the first time, you will need to calibrate the Tablet PC Pen. Refer to the [Pointing device](#) section in Chapter 8, [Troubleshooting](#).

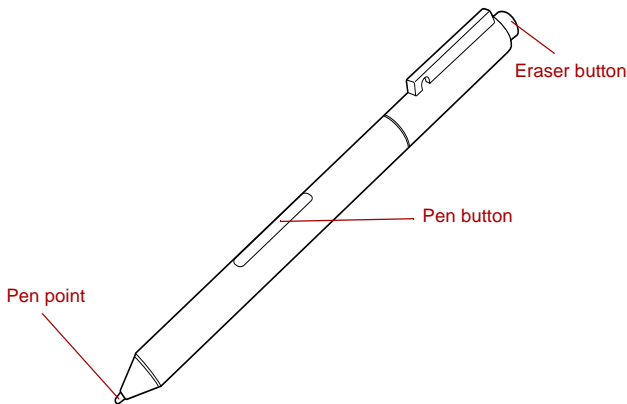


Figure 4-2 The Tablet PC Pen

Eraser button	You can use this button as an eraser when using a graphics software application. Text based software application enable you to select and delete characters with a one-touch action.
Pen button	Provides the some function as clicking the right Touch Pad control button.
Pen point	Provides the some function as clicking the left Touch Pad control button.



Observe the following precautions on the handling of the Tablet PC Pen.

- Do not tap or press the Tablet PC Pen forcefully against the display as this could damage the Tablet PC Pen and the screen itself.
- Avoid using or keeping the Tablet PC Pen in areas where the temperature can change rapidly or in places, such as a car, where the Tablet PC Pen is exposed to direct sunlight. Store the Tablet PC Pen without any pressure being applied to the buttons. Failure to do so could cause a malfunction or characteristic deterioration.
- The Tablet PC Pen is composed of precision parts. Do not drop the Tablet PC Pen. Strong impact causes a malfunction or characteristic deterioration.
- Do not apply excessive force to the Tablet PC Pen point and the side buttons. Excessive force applied to these parts causes short life or characteristic deterioration (Allowable force to pen point, Eraser button, Pen button: less than 1 kg, for less than 30 seconds).
- Avoid water entering the Tablet PC Pen or condensation forming within it as either condition will cause a malfunction.
- Do not disassemble the Tablet PC Pen. It causes maladjustment or short life.
- Do not stain the Tablet PC Pen with cosmetics or chemicals as this will cause a deterioration in appearance. Use a glass wiping cloth or dry cloth to clean the Tablet PC Pen. Do not use volatile liquids such as alcohol, thinner or petroleum benzine to clean the Tablet PC Pen.
- Do not apply excessive force to the Tablet PC Pen point as a bent or deformed pen point will cause a malfunction.
- Keep the small parts of the Tablet PC Pen, such as the pen point or the knob of the side buttons, away from infants and small children to prevent the accidental ingestion by them.
- Do not use a ball point pen instead of the Tablet PC Pen included with the product.
- Do not use a broken pen tip.



TOSHIBA is not liable for any problems arising on the products due to the use of the Tablet PC Pen in an environment where the above conditions are not satisfied or because of its use by unspecified number of users.

Removing the Tablet PC Pen

Remove the Tablet PC Pen as described below.

1. Slide the Tablet PC Pen from the Tablet PC Pen slot, so that it protrudes slightly.
2. Pull the Tablet PC Pen to remove it from the Tablet PC Pen slot.

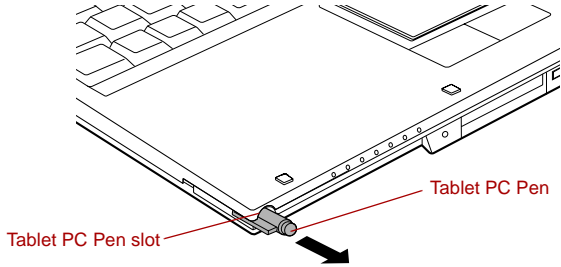


Figure 4-3 Removing the Tablet PC Pen

Inserting the Tablet PC Pen

The Tablet PC Pen is included in the small case coming with the product. Remove the Tablet PC Pen from small case and install it to the computer as follows:

1. Insert the Tablet PC Pen into the Tablet PC Pen slot until it clicks.

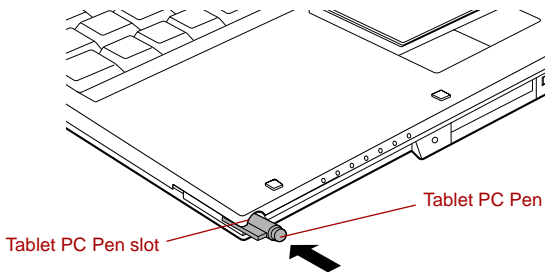


Figure 4-4 Inserting the Tablet PC Pen

Pen actions

You can use the Tablet PC Pen to enter data, start programs, move objects and execute other actions.

Single tap

Lightly tap the tip of the Tablet PC Pen on an object and lift it immediately to execute an action. A single tap is similar to clicking the left touch pad control button.

Double tap

Lightly tap the tip of the Tablet PC Pen twice on an object and lift it immediately to execute an action. A double-tap is similar to double-clicking the left touch pad control button.

Press and hold

Touch the tip of the Tablet PC Pen to the display screen and hold it there to display a pop-up menu or other action. Press and hold is similar to clicking the right touch pad control button.

Drag

Touch the Tablet PC Pen to the screen. Without lifting the Tablet PC Pen, drag it across the screen to select text or objects.

Drag and drop

Touch the Tablet PC Pen to the screen to select an object. Without lifting the Tablet PC Pen, drag it across the screen. Lift the Tablet PC Pen to drop the object to a new location.

Replacing the pen tip

1. To replace the pen tip, pinch the tip with a draw-out tool and pull it out.
2. Insert a new pen tip into the Tablet PC Pen carefully, and press it securely.

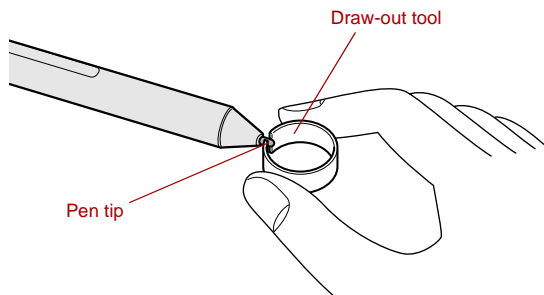


Figure 4-5 Replacing the pen tip



Do not continue to use a broken pen tip as this may result in scratching of the display panel. When the pen tip breaks replace it with one of the refills delivered with the Tablet PC Pen. When these refills have run out, you can purchase a new pen set from a TOSHIBA authorized dealer.



- *A short and worn pen point is difficult to pull out. Replace the pen point with a refill before it becomes too short to remove.*
- *It is recommended that you keep another pen set as a spare. You can buy replacement pen sets from your TOSHIBA authorized dealer.*

Using the Tablet mode

This section explains Tablet mode functions and use.

Changing to the Tablet mode

To change from Laptop mode to the Tablet mode, follow the instructions below.



- *Place the computer on a stable, flat surface such as a desktop and rotate the display panel slowly, holding the panel at its lower part. The display panel is designed not to rotate more than 180 degrees. Rotating the display panel more than 180 degrees with an excessive force will damage the panel and the computer.*
- *To change from Laptop mode to Tablet mode you must rotate the display panel 180 degrees clockwise.*

1. Open the display panel to the upright position.



When rotating the display panel, be sure to keep the display panel at a 90-degree angle to the keyboard.

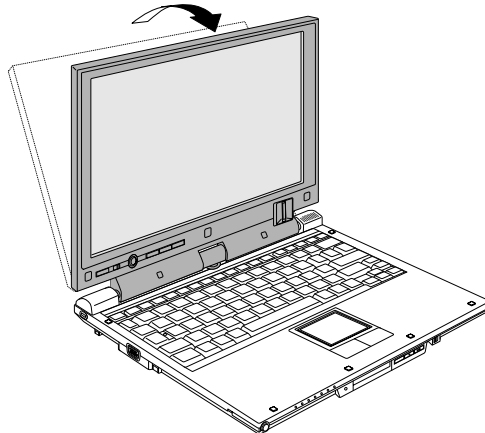


Figure 4-6 Changing to the Tablet mode (1)

2. Rotate the display panel clockwise slowly.



- *When rotating display panel of your computer, be sure to slowly turn it in the proper direction, and not apply excessive force or speed.*
- *Do not attempt to rotate the display panel past the maximum rotation point. Forcing the display panel past the maximum rotation point will damage the display panel.*
- *Rotating the display panel counterclockwise will break the hinge and cause the computer to cease to function correctly.*

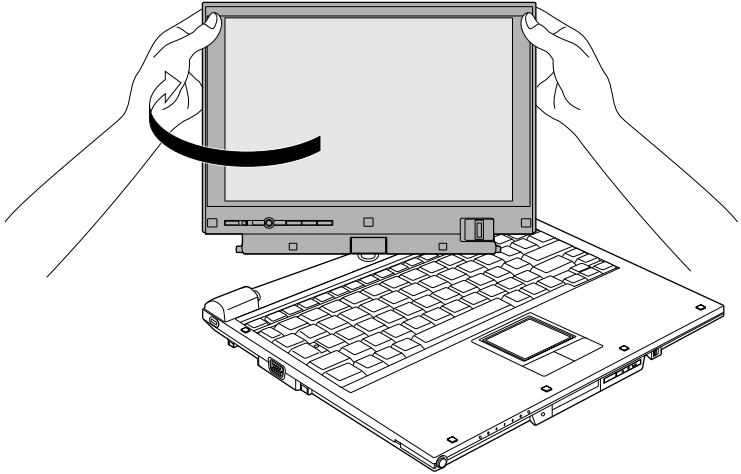


Figure 4-7 Changing to the Tablet mode (2)

3. Close the display panel slowly with display surface facing upwards.

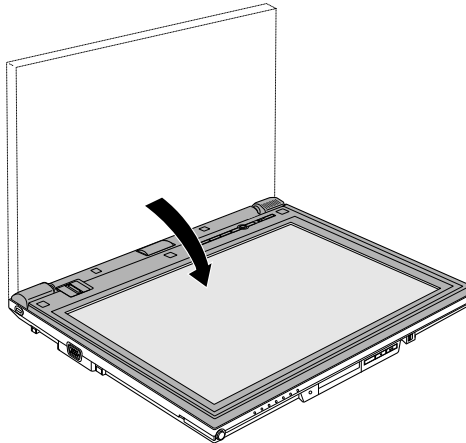


Figure 4-8 Changing to the Tablet mode (3)

Changing to the Laptop mode

To change the operating mode to the Laptop mode, follow the instructions below.

1. Raise the display to the upright position carefully.
2. Rotate the display counter-clockwise slowly.
3. Closing of the display.

Changing the screen orientation

The orientation of the computer screen can be changed to one of the following four display modes:

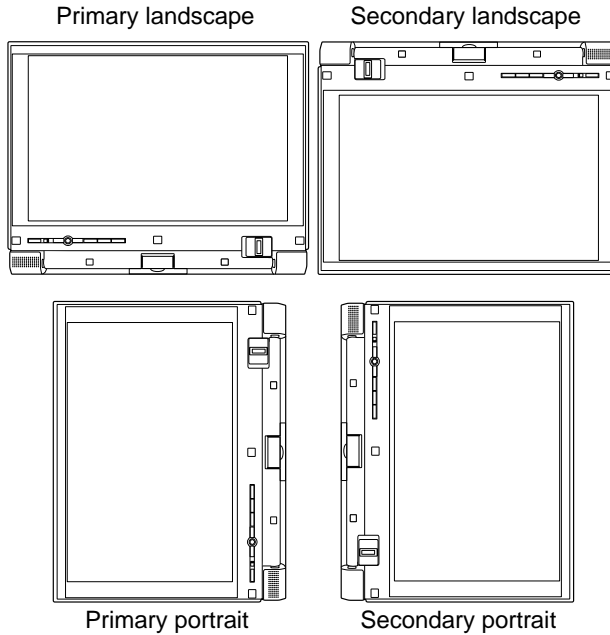


Figure 4-9 Four display modes



- *Execute the following applications on Primary landscape:*
 - *3D game software*
 - *3D screen saver*
 - *Playback of a motion picture as would be the case using DVD-Video playback on the computer connected to an external DVD-ROM Drive.*
- *The screen cannot automatically rotate in the following cases. You should first quit the running application and then rotate the screen:*
 - *Running of an application that changes the screen resolution dynamically, such as a game that is running in full-screen mode.*
 - *DOS prompt in full-screen mode.*
 - *Running of 3D screen saver.*



- *Do not play 3D game software or replay DVD-Video in a display mode other than Primary landscape. An abnormality will appear on the Windows screen display when you replay a DVD-Video in a mode other than Primary landscape because DVD playback software can boot only in the Primary landscape mode.*
- *An abnormality will appear on the Windows screen display when you change from Tablet mode to Laptop mode while a 3D screen saver is running. In this case, press any key while in Laptop mode to deactivate the 3D screen saver.*

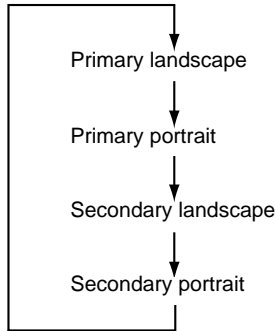
Method 1: Changing the screen orientation using TOSHIBA Accelerometer Utilities and TOSHIBA Rotation Utility

When the TOSHIBA Accelerometer Utilities and TOSHIBA Rotation Utility are running, changes in the orientation of the top and bottom of the screen is automatically recognized by pressing ESC/Rotation button for more than a second.

Method 2: Changing the screen orientation using Task Bar

1. Click **Start** and open **Control Panel**.
2. Select **Mobile PC**.
3. Open **Tablet PC Settings**.
4. Click **Change** button in **Display** tab.

5. Select a screen orientation from the Orientation pull down menu and change the screen.



You can set the orientation of the desktop screen just after rotating the display from **Start -> All Programs -> TOSHIBA -> Tablet PC -> Rotation Utility**.

Using Accelerometer Utilities



When you shake the computer:

- Do not shake the computer too strongly as this may cause the computer to be dropped or hit those people or items around you.
- Avoid using the computer in crowded places (e.g. in commuter trains or in busy streets).
This may cause injury to children or adults, or damage to the computer.



When the TOSHIBA HDD protection function is turned on and the Tilt function (function to start applications, etc. by waving the computer vertically or horizontally) is used, the TOSHIBA HDD protection message may be displayed on the screen. Turn off the TOSHIBA HDD protection function in order to stop such messages from displaying.

It is safer if you hold the computer with both hands horizontally as shown in the below example.

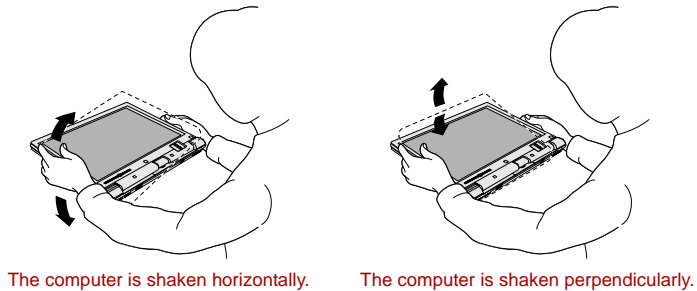


Figure 4-10 Shake the computer

Using the Fingerprint Sensor

This product has a fingerprint utility installed for the purpose of enrolling and recognizing fingerprints. By enrolling the ID and password onto the fingerprint authentication feature, it is no longer necessary to input the password from the keyboard. Fingerprint feature enables you to:

- Logon to Windows and access a security enabled homepage through Internet Explorer.
- Files and folders can be encrypted/decrypted and third party access to them prevented.
- Disable the password-protected screen-saver when returning from a power-saving mode such as Sleep Mode.
- Authentication of the User Password (and, if applicable, the HDD (Hard Disk Drive) Password) when booting up the computer (Power-on Security).
- Single Sign-on facility

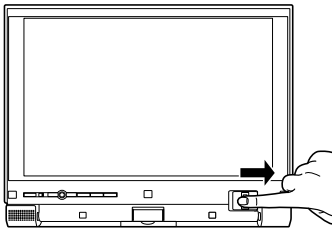
How to Swipe your Finger

Using the following steps when swiping fingers for fingerprint registration or authentication will help to minimize authentication failures:

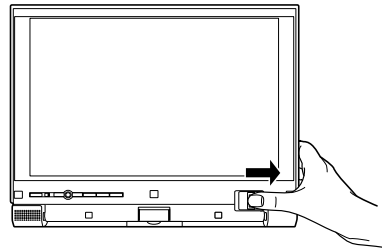
Align the first joint of the finger to the center of the sensor. Lightly touch the sensor and swipe finger levelly towards you when in portrait mode, and sideways when in either landscape mode or Laptop mode.

While lightly touching the sensor, swipe the finger towards you when in portrait mode, and sideways when in either landscape mode or Laptop mode until the sensor surface becomes visible.

The following illustrations show the recommended way to swipe your finger over the fingerprint sensor.



Sample. 1) When swiping the index finger

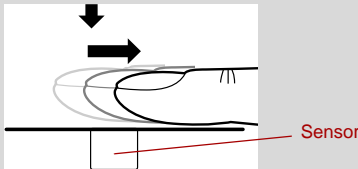


Sample. 2) When swiping the thumb

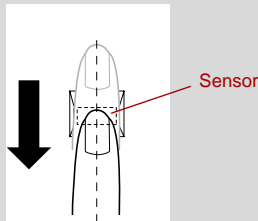
Figure 4-11 Swipe the finger



- *Avoid swiping with your finger stiff or pressed too hard onto the sensor, and take care to ensure that the center of the fingerprint is touching the sensor before swiping. Either of these conditions may cause fingerprint reading to fail.*



- *Check the center of the fingerprint whirl before swiping and then ensure this is swiped along the center line of the sensor.*



- *There is a possibility of authentication failures if the finger is swiped too quickly or too slowly - follow any on-screen instructions to adjust the speed used during the swipe process.*

Points to note about the Fingerprint Sensor

Please be aware of the following considerations when using the fingerprint sensor. A failure to follow these guidelines might result in damage to the sensor, sensor failure, fingerprint recognition problems or a lower fingerprint recognition success rate.

- Do not scratch or poke the sensor with your nails or any hard or sharp objects.
- Do not press the sensor strongly.
- Do not touch the sensor with a wet finger or any wet objects - keep the sensor surface dry and free from water vapor.
- Do not touch the sensor with a soiled or dirty finger as minute foreign particles of dust and dirt may scratch it.
- Do not paste stickers or write on the sensor.
- Do not touch the sensor with a finger or any other object which may have a build-up of static electricity on it.

Observe the following before you place your finger on the sensor whether for fingerprint enrollment/registration or recognition.

- Wash and dry your hands thoroughly.
- Remove static electricity from your fingers by touching any metal surface. Static electricity is a common cause of sensor failures, especially when the weather is dry.
- Clean the sensor with a lint-free cloth - do not use detergent or any other chemicals to clean the sensor.
- Avoid the following finger conditions for enrollment or recognition as they may result in fingerprint enrollment errors or a drop in the fingerprint recognition success rate
 - Soaked or swollen finger, for example as may occur after taking a bath.
 - Injured finger
 - Wet finger
 - Soiled or oily finger
 - Extremely dry skin condition on finger

Observe the following to improve the fingerprint recognition success rate.

- Enroll two or more fingers.
- Enroll additional fingers if a recognition failure often occurs when using already enrolled fingers.
- Check the condition of your finger - any conditions which have changed since enrollment, such as injury, rough skin, and extremely dry, wet, soiled, dirty, oily, soaked or swollen fingers, may lower the recognition success rate. Also if the fingerprint is worn down or the finger becomes thinner or fatter, the recognition success rate may be lowered.
- As the fingerprint for each finger is different and unique you should ensure that only the registered or enrolled fingerprint or fingerprints are used for identification.

- Check the position and speed at which you swipe your finger across the sensor - please refer to the preceding drawing.

How to Delete the Fingerprint Data

Saved fingerprint data is stored in special non-volatile memory inside the fingerprint sensor. Therefore, if you give the computer to someone else, or dispose of it in any way, the following process is recommended to delete your fingerprint information:

1. To run this program, click **Start -> All Programs -> Protector Suite QL -> Control Center**.
2. The **Protector Suite Software** screen is displayed.
3. Click **Fingerprints** and click **Delete**.
4. Click **Settings** and click **Fingerprint Storage Inspector**.
5. The **Fingerprint Storage Inspector** screen will be displayed. If fingerprint data is displayed as part of the list, simply select all of this information and then **Remove**.
6. Check whether all of the fingerprint data was deleted on the **Fingerprint Storage Inspector** screen.

In use, please be aware of the following limitations of the fingerprint sensor:

- The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint.
- A warning message will be displayed when recognition is abnormal or recognition is not successful within a fixed duration.
- The recognition success rate may differ from user to user.
- Toshiba does not guarantee that this fingerprint recognition technology will be error-free.
- Toshiba does not guarantee that the fingerprint sensor will recognize the enrolled user or accurately screen out unauthorized users at all times. Toshiba is not liable for any failure or damage that might arise out of the use of this fingerprint recognition software or utility.

Points to note about the Fingerprint Utility software



You are able to backup saved fingerprint data and information within the PasswordBank by using the Import or Export User Data facility under the fingerprint management software. However, please be aware that any encrypted files cannot be backup within FileSafe using this function - in these instances it is recommended that you backup these files to external media using standard file copy processes.

The Encrypting File System (EFS) is a Windows Vista™ feature.

If a file is encrypted using EFS, it cannot be encrypted further using the fingerprint authentication function.

If both the fingerprint sensor and Trusted Platform Module (TPM) security are used as identification devices, you must install and configure the Infineon TPM Professional package first before you setup and configure the fingerprint utility. Please refer to the **TPM (Trusted Platform Module) Installation Guide** for further information on the installation and configuration considerations relating to TPM.

In the Help File, it is stated that this software's PasswordBank function can be used for managing security relating to the Internet as well as for general applications. However, please be aware that the Internet PasswordBank function within the fingerprint utility provided on this computer can only be used with Microsoft's Internet Explorer software.

Set Up Procedure

Please use the following procedure when first using fingerprint authentication.

Fingerprint Registration

You should initially enroll the required authentication data using the **User Enrollment Wizard**.



- *In use, the fingerprint authentication system will use the same username and password as defined within the Windows operating system. If no Windows password has been configured, you must do this before starting the fingerprint registration process.*
- *Up to twenty-one fingerprint patterns can be registered on this sensor.*

1. To run this program, click **Start -> All Programs -> Protector Suite QL -> User Enrollment**.



You are also able to start the User Enrollment Wizard by using the following methods.

- *Click the Protector Suite QL icon in the Task Bar.*
- *Swipe your finger across the Fingerprint Sensor.*

2. Click **Next**.
3. At the **User's Password** screen which is then displayed, you should ensure that the same Windows username is displayed before entering the appropriate password into the **Enter your password** field. Once this has been done, click **Next**.
4. At the **Hints for Fingerprint Enrollment** screen, confirm the message displayed and ensure that there is a check mark in the **Run Interactive Tutorial** box. Once this has been done, click **Next**.
5. At the **Correct Swipe Procedure** screen, confirm the message that is displayed and then click **Next**.
6. At the **Scanning Practice** screen, you are able to practice swiping your finger to ensure you use the correct method. Once you have finished practicing, click **Next**.

7. At the **User's Fingers** screen, select the finger that you wish to enroll from the illustration and then click **Next**. On this screen please be aware that any previously enrolled fingerprints would have green check marks, while the fingerprint that you are about to enroll will have a red check mark. If any of the previously enrolled fingerprints is selected again, the latest information will be enrolled and any previous information over-written.
8. At **Advanced Security** screen, select whether you wish to enable the security function, and then click **Next**.
9. At **Finalization** screen, click **Finish** - this will complete the fingerprint registration process.

Windows Logon via Fingerprint Authentication

If required, you are also able to use fingerprint authentication in place of the usual Windows logon process using your username and password. This method is especially useful where there are many users using the same computer as it removes the need for actual user selection when the system is started.

Fingerprint Authentication Procedure

1. Start up the computer.
2. At the **Logon Authorization** screen, choose any of the enrolled fingers and swipe the fingerprint on the sensor - if the authentication process is successful, the user will automatically be logged in to Windows.



If the fingerprint authentication process fails you will need to log into Windows using the appropriate username and password. In addition, you should use this manual login process if fingerprint authentication fails for three consecutive tries - a warning message will be displayed when authentication is not normal or is not successful within a fixed duration.

Fingerprint Power-on Security

General

The fingerprint authentication system can be used to replace the keyboard based password authentication system that is used when the computer is turned on.

If you do not want to use the fingerprint authentication system for password authentication when the computer is turned on, but instead prefer to use the keyboard entry method instead, simply press the **BkSP** (backspace) key or the **ESC/Rotation** button when the Fingerprint Power-on Security screen is displayed. Using this process will switch the password input screen across to the keyboard based entry screen.



- You must ensure that you use the TOSHIBA Password Utility to register a User Password before using the Fingerprint Power-on Security and its extended function to allow fingerprints to be used to access the computer when it is turned on.
- If the fingerprint authentication process fails five times, a preset time limit is exceeded, or you press the **BkSP** (backspace) key, [Password =] will be displayed on the screen and you will have to enter either the User Password or Supervisor Password manually in order to start the computer.
- When swiping your finger, please ensure that you do it slowly and at a constant speed. If you find that this does not improve the authentication rate, you should try to adjust the speed at which the finger is swiped.
- If there are any changes in the environment or settings related to authorization, you will be required to provide authorization information such as a User Password (and, if applicable, the HDD(Hard Disk Drive) password).

How to Enable Fingerprint Power-on Security Settings

It is necessary to first enroll your fingerprint with the Protector Suite QL application prior to enabling and configuring the Fingerprint Power-on Security System. You should check that your fingerprint is enrolled before configuring the settings (please refer to the Manual for Fingerprint Registration/Enrollment for further instructions).

1. Swipe your finger across the fingerprint sensor.
2. MENU will appear in the lower right corner of the screen. Swipe(*) your finger on the fingerprint sensor and then select Control Center from the items presented in this menu.

(*) It is recommended that the keyboard cursor keys (movement) and enter key (selection) or the directional pad be used when selecting an Item from the Menu in laptop or landscape modes.

3. At the **Fingerprint Software Management** screen, click **Settings** and then click **Power-on Security**.
4. At the **Power-on Security** screen, place a check mark in the Replace the power-on and hard disk drive passwords with the fingerprint reader setting and then click **OK**.

Fingerprint Single Sign-on Feature

General

This is a feature that allows the user to complete the authentication for both the User/BIOS Password (and, if applicable, the HDD (Hard Disk Drive) Password) and logging onto Windows using only one fingerprint authentication when booting up. It is necessary to register the User/BIOS Password and Windows Logon Password before using the Fingerprint Power-on Security and this Fingerprint Single Sign-on Feature. Please use the TOSHIBA Password Utility to register your User/BIOS Password. If Windows Logon is not the default for your system, see Manual to register your Windows Logon Password.

Only one fingerprint authentication is required to replace the User/BIOS Password (and, if applicable, the HDD (Hard Disk Drive) Password) and the Windows Logon Password.

How to Enable Fingerprint Single Sign-on Feature

It is necessary to first enroll your fingerprint with the Protector Suite QL application prior to enabling and configuring the Fingerprint Single Sign-on feature. You should check that your fingerprint is enrolled before configuring the settings (please refer to the Manual for Fingerprint Registration/Enrollment for further instructions).

1. Swipe your finger across the fingerprint sensor.
2. MENU will appear in the lower right corner of the screen. Swipe(*) your finger on the fingerprint sensor and then select Control Center from the items presented in this menu.

(*) It is recommended that the keyboard cursor keys (movement) and enter key (selection) or the directional pad be used when selecting an Item from the Menu in laptop or landscape modes.

3. At the **Fingerprint Software Management** screen, click **Settings** and then click **System Settings**.
4. At the **Protector Suite Settings** screen, place a check mark in the Allow power-on security single sign-on setting within Enable logon support and then click **OK**.

Fingerprint utility limitations

TOSHIBA does not guarantee that the fingerprint utility technology will be completely secure or error-free, or that it will accurately screen out unauthorized users at all times. TOSHIBA is not liable for any failure or damage that might arise out of the use of the fingerprint software.

Media care

This section provides tips on protecting data stored on your CD's, DVD's and floppy diskettes. Handle your media with care. Following the simple precautions listed below will increase the lifetime of your media and protect the data stored on it.

CD/DVDs

1. Store your CD's and DVD's in the containers they originally came in to protect them and keep them clean.
2. Do not bend the CD's or DVD's.
3. Do not write on, apply a sticker to, or otherwise mar the surface of the CD or DVD that contains the data.
4. Hold the CD or DVD by its outside edge or the edge on the center hole - any fingerprints on the surface of the disc can prevent the drive from properly reading data.
5. Do not expose the CD or DVD to direct sunlight, extreme heat or cold.
6. Do not place heavy objects on your CD's or DVD's.
7. If your CD's or DVD's become dusty or dirty, wipe them with a clean dry cloth from the center hole outwards - do not wipe in a circular direction. If necessary, you can use a cloth that has been lightly dampened in water or a neutral cleaner but you must not use benzine, thinner or any similar cleaning solution.

Floppy diskettes



The USB floppy diskette drive is available only as an option.

1. Store your floppy diskettes in the container they came in to protect them and keep them clean. If a floppy diskette becomes dirty, clean it with a soft, lightly dampened cloth - do not use cleaning fluid.
2. Never open the shutter or touch the magnetic surface of your floppy diskette - doing this could permanently damage it and lose data.
3. Always handle floppy diskettes with care to prevent the loss of stored data.
4. Always apply the floppy diskette label in the correct location and never apply a new label on top of an existing one - in this instance the label could come loose and damage the floppy diskette drive.
5. Never use a pencil for writing on a floppy diskette label as the dust from the pencil lead could cause a system malfunction if it found its way onto the computer's components. In this instance, always use a felt-tipped pen and write the label first before applying it to the floppy diskette.
6. Never put a floppy diskette in a location where water or other liquid may make contact with it, or where it is excessively damp - either of these conditions could cause data loss.
7. Never use a wet or damp floppy diskette - this could damage the floppy diskette drive or other devices within the computer.

8. Data may be lost if the floppy diskette is twisted, bent, or exposed to direct sunlight, extreme heat or cold.
9. Do not place heavy objects on your floppy diskettes.
10. Do not eat, smoke, or use items such as erasers near your floppy diskettes as foreign particles inside the jacket of the floppy diskette can damage the magnetic surface.
11. Magnetic energy can destroy the data on your floppy diskettes. In view of this you should keep your floppy diskettes away from speakers, radios, televisions and other sources of magnetic fields.

Sound System

This section describes some of the audio control functions.

Volume Mixer

The Volume Mixer utility lets you control the audio volume for playback of devices and applications under Windows.

- To launch the Volume Mixer utility, right click on the speaker icon on the taskbar, and select **Open Volume Mixer** from the sub menu.
- To adjust the volume level of speakers or headphones, move the **Speakers** slider.
- To adjust the volume level of an application that you are using, move the slider for the corresponding application.

Microphone Level

Follow the steps below to change the microphone recording level.

1. Right click on the speaker icon on the taskbar, and select **Recording Devices** from the sub menu.
2. Select **Microphone**, and click **Properties**.
3. On the **Levels** tab move the **Microphone** slider to increase or decrease the microphone volume level.

If you feel the microphone volume level is inadequate, move the **Microphone Boost** slider to a higher level.

PC Beep Level

Follow the steps below to change the PC Beep playback level.

1. Right click on the speaker icon on the taskbar, and select **Playback Devices** in the sub menu.
2. Select **Speakers**, and click **Properties**.
3. On the **Levels** tab move the **PC Beep** slider to increase or decrease the PC Beep volume level.

Audio Enhancements

In order to apply the sound effects for your current speaker, follow the steps below.

1. Right click on the speaker icon on the taskbar, and select **Playback Devices** from the sub menu.
2. Select **Speakers**, and click **Properties**.
3. On the **Enhancement** tab select the sound effects you would like, and click **Apply**.

Realtek HD Audio Manager

The **Realtek HD Audio Manager** provides you a user interface to change various audio configuration settings. Some of the Realtek HD Audio Manager functions can also be accessed via the **Sound** properties in the control panel.

The **Environment**, **Equalizer**, **Karaoke**, and **Power Management** functions can only be accessed via the Realtek HD Audio Manager.

Environment

You can select 23 kinds of sound effects using the pull down menu in the **Environment** pane. Five standard effects, *Sweeper Pipe*, *Bathroom*, *Arena*, *Stone Room*, and *Auditorium*, can be accessed via picture buttons.

Equalizer

You can select 12 kinds of optimized settings for equalization using the pull down menu in the **Equalizer** pane. Four standard settings, *Pop*, *Live*, *Club*, and *Rock*, can be accessed via buttons.

Karaoke

The **Karaoke** function eliminates voices from sounds. Use the Up and the Down arrow buttons to adjust key in which a sound is played.

Power Management

The audio controller in your computer can be powered down when the audio is not used. Click the battery button on the lower right of the Realtek HD Audio Manager to configure audio power management settings.

- The circle button on the top left of the Power Management window will appear blue when audio power management is enabled.
- Audio power management is disabled if the button appears black.

Wireless communications

The computer's wireless communication function supports both Wireless LAN and Bluetooth devices.

Only some models are equipped with both Wireless LAN and Bluetooth functions.



- *Do not use the Wireless LAN (Wi-Fi), Bluetooth or Wireless WAN functionalities near a microwave oven or in areas subject to radio interference or magnetic fields. Interference from a microwave oven or other source can disrupt Wi-Fi, Bluetooth or Wireless WAN operation.*
- *Turn Wi-Fi, Bluetooth and Wireless WAN functionalities off when near a person who may have a cardiac pacemaker implant or other medical electric device. Radio waves may affect pacemaker or medical device operation, possibly resulting in serious injury. Follow the instruction of your medical device when using any Wi-Fi or Bluetooth or Wireless WAN functionality.*
- *Always turn off Wi-Fi or Bluetooth or Wireless WAN functionality if the computer is near automatic control equipment or appliances such as automatic doors or fire detectors. Radio waves can cause malfunction of such equipment, possibly resulting in serious injury.*
- *It may not be possible to make a network connection to a specified network name using the ad hoc network function. If this occurs, the new network(*) will have to be configured for all computers connected to the same network in order to re-enable network connections.
* Please be sure to use new network name.*

Wireless LAN

The Wireless LAN is compatible with other LAN systems based on Direct Sequence Spread Spectrum / Orthogonal Frequency Division Multiplexing radio technology that complies with the IEEE802.11 Wireless LAN standard (Revision A, B or G).



Do not install or remove an optional memory module while Wake-up on Wireless LAN is enabled.



- *The Wake-up on Wireless LAN function consumes power even when the system is off. Leave the AC adaptor connected while using this feature.*
- *The Wake-up on Wireless LAN function is effective only when it is connected with an Access Point. This function becomes invalid when the connection is broken.*
- Theoretical maximum speed of 54Mbps for IEEE 802.11a or 802.11g
- Theoretical maximum speed of 11Mbps for IEEE 802.11b
- Frequency Channel Selection of 5GHz for IEEE 802.11a or 2.4GHz for 802.11b/g

- Roaming over multiple channels
- Card power management
- Wired Equivalent Privacy (WEP) data encryption based on an 128-bit encryption algorithm
- Wi-Fi Protected Access (WPA)



- *The values shown above are the theoretical maximums for Wireless LAN standards. The actual values may differ.*
- *The transmission speed over the wireless LAN, and the distance over which the wireless LAN can reach, may vary depending on surrounding electromagnetic environment, obstacles, access point design and configuration, client design and software/hardware configurations. The transmission rate described is the theoretical maximum speed as specified under the appropriate standard - the actual transmission speed will be lower than the theoretical maximum speed.*

Setting

1. Please make sure that the **Wireless Communication Switch** is turned on.
2. Click **Start** and then click **Connect to** to display **Connect to a network** window.
3. Click **Set up a connection or network**.
4. Follow the wizard. You will need the name of the wireless network together with security settings. Consult the documentation accompanied with your router or ask your wireless network administrator for the settings.

Security

- TOSHIBA strongly recommend that you enable WEP (encryption) functionality, otherwise your computer will be open to illegal access by an outsider using a wireless connection. If this occurs, the outsider may illegally access your system, eavesdrop, or cause the loss or destruction of stored data.
- TOSHIBA is not liable for the loss of data due to eavesdropping or illegal access through the wireless LAN and the damage thereof.

Bluetooth wireless technology

Bluetooth® wireless technology eliminates the need for cables between electronic devices such as desktop computers, printers and mobile phones. You cannot use the computer's built-in Bluetooth functions and an optional Bluetooth devices simultaneously. For reference, Bluetooth wireless technology has the following features:

Worldwide operation

The Bluetooth radio transmitter and receiver operate in the 2.4GHz band, which is license-free and compatible with radio systems in most countries in the world.

Radio links

You can easily establish links between two or more devices, with these links being maintained even if the devices are not within a line-of-sight of each other.

Security

Two advanced security mechanisms ensure a high level of security:

- Authentication prevents access to critical data and makes it impossible to falsify the origin of a message.
- Encryption prevents eavesdropping and maintains link privacy.

Bluetooth® Stack for Windows® by TOSHIBA

Please note that this software is specifically designed for the following operating systems:

- Microsoft® Windows Vista™

Information regarding the use of this software with these operating systems is listed below, with further details being contained with the electronic help files supplied with the software.



This Bluetooth® Stack is based on the Bluetooth® Version 1.1/1.2/2.0+EDR specification. However, TOSHIBA cannot confirm the compatibility between any computing products and/or other electronic devices that use Bluetooth®, other than TOSHIBA notebook computers.

Release Notes related to the Bluetooth® Stack for Windows® by TOSHIBA

1. Fax application software:
Please be aware that there is some fax application software that you cannot use on this Bluetooth® Stack.
2. Multi-user considerations:
On Windows Vista™, the use of Bluetooth is not supported in a multi-user environment. This means that, when you use Bluetooth, other users that are logged into the same computer will not be able to use this type of functionality.

Product Support:

The latest information regarding operating system support, language support or available upgrades can be found on our web site <http://www.toshiba-europe.com/computers/tnt/bluetooth.htm> in Europe or www.pcsupport.toshiba.com in the United States.

Wireless communication switch

You can enable or disable Wireless communication functions with the on/off switch. No transmissions are sent or received when the switch is off. Slide the switch to the right to turn it on and to the left to turn it off.

Wireless communication Indicator

The wireless communication indicator shows the status of the computer's wireless communication functions.

Indicator status	Indication
Indicator off	The wireless communication switch is off - no wireless functionality is available.
Indicator glows	Wireless communication switch is on. Wireless LAN or Bluetooth is turned on by an application.

If you used the Task Bar to disable the wireless LAN, restart the computer or perform the following procedure to re-enable it: **Start, Control Panel, System and Maintenance, System, Device Manager, Network adapters, Intel® PRO/Wireless 3945ABG Network Connection and enable.**

LAN

The computer has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T), Fast Ethernet LAN (100 megabits per second, 100BASE-TX) and Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T).

This section describes how to connect/disconnect to a LAN.



Do not install or remove an optional memory module while Wake-up on LAN is enabled.



- *The Wake-up on LAN function consumes power even when the system is off. Leave the AC adaptor connected while using this feature.*
- *The Link speed (10/100/1000 megabits per second) changes automatically depending on the network conditions (connected device, cable or noise and so on).*

LAN cable types



The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.

If you are using Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T), be sure to connect with a CAT5E cable or higher. You cannot use a CAT3 or CAT5 cable.

If you are using Fast Ethernet LAN (100 megabits per second, 100BASE-TX), be sure to connect with a CAT5 cable or higher. You cannot use a CAT3 cable.

If you are using Ethernet LAN (10 megabits per second, 10BASE-T), you can connect with a CAT3 or higher cable.

Connecting the LAN cable

To connect the LAN cable, follow the steps as detailed below:



- *Connect the AC adaptor before connecting the LAN cable. The AC adaptor must remain connected during LAN use. If you disconnect the AC Adaptor while the computer is accessing a LAN, the system may hang up.*
- *Do not connect any other cable to the LAN jack except the LAN cable. Otherwise, malfunctions or damage may occur.*
- *Do not connect any power supplying device to the LAN cable that is connected to the LAN jack. Otherwise, malfunctions or damage may occur.*

1. Turn off the power to the computer and to all external devices connected to the computer.
2. Plug one end of the cable into the LAN jack. Press gently until you hear the latch click into place.

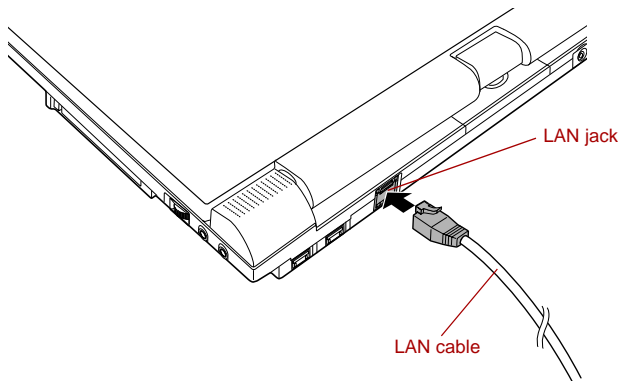


Figure 4-12 Connecting the LAN cable

3. Plug the other end of the cable into a LAN hub connector or router. Check with your LAN administrator and hardware or software vendor before using or configuring a network connection.



When the computer is exchanging data with the LAN, the **LAN Active** indicator glows orange. When the computer is connected to a LAN hub but is not exchanging data, the **Link** indicator glows green.

Disconnecting the LAN cable

To disconnect the LAN cable, follow the steps as detailed below:



Make sure the **LAN Active** indicator (orange LED) is out before you disconnect the computer from the LAN.

1. Pinch the lever on the connector in the computer's LAN jack and pull out the connector.
2. Disconnect the cable from the LAN hub or router in the same manner. Check with your LAN administrator and hardware or software vendor before disconnecting from the hub.

Computer Handling

This section explains computer handling and maintenance.

Cleaning the computer

To help ensure long, trouble-free operation, keep the computer free of dust and dirt, and use care with all liquids around it.

- Be careful not to spill liquids into the computer. If the computer does get wet, turn the power off immediately and let the computer dry completely - in these circumstance you should get the computer inspected by an authorized service provider in order to assess the scope of any damage.
- Clean the plastics of the computer using a slightly water dampened cloth.
- You can clean the display screen by spraying a small amount of glass cleaner onto a soft, clean cloth and then wiping the screen gently with the cloth.



Never spray cleaner directly onto the computer or let liquid run into any part of it. Never use harsh or caustic chemical products to clean the computer.

Moving the computer

While the computer is designed for rugged durability you should exercise a few simple precautions when moving it in order to help ensure trouble-free operation.

- Before moving the computer, it is recommended that you change the setting associated with the Hard Disk Drive Protection feature. Please refer to the section, *Using the Hard Disk Drive (HDD) Protection*, in this chapter for further information.
- Make sure all disk/disc activity has ended before moving the computer - check that the HDD and other indicators on the front of the computer are off.
- Turn off (shut down) the computer.
- Disconnect the AC adaptor and all peripherals before moving the computer.
- Close the display panel.
- Do not pick up the computer by its display panel.
- Before carrying your computer, shut it down, disconnect the AC adaptor and allow it to cool down - a failure to follow this instruction may result in minor heat injury.
- The Power Button Lock Switch is set to the 'Lock' position before you move the computer.
- Be careful not to subject the computer to impact or shock - a failure to follow this instruction could result in damage to computer, computer failure or loss of data.
- Never transport your computer with any PC Cards installed - this may cause damage to either the computer and/or the PC Card resulting in product failure.
- Always use a suitable carry case when transporting the computer.
- When carrying your computer, be sure to hold it securely so that it does not fall or hit anything.
- Do not carry your computer by holding any of its protruding elements.

Using the Hard Disk Drive (HDD) Protection

This computer has a function for reducing the risk of damage on the hard disk drive.

Using an acceleration sensor built into the computer, TOSHIBA HDD Protection detects vibration shocks and similar signs of movement of the computer, and automatically moves the Hard Disk Drive head to a safe position to reduce the risk of damage that could be caused by head-to-disk contact.



This function does not guarantee that the hard disk drive will not be damaged.

When vibration is detected, a message will be displayed on the screen, and the icon in the taskbar notification area will change to the protection state. This message is displayed until the **OK** button is pressed or 30 seconds pass. When vibration subsides, the icon returns to the normal state.

Taskbar Icon

State	Icon	Description
Normal		TOSHIBA HDD Protection is enabled.
Protection		TOSHIBA HDD Protection is active. The hard disk drive head is in a safe position.
OFF		TOSHIBA HDD Protection is disabled.

TOSHIBA HDD Protection Properties

You can change the TOSHIBA HDD Protection settings by using the TOSHIBA HDD Protection Properties window. To open the window, click **Start -> All Programs -> TOSHIBA -> Utilities -> HDD Protection Setting**. The window can also be started from the icon on the Taskbar or from the **Control Panel**.

HDD Protection

You can choose whether to enable or disable TOSHIBA HDD Protection.

Detection Level

This function can be set to four levels. The sensitivity levels in which vibrations, impacts and their similar signs are detected can be set to OFF, 1, 2 and 3 in ascending order. Level 3 is recommended for better protection of the computer. However, when the computer is used in a mobile environment or in other unstable conditions, setting the detection level to 3 could result in frequent execution of TOSHIBA HDD Protection, which will slow Hard Disk Drive reading and writing. Set a lower detection level when the speed of Hard Disk Drive reading and writing is a priority.

Different detection levels can be set depending on whether the computer is used as handheld or mobile usages, or whether it is used in a stable environment such as on a table in the workplace or at home. By setting different detection levels for the computer depending on whether it runs with the AC power (desktop) or with batteries (handheld or mobile usage), the detection level automatically switches according to the power connection mode.

3D Viewer

This feature displays a 3D object on the screen which moves in according to tilting or vibration of the computer.

When the TOSHIBA HDD Protection detects computer vibration the Hard Disk Drive head is parked and the 3D object disk rotation will stop. When the head is un-parked the disk will begin to rotate again.

The **3D Viewer** can be started from the icon in the task tray.



- *This 3D object virtually represents the Computer's internal Hard Disk Drive. This representation may vary from the actual number of disks, disk rotation, head movement, part size, shape and direction.*
- *This feature may use a large amount of CPU and memory on some models. The computer may become slow or sluggish when attempting to run other applications while the 3D Viewer is displayed.*
- *Intensely shaking the computer or other subjecting it to strong impacts may cause damage to the computer.*

Details

To open the Details window, click the **Setup Detail** button in the TOSHIBA HDD Protection Properties window.

Detection Level Amplification

When the AC adaptor is disconnected or the lid is closed, HDD Detection assumes that the computer will be carried and sets the detection level to the maximum for 10 seconds.

TOSHIBA HDD Protection Message

Specify whether to display a message when TOSHIBA HDD Protection is active.



- *This function does not work when the computer is starting, in Sleep Mode, in Hibernation Mode, in transition to Hibernation Mode, recovering from Hibernation Mode, or powered off. Be sure to not subject the computer to vibration or impact while the function is disabled.*
- *This function only operates with Windows Vista™.*

Heat dispersal

To protect against overheating, the processor is equipped an internal temperature sensor which activates a cooling fan or lowers the processing speed if the computer's internal temperature rises to a certain level. You are able to select whether to control this temperature by either turning on the fan first, then if necessary lowering the processor speed, or by lowering the processor speed first, then if necessary turning on the fan - these functions are controlled within the Power Options.

When the processor's temperature falls to a normal range, the fan will be turned off and the processor operation returned to its standard speed.



If the processor's temperature reaches an unacceptably high level with either setting, the computer will automatically shuts down to prevent any damage - in this instance all unsaved data in memory will be lost.

Chapter 5

The Keyboard

The computer's keyboard layouts are compatible with a 101/102-key enhanced keyboard - by pressing some keys in combination, all of the 101/102-key enhanced keyboard functions can be performed on the computer.

The number of keys available on your keyboard will depend on which country/region your computer is configured for, with keyboards being available for numerous languages.

In use there are six different types of keys, specifically typewriter keys, function keys, soft keys, Hot keys, Windows special keys and the keypad overlay.

Typewriter keys

The typewriter keys produce the upper-case and lower-case letters, numbers, punctuation marks, and special symbols that appear on the screen. However, there are some differences between using a typewriter and using a computer keyboard:

- Letters and numbers produced in computer text vary in width. Spaces, which are created by a 'space character' may also vary depending on line justification and other factors.
- The lowercase l (el) and the number 1 (one), together with the uppercase O (oh) and the 0 (zero), are not interchangeable on computers as they are on a typewriter.
- The **Caps Lock** function key locks only the alphabetic characters into upper-case while the Shift Lock function on a typewriter places all keys in the shifted position.
- The **Shift** keys, the **Tab** key, and the **BkSp** (backspace) key perform the same function as their typewriter counterparts but also have special computer functions.



Never remove the key caps on your keyboard. Doing so could cause damage to the parts under the key caps.

Function keys: F1 ... F12

The function keys (not to be confused with the special **Fn** key) are the twelve keys at the top of your keyboard - these keys function differently from other keys.



F1 through **F12** are called function keys because they execute programmed functions when pressed and, when used in combination with the **Fn** key, those keys marked with icons also execute specific functions on the computer. Please refer to the section, [Soft keys: Fn key combinations](#), in this chapter for further information, taking care to note that the function executed by individual keys will depend on the software you are using.

Soft keys: Fn key combinations

The **Fn** (function) is unique to TOSHIBA computers and is used in combination with other keys to form soft keys. Soft keys are key combinations that enable, disable or configure specific features.



Please note that some software may disable or interfere with soft-key operations, and that the soft-key settings are not restored when the computer returns from Sleep Mode.

Emulating keys on an enhanced keyboard

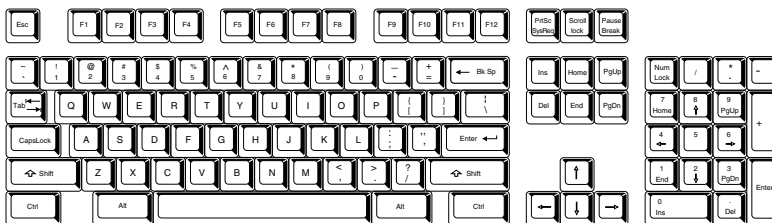
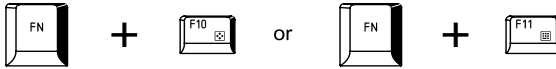


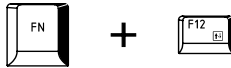
Figure 5-1 A 101-key enhanced keyboard layout

The computer's keyboard is designed to provide all the features of the 101-key enhanced keyboard. The 101/102-key enhanced keyboard has a numeric keypad and Scroll Lock key, and also provides additional **Enter** and **Ctrl** keys to the right of the main keyboard. Since the computer's keyboard is smaller and has fewer keys, some of the enhanced keyboard functions must be simulated using two keys instead of one on the larger keyboard.

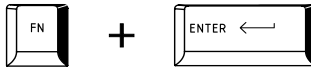
In the event that your software requires you to use keys that the computer's keyboard does not have, pressing the **Fn** key together with one of the following keys, will simulate the enhanced keyboard's functions.



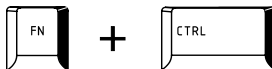
Press **Fn + F10** or **Fn + F11** to access the computer's integrated keypad. When activated, the keys with grey markings on their bottom edge become either numeric keypad keys (**Fn + F11**) or cursor control keys (**Fn + F10**). Please refer to the [Keypad overlay](#) section in this chapter for more information on how to operate these keys, taking care to note that the power on default for both settings is off.



Press **Fn + F12 (ScrLock)** to lock the cursor on a specific line. The power on default is off.



Press **Fn + Enter** to simulate **Enter** on the enhanced keyboard's numeric keypad.



Press **Fn + Ctrl** to simulate the enhanced keyboard's right **Ctrl** key.

Hot keys

Hot keys (pressing **Fn** + a function or **Esc** key) let you enable or disable certain features of the computer.



Mute: Pressing **Fn + ESC** turns the volume on and off.



Lock: Pressing **Fn + F1** enters "Lock computer mode". To restore your desktop, you need to log on again.



Power Plan: Pressing **Fn + F2** changes the power settings.



Sleep: Pressing **Fn + F3** switches the system to Sleep mode.



Hibernate: Pressing **Fn + F4** switches the system to Hibernation mode.



Output: Pressing **Fn + F5** changes the active display device.



Brightness Down: Pressing **Fn + F6** decreases the computer's display panel brightness in individual steps.



Brightness Up: Pressing **Fn + F7** increases the computer's display panel brightness in individual steps.



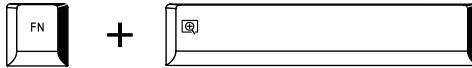
Wireless: Pressing **Fn + F8** switches the active wireless device if the wireless communication switch is turned on.



If no wireless communication device is installed, no dialog box will appear.



Touch Pad: Pressing **Fn + F9** enables or disables the Touch Pad function.



Zoom: Pressing **Fn + Space** changes the display resolution.



TOSHIBA Zooming Utility (reduce): Pressing **Fn + 1** reduces the icon size on the desktop or the font sizes within one of the supported application windows.



TOSHIBA Zooming Utility (enlarge): Pressing **Fn + 2** enlarges the icon size on the desktop or the font sizes within one of the supported application windows.

Fn Sticky key

You can use the TOSHIBA Accessibility Utility to make the **Fn** key sticky, that is, you can press it once, release it, and then press an “**F number**” key. To start the TOSHIBA Accessibility utility, click **Start -> All Programs -> TOSHIBA -> Utilities -> Accessibility**.

Windows special keys

The keyboard provides two keys that have special functions in Windows, the Windows Start Button key activates the **Start** menu while the application key has the same function as the secondary (right) mouse button.



This key activates the Windows **Start** menu.



This key has the same function as the secondary (right) mouse button.

Keypad overlay

Your computer's keyboard does not have a separate numeric keypad but includes a numeric keypad overlay which functions like one - this is located in the center of the keyboard with the relevant keys having grey letters at their front edge. The overlay provides the same functions as the numeric keypad on a standard 101/102-key enhanced keyboard.

Turning on the overlays

The numeric keypad overlay can be used for numeric data input or cursor and page control.

Arrow mode

To turn on Arrow Mode, press **Fn + F10** - the Arrow mode indicator lights and you are able to access cursor and page control functions by using the keys. You are able to press **Fn + F10** again to turn off this overlay function.

Numeric mode

To turn on Numeric Mode, press **Fn + F11** - the Numeric Mode indicator lights and you are able to access numeric characters by using the keys. You are able to press **Fn + F11** again to turn off this overlay function.

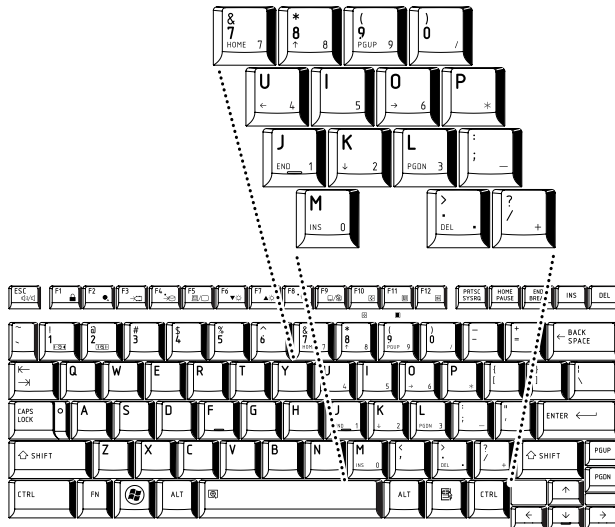


Figure 5-2 The numeric keypad overlay

Temporarily using normal keyboard (overlay on)

While using the overlay, you can temporarily access the normal keyboard functions without having to turn the overlay off:

1. Hold down **Fn** key and press any other key - this key will operate as if the overlay were off.
2. Type upper-case characters by holding down **Fn + Shift** and pressing a character key.
3. Release **Fn** key to continue using the selected overlay function.

Temporarily using overlay (overlay off)

While using the normal keyboard function, you can temporarily use the keypad overlay without having to turn it on:

1. Hold down **Fn** key.
2. Check the keyboard indicators as pressing the **Fn** key will turn on the most recently used overlay function - if the Numeric Mode indicator lights you can use the overlay for numeric entry, while if the Arrow Mode indicator lights, you can use the overlay for cursor and page control function.
3. Release **Fn** key to return to normal keyboard operation.

Temporarily changing modes

If the computer is in **Numeric Mode**, you can switch temporarily to **Arrow Mode** by pressing a **Shift** key, while if it is in **Arrow Mode**, you can switch temporarily to **Numeric Mode** by also pressing a **Shift** key.

Generating ASCII characters

Not all ASCII characters can be generated using normal keyboard operation, but you are able to generate these characters using their specific ASCII codes.

With the overlay on:

1. Hold down **Alt** key.
2. Using the overlay keys, type the ASCII code of the character you require.
3. Release **Alt** - the ASCII character will appear on the display screen.

With the overlay off:

1. Hold down **Alt + Fn**.
2. Using the overlay keys, type the ASCII code of the character you require.
3. Release **Alt + Fn** - the ASCII character will appear on the display screen.

Chapter 6

Power and Power-Up Modes

The computer's power resources include the AC adaptor, battery pack and any internal batteries. This chapter provides details on making the most effective use of these resources, and includes information on charging and changing batteries, tips for saving battery power, and information on the different power-up modes.

Power conditions

The computer's operating capability and battery charge status are affected by different power conditions, including whether an AC adaptor is connected, whether a battery pack is installed and what the charge level is for that battery.

Power conditions

		Power on	Power off (no operation)
AC adaptor connected	Main Battery fully charged	<ul style="list-style-type: none"> Operates No charge LED: Battery blue DC IN blue 	<ul style="list-style-type: none"> No charge LED: Battery blue DC IN blue
	Main Battery partially charged or no charge	<ul style="list-style-type: none"> Operates Charge *₁ LED: Battery orange DC IN blue 	<ul style="list-style-type: none"> Quick charge *₁ LED: Battery orange DC IN blue
	No Main battery installed	<ul style="list-style-type: none"> Operates No charge LED: Battery off DC IN blue 	<ul style="list-style-type: none"> No charge LED: Battery off DC IN blue

Power conditions (continued)

		Power on	Power off (no operation)
AC adaptor connected	2nd battery fully charged	<ul style="list-style-type: none"> Operates No charge LED: 2nd battery blue DC IN blue 	<ul style="list-style-type: none"> No charge LED: 2nd battery blue DC IN blue
	2nd battery partially charged or no charge	<ul style="list-style-type: none"> Operates Charge *₂ LED: 2nd battery orange DC IN blue 	<ul style="list-style-type: none"> Quick charge *₂ LED: 2nd battery orange DC IN blue
	No 2nd battery installed	<ul style="list-style-type: none"> Operates No charge LED: 2nd battery off DC IN blue 	<ul style="list-style-type: none"> No charge LED: 2nd battery off DC IN blue
AC adaptor not connected	Main battery charge is above low battery trigger point	<ul style="list-style-type: none"> Operates LED: Battery off DC IN off 	
	Main battery charge is below low battery trigger point	<ul style="list-style-type: none"> Operates LED: Battery flashes orange DC IN off 	
	Main battery charge is exhausted	Computer shuts down * ₃	
	No main battery installed	<ul style="list-style-type: none"> No operation *₄ LED: Battery off DC IN off 	

Power conditions (continued)

		Power on	Power off (no operation)
AC adaptor not connected	2nd battery charge is above low battery trigger point	<ul style="list-style-type: none"> Operates LED: 2nd battery off DC IN off 	
	2nd battery charge is below low battery trigger point	<ul style="list-style-type: none"> Operates LED: 2nd battery flashes orange DC IN off 	
	2nd battery charge is exhausted	Computer shuts down *3	
	No 2nd battery is installed	<ul style="list-style-type: none"> No operation *5 LED: 2nd battery off DC IN off 	

*1 When the 2nd Battery Pack is not charging.

*2 When the main battery is not charging.

*3 For the computer to turn off in Hibernation Mode, the Hibernation feature must be enabled in Power Options. If a main battery and a 2nd Battery Pack are installed, the computer does not shut down until the charge in both batteries is exhausted.

*4 When no 2nd Battery Pack is installed.

*5 When no main battery is installed.



When batteries are charged, the main battery is charged first. When it is fully charged, the 2nd Battery Pack is charged.

Monitoring of power condition

As shown in the below table, the **Battery**, **2nd battery**, **DC IN** and **Power** indicators on the system indicator alert you to the computer's operating capability and battery charge status.

Battery indicator

Check the **Battery** indicator to determine the status of the main battery and the **2nd battery** indicator to determine the status of the 2nd battery. The following indicator lights indicate the battery status:

Flashing orange	The battery charge is low, the AC adaptor must be connected in order to recharge the battery.
Orange	Indicates the AC adaptor is connected and the battery is charging.
Blue	Indicates the AC adaptor is connected and the battery is fully charged.
No light	Under any other conditions, the indicator does not light.



*If the battery pack becomes too hot while it is being charged, the charge will stop and the **Battery** indicator will go out. When the battery pack's temperature falls to a normal range, charging will resume - this process will occur regardless of whether the computer's power is on or off.*

DC IN indicator

Check the **DC IN** indicator to determine the power status with the AC adaptor connected - the following indicator conditions should be noted:

Blue	Indicates the AC adaptor is connected and is correctly supplying power to the computer.
Flashing orange	Indicates a problem with the power supply. You should initially try plugging the AC adaptor into another power outlet - if it still does not operate properly, you should contact your reseller or dealer.
No light	Under any other conditions, the indicator does not light.

Power indicator

Check the **Power** indicator to determine the power status of the computer - the following indicator conditions should be noted:

Blue	Indicates power is being supplied to the computer and the computer is turned on.
Blinking orange	Indicates that the computer is in Sleep Mode and that there is sufficient power available (AC adaptor or battery) to maintain this condition. In Sleep Mode, this indicator will turn on for one second and off for two seconds.
No light	Under any other conditions, the indicator does not light.

Battery

This section explains the battery types, their handling and use.

Battery types

The computer has three different types of batteries.

Battery pack

When the AC adaptor is not connected, the computer's main power source is a removable lithium ion battery pack, also referred to in this manual as the main battery. You can purchase additional battery packs for extended use of the computer away from an AC power source although you should not change the battery pack while the AC adaptor is connected.

Before you remove the battery pack, save your data and shut down the computer, or place the computer into Hibernation Mode. Please be aware that, when placing the computer into Hibernation Mode, the contents of memory will be saved to the hard disk drive, although for safety sake, it is best to also save your data manually.

2nd Battery Pack (optional)

For detailed information on this battery, refer to [Connecting and disconnecting the 2nd Battery Pack](#).

Real Time Clock (RTC) battery

The Real Time Clock (RTC) battery provides power for the internal real time clock and calendar function and also maintains the system configuration while the computer is turned off. If the RTC battery becomes completely discharged, the system will lose this information and the real time clock and calendar will stop working - in this instance the following message will be displayed when you turn on the power:



```
**** RTC battery is low or CMOS checksum is
inconsistent ****
Press [F1] key to set Date/Time.
```

You can change the Real Time Clock settings by turning the computer on while pressing the **Esc** key and then the **F1** key when prompted. Please refer to Chapter 8, [Troubleshooting](#) for further information.



The RTC battery does not charge while the computer is turned off even if the AC adapter is attached.

Care and use of the battery pack

This section provides the important safety precautions in order to handle your battery pack properly.

Refer to the *Instruction Manual for Safety and Comfort* for detailed precautions and handling instructions.



- *Make sure the battery is securely installed in the computer before attempting to charge the battery pack. Improper installation could generate smoke or fire, or cause the battery pack to rupture.*
- *Keep the battery pack out of reach of infants and children. It can cause injury.*



- *The battery pack and 2nd Battery Pack are lithium ion batteries, which can explode if not replaced, used, handled or disposed of properly. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*
- *The computer's RTC battery is a Ni-MH battery and should be replaced only by your dealer or by a TOSHIBA service representative. The battery can explode if not properly replaced, used, handled or disposed. Dispose of the battery as required by local ordinances or regulations.*
- *Charge the battery pack only in an ambient temperature between 5 and 35 degrees Celsius. Otherwise, the electrolyte solution might leak, battery pack performance might deteriorate and the battery life might be shortened.*
- *Never install or remove the battery pack without first turning off the power and disconnecting the AC adaptor. Never remove the battery pack while the computer is in Sleep Mode. Data could be lost.*



- *Never remove the battery pack while the Wake-up on LAN function is enabled. Data will be lost. Before you remove a battery pack, disable the Wake-up on LAN function.*
- *Never remove the battery pack while the Wake-up on Wireless LAN function is enabled. Data will be lost. Before you remove a battery pack, disable the Wake-up on Wireless LAN function.*

Charging the batteries

When the power in the battery pack becomes low, the **Battery** indicator will flash orange to indicate that only a few minutes of battery power remain. If you continue to use the computer while the **Battery** indicator flashes, the computer will enable Hibernation Mode so that you do not lose any data, and automatically turn itself off.

You must recharge a battery pack when it becomes discharged.

Procedures

To recharge a battery pack while it is installed in the computer, connect the AC adaptor to the DC IN 15V jack and plug the other end into a working outlet - the **Battery** indicator will glow orange while the battery is being charged.

Time

The following table shows the approximate time required to fully charge a discharged battery.

Charging time (hours)

Battery type	Power on	Power off
Battery pack (4000mAh)	about 3.5 to 4.0	about 3.5
2nd Battery Pack (4000mAh)	about 3.5 to 4.0	about 3.5
RTC battery	8	Doesn't charge



Please be aware that the charging time when the computer is on is affected by ambient temperature, the temperature of the computer and how you are using the computer - if you make heavy use of external devices for example, the battery might scarcely charge at all during operation. Please refer to the section [Maximizing battery operating time](#) for further information.

Battery charging notice

The battery may not begin charging immediately under the following conditions:

- The battery is extremely hot or cold (if the battery is extremely hot, it might not charge at all). To ensure the battery charges to its full capacity, you should charge it at room temperature of between 5° to 35°C (41° to 95°F).
- The battery is nearly completely discharged. In this instance you should leave the AC adaptor connected for a few minutes and the battery should begin charging.

The **Battery** indicator may show a rapid decrease in battery operating time when you try to charge a battery under the following conditions:

- The battery has not been used for a long time.
- The battery has completely discharged and been left in the computer for a long time.
- A cool battery is installed in a warm computer.

In such cases you should follow the steps as detailed below:

1. Fully discharge the battery by leaving it in the computer with the power on until the system automatically turns itself off.
2. Connect the AC adaptor to the DC IN 15V jack of the computer, and to a wall outlet that is supplying power.
3. Charge the battery until the **Battery** indicator glows blue.

Repeat these steps two or three times until the battery recovers normal capacity.

Monitoring battery capacity

Remaining battery power can be monitored using the following methods.

- Clicking the battery icon on the task bar
- Via the Battery Status in the Windows Mobility Center window



- *You should wait at least 16 seconds after turning on the computer before trying to monitor the remaining operating time. This is because the computer needs this time to check the battery's remaining capacity and then calculate the remaining operating time, based on this together with the current power consumption.*
- *Please be aware that the actual remaining operating time may differ slightly from the calculated time.*
- *With repeated discharges and recharges, the battery's capacity will gradually decrease. In view of this it will be noted that an often used, older battery will not operate for as long as a new battery even when both are fully charged.*

Maximizing battery operating time

A battery's usefulness depends on how long it can supply power on a single charge, while how long the charge lasts in a battery depends on:

- Processor speed
- Screen brightness
- System Sleep Mode
- System Hibernation Mode
- Display power off period
- Hard disk drive power off period
- How often and for how long you use the hard disk drive and external disk drives, for example, optical disc and floppy diskette drive.
- How much charge the battery contained to begin with.
- How you use optional devices, such as a PC Cards, to which the battery supplies power.
- Whether you enable Sleep Mode, which can conserve battery power if you are frequently turning the computer off and on.
- Where you store your programs and data.
- Whether you close the display panel when you are not using the keyboard - closing the display saves power.
- The environmental temperature - operating time decreases at low temperatures.
- The condition of the battery terminals - you should always ensure the terminals stay clean by wiping them with a clean dry cloth before installing the battery pack.

Retaining data with power off

When you turn off your computer with fully charged batteries, the batteries will retain data for the estimated time as follows:

Retention time

Battery type	State and Retention Time
Battery pack (4000mAh)	about 2 days (Sleep Mode)
	about 100 days (Boot Mode)
2nd Battery Pack (4000mAh)	about 4 days (Sleep Mode)
	about 200 days (Boot Mode)
RTC battery	30 days

Extending battery life

To maximize the life of your battery packs:

- At least once a month, disconnect the computer from a power source and operate it on battery power until the battery pack fully discharges. Before doing so, follow the steps as detailed below.
 1. Turn off the computer's power.
 2. Disconnect the AC adaptor and turn on the computer's power - if it does not turn on then go to Step 4.
 3. Operate the computer on battery power for five minutes. If you find that the battery pack has at least five minutes of operating time, continue operating until the battery pack is fully discharged, however, if the **Battery** indicator flashes or there is some other warning to indicate a low battery condition, go to Step 4.
 4. Connect the AC adaptor to the DC IN 15V jack of the computer, and to a wall outlet that is supplying power. The **DC IN** indicator should glow blue, and the **Battery** indicator should glow orange to indicate that the battery pack is being charged, however, in the event that **DC IN** indicator does not glow this indicates that power is not being supplied - check the connections for the AC adaptor and the power cord.
 5. Charge the battery pack until the **Battery** indicator glows blue.
- If you have extra battery packs, rotate their use.
- If you will not be using the system for an extended period, for example for more than one month, remove the battery pack from the computer.
- Store spare battery packs in a cool dry place out of direct sunlight.

Replacing the battery pack

Please be aware that the battery pack is classified as a consumable item.

The operating life of the battery pack will gradually reduce through repeated charging and discharging, and will need to be replaced when it reaches the end of its operating life. In addition to this, you might also replace a discharged battery pack with a charged spare when you are operating your computer away from an AC power source for an extended period of time.

This section explains how to remove and install the battery pack, and begins with the removal process which is detailed through the following steps.



- *Do not remove the battery pack while the computer is in Sleep Mode. Data is stored in RAM, so if the computer loses power it could be lost.*
- *In Hibernation Mode, data will be lost if you remove the battery pack or disconnect the AC adaptor before the save is completed. Wait for the **Hard Disk Drive** indicator to go out.*
- *Do not touch the battery release latch while holding the computer or the battery pack might fall out due to the unintentional release of the battery release latch and cause injuries.*

Removing the battery pack

To remove a discharged battery, follow the steps as detailed below:

1. Save your work.
2. Turn the computer's power off - ensure that the Power indicator is off.
3. Remove all cables and peripherals that are connected to the computer.
4. Close the display panel and turn the computer upside down.



Always make sure the display panel is closed in Laptop mode before turning the computer upside down.

5. Slide the battery release latch (1) into its (2) position to disengage the battery pack and then remove it from the computer (2).

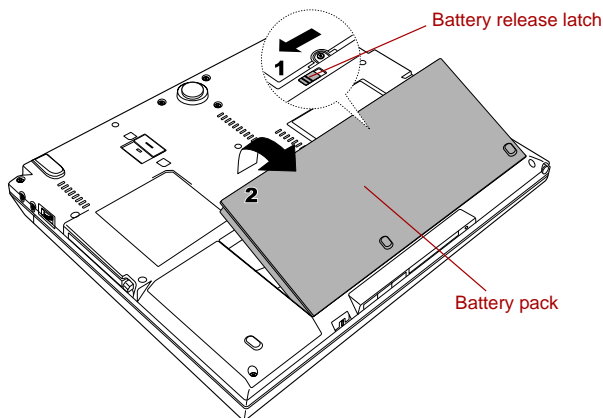


Figure 6-1 Releasing the battery pack

Installing the battery pack

To install a battery pack, follow the steps as detailed below:



Do not touch the battery release latch while holding the computer or the battery pack might fall out due to the unintentional release of the battery release latch and cause injuries.

1. Insert the battery pack as far as it will go into the computer (1).
2. Ensure that the battery pack is securely in place (2).

3. The battery release latch (3) is in its (☐→) position.

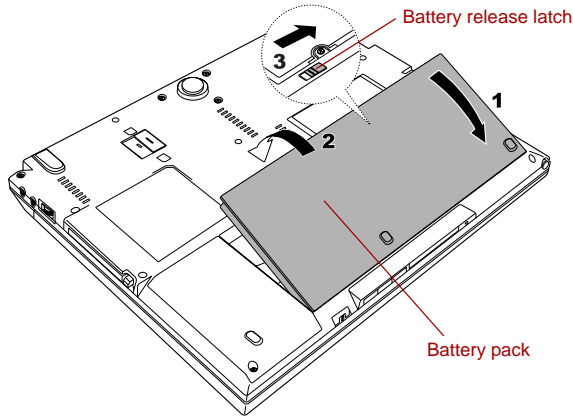


Figure 6-2 Securing the battery pack

4. Turn your computer over.

Connecting and disconnecting the 2nd Battery Pack

This battery pack increases your computer's operating time when a main battery pack is also installed. For details on using the battery pack, follow the steps below.

This section explains how to connect and disconnect the 2nd Battery Pack, and begins with the removal process which is detailed through the following steps.

Connecting the 2nd Battery Pack

Follow the steps below to connect the 2nd Battery Pack to the computer.



- When handling 2nd Battery Pack, be careful not to short circuit the terminals. Also do not drop, hit or otherwise apply impact; do not scratch or break the casing and do not twist or bend the latches of it.
- Open the 2nd battery port on the bottom of the computer to connect a 2nd Battery Pack.

1. Be sure the computer's power is off and all cables are disconnected.
2. Close the display panel and turn the computer upside down.



Always make sure the display panel is closed in Laptop mode before turning the computer upside down.

3. Remove the protective cap from connector of the 2nd Battery Pack.
4. Slide the cover on 2nd battery port of the computer (1).
5. Fit the battery's guide-tab into the groove on the Left side of the computer (2).
6. Connect the battery's connector to the 2nd battery port (3).
7. Close the latches to secure the 2nd Battery Pack to the computer (4).

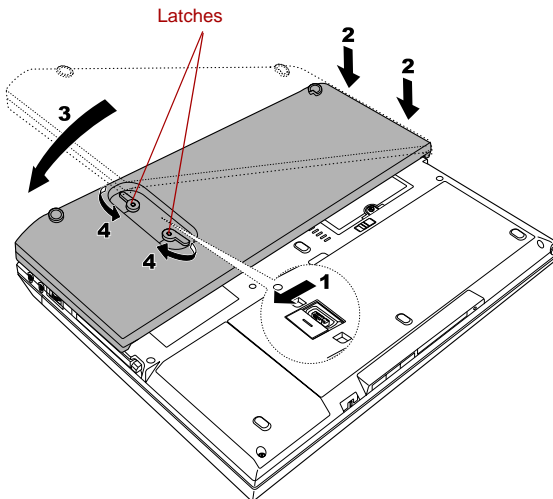


Figure 6-3 Securing the latches

Disconnecting the 2nd Battery Pack

Follow the steps below to disconnect the 2nd Battery Pack to the computer.

1. Save your work.
2. Turn the computer's power off. Make sure the **Power** indicator is off.
3. Remove all cables connected to the computer.
4. Close the display panel and turn the computer upside down.
5. Open the release latches in the direction of the arrows (1).
6. Lift off the 2nd Battery Pack (2).

7. Remove the battery's guide-tab from the groove on the Left side of the computer (3).

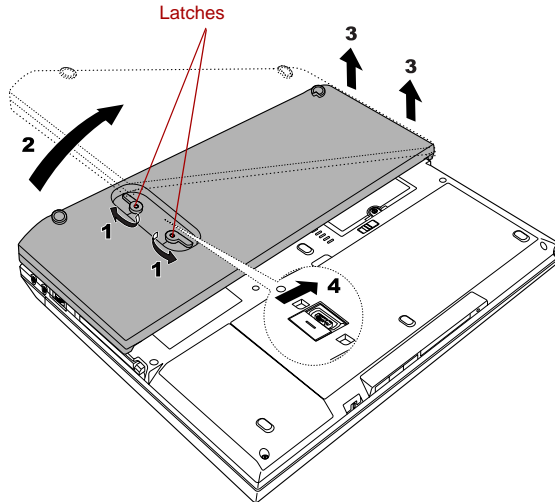


Figure 6-4 Removing the 2nd Battery Pack

8. Be sure to replace the protective cap before storing the 2nd Battery Pack.
9. Slide the cover on 2nd battery port of the computer (4).

TOSHIBA Password Utility

The TOSHIBA Password Utility provides two levels of password security: User and Supervisor.



Passwords set by the TOSHIBA Password Utility function are different from the Windows password.

User Password

To start the utility, point to or click the following items:

Start -> All Programs -> TOSHIBA -> Utilities -> Password Utility

User Password field

■ **Set** (button)

Click this button to register a password of up to 50 characters. After a password is set, you will be prompted to enter it when you start the computer. Check "Set the same string simultaneously as the HDD User Password" when setting the HDD User Password.



- *After you set the password, a dialog box will be displayed asking whether you want to save it to a floppy diskette or other media. If you forget the password, you can open the password file on another computer. Be sure to keep the media in a safe place.*
- *When entering the character string to register the password, enter from the keyboard character by character and do not enter as ASCII code or copy-and-paste the character string. In addition, ensure that the registered password is correct by outputting the character string to the password file.*
- **Delete** (button)
Click this button to delete a registered password. Before you can delete a password, you must first enter the current password correctly. Please use BIOS Setup to change or delete the HDD Passwords or to set the HDD Master Password.
- **Change** (button)
Click this button to change a registered password. Before you can change a password, you must first enter the current password correctly. Please use BIOS Setup to change or delete the HDD Passwords or to set the HDD Master Password.
- **Owner String** (text box)
You can use this box to associate text with the password. After you enter text, click **Apply** or **OK**. When the computer is started, this text will be displayed together with the prompt asking you to enter a password.



- *If you forget your HDD User Password, TOSHIBA will NOT be able to assist you, and your HDD will be rendered COMPLETELY and PERMANENTLY INOPERABLE. TOSHIBA will NOT be held responsible for any loss of any data, any loss of use or access to your HDD, or for any other losses to you or any other person or organization that result from the loss of access to your HDD. If you can't accept this risk, don't register the HDD User Password.*
- *When saving the HDD User Password shut down or restart the computer. If the computer is not shut down or restarted, the saved data may not be correctly reflected. For more information on shutting down or restarting the computer, refer to [Turning on the power](#) in Chapter 1.*



Refer to [Starting and Ending the BIOS Setup Program](#) section in Chapter 7, for more information.

Supervisor Password

If you set a Supervisor Password, some functions might be restricted when a user logs on with the User Password. To set a Supervisor Password, execute the file TOSPU.EXE. The file is located at:

`C:\Program Files\Toshiba>PasswordUtility\TOSPU.exe`

This utility lets you do the following:

- Register, delete or change the Supervisor Password.
- Specify restrictions for general users.

Starting the computer by password

If you have already registered a password, there are three ways to start the computer:

- Swipe your fingerprint on the sensor if you have already registered the fingerprint with the Fingerprint utility and enabled Fingerprint System Boot Authentication. If you would not like to swipe your finger or cannot authenticate the fingerprint for some reasons, push the **BkSp** key to skip the fingerprint authentication screen. You can try to swipe the fingerprint up to five times. If you failed fingerprint authentication five times, you must enter the password manually to start the computer.
- Log on with the Tablet PC Pen when in Tablet mode. Refer to [Tablet mode](#) section in this chapter.
- Enter the password manually.



The password is only necessary if the computer was shutdown in Boot Mode or Hibernation Mode.

To enter a password manually, follow these steps:

1. Turn on the power. The following message will appear in the screen:



Password=

2. Enter the Password.
3. Press **Enter**.



If you enter the password incorrectly three times in a row, the computer shuts off. In this case, you must turn the computer back on to retry password entry.

Tablet mode

Enter your password by tapping the on-screen keyboard using the Tablet PC Pen.

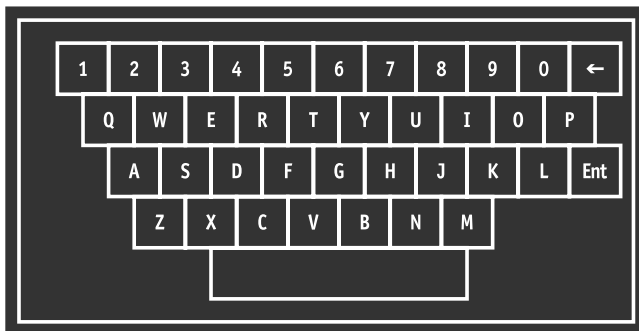


Figure 6-5 On-screen keyboard

- The beep sounds when tapping the on-screen keyboard with the Tablet PC Pen. An * (asterisk) is displayed after “**password =**” and one character is input for every tapping.



Register your password to the computer in the Laptop mode using the standard keyboard. Refer to [TOSHIBA Password Utility](#), in this chapter for details.

Power-up modes

The computer has three different power-up modes as follows:

- **Boot Mode:** The computer will shut down without saving data - in view of this you must always save your work before you turn the computer off.
- **Hibernation Mode:** Data in memory will be saved to the hard disk drive.
- **Sleep Mode:** Data will be maintained in the computer’s memory.



Please refer to the sections [Turning on the power](#) and [Turning off the power](#) in Chapter 1, [Getting Started](#) for further information.

Windows utilities

You can configure various settings associated with both Sleep Mode and Hibernation Mode within the Power Options (to access it, **Start** -> **Control Panel** -> **System and Maintenance** -> **Power Options**).

Hot keys

You can use the **Fn + F3** hot key to enter Sleep Mode or **Fn + F4** to enter Hibernation Mode - please refer to Chapter 5, [The Keyboard](#) for further details.

Panel power on/off

You can set up your computer so that power is turned off automatically when you close the display panel, and turned on again when you open it. Please note that this function is only available for Sleep Mode or Hibernation Mode, not for Boot Mode.



If the panel power off function is enabled, and you manually shut down Windows, do not close the display panel until the shut down process has been completed.

System Auto Off

This feature turns the system off automatically if it is not used for a set period of time, and can be configured for both Sleep Mode or Hibernation Mode.

Chapter 7

HW Setup & BIOS Setup

This chapter explains how to use the TOSHIBA HW Setup program to configure your computer, and provides information on setting up features such as the Execute-Disable Bit Capability and Trusted Platform Module (TPM).

Accessing HW Setup

To run the HW Setup program, click **Start -> All Programs -> TOSHIBA -> Utilities -> HWSetup**.

HW Setup window

The HW Setup window contains a number of tabs (General, Display, Boot Priority, Keyboard, CPU, LAN, Device Config and USB) to allow specific functions of the computer to be configured.

In addition there are also three buttons: **OK**, **Cancel** and **Apply**.

OK	Accepts your changes and closes the HW Setup window.
Cancel	Closes the window without accepting your changes.
Apply	Accepts all your changes without closing the HW Setup window.

General

This window displays the BIOS version and contains two buttons: **Default** and **About**.

Default	Return all HW Setup values to the factory settings.
About	Display the HW Setup version.

Setup

This field displays the installed **BIOS version** and date.

Display

This tab lets you customize your computer's display settings for either the internal display or an external monitor.

Power On Display

This tab allows you to select the display to be used when the computer is started. Please note that this setting is only available on standard VGA mode and is not available as part of the Windows Desktop properties.

Auto-Selected	Selects an external monitor if one is connected, otherwise, it selects the internal display (default).
LCD + Analog RGB	Selects both the internal display and an external monitor for simultaneous display.
System LCD Only	Selects the internal display even if the external monitor is connected.



If the connected external monitor does not support the computer's current video mode, selecting the LCD + Analog RGB mode will not display any image on the external monitor.

Boot Priority

Boot Priority Options

This tab allows you to select the priority for booting the computer - the following settings are available:

FDD -> HDD -> CD-ROM -> LAN	The computer looks for bootable files on devices in the following order: 1. floppy diskette drive ^{*1} , 2. hard disk drive, 3. CD-ROM ^{*2} , 4. LAN.
HDD -> FDD -> CD-ROM -> LAN	The computer looks for bootable files on devices in the following order: 1. hard disk drive, 2. floppy diskette drive ^{*1} , 3. CD-ROM ^{*2} , 4. LAN.
FDD -> CD-ROM -> LAN -> HDD	The computer looks for bootable files on devices in the following order: 1. floppy diskette drive ^{*1} , 2. CD-ROM ^{*2} , 3. LAN, 4. hard disk drive.
HDD -> CD-ROM -> LAN -> FDD	The computer looks for bootable files on devices in the following order: 1. hard disk drive, 2. CD-ROM ^{*2} , 3. LAN, 4. floppy diskette drive ^{*1} .
CD-ROM -> LAN -> FDD -> HDD	The computer looks for bootable files on devices in the following order: 1. CD-ROM ^{*2} , 2. LAN, 3. floppy diskette drive ^{*1} , 4. hard disk drive.
CD-ROM -> LAN -> HDD -> FDD	The computer looks for bootable files on devices in the following order: 1. CD-ROM ^{*2} , 2. LAN, 3. hard disk drive, 4. floppy diskette drive ^{*1} .

You can override the settings and manually select a boot device by pressing one of the following keys while the computer is booting:

U	Selects the USB floppy diskette drive.
N	Selects the network.
1	Selects the built-in hard disk drive.
C	Selects the CD-ROM ^{*2} .
M	Selects the USB memory drive.

*1 The floppy diskette drive will be used to start the computer when it contains a bootable disk.

*2 CD-ROM will be used to start the computer when it contains a bootable disc.

To change the boot drive, follow the steps below.

1. Hold down **F12** and boot the computer.
2. The following menu will be displayed with the following icons: Built-in hard disk drive, CD-ROM, FDD, Network (LAN), USB Memory boot.



Please note that a highlighted bar will only appear under the selected device.

3. Use the left/right cursor keys to highlight the boot device you want and press **Enter**.



- *If only a Supervisor Password has been set, the following should be noted:*
 - *The boot device menu will appear when the “Able to run HW Setup” option has been configured.*
 - *The boot device menu will not appear when the “Unable to run HW Setup” option has been configured.*
- *If both a Supervisor Password and a User Password are set, the following should be noted:*
 - *The boot device menu will appear when you use either the Supervisor Password or the User Password to start the computer, and the “Able to run HW Setup” option has been configured.*
 - *The boot device menu will not appear when you use the User Password to start the computer and the “Unable to run HW Setup” option has been configured.*
 - *The boot device menu will appear when you use the Supervisor Password to start the computer, even if the “Unable to run HW Setup” option has been configured.*

The boot device selection methods described above will not change the boot priority settings that have been configured in HW Setup. In addition, if you press a key other than one of those listed, or if the selected device is not installed, the system will continue to boot according to the current and available settings in HW Setup.

HDD Priority Options

If more than one hard disk drive is installed in the computer, this option allows you to set the priority associated with hard disk drive detection - the first hard disk drive detected that has a valid boot command on it will be the device from which the computer will start.

Built-in HDD -> USB	This option sets the priority as the built-in hard disk drive followed by a USB memory device (Default).
-------------------------------	--

USB -> Built-in HDD	This option sets the priority as a USB memory device followed by the built-in hard disk drive.
-------------------------------	--



- *If a boot command is not found on the first detected hard disk drive, the system will not boot from next hard disk drive in the list, instead it will search for the next device in the Boot Priority list and startup from this as appropriate.*
- *Please be aware that some modules may not be displayed.*

USB Memory BIOS Support Type

This option allows you to set the type of the USB memory to be used as a startup device.

HDD	Sets the USB memory to be the equivalent of a hard disk drive (default). With this setting, the USB memory device can be used to start the computer as though it were a hard disk drive based on the hard disk drive settings within both the Boot Priority and HDD Priority options detailed previously.
------------	---

FDD	Sets the USB memory to be the equivalent of a floppy diskette drive. With this setting, the USB memory device can be used to start the computer as though it were a floppy diskette based on the floppy diskette drive settings within the Boot Priority option detailed previously.
------------	--

Keyboard

Wake-up on Keyboard

When this feature is enabled, and the computer is in Sleep Mode, you can turn on the system by pressing any key. However, please be aware that this option will only work with the internal keyboard and only when the computer is in Sleep Mode.

Enabled	Enables the Wake-up on Keyboard function.
Disabled	Disables the Wake-up on Keyboard function (Default).

CPU

This function allows you to set the processor's operating mode.



Please note that this option is displayed only on models with an Intel® Core™ Duo processor.

Dynamic CPU Frequency Mode

This option allows you to configure the power saving modes associated with the processor - the following settings are available:

Dynamically Switchable	The processor's power consumption and automatic clock speed switching functions are enabled - in use the processor's operation is automatically switched when necessary (default).
Always High	The processor's power consumption and automatic clock speed switching functions are disabled - in use the processor will always run at its highest level of power consumption and its highest speed.
Always Low	The processor's power consumption and automatic clock speed switching functions are disabled - in use the processor will always run at a lower level of power consumption and a low speed.

LAN

Wake-up on LAN

This feature lets the computer's power be turned on when it receives a wake-up signal from the LAN.

Power will be automatically turned on when a signal is received from an administrator's computer which is connected via a network.

The following settings can be changed when the Built-in LAN is **Enabled**.

Connect the AC adaptor when using the Wake-up on LAN function. The battery retention time will be shorter than the times listed in this manual when this function is enabled. Refer to the section in chapter 6, [Retaining data with power off](#).

Enabled	Enables Wake-up on LAN.
Disabled	Disables Wake-up on LAN (Default).



Do not install or remove an optional memory module while Wake-up on LAN is enabled.



The Wake-up on LAN function consumes power even when the system is off. Leave the AC adaptor connected while using this feature.

Built-in LAN

This feature enables or disables the Built-in LAN.

Enabled	Enables Built-in LAN functions (Default).
Disabled	Disables Built-in LAN functions.

Device Config

Device Configuration

This option allows you to set how the computer's hardware devices will be configured.

All Devices	The computer's BIOS will setup and configure all devices.
Setup by OS	The operating system will setup and configure all of the devices that it can control (default).

USB

USB KB/Mouse Legacy Emulation

You can use this option to enable or disable USB keyboard/mouse legacy emulation so that, even if your operating system does not support USB devices, you can still use a standard USB mouse and keyboard - to achieve this you should set the appropriate option(s) to Enabled.

Enabled	Enables the USB KB/Mouse Legacy Emulation function (Default).
Disabled	Disables the USB KB/Mouse Legacy Emulation function.

USB-FDD Legacy Emulation

Use this option to enable or disable USB floppy diskette drive legacy emulation. If your operating system does not support USB, you can still use a USB floppy diskette drive by setting the **USB-FDD Legacy Emulation** item to **Enabled**.

Enabled	Enables the USB floppy diskette drive legacy emulation function (Default).
Disabled	Disables the USB floppy diskette drive legacy emulation function.

BIOS Setup Program

Settings for some features are carried out in the BIOS setup program.



Notes Before Using the BIOS Setup Application

- *In most cases, changes to the system's configuration should be made within Windows by using applications such as **TOSHIBA HW Setup**, **TOSHIBA Password Utility**, **Windows Device Manager** and so forth. If you make changes to the configuration through the BIOS setup program, please be aware that the configuration set through the Windows applications will take priority.*
- *Changes to the settings within the BIOS setup program will not be erased even if the power supply is turned off and the main battery removed. However, if the built-in Real Time Clock (RTC) battery runs out of power, most of the settings will revert back to their default values. However, please note that the following items will not be affected in this instance:*
 - Password
 - Hard Disk Drive Password
 - Security Controller
 - Fingerprint patterns

Starting and Ending the BIOS Setup Program

Starting the BIOS Setup Program

1. Turn on the computer while pressing the **Esc** key - if the **Password =** prompt is displayed, enter either the Supervisor Password, if one is set, or the User Password and press the **Enter** key. Please refer to Chapter 6, the *TOSHIBA Password Utility* for further details about the User Password.
2. At the **Check system. Then press [F1] key.** prompt, press the **F1** key - the BIOS setup application will start up.



Please refer to the operating instructions displayed in the settings screen.

Ending the BIOS Setup Program

In order to save the changes you have made and end the BIOS setup application, follow the steps as detailed below:

1. Press the **End** key - this will cause the **Are you sure? (Y/N). The changes you made will cause the system to reboot.** prompt to be displayed at the bottom of the screen.
2. Press the **Y** key - this will save the configuration changes and end the BIOS setup application, automatically restarting the computer.

Ending the BIOS Setup Program Halfway

The configuration settings can be terminated halfway without saving any of the changes made by following the steps detailed below:

1. Press the **Esc** key - the **Exit without saving? (Y/N)** prompt will be displayed at the bottom of the screen.
2. Press the **Y** key - the BIOS setup application will exit and the computer will automatically restart.

Core Multi - Processing

The Core Multi-Processing sets the CPU operating mode.



This option is displayed only on models with an Intel® Core™ Duo processor.

Enabled is Dual Core mode.

Disabled is Single Core mode.

Enabled	Enables Core Multi - Processing functions (Default).
Disabled	Disables Core Multi - Processing functions.

Virtualization Technology

Virtualization Technology sets enable or disable of the Intel Virtualization Technology installed in the CPU.

Intel Virtualization Technology is the technique that allows one machine to operate as multiple virtual machines.



The Virtualization Technology is supported with some models.

The Disabled command does not allow use of the Intel Virtualization Technology.

The Enabled command allows use of the Intel Virtualization Technology.

Enabled Enables Virtualization Technology.

Disabled Disables Virtualization Technology (Default).



*System configuration changes, other than changes to this setting, should be made within Windows by using applications such as **TOSHIBA HW Setup**, **TOSHIBA Password Utility**, **Windows Device Manager** and so forth.*

Enhanced C-States

This feature enables or disables the Enhanced C-States.



This option is displayed only on models with an Intel® Core™ Duo processor.

Enabled This lowers the power consumption (Default).

Disabled This does not lower the power consumption.

Execute-Disable Bit Capability

This setting, which is displayed on the first page of the setup screen, configures the Execute-Disable Bit function of the computer's processor. This function is specific to Intel® processors and, when activated, helps to reduce security threats to the computer by preventing certain classes of malicious 'buffer overflow' attacks when combined with a supporting operating system such as Windows Vista™.

Available Makes the processor's Execute-Disable Bit Capability available for use.

Not Available Disables the processor's Execute-Disable Bit Capability so that it is not available for use. (Default).



System configuration changes, other than changes to this setting, should be made within Windows by using applications such as **TOSHIBA HW Setup**, **TOSHIBA Password Utility**, **Windows Device Manager** and so forth.

LCD Display Stretch

Select the display function of the computer's display panel.

Enabled	Display modes with low resolution are stretched and displayed (Default).
Disabled	Display modes with low resolution are not stretched and displayed in their original state.

Security controller

Please note that the security controller settings are available on the second page of the BIOS setup application.

TPM

This setting enables or disables the computer's Trusted Platform Module (TPM) security controller.

Enabled	Enable Trusted Platform Module security.
Disabled	Disable Trusted Platform Module security (default).

Clear TPM Owner

This setting is used to erase the data stored as part of the Trusted Platform Module, as would be required, for example, when disposing of the computer or when the owner of the computer changes. Once this operation is carried out, the Trusted Platform Module configuration settings are erased such that any encrypted data can no longer be decrypted and the files can no longer be read. In view of this you must ensure that you backup or delete the data as necessary before carrying out this operation.

The procedure to follow is as detailed below:

1. Move the cursor to the **Clear TPM Owner** setting and press either the **Space** key or **BkSp** key.
2. A message is displayed at which you should press the **Y**, **E**, **S**, and **Enter** keys in sequence - the Trusted Platform Module information will then be erased.
3. The Trusted Platform Module setting will then change from being **Enable** to **Disabled** and the setting no longer displayed.



- *System configuration changes, other than changes to this setting, should be made within Windows by using applications such as **TOSHIBA HW Setup**, **TOSHIBA Password Utility**, **Windows Device Manager** and so forth.*
- *When using TPM, please refer to the **Infineon TPM Installation Guide** from the **C:\TOSAPINS\Infineon TPM Installation Guide** and ensure that the user reads as it contains usage information and notes on using TPM security.*

Diagnostic Mode

Allows you to set whether the BIOS diagnostic test is enabled or disabled.

Disabled	The diagnostic test is disabled (Default).
Enabled	The diagnostic test is enabled.

PCI Express Link ASPM

This feature lets you set the PCI Express power-saving configuration.

Auto	Power-saving is enabled when the computer is running from battery power and the PCI Express device is not being used.
Disabled	Disables power-saving for performance.
Enabled	Enables power-saving when the PCI Express device is not being used (Default).

Chapter 8

Troubleshooting

TOSHIBA have designed this computer for durability, however, should problems occur you are able to use the procedures detailed in this chapter to help determine the cause.

All users should become familiar with this chapter as knowing what might go wrong can help prevent problems from occurring in the first place.

Problem solving process

Resolving problems will be much easier if you observe the following guidelines:

- Stop immediately when you recognize a problem exists as taking further action may result in data loss or damage, or you may destroy valuable problem related information that can help solve the problem.
- Observe what is happening - write down what the system is doing and what actions you performed immediately before the problem occurred. If you have a printer attached, print a copy of the screen using the computer's **PrtSc** key.

Please also be aware that the questions and procedures described in this chapter are meant only as a guide, they are not definitive problem solving techniques. In reality many problems can be solved simply, but a few may require help from your reseller, dealer or service provider - if you find you need to consult others, be prepared to describe the problem in as much detail as possible.

Preliminary checklist

You should always consider the simplest solution first - the items detailed in this checklist are easy to fix and yet can cause what appears to be a serious problem:

- Make sure you turn on all peripheral devices before you turn on the computer - this includes your printer and any other external device you are using.
- Before you attach an external device you should first turn the computer off, then when you turn the computer back on again it will recognize the new device.
- Make sure all optional accessories are configured properly in the computer's setup program and that all required driver software has been loaded (please refer to the documentation included with the optional accessories for further information on its installation and configuration).
- Check all cables to ensure they are correctly and firmly attached to the computer - loose cables can cause signal errors.
- Inspect all connecting cables for loose wires and all connectors for loose pins.
- Check that your floppy diskette, CD or DVD media is correctly loaded and, in the case of a floppy diskette, that its write protect tab is correctly set.

Always try to make detailed notes of your observations and keep them in a permanent error log - this will help you to describe your problems to your reseller, dealer or service provider. In addition, if a problem recurs, the log you have made will help to identify the problem faster.

Analyzing the problem

Sometimes the computer will give you clues that can help you identify why it is malfunctioning. In view of this you should keep the following questions in mind:

- Which part of the computer is not operating properly - keyboard, hard disk drive, display panel, touch pad, touch pad control buttons - as each device will produce different symptoms.
- Check the options within the operating system to ensure that its configuration is set properly.
- What appears on the display? Does it display any messages or random characters? If you have a printer attached, print a copy of the screen using the **PrtSc** key and, if possible, look up the messages in the documentation included with the computer, software or operating system.
- Check that all connecting cables are correctly and firmly attached as loose cables can cause erroneous or intermittent signals.
- Do any indicators light, if so, which ones, what color are they and do they stay on or blink? Write down what you see.

- Do you hear any beeps, if so how many, are they long or short and are they high pitched or low pitched? In addition, is the computer making any unusual noises? Write down what you hear.

Record your observations so you can describe them in detail to your reseller, dealer or service provider.

Software The problems may be caused by your software or disk. If you cannot load a software package, the media may be damaged or the program might be corrupted - in these instances try loading another copy of the software if possible.

If an error message appears while you are using a software package you should refer to the documentation supplied with it as this will usually include a problem solving section or a summary of error messages.

Next, you should check any error messages against the operating system documentation.

Hardware If you cannot find a software problem, you should then check the setup and configuration of your hardware. First run through the items in the preliminary checklist as described previously then, if you still cannot correct the problem, try to identify the source - the next section provides checklists for individual components and peripherals.



Before using a peripheral device or application software that is not an authorized Toshiba part or product, make sure the device or software can be used with your computer. Use of incompatible devices may cause injury or may damage your computer.

Hardware and system checklist

This section discusses problems caused by your computer's hardware or attached peripherals. Basic problems may occur in the following areas:

- System start-up
- Self test
- Power
- Password
- Keyboard
- Internal display panel
- Hard disk drive
- USB floppy diskette drive
- PC Card
- Pointing Device
- Fingerprint Sensor
- USB device
- Additional memory module
- Sound system
- External monitor
- LAN
- Wireless LAN
- Bluetooth

System start-up

When the computer does not start properly, check the following items:

- Self Test
- Power Sources
- Power-on Password

Self test

When the computer starts up, the self test will be run automatically, and the following will be displayed:



In Touch with Tomorrow
TOSHIBA

This message remains on the screen for a few seconds.

If the self test is successful, the computer tries to load the operating system according to how the **Boot Priority** option is set within the TOSHIBA HW Setup program.

If any of the following conditions are present, the self test has failed:

- The computer stops and does not proceed to display information or messages except for the TOSHIBA logo.
- Random characters appear on the screen and the system does not function normally.
- The screen displays an error message.

In these instances, turn off the computer, check all cable connections and then restart it - if the self test fails again, contact your reseller, dealer or service provider.

Power

When the computer is not plugged into an AC power outlet, the battery pack is the primary power source. However, your computer also has a number of other power resources, including an intelligent power supply and a Real Time Clock (RTC) battery, all of which are interrelated with any one having the ability to produce apparent power problems.

This section provides checklists for AC power and the battery. If you cannot resolve a problem after following them, the cause may lie with another power related resource - in such an instance you should contact your reseller, dealer or service provider.

Overheating power down

In the event that the computer's internal operating temperature becomes too high, the system will automatically enter either Hibernation Mode or Sleep Mode and shut itself down.

Problem	Procedure
Computer shuts down and DC IN indicator blinks orange	Leave the computer off until the DC IN indicator stops blinking.



*It is recommended to leave the computer off until the interior reaches room temperature even though the **DC IN** indicator stops blinking.*

If the computer has reached room temperature and it still does not start, or if it starts but shuts down quickly, contact your reseller, dealer or service provider.

Computer shuts down and its DC IN indicator is flashing blue	This indicates a problem with the heat dispersal system - you should contact your reseller, dealer or service provider.
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AC power

If you have trouble turning on the computer with the AC adaptor connected you should check the status of the **DC IN** indicator. Please refer to Chapter 6, [Power and Power-Up Modes](#) for further information.

Problem	Procedure
AC adaptor doesn't power the computer (DC IN indicator does not glow blue)	<p>Check the connections to make sure that the power cord/adaptor is firmly connected to the computer and a working power outlet.</p> <p>Check the condition of the cord and terminals. If the cord is frayed or damaged it should be replaced, while if the terminals are soiled, they should be cleaned with a clean cotton cloth.</p> <p>If the AC adaptor still does not power the computer, you should contact your reseller, dealer or service provider.</p>

Battery

If you suspect a problem with the battery, you should check the status of the **DC IN** indicator as well as the **Battery** indicator. Please refer to Chapter 6, *Power and Power-Up Modes* for more information on these indicators, together with general battery operation.

Problem	Procedure
Battery doesn't power the computer	The battery may be discharged - connect the AC adaptor to recharge the battery.
Battery doesn't charge when the AC adaptor is attached (Battery indicator does not glow orange).	<p>If the battery is completely discharged, it will not begin charging immediately, in these instances you should wait a few minutes before trying again. If the battery still does not charge, you should check that the power outlet the AC adaptor is connected to is supplying power - this can be tested by plugging another appliance into it.</p> <p>Check whether the battery is hot or cold to the touch - if so, it will not charge properly and should be allowed to reach room temperature before you try again.</p> <p>Unplug the AC adaptor and remove the battery to make sure its connecting terminals are clean - if necessary wipe them with a soft dry cloth lightly dipped in alcohol.</p> <p>Connect the AC adaptor and replace the battery, taking care to ensure that it is securely seated in the computer.</p> <p>Check the Battery indicator - if it does not glow, allow the computer to charge the battery for at least twenty minutes. If the Battery indicator starts to glow after this period, allow the battery to continue to charge for at least another twenty minutes before turning on the computer. However, if the indicator still does not glow, the battery may be at the end of its operating life and should be replaced. However, if you do not believe the battery is at the end of its operating life, you should speak to your reseller, dealer or service provider.</p>
Battery doesn't power the computer as long as expected	<p>If you frequently recharge a partially charged battery, the battery might not charge to its full potential - in these instances you should fully discharge the battery and then attempt to charge it again.</p> <p>Check the Power saver option under Select a power plan in the Power Options.</p>

Real Time Clock

Problem	Procedure
<p>The following message is Displayed on the screen:</p> <pre>RTC battery is low or CMOS checksum is inconsistent. Press [F1] key to set Date/Time.</pre>	<p>The charge in the Real Time Clock (RTC) battery has run out - you will need to set the date and time in the BIOS setup application by using the following steps:</p> <ol style="list-style-type: none"> 1. Press the F1 key - the BIOS setup application will load. 2. Set the date in the System Date field. 3. Set the time in the System Time field. 4. Press the End key - a confirmation message will be displayed. 5. Press the Y key - the BIOS setup application will end and the computer will restart.

Password

Problem	Procedure
Cannot enter password	Please refer to the TOSHIBA Password Utility section in Chapter 6, Power and Power-Up Modes for further information.

Keyboard

Keyboard problems can be caused by the setup and configuration of the computer - please refer to Chapter 5, [The Keyboard](#), for further information.

Problem	Procedure
Some letter keys produce numbers	Check that the numeric keypad overlay is not activated - press the Fn + F11 hot key and try typing again.
Output to screen is garbled	<p>Please refer to your software's documentation to ensure that its is not remapping the keyboard in any way (remapping involves changing or reassigning the function of each key).</p> <p>If you are still unable to use the keyboard, you should contact your reseller, dealer or service provider.</p>

Internal display panel

Apparent computer's display panel problems may be related to the computer's setup and configuration - please refer to Chapter 7, *HW Setup & BIOS Setup*, for further information.

Problem	Procedure
No display	Press the Fn + F5 hot keys to adjust the display priority, and to make sure it is not set for output to an external monitor.
Markings appear on the computer's display panel.	These marks may have come from contact with the keyboard and Touch Pad while the display panel has been closed. You should try to remove the marks by gently wiping the display panel with a clean dry cloth or, if this fails, with a good quality LCD screen cleaner. In this latter instance you should always follow the instructions with the screen cleaner and always ensure you let the display panel dry properly before closing it.
Problems above remain unresolved or other problems occur	You should initially refer to the documentation supplied with you software to determine if it is this that is causing the problems. Alternatively you may wish to run the TOSHIBA PC Diagnostic Tool to check the general operation of the computer. If you are still unable to resolve the problem, contact your reseller, dealer or service provider.

Hard disk drive

Problem	Procedure
Computer does not boot from hard disk drive	<p>Check to see whether there is a floppy diskette in the floppy diskette drive or a CD-ROM/DVD-ROM in the optical disc drive - if so remove it and try to start the computer again.</p> <p>If this has no effect, check the Boot Priority setting within the TOSHIBA HW Setup utility - please refer to the <i>Boot Priority</i> section in Chapter 7, <i>HW Setup & BIOS Setup</i>, for further information.</p> <hr/> <p>Please refer to your operating system documentation in order to determine whether there is a problem with any of the operating system files or settings.</p>

Problem	Procedure
Slow performance	<p>The files on the hard disk drive may be fragmented - in this instance you should run the disk Defragmentation utility to check the condition of your files and the hard disk drive. Please refer to the operating system's documentation or online Help File for further information on running and using the Defragmentation utility.</p> <hr/> <p>As a last resort you should reformat the hard disk drive and then reload the operating system and all other files and data. If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

USB floppy diskette drive (optional)

For further information, please refer to Chapter 3, *Features, Utilities and Options*.

Problem	Procedure
Drive does not operate	Check the connection between the computer and the drive to ensure that it is properly attached.
Some programs run correctly but others do not	The computer's software or hardware configuration may be causing a problem - ensure that these configurations match your requirements (refer to any relevant documentation, for example that supplied with any software in use, for further information).
You cannot access the external floppy diskette drive	<p>Try another floppy diskette in the drive - if you are able to access this disk then it indicates the original disk and not the drive is probably causing the problem.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

PC Card

For further information, please refer to Chapter 3, *Features, Utilities and Options*.

Problem	Procedure
PC Card error occurs	<p>Remove the PC Card from the computer and then reinsert it in order to ensure it is firmly connected.</p> <hr/> <p>In the event that the PC Card is attached to an external peripheral device, ensure that this connection is properly made.</p> <hr/> <p>If the problem persists, then you should refer to the documentation supplied with your PC Card for further information.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

Pointing device

If you are using a USB mouse, you should also refer to both the *USB device* section in this chapter, and the documentation supplied with your mouse.

Touch Pad

Problem	Procedure
On-screen pointer does not respond to pointing device operation	<p>In this instance the system might be busy - if the pointer is shaped as an hourglass, wait for it to return to its normal shape and then try again to move it.</p>
Double-tapping does not work	<p>In this instance, you should initially try changing the double-click speed setting within the Mouse Control utility.</p> <ol style="list-style-type: none"> To access this utility, click Start -> Control Panel -> Hardware and Sound -> Mouse icon. Within the Mouse Properties window, click the Buttons tab. Set the double-click speed as required and click OK.

Problem	Procedure
The mouse pointer moves too fast or too slow	<p>In this instance, you should initially try changing the speed setting within the Mouse Control utility.</p> <ol style="list-style-type: none"> <li data-bbox="519 209 1044 295">1. To access this utility, click Start -> Control Panel -> Hardware and Sound -> Mouse icon. <li data-bbox="519 300 1044 352">2. Within the Mouse Properties window, click the Pointer Options tab. <li data-bbox="519 357 1044 410">3. Set the pointer speed as required and click OK. <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>
The reaction of Touch Pad is either too sensitive or not sensitive enough.	<p>Adjust the touch Sensitivity.</p> <ol style="list-style-type: none"> <li data-bbox="519 517 1044 569">1. Click Start -> Control Panel -> Hardware and Sound -> Mouse icon. <li data-bbox="519 574 1044 627">2. Within the Mouse Properties window, click the Advanced tab. <li data-bbox="519 632 1044 665">3. Click the Advanced feature settings button. <li data-bbox="519 670 1044 697">4. Advanced feature settings is displayed. <li data-bbox="519 702 1044 780">5. Move the slide of adjust the pointer speed in relation to the standard Windows setting. Click the OK button. <li data-bbox="519 785 1044 837">6. Click the OK button on Advanced feature setting screen.

USB mouse

Problem	Procedure
On-screen pointer does not respond to mouse operation	<p>In this instance the system might be busy - if the pointer is shaped as an hourglass, wait for it to return to its normal shape and then try again to move it.</p> <p>Remove the mouse from the computer and then reconnect it to a free USB port it in order to ensure it is firmly attached.</p>
Double-clicking does not work	<p>In this instance, you should initially try changing the double-click speed setting within the Mouse Control utility.</p> <ol style="list-style-type: none"> <li data-bbox="519 1267 1044 1353">1. To access this utility, click Start -> Control Panel -> Hardware and Sound -> Mouse icon. <li data-bbox="519 1358 1044 1410">2. Within the Mouse Properties window, click the Buttons tab. <li data-bbox="519 1415 1044 1466">3. Set the double-click speed as required and click OK.

Problem	Procedure
The mouse pointer moves too fast or too slow	<p>In this instance, you should initially try changing the speed setting within the Mouse Control utility.</p> <ol style="list-style-type: none"><li data-bbox="482 212 972 288">1. To access this utility, click Start -> Control Panel -> Hardware and Sound -> Mouse icon.<li data-bbox="482 300 972 352">2. Within the Mouse Properties window, click the Pointer Options tab.<li data-bbox="482 363 972 408">3. Set the pointer speed as required and click OK.
The mouse pointer moves erratically	<p>The elements of the mouse responsible for detecting movement might be dirty - please refer to the documentation supplied with the mouse for instructions on how to clean it.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

Fingerprint Sensor

Problem	Procedure
Reading of the fingerprint was not successful.	<p>In this instance you should try the fingerprint reading operation again using the correct finger position - please refer to Using the Fingerprint Sensor in Chapter 4, Operating Basics for further information.</p> <p>Alternatively, you should try the recognition process again using another enrolled finger.</p>
The fingerprint cannot be read due to injuries to the finger.	<p>In this instance you should try the recognition process again using another enrolled finger. However, if fingerprints from all the enrolled fingers cannot be read, you should instead log into the computer by using the keyboard to input the password.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

USB device

In addition to the information in this section, please also refer to the documentation supplied with your USB device.

Problem	Procedure
<p>USB device does not work</p>	<p>Remove the USB device from the computer and then reconnect it to a free port it in order to ensure it is firmly attached.</p> <hr/> <p>Ensure that any required USB device drivers are properly installed - to achieve this you should refer to both the device documentation and the operating system documentation.</p> <hr/> <p>If you are using an operating system that does not support USB, you are still able to use a USB mouse and/or USB keyboard by setting the USB KB/Mouse Emulation option within the TOSHIBA HW Setup utility to Enabled.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

Additional memory module

Please also refer to Chapter 3, *Features, Utilities and Options*, for further information on installing and removing memory modules.

Problem	Procedure
<p>If there is a memory malfunction, the power LED flashes (on for 0.5 seconds, off for 0.5 seconds) in the following ways;</p> <p>If there is only an error in Slot A: repeatedly flashes orange twice, then blue.</p> <p>If there is only an error in Slot B: repeatedly flashes orange, then blue twice.</p> <p>If there is an error in Slot A and in Slot B: repeatedly flashes orange twice, then blue twice.</p>	<p>In the event of power LED flashes when the computer is turned on you should initially ensure that the installed memory module(s) are compatible with the computer. If you determine that an incompatible module has been installed, you should follow the steps as detailed below:</p> <ol style="list-style-type: none"> 1. Turn off the computer. 2. Disconnect the AC adaptor and all peripheral devices. 3. Remove the battery pack. 4. Remove the incompatible memory module. 5. Install the battery and/or connect the AC adaptor. 6. Turn on the computer. <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

Sound system

In addition to the information in this section, please also refer to the documentation supplied with your audio device.

Problem	Procedure
No sound is heard	<p>Adjust the volume control switch.</p> <hr/> <p>Check the software volume settings.</p> <hr/> <p>Please check to see if Mute is turned to Off</p> <hr/> <p>Check to make sure the headphone connection is secure.</p> <hr/> <p>Check within the Windows Device Manager application to ensure the sound function is enabled and that settings for elements such as I/O port address, interrupt level and DMA channel are correct for your software, and that they do not conflict with any other hardware devices connected to the computer.</p> <p>For further information on these settings, please refer to the documentation supplied with your audio device.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>
Annoying sound is heard	<p>In this instance you may be experiencing feedback from either the internal microphone or an external microphone connected to the computer - please refer to Sound System in Chapter 4, Operating Basics for further information.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

External monitor

Please also refer to Chapter 3, [Features, Utilities and Options](#), and to the documentation supplied with your monitor for further information.

Problem	Procedure
Monitor does not turn on	<p>After confirming that the monitor's power switch is on, you should check the connections to make sure that the power cord/adaptor is firmly connected to the monitor and to a working power outlet.</p>

Problem	Procedure
No display	<p>Try adjusting the contrast and brightness controls on the external monitor.</p> <p>Press the Fn + F5 hot key in order to change the display priority and ensure that it is not set for the internal display only.</p>
Display error occurs	<p>Check that the cable connecting the external monitor to the computer is firmly attached.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

LAN

Problem	Procedure
Cannot access LAN	<p>Check for a firm cable connection between the LAN jack and the LAN hub.</p>
Wake-up on LAN does not work	<p>Make sure the AC adaptor is connected. The Wake-up on LAN function consumes power even when the system is off.</p> <p>If problems persist, consult your LAN administrator.</p>

Wireless LAN

If the following procedures do not restore LAN access, consult your LAN administrator. For more information on wireless communication, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
Cannot access Wireless LAN	<p>Make sure the computer's Wireless communication switch is set to on.</p> <p>If problems persist, contact your LAN administrator.</p>

Bluetooth

For further information on Bluetooth wireless communication, please refer to Chapter 4, *Operating Basics*.

Problem	Procedure
Cannot access Bluetooth device	<p>Check to ensure the computer's Wireless Communication Switch is set to on.</p> <hr/> <p>Check to ensure the Bluetooth Manager application is running on the computer and that power to the external Bluetooth device is turned on.</p> <hr/> <p>Check to ensure that no optional Bluetooth PC Cards are installed in the computer - the built-in Bluetooth hardware cannot operate simultaneously with another Bluetooth controller. If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

Disposing of the computer and the computer's batteries

- Discard this computer in accordance with applicable laws and regulations. For further information, contact your local government.
- This computer contains rechargeable batteries. After repeated use, the batteries will finally lose their ability to hold a charge and you will need to replace them. Under certain applicable laws and regulation, it may be illegal to dispose of old batteries by placing them in the trash.
- Please be kind to our shared environment. Check with your local government authority for details regarding where to recycle old batteries or how to dispose of them properly.
- If your hard disk drive or other storage media contains sensitive data, you should be aware that standard deletion procedures do not remove data from the media. These standard deletion procedures include:
 - Selecting Delete for a target file
 - Putting files in the Recycle Bin and emptying the Recycle Bin
 - Reformatting the media
 - Reinstalling an operating system from the recovery CD-ROM

The procedures above delete only the initial part of the data used for file management. This makes the file invisible to the operating system, but the data can still be read by specialized utilities. If you dispose of the computer, please delete all the data on its hard disk drive. Doing so prevents unauthorized use of such data. To ensure your data is not used for unauthorized purposes, you can:

 - Physically destroy the hard disk drive
 - Use a proven specialized utility to overwrite all data
 - Take the hard disk drive to a professional deletion service

All data deletion costs will be borne by you.

TOSHIBA support

If you require any additional help using your computer or if you are having problems operating the computer, you may need to contact TOSHIBA for additional technical assistance.

Before you call

Some problems you experience may be related to software or the operating system so it is important that you investigate other sources of assistance first. Before contacting TOSHIBA, try the following:

- Review troubleshooting sections in the documentation supplied with your software and/or peripheral devices.
- If a problem occurs when you are running software applications, consult the software documentation for troubleshooting suggestions and consider calling the software company's technical support department for assistance.
- Consult the reseller or dealer from where you purchased your computer and/or software - they are your best resource for current information and support.

Where to write

If you are still unable to solve the problem and suspect that it is hardware related, write to TOSHIBA at the location listed in the accompanying warranty booklet or visit www.toshiba-europe.com on the Internet.

Appendix A

Specifications

This appendix summarizes the computer's technical specifications.

Physical Dimensions

Weight (typical)	1.72 kilograms, configured with: 12.1" WXGA, 512MB RAM x 2, 80GB (1.8" HDD), LAN (1000M bps), Wireless LAN, Bluetooth, 6cell battery pack. Weight will vary with other configurations. Above weights are measured at specific criteria. They are not guaranteed as the maximum weight of the actual product.
Size	304 (w) x 239.5 (d) x 29.9/31.9 (h) millimeters (not including parts that extend beyond the main body).

Environmental Requirements

Conditions	Ambient temperature	Relative humidity
Operating	5°C (41°F) to 35°C (95°F)	20% to 80%
Non-operating	-20°C (-4°F) to 65°C (149°F)	10% to 90%
Thermal Gradient	20°C per hour maximum	
Wet-bulb temperature	26°C maximum	

Conditions	Altitude (from sea level)
Operating	-60 to 3,000 meters
Non-operating	-60 to 10,000 meters maximum

Power Requirements

AC adaptor	100-240 volts AC
	50 or 60 hertz (cycles per second)

Computer	15 V DC
	4.0 amperes

Appendix B

Display Controller and Video Mode

Display controller

The display controller interprets software commands into hardware commands that turn particular parts on the screen on or off.



Due to the LCD display's increased resolution, lines may appear broken when displaying images in full-screen text mode.

The display controller also controls the video mode and uses industry standard rules to govern the screen resolution and the maximum number of colors that can be displayed at a time. Therefore, software written for a given video mode will run on any computer that supports that mode.

Video mode

Video mode settings are configured via the **Display Properties** dialog.

To open the **Display Properties** dialog, click **Start -> Control Panel -> Appearance and Personalization -> Personalization -> Display Settings**.



If you are running some applications (for example a 3D application or video playback and so on), you may see some disturbance, flickering or frame dropping on your screen.

If that occurs, adjust the resolution of display, lowering it until the screen is displayed properly.

You could also disable Windows Aero™ to help correcting this situation.

Appendix C

Wireless LAN

This appendix is intended to help you get your Wireless LAN network up and running, with a minimum of parameters.

Card Specifications

Form Factor	PCI Express Mini Card
Compatibility	<ul style="list-style-type: none"> ■ IEEE 802.11 Standard for Wireless LANs ■ Wi-Fi (Wireless Fidelity) certified by the Wi-Fi Alliance. The “Wi-Fi CERTIFIED” logo is a certification mark of the Wi-Fi Alliance.
Network Operating System	<ul style="list-style-type: none"> ■ Microsoft Windows® Networking
Media Access Protocol	<ul style="list-style-type: none"> ■ CSMA/CA (Collision Avoidance) with Acknowledgment (ACK)
Data Rate	<ul style="list-style-type: none"> ■ Theoretical maximum speed: 54Mbps (IEEE802.11a/IEEE802.11g type) ■ Theoretical maximum speed: 11Mbps (IEEE802.11b)

Radio Characteristics

Radio Characteristics of Wireless LAN Cards may vary according to:

- Country/region where the product was purchased
- Type of product

Wireless communication is often subject to local radio regulations. Although Wireless LAN wireless networking products have been designed for operation in the license-free 2.4GHz and 5GHz band, local radio regulations may impose a number of limitations to the use of wireless communication equipment.



Refer to the sheet “Information to the User” for regulatory information that may apply in your country/region.

R-F Frequency	■ Band 5GHz (5150-5850 MHz) (Revision A)
	■ Band 2.4GHz (2400-2483.5 MHz) (Revision B, G)

Modulation Technique	■ DSSS-CCK, DSSS-DQPSK, DSSS-DBPSK (Revision B)
	■ OFDM-BPSK, OFDM-QPSK, OFDM-16QAM, OFDM-64QAM (Revision A, G)

The range of the wireless signal is related to the transmit rate of the wireless communication. Communications at lower transmit range may travel larger distances.

- The range of your wireless devices can be affected when the antennas are placed near metal surfaces and solid high-density materials.
- Range is also impacted due to “obstacles” in the signal path of the radio that may either absorb or reflect the radio signal.

Supported Frequency Sub-bands

Subject to the radio regulations that apply in the countries/regions, your Wireless LAN card may support a different set of 5 GHz/2.4 GHz channels. Consult your Authorized Wireless LAN or TOSHIBA Sales office for information about the radio regulations that apply in the countries/regions.

Wireless IEEE 802.11 Channels Sets (Revision B and G)

Frequency Range Channel ID	2400-2483.5 MHz
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457 *1
11	2462
12	2467 *2
13	2472 *2

*1 Factory-set default channels

*2 Check for the countries/regions in which these channels can be used.

When installing Wireless LAN cards, the channel configuration is managed as follows:

- For wireless clients that operate in a Wireless LAN Infrastructure, the Wireless LAN card will automatically start operation at the channel identified by the Wireless LAN Access Point. When roaming between different access points the station can dynamically switch to another channel if required.
- For Wireless LAN cards installed in wireless clients that operating in a peer-to-peer mode, the card will use the default channel 10.
- In a Wireless LAN Access Point, the Wireless LAN card will use the factory-set default channel (printed in bold), unless the LAN Administrator selected a different channel when configuring the Wireless LAN Access Point device.

Wireless IEEE 802.11 Channels Sets (Revision A)

Frequency Range Channel ID	5150-5850 MHz
36	5180
40	5200
44	5220
48	5240
52	5260
56	5280
60	5300
64	5320
100	5500
104	5520
108	5540
112	5560
116	5580
120	5600
124	5620
128	5640
132	5660
136	5680
140	5700
149	5745
153	5765
157	5785
161	5805
165	5825

Appendix D

Bluetooth wireless technology Interoperability

Bluetooth® Cards from TOSHIBA are designed to be interoperable with any product with Bluetooth wireless technology that is based on Frequency Hopping Spread Spectrum (FHSS) radio technology, and is compliant to:

- Bluetooth Specification Ver2.0+EDR, as defined and approved by The Bluetooth Special Interest Group.
- Logo certification with Bluetooth wireless technology as defined by The Bluetooth Special interest Group.



- *Bluetooth wireless technology is a new innovative technology, and TOSHIBA has not confirmed compatibility of its Bluetooth® products with all computers and/or equipment using Bluetooth wireless technology other than TOSHIBA portable computers. Always use Bluetooth® Cards from TOSHIBA in order to enable wireless networks over two or more (up to a total of seven) TOSHIBA portable computers using these cards. Please contact TOSHIBA PC product support on Web site <http://www.toshiba-europe.com/computers/tnt/bluetooth.htm> in Europe or <http://www.pc.support.global.toshiba.com> in the United States for more information.*
- *When you use Bluetooth® Cards from TOSHIBA close to 2.4 GHz Wireless LAN devices, Bluetooth transmissions might slow down or cause errors. If you detect certain interference while you use Bluetooth® Cards from TOSHIBA, always change the frequency, move your computer to the area outside of the interference range of 2.4 GHz Wireless LAN devices (40 meters/43.74 yards or more) or stop transmitting from your computer. Please contact TOSHIBA PC product support on Web site <http://www.toshiba-europe.com/computers/tnt/bluetooth.htm> in Europe or <http://www.pc.support.global.toshiba.com> in the United States for more information.*
- *Bluetooth® and Wireless LAN devices operate within the same radio frequency range and may interfere with one another. If you use Bluetooth® and Wireless LAN devices simultaneously, you may occasionally experience a less than optimal network performance or even lose your network connection. If you should experience any such problem, immediately turn off either one of your Bluetooth® or Wireless LAN. Please contact TOSHIBA PC product support on web site <http://www.toshiba-europe.com/computers/tnt/bluetooth.htm> in Europe or <http://www.pc.support.global.toshiba.com> in the United States for more information.*

Bluetooth wireless technology and your Health

The products with Bluetooth wireless technology, like other radio devices, emit radio frequency electromagnetic energy. The level of energy emitted by devices with Bluetooth wireless technology however is far much less than the electromagnetic energy emitted by wireless devices like for example mobile phones.

Because products with Bluetooth wireless technology operate within the guidelines found in radio frequency safety standards and recommendations, TOSHIBA believes Bluetooth wireless technology is safe for use by consumers. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature.

In some situations or environments, the use of Bluetooth wireless technology may be restricted by the proprietor of the building or responsible representatives of the organization. These situations may for example include:

- Using the equipment with Bluetooth wireless technology on board of airplanes, or
- In any other environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the policy that applies on the use of wireless devices in a specific organization or environment (e.g. airports), you are encouraged to ask for authorization to use the device with Bluetooth wireless technology prior to turning on the equipment.

Regulatory statements

General

This product complies with any mandatory product specification in any country/region where the product is sold. In addition, the product complies with the following.

European Union (EU) and EFTA

This equipment complies with the R&TTE directive 1999/5/EC and has been provided with the CE mark accordingly.

Canada - Industry Canada (IC)

This device complies with RSS 210 of Industry Canada.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes: (1) il ne doit pas produire de brouillage et (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

The term "IC" before the equipment certification number only signifies that the Industry Canada technical specifications were met.

USA-Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

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

TOSHIBA is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this Bluetooth® Card from TOSHIBA, or the substitution or attachment of connecting cables and equipment other than specified by TOSHIBA.

The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

Caution: Exposure to Radio Frequency Radiation

The radiated output power of the Bluetooth® Card from TOSHIBA is far below the FCC radio frequency exposure limits. Nevertheless, the Bluetooth® Card from TOSHIBA shall be used in such a manner that the potential for human contact during normal operation is minimized. The antenna(s) used in this device are located at the upper edge of the LCD screen, and this device has been tested as portable device as defined in Section 2.1093 of FCC rules when the LCD screen is rotated 180 degree and covered the keyboard area. In addition, Bluetooth has been tested with Wireless LAN transceiver for co-location requirements. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter. The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website www.hc-sc.gc.ca/rpb.

Taiwan

Article 12 Without permission granted by the DGT, any company, enterprise, or user is not allowed to change frequency, enhance transmitting power or alter original characteristic as well as performance to an approved low power radio-frequency devices.

Article 14 The low power radio-frequency devices shall not influence aircraft security and interfere legal communications; If found, the user shall cease operating immediately until no interference is achieved.

The said legal communications means radio communications is operated in compliance with the Telecommunications Act.

The low power radio-frequency devices must be susceptible with the interference from legal communications or ISM radio wave radiated devices.

Using Bluetooth® Card from TOSHIBA equipment in Japan

In Japan, the frequency bandwidth of 2,400 - 2,483.5 MHz for second generation low-power data communication systems such as this equipment overlaps that of mobile object identification systems (premises radio station and specified low-power radio station).

1. Sticker

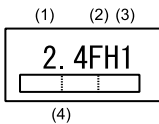
Please put the following sticker on computer incorporating this product.

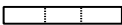
The frequency bandwidth of this equipment may operate within the same range as industrial devices, scientific devices, medical devices, microwave ovens, licensed radio stations and non-licensed specified low-power radio stations for mobile object identification systems (RFID) used in factory production lines (Other Radio Stations).

1. Before using this equipment, ensure that it does not interfere with any of the equipment listed above.
2. If this equipment causes RF interference to other radio stations, promptly change the frequency being used, change the location of use, or turn off the source of emissions.
3. Contact TOSHIBA Direct PC if you have problems with interference caused by this product to Other Radio Stations.

2. Indication

The indication shown below appears on this equipment.



- (1) 2.4: This equipment uses a frequency of 2.4 GHz.
- (2) FH: This equipment uses FH-SS modulation.
- (3) 1: The interference range of this equipment is less than 10 m.
- (4)  This equipment uses a frequency bandwidth from 2,400 MHz to 2,483.5 MHz.

It is impossible to avoid the band of mobile object identification systems.

3. TOSHIBA Direct PC

Monday - Friday : 10:00-17:00
Toll Free Tel : 0120-15-1048
Direct Dial : 03-3457-4850
FAX : 03-3457-4868

Device Authorization

This device obtains the Technical Conditions Compliance Approval, and it belongs to the device class of radio equipment of low-power data communication system radio station stipulated in the Telecommunications Business Law.

The Name of the radio equipment: EYXF3CS

JAPAN APPROVALS INSTITUTE FOR TELECOMMUNICATIONS
EQUIPMENT

Approval Number: D05-0074001

The following restrictions apply:

Do not disassemble or modify the device.

Do not install the embedded wireless module into other device.

Appendix E

AC Power Cord and Connectors

The power cord's AC input plug must be compatible with the various international AC power outlets and the cord must meet the standards for the country/region in which it is used. All cords must meet the following specifications:

Length:	Minimum 1.7 meters
Wire size:	Minimum 0.75 mm ²
Current rating:	Minimum 2.5 amperes
Voltage rating:	125 or 250 VAC (depending on country/region's power standards)

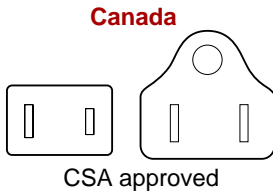
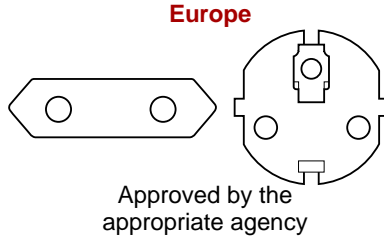
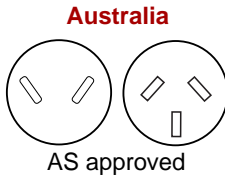
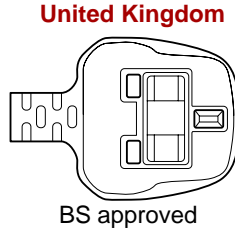
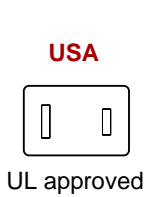
Certification agencies

U.S. and Canada:	UL listed and CSA certified No. 18 AWG, Type SVT or SPT-2		
Australia:	AS		
Japan:	DENANHO		
<i>Europe:</i>			
Austria:	OVE	Italy:	IMQ
Belgium:	CEBEC	The Netherlands:	KEMA
Denmark:	DEMKO	Norway:	NEMKO
Finland:	FIMKO	Sweden:	SEMKO
France:	LCIE	Switzerland:	SEV
Germany:	VDE	United Kingdom:	BSI

In Europe, two conductors power cord must be VDE type, H05VVH2-F or H03VVH2-F and for three conductors power cord must be VDE type, H05VV-F.

For the United States and Canada, two pin plug configuration must be a 2-15P (250V) or 1-15P (125V) and three pin plug configuration must be 6-15P (250V) or 5-15P (125V) as designated in the U.S. National Electrical code handbook and the Canadian Electrical Code Part II.

The following illustrations show the plug shapes for the U.S.A. and Canada, the United Kingdom, Australia and Europe.



Appendix F

TOSHIBA Anti-theft Protection Timer

This feature allows you to set up a timer-activated BIOS password that will prevent unauthorised system access in the event of theft.

When the time limit is exceeded, you are required to provide the Password or fingerprint authentication for the BIOS and Hard Disk Drive to gain access to the system.

To set permissions and limits for the TOSHIBA Anti-theft Protection Timer please use the TOSHIBA Password Utility.

The settings can only be activated or modified by a user with supervisor authority. If the supervisor password is not set, click on the **Set** button in **Supervisor Password** from the supervisor tab in TOSHIBA Password Utility and set the password on the dialog screen that appears.

Then, click on the **Set** button in TOSHIBA Anti-theft Protection Timer.

Take the following action if the set limit is exceeded.

- If the Supervisor Password is registered but the User Password is not, enter the Supervisor Password to boot the computer.
- If both the Supervisor Password and the User Password are registered, enter either the Supervisor Password, the User Password or the fingerprint authentication to boot the computer.



- *The limit counts the number of days from the last time Windows is logged on till the next time the computer is booted up. The range can be set from 1 to 28 days.*
- *Authentication is required if the computer's clock is significantly modified.*
- *If the Supervisor Password is deleted, this function becomes disabled.*

Appendix G

Legal Footnotes

This chapter states the Legal Footnotes information applicable to TOSHIBA computers. In the text in this manual, *XX is used to show which Legal Footnotes description is related to TOSHIBA computers.

Description(s) related to this computer are marked with a blue *XX in this manual. Clicking on *XX will display the related description.

Non-applicable Icons*1

Certain computer chassis are designed to accommodate all possible configurations for an entire product series. Therefore, please be aware that your selected model may not have all the features and specifications corresponding to all of the icons or switches shown on the computer chassis.

CPU*2

Central Processing Unit ("CPU") Performance Legal Footnotes.

CPU performance in your computer product may vary from specifications under the following conditions:

- use of certain external peripheral products
- use of battery power instead of AC power
- use of certain multimedia, computer generated graphics or video applications
- use of standard telephone lines or low speed network connections
- use of complex modeling software, such as high end computer aided design applications
- use of several applications or functionalities simultaneously
- use of computer in areas with low air pressure (high altitude > 1,000 meters or >3,280 feet above sea level)

- use of computer at temperatures outside the range of 5°C to 30°C (41°F to 86°F) or >25°C (77°F) at high altitude (all temperature references are approximate and may vary depending on the specific computer model - please refer to your computer documentation or visit the Toshiba website at www.pcsupport.toshiba.com for details).

CPU performance may also vary from specifications due to design configuration.

Under some conditions, your computer product may automatically shut-down. This is a normal protective feature designed to reduce the risk of lost data or damage to the product when used outside recommended conditions. To avoid risk of lost data, always make back-up copies of data by periodically storing it on an external storage medium. For optimum performance, use your computer product only under recommended conditions. Read additional restrictions in your product documentation. Contact Toshiba technical service and support, refer to *TOSHIBA support* section in Chapter 8, *Troubleshooting* for more information.

Memory (Main System)*3

Part of the main system memory may be used by the graphics system for graphics performance and therefore reduce the amount of main system memory available for other computing activities. The amount of main system memory allocated to support graphics may vary depending on the graphics system, applications utilized, system memory size and other factors. For computer's configured with 4 GB of system memory, the full system memory space for computing activities will be considerably less and will vary by model and system configuration.

Battery Life*4

Battery life may vary considerably depending on product model, configuration, applications, power management settings and features utilized, as well as the natural performance variations produced by the design of individual components. Published battery life numbers are achieved on select models and configurations tested by Toshiba at the time of publication. Recharge time varies depending on usage. Battery may not charge while computer is consuming full power.

After going through many charge and discharge cycles, the battery will lose its ability to perform at maximum capacity and will need to be replaced. This is a normal phenomenon for all batteries. To purchase a new battery pack, see the accessories information that is shipped with your computer.

Hard Disk Drive (HDD) Capacity *5

1 Gigabyte (GB) means $10^9 = 1,000,000,000$ bytes using powers of 10. The computer operating system, however, reports storage capacity using powers of 2 for the definition of $1 \text{ GB} = 2^{30} = 1,073,741,824$ bytes, and therefore shows less storage capacity. Available storage capacity will also be less if the product includes one or more pre-installed operating systems, such as Microsoft Windows and/or pre-installed software applications, or media content. Actual formatted capacity may vary.

LCD *6

Over a period of time, and depending on the usage of the computer, the brightness of the LCD screen will deteriorate. This is an intrinsic characteristic of LCD technology.

Maximum brightness is only available when operating in AC power mode. The screen will dim when the computer is operated on battery power and you may not be able to increase the brightness of the screen.

Graphics Processor Unit (“GPU”) *7

Graphics processor unit (“GPU”) performance may vary depending on product model, design configuration, applications, power management settings and features utilized. GPU performance is only optimized when operating in AC power mode and may decrease considerably when operating in battery power mode.

Wireless LAN *8

The transmission speed over the wireless LAN and the distance over which wireless LAN can reach may vary depending on surrounding electromagnetic environment, obstacles, access point design and configuration, and client design and software/hardware configurations.

[54Mbps is the theoretical maximum speed under the IEEE802.11 (a/b/g) standard.] The actual transmission speed will be lower than the theoretical maximum speed.

Copy Protection *9

Applicable copy protection standards included in certain media may prevent or limit recording or viewing of the media.

Images *10

All images are simulated for purposes of illustration.

Appendix H

If your computer is stolen



Always take care of your computer and try to prevent it from being stolen. You are the owner of a valuable technical device, which may be highly attractive to thieves, so please do not leave it unattended in a public place. To further help protect against theft, security cables can be bought for use with your notebook when it is being used at home or in the office.

Make a note of your computer's machine type, model number, and serial number, and put it in a safe place. You will find this information on the underside of your notebook. Please also keep the receipt of the computer you purchased.

Should your computer be stolen, however, we'll help you try to find it. Before contacting TOSHIBA, please prepare the following information which is necessary to uniquely identify your computer:

- In which country was your computer stolen?
- What type of machine do you have?
- What was the model number (PA number)?
- What was the serial number (8 digits)?
- When was it stolen, i.e. date?
- What is your address, phone, and fax number?

To register the theft on paper, please follow these procedures:

- Fill in the TOSHIBA Theft Registration form (or a copy of it) below.
- Attach a copy of your receipt showing where your computer was purchased.
- Either fax or send the receipt and registration form to the address below.

Glossary

The terms in this glossary cover topics related to this manual. Alternate naming is included for reference.

Abbreviations

- AC:** alternating current
- AGP:** accelerated graphics port
- ANSI:** American National Standards Institute
- APM:** advanced power manager
- ASCII:** American Standard Code for Information Interchange
- BIOS:** basic input output system
- CD-ROM:** Compact Disc-Read Only Memory
- CD-RW:** Compact Disc-ReWritable
- CMOS:** complementary metal-oxide semiconductor
- CPU:** central processing unit
- CRT:** cathode ray tube
- DC:** direct current
- DDC:** display data channel
- DMA:** direct memory access
- DOS:** disk operating system
- DVD:** digital versatile disc
- DVD-R:** Digital Versatile Disc-Recordable
- DVD-RAM:** Digital Versatile Disc-Random Access Memory
- DVD-ROM:** Digital Versatile Disc-Read Only Memory
- DVD-RW:** Digital Versatile Disc-ReWritable
- ECP:** extended capabilities port
- FDD:** floppy diskette drive
- FIR:** fast infrared
- HDD:** hard disk drive
- IDE:** integrated drive electronics
- I/O:** input/output
- IRQ:** interrupt request
- KB:** kilobyte

LCD: liquid crystal display
LED: light emitting diode
LSI: large scale integration
MB: megabyte
MS-DOS: Microsoft Disk Operating System
OCR: optical character recognition (reader)
PCB: printed circuit board
PCI: peripheral component interconnect
RAM: random access memory
RGB: red, green, and blue
ROM: read only memory
RTC: real time clock
SCSI: small computer system interface
SIO: serial input/output
TFT: thin-film transistor
UART: universal asynchronous receiver/transmitter
USB: Universal Serial Bus
UXGA: ultra extended graphics array
VGA: video graphics array
VRT: voltage reduction technology
WXGA: wide extended graphics array
XGA: extended graphics array

A

adaptor: A device that provides an interface between two dissimilar electronic devices. For example, the AC adaptor modifies the power from a wall outlet for use by the computer. This term also refers to the add-in circuit cards that control external devices, such as video monitors and magnetic tape devices.

allocate: To assign a space or function for a specific task.

alphanumeric: Keyboard characters including letters, numbers and other symbols, such as punctuation marks or mathematical symbols.

alternating current (AC): Electric current that reverses its direction of flow at regular intervals.

analog signal: A signal whose characteristics such as amplitude and frequency vary in proportion to (are an analog of) the value to be transmitted. Voice communications are analog signals.

ANSI: American National Standards Institute. An organization established to adopt and define standards for a variety of technical disciplines. For example, ANSI defined the ASCII standard and other information processing requirements.

antistatic: A material used to prevent the buildup of static electricity.

application: A group of programs that together are used for a specific task such as accounting, financial planning, spreadsheets, word processing and games.

ASCII: American Standard Code for Information Interchange. ASCII code is a set of 256 binary codes that represent the most commonly used letters, numbers, and symbols.

async: Short for asynchronous.

asynchronous: Lacking regular time relationship. As applied to computer communications, asynchronous refers to the method of transmitting data that does not require a steady stream of bits to be transmitted at regular time intervals.

B

backup: A duplicate copy of files kept as a spare in case the original is destroyed.

batch file: A file that can be executed from the system prompt containing a sequence of operating system commands or executable files.

binary: The base two number system composed of zeros and ones (off or on), used by most digital computers. The right-most digit of a binary number has a value of 1, the next a value of 2, then 4, 8, 16, and so on. For example, the binary number 101 has a value of 5. *See also* ASCII.

BIOS: Basic Input Output System. The firmware that controls data flow within the computer. *See also* firmware.

bit: Derived from “binary digit,” the basic unit of information used by the computer. It is either zero or one. Eight bits is one byte. *See also* byte.

board: A circuit board. An internal card containing electronic components, called chips, which perform a specific function or increase the capabilities of the system.

boot: Short for bootstrap. A program that starts or restarts the computer. The program reads instructions from a storage device into the computer’s memory.

bps: Bits per second. Typically used to describe the data transmission speed of a modem.

buffer: The portion of the computer's memory where data is temporarily stored. Buffers often compensate for differences in the rate of flow from one device to another.

bus: An interface for transmission of signals, data or electric power.

byte: The representation of a single character. A sequence of eight bits treated as a single unit; also the smallest addressable unit within the system.

C

cache memory: High speed memory which stores data that increases processor speed and data transfer rate. When the CPU reads data from main memory, it stores a copy of this data in cache memory. The next time the CPU needs that same data, it looks for it in the cache memory rather than the main memory, which saves time. The computer has two cache levels. Level one is incorporated into the processor and level two resides in external memory.

capacity: The amount of data that can be stored on a magnetic storage device such as a floppy diskette or hard disk drive. It is usually described in terms of kilobytes (KB), where one KB = 1024 bytes, megabytes (MB), where one MB = 1024 KB and gigabytes (GB), where one GB = 1024 MB.

card: Synonym for board. See board.

CardBus: An industry standard bus for 32-bit PC Cards.

CD-ROM: A Compact Disc-Read Only Memory is a high capacity disc that can be read from but not written to. The CD-ROM drive uses a laser, rather than magnetic heads, to read data from the disc.

CD-R: A Compact Disc-Recordable disc can be written once and read many times. See also CD-ROM.

CD-RW: A Compact Disc-ReWritable disc can be rewritten many times. See also CD-ROM.

character: Any letter, number, punctuation mark, or symbol used by the computer. Also synonymous with byte.

chassis: The frame containing the computer.

chip: A small semiconductor containing computer logic and circuitry for processing, memory, input/output functions and controlling other chips.

CMOS: Complementary Metal-Oxide Semiconductor. An electronic circuit fabricated on a silicon wafer that requires very little power. Integrated circuits implemented in CMOS technology can be tightly packaged and are highly reliable.

cold start: Starting a computer that is currently off (turning on the power).

- COM1, COM2, COM3 and COM4:** The names assigned to the serial and communication ports.
- commands:** Instructions you enter at the terminal keyboard that direct the actions of the computer or its peripheral devices.
- communications:** The means by which a computer transmits and receives data to and from another computer or device. See parallel interface; serial interface.
- compatibility:** 1) The ability of one computer to accept and process data in the same manner as another computer without modifying the data or the media upon which it is being transferred.
2) the ability of one device to connect to or communicate with another system or component.
- components:** Elements or parts (of a system) which make up the whole (system).
- computer program:** A set of instructions written for a computer that enable it to achieve a desired result.
- computer system:** A combination of hardware, software, firmware, and peripheral components assembled to process data into useful information.
- configuration:** The specific components in your system (such as the terminal, printer, and disk drives) and the settings that define how your system works. You use the HW Setup program to control your system configuration.
- control keys:** A key or sequence of keys you enter from the keyboard to initiate a particular function within a program.
- controller:** Built-in hardware and software that controls the functions of a specific internal or peripheral device (e.g. keyboard controller).
- co-processor:** A circuit built into the processor that is dedicated to intensive math calculations.
- CPS:** Characters Per Second. Typically used to indicate the transmission speed of a printer.
- CPU:** Central Processing Unit. The portion of the computer that interprets and executes instructions.
- CRT:** Cathode Ray Tube. A vacuum tube in which beams projected on a fluorescent screen-producing luminous spots. An example is the television set.
- cursor:** A small, blinking rectangle or line that indicates the current position on the display screen.

D

- data:** Information that is factual, measurable or statistical that a computer can process, store, or retrieve.
- data bits:** A data communications parameter controlling the number of bits (binary digits) used to make up a byte. If data bits = 7 the computer can generate 128 unique characters. If data bits = 8 the computer can generate 256 unique characters.
- DC:** Direct Current. Electric current that flows in one direction. This type of power is usually supplied by batteries.
- default:** The parameter value automatically selected by the system when you or the program do not provide instructions. Also called a preset value.
- delete:** To remove data from a disk or other data storage device. Synonymous with erase.
- device driver:** A program that controls communication between a specific peripheral device and the computer. The CONFIG.SYS file contains device drivers that MS-DOS loads when you turn the computer on.
- dialog box:** A window that accepts user input to make system settings or record other information.
- disk drive:** The device that randomly accesses information on a disk and copies it to the computer's memory. It also writes data from memory to the disk. To accomplish these tasks, the unit physically rotates the disk at high speed past a read-write head.
- disk storage:** Storing data on magnetic disk. Data is arranged on concentric tracks much like a phonograph record.
- display:** A CRT, LCD, or other image producing device used to view computer output.
- documentation:** The set of manuals and/or other instructions written for the users of a computer system or application. Computer system documentation typically includes procedural and tutorial information as well as system functions.
- DOS:** Disk Operating System. See operating system.
- driver:** A software program, generally part of the operating system, that controls a specific piece of hardware (frequently a peripheral device such as a printer or mouse).
- DVD-R (+R, -R):** A Digital Versatile Disc-Recordable disk can be written once and read many times. The DVD-R drive uses a laser to read data from the disc.

DVD-RAM: A Digital Versatile Disc-Random Access Memory is a high-capacity, high performance disc that lets you store large volumes of data. The DVD-ROM drive uses a laser to read data from the disc.

DVD-ROM: A Digital Versatile Disc-Read Only Memory is a high capacity, high performance disc suitable for play back of video and other high-density files. The DVD-ROM drive uses a laser to read data from the disc.

DVD-RW (+RW, -RW): A Digital Versatile Disc-ReWritable disc can be rewritten many times.

E

echo: To send back a reflection of the transmitted data to the sending device. You can display the information on the screen, or output it to the printer, or both. When a computer receives back data it transmitted to a CRT (or other peripheral device) and then retransmits the data to printer, the printer is said to echo the CRT.

erase: See delete.

escape: 1) A code (ASCII code 27), signaling the computer that what follows are commands; used with peripheral devices such as printers and modems.
2) A means of aborting the task currently in progress.

escape guard time: A time before and after an escape code is sent to the modem which distinguishes between escapes that are part of the transmitted data, and escapes that are intended as a command to the modem.

execute: To interpret and execute an instruction.

Extended Capability Port: An industry standard that provides a data buffer, switchable forward and reverse data transmission, and run length encoding (RLE) support.

F

fast infrared: An industry standard that enables cableless infrared serial data transfer at speeds of up to 4 Mbps.

file: A collection of related information; a file can contain data, programs, or both.

fingerprint sensor: The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint.

firmware: A set of instructions built into the hardware which controls and directs a microprocessor's activities.

floppy diskette: A removable disk that stores magnetically encoded data.

floppy diskette drive (FDD): An electromechanical device that reads and writes to floppy diskettes.

Fn-esse: A TOSHIBA utility that lets you assign functions to hot keys.

folder: An icon in Windows used to store documents or other folders.

format: The process of readying a blank disk for its first use. Formatting establishes the structure of the disk that the operating system expects before it writes files or programs onto the disk.

function keys: The keys labeled **F1** through **F12** that tell the computer to perform certain functions.

G

gigabyte (GB): A unit of data storage equal to 1024 megabytes. *See also* megabyte.

graphics: Drawings, pictures, or other images, such as charts or graphs, to present information.

H

hard disk: A non-removable disk usually referred to as drive C. The factory installs this disk and only a trained engineer can remove it for servicing. Also called fixed disk.

hard disk drive (HDD): An electromechanical device that reads and writes a hard disk. *See also* hard disk.

hardware: The physical electronic and mechanical components of a computer system: typically, the computer itself, external disk drives, etc. *See also* software and firmware.

hertz: A unit of wave frequency that equals one cycle per second.

hexadecimal: The base 16 numbering system composed of the digits 0 through 9 and the letters A, B, C, D, E, and F.

host computer: The computer that controls, regulates, and transmits information to a device or another computer.

hot key: The computer's feature in which certain keys in combination with the extended function key, **Fn**, can be used to set system parameters, such as speaker volume.

HW Setup: A TOSHIBA utility that lets you set the parameters for various hardware components.

I

icon: A small graphic image displayed on the screen or in the indicator panel. In Windows, an icon represents an object that the user can manipulate.

input: The data or instructions you provide to a computer, communication device or other peripheral device from the keyboard or external or internal storage devices. The data sent (or output) by the sending computer is input for the receiving computer.

instruction: Statements or commands that specify how to perform a particular task.

interface: 1) Hardware and/or software components of a system used specifically to connect one system or device to another.
2) To physically connect one system or device to another to exchange information.
3) The point of contact between user, the computer, and the program, for example, the keyboard or a menu.

interrupt request: A signal that gives a component access to the processor.

I/O: Input/output. Refers to acceptance and transfer of data to and from a computer.

I/O devices: Equipment used to communicate with the computer and transfer data to and from it.

J

jumper: A small clip or wire that allows you to change the hardware characteristics by electrically connecting two points of a circuit.

K

K: Taken from the Greek word kilo, meaning 1000; often used as equivalent to 1024, or 2 raised to the 10th power. *See also* byte and kilobyte.

KB: *See* kilobyte.

keyboard: An input device containing switches that are activated by manually pressing marked keys. Each keystroke activates a switch that transmits a specific code to the computer. For each key, the transmitted code is, in turn, representative of the (ASCII) character marked on the key.

kilobyte (KB): A unit of data storage equal to 1024 bytes. *See also* byte and megabyte.

L

level 2 cache: See cache.

Light Emitting Diode (LED): A semiconductor device that emits light when a current is applied.

Liquid Crystal Display (LCD): Liquid crystal sealed between two sheets of glass coated with transparent conducting material. The viewing-side coating is etched into character forming segments with leads that extend to the edge of the glass. Applying a voltage between the glass sheets alters the brightness of the liquid crystal.

LSI: Large Scale Integration.

- 1) A technology that allows the inclusion of up to 100,000 simple logic gates on a single chip.
- 2) An integrated circuit that uses large scale integration.

M

main board: See motherboard.

megabyte (MB): A unit of data storage equal to 1024 kilobytes. See *also* kilobyte.

megahertz: A unit of wave frequency that equals 1 million cycles per second. See *also* hertz.

menu: A software interface that displays a list of options on the screen. Also called a screen.

microprocessor: A hardware component contained in a single integrated circuit that carries out instructions. Also called the central processing unit (CPU), one of the main parts of the computer.

mode: A method of operation, for example, the Boot Mode, Sleep Mode or the Hibernation Mode.

monitor: A device that uses rows and columns of pixels to display alphanumeric characters or graphic images. See *also* CRT.

motherboard: A name sometimes used to refer to the main printed circuit board in processing equipment. It usually contains integrated circuits that perform the processor's basic functions and provides connectors for adding other boards that perform special functions. Sometimes called a main board.

MP3: An audio compression standard that enables high-quality transmission and real-time playback of sound files.

N

non-system disk: A formatted floppy diskette you can use to store programs and data but you cannot use to start the computer. See system disk.

nonvolatile memory: Memory, usually read-only (ROM), that is capable of permanently storing information. Turning the computer's power off does not alter data stored in nonvolatile memory.

numeric keypad overlay: A feature that allows you to use certain keys on the keyboard to perform numeric entry, or to control cursor and page movement.

O

OCR: Optical Character Recognition (reader). A technique or device that uses laser or visible light to identify characters and input them into a storage device.

online state: A functional state of a peripheral device when it is ready to receive or transmit data.

operating system: A group of programs that controls the basic operation of a computer. Operating system functions include interpreting programs, creating data files, and controlling the transmission and receipt (input/output) of data to and from memory and peripheral devices.

output: The results of a computer operation. Output commonly indicates data.

1) printed on paper, 2) displayed at a terminal, 3) sent through the serial port of internal modem, or 4) stored on some magnetic media.

P

parity: 1) The symmetrical relationship between two parameter values (integers) both of which are either on or off; odd or even; 0 or 1.
2) In serial communications, an error detection bit that is added to a group of data bits making the sum of the bits even or odd. Parity can be set to none, odd, or even.

password: A unique string of characters used to identify a specific user. The computer provides various levels of password protection such as user, supervisor and eject.

pel: The smallest area of the display that can be addressed by software. Equal in size to a pixel or group of pixels. See pixel.

peripheral component interconnect: An industry standard 32-bit bus.

- peripheral device:** An I/O device that is external to the central processor and/or main memory such as a printer or a mouse.
- pixel:** A picture element. The smallest dot that can be made on a display or printer. Also called a pel.
- plug and play:** A capability with Windows that enables the system to automatically recognize connections of external devices and make the necessary configurations in the computer.
- port:** The electrical connection through which the computer sends and receives data to and from devices or other computers.
- Power Saver:** A TOSHIBA utility that lets you set the parameters for various power-saving functions.
- printed circuit board (PCB):** A hardware component of a processor to which integrated circuits and other components are attached. The board itself is typically flat and rectangular, and constructed of fiberglass, to form the attachment surface.
- program:** A set of instructions a computer can execute that enables it to achieve a desired result. *See also* application.
- prompt:** A message the computer provides indicating it is ready for or requires information or an action from you.

R

- Radio frequency interference (RFI) shield:** A metal shield enclosing the printed circuit boards of the printer or computer to prevent radio and TV interference. All computer equipment generates radio frequency signals. The FCC regulates the amount of signals a computing device can allow past its shielding. A Class A device is sufficient for office use. Class B provides a more stringent classification for home equipment use. TOSHIBA portable computers comply with Class B computing device regulations.
- Random Access Memory (RAM):** High speed memory within the computer circuitry that can be read or written to.
- restart:** Resetting a computer without turning it off (also called “warm boot” or “soft reset”). *See also* boot.
- RGB:** Red, green, and blue. A device that uses three input signals, each activating an electron gun for a primary additive color (red, green, and blue) or port for using such a device. *See also* CRT.
- RJ45:** A modular LAN jack.
- ROM:** Read Only Memory: A nonvolatile memory chip manufactured to contain information that controls the computer's basic operation. You cannot access or change information stored in ROM.

S

SCSI: Small Computer System Interface is an industry standard interface for connection of a variety of peripheral devices.

SD Card: Secure Digital cards are flash memory widely used in a variety of digital devices such as digital cameras and Personal Digital Assistants.

SIO: Serial Input/Output. The electronic methodology used in serial data transmission.

soft key: Key combinations that emulate keys on the IBM keyboard, change some configuration options, stop program execution, and access the numeric keypad overlay.

software: The set of programs, procedures and related documentation associated with a computer system. Specifically refers to computer programs that direct and control the computer system's activities. *See also* hardware.

stop bit: One or more bits of a byte that follow the transmitted character or group codes in asynchronous serial communications.

subpixel: Three elements, one red, one green and blue (RGB), that make up a pixel on the color LCD. The computer sets subpixels independently, each may emit a different degree of brightness. *See also* pixel.

synchronous: Having a constant time interval between successive bits, characters or events.

system disk: A disk that has been formatted with an operating system. For MS-DOS the operating system is contained in two hidden files and the COMMAND.COM file. You can boot a computer using a system disk. Also called an operating system disk.

T

terminal: A typewriter-like keyboard and CRT display screen connected to the computer for data input/output.

TFT display: A liquid crystal display (LCD) made from an array of liquid crystal cells using active-matrix technology with thin film transistor (TFT) to drive each cell.

Touch Pad: A pointing device integrated into the TOSHIBA computer palm rest.

TTL: Transistor-transistor logic. A logic circuit design that uses switching transistors for gates and storage.

U

Universal Serial Bus: This serial interface lets you communicate with several devices connected in a chain to a single port on the computer.

V

VGA: Video Graphics Array is an industry standard video adaptor that lets you run any popular software.

volatile memory: Random access memory (RAM) that stores information as long as power is supplied to the computer.

W

warm start: Restarting or resetting a computer without turning it off.

window: A portion of the screen that can display its own application, document or dialog box. Often used to mean a Microsoft Windows window.

Wireless LAN: Local Area Network (LAN) through wireless communication.

write protection: A method for protecting a floppy diskette from accidental erasure.

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