TOSHIBA

User’s Manual

TECRA S4

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TOSHIBA Tecra S4 Portable Personal Computer User's Manual

First edition September 2006

Disclaimer

This manual has been validated and reviewed for accuracy. The instructions and descriptions it contains are accurate for the TOSHIBA Tecra S4 Portable Personal Computer at the time of this manual's production. However, succeeding computers and manuals are subject to change without notice. TOSHIBA assumes no liability for damages incurred directly or indirectly from errors, omissions or discrepancies between the computer and the manual.

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EU Declaration of Conformity

This product is carrying the CE-Mark in accordance with the related European Directives. Responsible for CE-Marking is TOSHIBA Europe GmbH, Hammfelddamm 8, 41460 Neuss, Germany.

The complete and official EU Declaration of Conformity can be found on TOSHIBA's web site http://epps.toshiba-teg.com on the Internet.

Modem warning notice

Conformity Statement

The equipment has been approved to [Commission Decision "CTR21"] for pan-European single terminal connection to the Public Switched Telephone Network (PSTN).

However, due to differences between the individual PSTNs provided in different countries/regions the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

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

Network Compatibility Statement

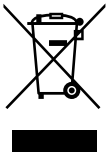
This product is designed to work with, and is compatible with the following networks. It has been tested to and found to conform with the additional requirements conditional in EG 201 121.

Germany	ATAAB AN005,AN006,AN007,AN009,AN010 and DE03,04,05,08,09,12,14,17
Greece	ATAAB AN005,AN006 and GR01,02,03,04
Portugal	ATAAB AN001,005,006,007,011 and P03,04,08,10
Spain	ATAAB AN005,007,012, and ES01
Switzerland	ATAAB AN002
All other countries/regions	ATAAB AN003,004

Specific switch settings or software setup are required for each network, please refer to the relevant sections of the user guide for more details.

The hookflash (timed break register recall) function is subject to separate national type approvals. It has not been tested for conformity to national type regulations, and no guarantee of successful operation of that specific function on specific national networks can be given.

Following information is only for EU-member states:



The use of the symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Description on Laser specification

The optical drive such as a DVD Super Multi drive that is used in this computer is equipped with laser. The classification label with the following sentence is affixed to the surface of the drive.

CLASS 1 LASER PRODUCT

LASER KLASSE 1

LUOKAN 1 LASERLAITE

APPAREIL A LASER DE CLASSE 1

KLASS 1 LASER APPARAT

The drive with the above label is certified by the manufacturer that the drive complies with the requirement for laser product on the date of manufacturing pursuant to article 21 of Code of Federal Regulations by the United States of America, Department of Health & Human Services, Food and Drug Administration.

In other countries, the drive is certified to comply with the requirement pursuant to IEC 825 and EN60825 on class 1 laser product.

This computer is equipped with the optical drive in the following list according to the model.

Manufacturer	Type
MATSUSHITA	UJDA765
MATSUSHITA	UJ-842

Preface

Congratulations on your purchase of the Tecra S4 computer. This powerful notebook computer provides excellent expansion capability, including multimedia devices, and it is designed to provide years of reliable, high-performance computing.

This manual tells how to set up and begin using your Tecra S4 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 the *Introduction* and *The Grand Tour* chapters to familiarize yourself with the computer's features, components and accessory devices. Then read *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 look over the *Special features* section of the Introduction, to learn about features that are uncommon or unique to the computer and carefully read *HW Setup & BIOS Setup*.

If you are going to install PC cards or connect external devices such as a monitor, be sure to read Chapter 8, *Optional 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 type face 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.

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 headphones.
- 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 prevention of stress injuries to your hands and wrists that can be caused by extensive keyboard use.

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 (if you rest the computer on your lap, or if you keep your hands on the palm rest, for example) your skin might suffer low-heat injury.
- If the computer has been used for a long time, avoid direct contact with the metal plate supporting the I/O ports. It can become hot.
- The surface of the AC adaptor can become hot when in use. This condition does not indicate a malfunction. If you need to transport the AC adaptor, disconnect it and let it cool before moving it.
- Do not lay the AC adaptor on a material that is sensitive to heat. The material could be 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

Introduction

This chapter provides an equipment checklist, and it identifies the computer's features, options and accessories.

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

Equipment checklist

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

Hardware

Check to make sure you have all the following items:

- Tecra S4 Portable Personal Computer
- AC adaptor and power cord
- Modular cable for modem (optional)

Software

Microsoft® Windows XP Professional

- The following software is preinstalled:
  - Microsoft® Windows XP Professional
  - Microsoft Internet Explorer
  - TOSHIBA Utilities
  - TOSHIBA SD Memory Boot Utility
  - DVD Video Player
  - TOSHIBA Dual Pointing Device Utility
  - TOSHIBA Power Saver
  - TOSHIBA Mobile Extension
  - TOSHIBA Assist
  - TOSHIBA ConfigFree
  - TOSHIBA Zooming Utility
  - TOSHIBA PC Diagnostic Tool
  - TOSHIBA Controls
  - TOSHIBA Mic Effect
  - TOSHIBA Password Utility
  - Fingerprint Utility
  - TOSHIBA SD Memory Card Format Utility
  - TOSHIBA HDD Protection
  - TOSHIBA Hotkey Utility for Display Devices
  - TOSHIBA Display Device Change Utility
  - Wireless Hotkey Utility
  - InterVideo WinDVD Creator 2 Platinum
  - CD/DVD Drive Acoustic Silencer
  - Record Now! Basic for TOSHIBA
  - DLA for TOSHIBA
  - Bluetooth Stack for Windows by Toshiba
  - Infineon Trusted Platform Module Utility (preinstalled in some models)
  - Online Manual

Documentation and Backup Media

- *Tecra S4 Portable Personal Computer User's Manual*
- *Tecra S4 Quickstart*
- *Instruction Manual for Safety and Comfort*
- Warranty information
- Product Recovery DVD-ROM

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

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

Built-in	The computer is equipped with one of the following Intel® processors. ■ Intel® Core™ Duo processor, which incorporates 2MB Level-2 cache memory and supports Enhanced Intel® SpeedStep® Technology. ■ Intel® Core™ 2 Duo processor, which incorporates 2MB Level-2 cache memory and supports Enhanced Intel® SpeedStep® Technology. ■ Intel® Core™ 2 Duo processor, which incorporates 4MB 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.

Some models in this series use Intel® Centrino® Duo Mobile Technology which is based on three separate components, the Intel® Core™ 2 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 Chapter 10, *Legal Footnotes*.

Memory

Slots	256, 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 graphics controller is equipped with 128MB external video RAM, and may use up to 128MB of main system memory as additional video memory for a combined total of up to 256MB video memory.

Legal Footnote (Memory (Main System))

For more information regarding Main Memory, please refer to Chapter 10, *Legal Footnotes*.

Power

Battery pack	The computer is powered by one rechargeable lithium-ion battery pack.

Legal Footnote (Battery Life)

For more information regarding Battery Life, please refer to Chapter 10, *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. Because it is universal, it can receive a range of AC voltage from 100 to 240 volts; however, the output current varies among different models. Using the wrong model can damage your computer. Refer to the *AC adaptor* section in Chapter 2, *The Grand Tour*.

Disks

Hard disk drive	Available in the following sizes: ■ 40.0 billion bytes (37.26 GB) ■ 60.0 billion bytes (55.89 GB) ■ 80.0 billion bytes (74.53 GB) ■ 100.0 billion bytes (93.16 GB) ■ 120.0 billion bytes (111.79 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 Chapter 10, *Legal Footnotes*.

Optical disc drive

Your computer is configured with an optical disc drive installed in the Ultra Slim Bay. The available optical disc drives are described below.

DVD-ROM and CD-R/RW drive	Some models are equipped with a full-size, DVD-ROM and CD-R/RW drive module that lets you run CD/DVDs without using an adaptor. It reads DVD-ROMs at maximum 8 speed and CD-ROMs at maximum 24 speed. It writes CD-R at maximum 24 speed and CD-RW at maximum 24 speed. The drive supports the following formats: ■ CD-R ■ CD-RW ■ DVD-ROM ■ DVD-Video ■ CD-DA ■ CD-Text ■ Photo CD™ (single/multi-session) ■ CD-ROM Mode 1, Mode 2 ■ CD-ROM XA Mode 2 (Form1, Form2) ■ Enhanced CD (CD-EXTRA) ■ Addressing Method 2

DVD Super Multi drive	Some models are equipped with a full-size DVD Super Multi drive module that lets you record data to rewritable CD/DVDs as well as run 12cm (4.72") or 8cm (3.15") CD/DVDs. It reads DVD-ROMs at maximum 8 speed and CD-ROMs at maximum 24 speed. It writes CD-R at up to 24 speed, CD-RW at up to 16 speed, DVD-R and DVD+R at up to 8 speed, DVD-RW and DVD+RW at up to 4 speed, DVD-R DL at up to 2 speed, DVD+R DL at up to 2.4 speed, DVD-RAM at maximum 3 speed. This drive supports the following formats in addition to the DVD-ROM and CD-R/RW drive. ■ DVD-R ■ DVD-R DL ■ DVD-RW ■ DVD+R ■ DVD+R DL ■ DVD+RW ■ DVD-RAM

Display

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

Built-in	15" TFT LCD screen, 16 M colors, with one of the following resolutions: ■ XGA, 1024 horizontal × 768 vertical pixels ■ SXGA+, 1400 horizontal × 1050 vertical pixels

Legal Footnote (LCD)

For more information regarding the LCD, please refer to Chapter 10, *Legal Footnotes*.

Graphics controller	The graphics controller maximizes display performance. Refer to *Display Controller and Modes* section in Appendix B for more information.

Legal Footnote (Graphics Processor Unit ("GPU"))

For more information regarding Graphics Processor Unit ("GPU"), please refer to Chapter 10, *Legal Footnotes*.

Keyboard

Built-in	The internal keyboard provides either 85 keys or 87 keys, an embedded numeric overlay, dedicated cursor control keys,  and  keys. The keyboard is compatible with the IBM® enhanced keyboard. Refer to Chapter 5, *The Keyboard*, for details.

TOSHIBA Dual Pointing Device

Built-in Touch Pad	The integrated Touch Pad and control buttons in the palm rest allow control of the on-screen pointer and support functions such as the scrolling of windows.
Built-in AccuPoint	The integrated AccuPoint control stick located in the center of the keyboard allows control of the on-screen pointer.

Ports

Parallel	Parallel printer or other parallel device (ECP compatible).
Serial	The integrated serial port provides RS-232C compatibility through the internal 16550UART controller.
External monitor	The analog VGA port provides support for VESA DDC2B compatible functions.
Universal Serial Bus (USB 2.0)	The computer supports multiple Universal Serial Bus ports that comply with the USB 2.0 standard.
Docking	This port allows the connection of an optional Advanced Port Replicator III Plus as described within the *Options* section.
i.LINK™ (IEEE1394)	This port allows high-speed data transfer to take place between the computer and external devices such as digital video cameras.
Infrared	The serial infrared port is compatible with Infrared Data Association (IrDA 1.1) standards. It enables cableless 4 Mbps, 1.152 Mbps, 115.2 kbps, 57.6 kbps, 38.4 kbps, 19.2 kbps or 9.6 kbps data transfer with IrDA 1.1 compatible external devices.

Slots

PC Card	The internal PC Card slot accommodates a single Type II (5mm) card.
ExpressCard	The internal ExpressCard slot accommodates a single ExpressCard.
SD Card	This slot allows you to easily transfer data from devices such as digital cameras and Personal Digital Assistants (PDAs) that use SD card flash memory. Refer to Chapter 8, *Optional Devices*.

Multimedia

Sound system	The integrated sound system provides internal speakers and a microphone, as well as allowing an external microphone and headphones to be connected via the appropriate jacks.
S-Video out port	The S-Video out port allows you to transfer video data to external devices using an optional S-Video cable. Please note that the data output will depend on the type of device that is connected.
Headphone jack	A 3.5mm mini headphone jack enables connection of stereo headphones.
Microphone jack	A 3.5mm mini microphone jack enables connection of a three-conductor microphone for monaural input.

Communications

Modem	The integrated modem provides capability for data and fax communications that support the V.90 (V.92) standards and includes a modem jack for connection to a telephone line. Please note that both the V.90 and V.92 standards are only supported in the USA, Canada, UK, France, Germany and Australia. Only the V.90 standard is supported in other regions. You should also be aware that the speed of data and fax transfer will depend on analog telephone line conditions.
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 and printers. 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). ■ Theoretical maximum speed of 54Mbps for IEEE802.11a 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) support ■ Advanced Encryption Standard (AES) data encryption ■ Wake-up on Wireless LAN support

- *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 wireless LAN can reach may vary depending on surrounding electromagnetic environment, obstacles, access point design and configuration, and client design and software/hardware configurations. The Transmit Rate (at X Mbit/s) 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.*
- *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.*

Legal Footnote (Wireless LAN)

For more information regarding Wireless LAN, please refer to Chapter 10, *Legal Footnotes*.

Wireless communication switch	This switch turns the Wireless LAN and Bluetooth functions on and off. Please note that all models are provided with a Wireless communication switch and some models are equipped with both Wireless LAN and Bluetooth functionality.

Ultra Slim Bay

Ultra Slim Bay Modules	The integrated Ultra Slim Bay is a single-drive bay that can accommodate either a DVD-ROM and CD-R/RW drive, DVD Super Multi drive or secondary hard disk drive. The TOSHIBA Mobile Extension enables the hot insertion of these modules when you are using an operating system that supports Plug-and-Play.

Security

Security lock slot	Connects security lock to anchor the computer to a desk or other large object.
Ultra Slim Bay latch	When this latch is in its “locked” position, the installed Ultra Slim Bay module is secured into the computer. In addition, removal of the module can be prevented by securing the latch in its “locked” position with a “lock screw”. Please note that this screw is located in the latch’s “unlock” position at the time of purchase.

Special features

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

TOSHIBA Assist button	Press this button to launch an application automatically. The default is TOSHIBA Assist.
TOSHIBA Presentation button	Press this button to change internal display, external display, simultaneous display, or multi-monitor display.
Hot keys	Key combinations let you quickly change the system configuration directly from the keyboard without running a system configuration program.

Display automatic power off	This feature automatically cuts off power to the computer's LCD display panel when there is no keyboard input for a time specified. Power is restored when any key is pressed. You can specify the time in the *Monitor power off* item of the *Basic Setup* tab in TOSHIBA Power Saver.
HDD automatic power off	This feature automatically cuts off power to the hard disk drive when it is not accessed for a time specified. Power is restored when the hard disk is accessed. You can specify the time in the *HDD power off* item of the *Basic Setup* tab in TOSHIBA Power Saver.
System automatic Standby/Hibernation	This feature automatically shuts down the system into Standby Mode or Hibernation Mode when there is no input or hardware access for a time specified. You can specify the time and select either the System Standby or System Hibernation item of the *Basic Setup* tab in TOSHIBA Power Saver.
Keypad overlay	A ten-key pad is integrated into the keyboard. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*, for instructions on using the keypad overlay.
Power on password	Two levels of password security, supervisor and user, are available to prevent unauthorized access to your computer.
Instant security	A hot key function blanks the LCD screen and disables the computer providing data security.
Intelligent power supply	A microprocessor in the computer's intelligent power supply detects the battery's charge and calculates the remaining battery capacity. It also protects electronic components from abnormal conditions, such as voltage overload from an AC adaptor. You can monitor remaining battery capacity by using the *Battery remaining* item in TOSHIBA Power Saver.
Battery save mode	This feature lets you save battery power. You can specify the Power Save Mode in the *Profile* item in TOSHIBA Power Saver.
Panel power on/off	This feature turns power to the computer off when the computer's LCD display panel is closed and turns it back on when the computer's LCD display panel is opened. You can specify the setting in the *When I close the lid* item of the *Setup Actions tab* in TOSHIBA Power Saver.

Low battery automatic hibernation	When battery power is exhausted to the point that computer operation cannot be continued, the system automatically enters Hibernation and shuts down. You can specify the setting in the *Setup Actions tab* in TOSHIBA Power Saver.
Heat dispersal	To protect from overheating, the CPU has an internal temperature sensor. If the computer's internal temperature rises to a certain level, the cooling fan is turned on or the processing speed is lowered. Use the *Cooling Method* item of the *Basic Setup* tab in TOSHIBA Power Saver.
Optical disc drive power icon	Use this to turn the power of the optical media drive on or off. Clicking on the optical media drive icon on the taskbar will turn the power of the optical media drive on or off. If the optical media drive power is off, the disc tray will not open even if the eject button is pushed. The power of the optical media drive can be turned on using the optical media drive icon.
HDD Protection	Using the acceleration sensor built in the computer, HDD Protection detects vibration, shocks, and those signs in the computer, and automatically moves the HDD (Hard Disk Drive) head to the safe position to reduce the risk of damage that could be caused to the disk by head-to-disk contact. Refer to the *Using Hard Disk Drive (HDD) Protection* section in Chapter 4, *Operating Basics*, for details.

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

Hibernation	This feature lets you turn off the power without exiting from your software. The contents of main memory are saved to the hard disk, when you turn on the power again, you can continue working right where you left off. Refer to the *Turning off the power* section in Chapter 3, *Getting Started*, for details.
Standby	If you have to interrupt your work, you can turn off the power without exiting from your software. Data is maintained in the computer's main memory. When you turn on the power again, you can continue working right where you left off.

Utilities

This section describes preinstalled utilities and tells how to start them. For details on operations, refer to each utility's online manual, help files or readme.txt files.

TOSHIBA Power Saver	To access the power management utility, click **start** followed by **Control Panel** followed by **Performance and Maintenance** and then click the **TOSHIBA Power Saver** icon.
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. To access this utility, click **start** followed by **Control Panel** followed by **Printers and Other Hardware** and then click the **TOSHIBA HWSetup** icon.
TOSHIBA Controls	This utility has a section that lets you do the following: ■ Buttons: Assign applications or functions to the TOSHIBA Presentation button (default setting is the simultaneous display on LCD and CRT with resolution of 1024 × 768) and to the TOSHIBA Assist button (default setting is the TOSHIBA Assist).
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 prevented. ■ Disable the password-protected screen-saver when returning from a power-saving mode such as Standby 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

DVD Video Player	The DVD Video Player is used to play DVD-Video. It has an on-screen interface and functions. Click **start**, point to **All Programs**, point to **InterVideo WinDVD**, then click **InterVideo WinDVD**.
Bluetooth Stack for Windows by Toshiba	This software enables communication between the computer and external Bluetooth devices such as printers and mobile phones.

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

TOSHIBA SD Memory Boot Utility	The TOSHIBA SD memory boot utility allows you to create a bootable SD memory card that can be used to start the system. To access this utility, click **start** followed by **All Programs** followed by **TOSHIBA** followed by **Utilities** and then click **SD Memory Boot Utility**.
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.
RecordNow! Basic for TOSHIBA	You can create CDs and DVDs in a number of formats including audio CDs that can be played on a standard CD player, and data CDs/DVDs which can store copies of the files and folders on your notebook's hard disk drive. This software can be used on models with either a DVD-ROM / CD-R/RW drive, or a DVD Super Multi drive.
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 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. To access this utility, click **start** followed by **All Programs** followed by **TOSHIBA** followed by **Utilities** and then click **PC Diagnostic Tool**.

TOSHIBA Mobile Extension	The TOSHIBA Mobile Extension utility enhances the functionality of your notebook when it is used in conjunction with an optional Advanced Port Replicator III Plus. To access this utility, launch the **TOSHIBA Assist** application and then select **TOSHIBA Mobile Extension**.
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** followed by **All Programs** followed by **TOSHIBA** followed by **Networking** and then click **ConfigFree**.
TOSHIBA Dual Pointing Device utility	The TOSHIBA Dual Pointing Device utility allows the functionality of the integrated pointing devices (AccuPoint mouse and Touch Pad) to be customized, and also supports the **Fn** + **F9** function to quickly and easily disable/enable their operation.
TOSHIBA Mic Effect	The TOSHIBA Mic Effect utility can be used to remove or reduce any harsh echoes or “howling” sounds that may occur when playing audio sounds recorded with a microphone through the speakers. Please note that this echo cancellation function is only available when you use telephony software, such as Windows Messenger, that includes a voice conversation function. For further information on this utility, click **start** followed by **All Programs** followed by **TOSHIBA** followed by **Utilities** and then click **Mic Effect Help**.
TOSHIBA RAID Utility	TOSHIBA RAID Utility is used to create or manage RAID array. To access this utility, click **start** followed by **All Programs** followed by **TOSHIBA** followed by **RAID** and then click **RAID Console**.
NVIDIA Rotation Settings	This utility lets you easily rotate the desktop by 180 degrees and back. You can rotate by clicking the icon in the taskbar or pressing the **Ctrl** + **Alt** + **Up** (↑) and **Ctrl** + **Alt + Down**(↓) key combinations. In a multi-monitor setup, the display that contains the cursor is effective.

TOSHIBA Password Utility	The TOSHIBA Password utility allows you to set a password in order to restrict access to the computer.
TOSHIBA Accessibility	The TOSHIBA Accessibility utility provides support to movement impaired users when they need to use the TOSHIBA Hote-key functions. In use, the utility allows you to make the **Fn** key “sticky”, that is you can press it once, release it, and then 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.
DLA for TOSHIBA	DLA (Drive Letter Access) is the packet writing software which provides the function, which writes files and/or folders to DVD-RW, CD-RW and DVD+RW discs via a drive letter like a floppy disk or other removable disks.
TOSHIBA Hotkey Utility for Display Devices	This utility allows you to change both the active display device and its associated display resolution - you should use this utility in conjunction with the **Fn** + **F5** keys (to change the active display device) and the **Fn** + **Space** keys (to change the display resolution).
TOSHIBA SD Memory Card Format	The TOSHIBA SD Memory Card Format utility allows you to format an SD memory card device ready for use.
CD/DVD Drive Acoustic Silencer	The CD/DVD Drive Acoustic Silencer utility allows you to configure the read speed at which the optical disc drive will operate. In use you can select either **Normal Mode**, which will operate the drive at its maximum speed for quick data access, or **Quiet Mode**, which operates the drive at single speed for audio CD playback and which can lessen the operational noise. This utility does not have any function when using DVDs.

Options

You can add a number of options to make your computer even more powerful and convenient to use. The following options are available:

Memory expansion	A 256MB, 512MB, 1,024MB, or 2048MB memory module (DDR2-667/533) can easily be installed in the computer.
Battery pack	An additional battery pack can be purchased from your TOSHIBA dealer as either a spare or replacement.
Extended capacity battery pack	An additional battery pack can be purchased from your TOSHIBA dealer as either a spare or replacement.
High capacity battery pack	An additional battery pack can be purchased from your TOSHIBA dealer as either a spare or replacement.
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 charger	The optional battery charger allows you to charge extra battery packs outside of having to use the computer.
Security lock	A slot is available into which you can attach a security cable in order to deter theft 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 XP, you are able to read and write to diskettes that have already been formatted.
Advanced Port Replicator III Plus	The Advanced Port Replicator III Plus provides a desktop docking solution that contains all of the ports available on the computer, including separate PS/2 mouse and PS/2 keyboard ports, a Digital Visual Interface (DVI) port, i.LINK™ (IEEE1394) port, line-in and line-out jacks, external monitor port, USB 2.0 ports (× 4), network jack, Modem jack, serial port and parallel port.

HDD Kit	You can increase your computer's data storage capacity with additional hard disk drives which are currently available in the following capacities: ■ 80 billion bytes (74.53 GB) ■ 100.0 billion bytes (93.16 GB)
Bluetooth Kit	This option enables Bluetooth wireless communications in computers that do not have Bluetooth preinstalled. It is installed by dealers only.
Bluetooth Wireless Mouse	The Bluetooth Wireless Mouse is a wireless optical mouse compatible with Bluetooth. You can buy the Bluetooth Wireless Mouse from a TOSHIBA dealer.
Bluetooth Wireless Stereo	The Bluetooth Wireless Stereo is a wireless stereo headphone set compatible with Bluetooth. You can buy the Bluetooth Wireless Stereo from a TOSHIBA dealer.

Ultra Slim Bay options

The following modules can be installed in the Ultra Slim Bay. All other modules are options.

DVD-ROM and CD-R/RW Kit	Refer to the *Features* section for details.
DVD Super Multi Drive Kit	Refer to the *Features* section for details.
Ultra Slim Bay HDD adaptor	The Ultra Slim Bay HDD adaptor allows you to install an optional hard disk drive and is described in more detail within Chapter 8, *Optional Devices*.
HDD Kit (Serial-ATA)	You can increase your computer's data storage capacity with an additional 80 billion bytes (74.53 GB) and 100.0 billion bytes (93.16 GB) hard disk drive in the Ultra Slim Bay HDD adaptor.

Chapter 2

The Grand Tour

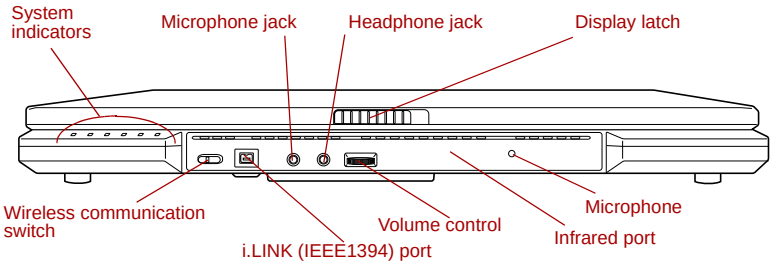
This chapter identifies the various components of your computer. Become familiar with each component before you operate the computer.

Legal Footnote (Non-applicable Icons)

For more information on the Legal Footnote regarding Non-applicable Icons, please refer to Chapter 10, *Legal Footnotes*.

Front with the display closed

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



Front of the computer with LCD display panel closed

System indicators	These LEDs let you monitor the status of various computer functions. Details are given in the *System indicators* section.

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. All models are provided with a Wireless Communication switch although only some models are equipped with both Wireless LAN and Bluetooth functions.

- *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 functionality.*
- *Always turn off Wi-Fi or Bluetooth functionality if the PC 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.*

i.LINK (IEEE1394) port	This port allows you to connect an external device, such as a digital video camera for high-speed data transfer.

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

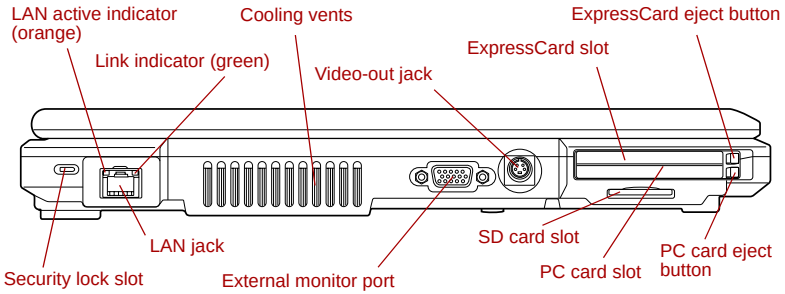
Headphone jack	A 3.5 mm mini headphone jack enables connection of stereo headphones.

Volume control	Use this dial to adjust the volume of the internal monaural speakers and optional external stereo headphones (if connected). Move the Volume control to the right to increase the volume and to the left to decrease the volume. Press the Volume control to Mute the sound. Press the Volume control again to turn Mute off. The mute icon will be displayed when the Volume control is pressed. The same function can be performed by pressing the **Fn** + **Esc** keys. Refer to the *Hot keys* section in Chapter 5, *The Keyboard*, for details on the **Fn** + **Esc** keys.

Display latch	This latch secures the LCD panel in its closed position. Slide the latch to open the display.
Infrared port	This infrared port is compatible with Infrared Data Association (IrDA 1.1) standards. It enables cableless 4 Mbps, 1.15 Mbps, 115.2 kbps, 57.6 kbps, 38.4 kbps, 19.2 kbps or 9.6 kbps data transfer with IrDA 1.1 compatible external devices.
Microphone	A built-in microphone lets you record sound into your applications. Refer to the *Sound system* section in Chapter 4, *Operating Basics*.

Left side

The following figure shows the computer's left side.



The left side of the computer

Security lock slot	A security cable attaches to this slot. The optional security cable anchors your computer to a desk or other large object to deter theft.
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). The LAN has two indicators. 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.
Cooling vents	Cooling vents help CPU keep from overheating.

Do not block the cooling vents. Never allow metal objects, such as screws, staples and paper clips, to enter the PC or keyboard. Foreign metal objects can create a short circuit, which can cause PC damage and fire, possibly resulting in serious injury.

External monitor port	This external monitor port lets you connect an external video display.
Video-out jack	Plug an S-Video cable into this jack for video-out. The S-Video cable carries video signal.
ExpressCard slot	The ExpressCard slot can accommodate an ExpressCard.
ExpressCard eject button	This is a button for taking out ExpressCard from ExpressCard slot.
PC card slot	The PC card slot can accommodate a Type II card. The slot supports 16-bit PC cards and CardBus PC cards.
PC card eject button	This is a button for taking out PC card from a PC card slot.

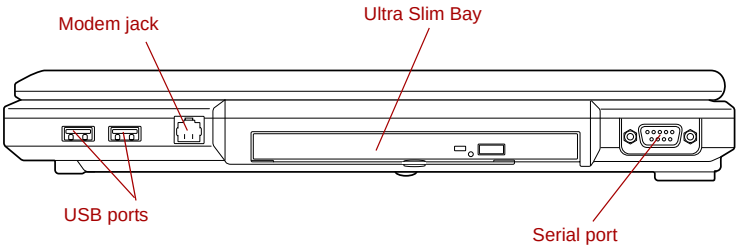
Keep foreign objects out of the ExpressCard slot and PC card slot. Never allow metal objects, such as screws, staples and paper clips, to enter the PC or keyboard. Foreign metal objects can create a short circuit, which can cause PC damage and fire, possibly resulting in serious injury.

SD card slot	SD cards are used in a wide variety of external devices. This slot lets you transfer data from the device to your computer.

Keep foreign objects out of the SD card slot. A pin or similar object can damage the computer's circuitry.

Right side

The following figure shows the computer's right side.



The right side of the computer

Universal Serial Bus (USB 2.0) ports	Two Universal Serial Bus ports are on the right side. The ports comply with the USB 2.0 standard.

Keep foreign objects out of the USB connectors. Never allow metal objects, such as screws, staples and paper clips, to enter the PC or keyboard. Foreign metal objects can create a short circuit, which can cause PC damage and fire, possibly resulting in serious injury.

Operation of all functions of all USB devices has not been confirmed. Some functions might not execute properly.

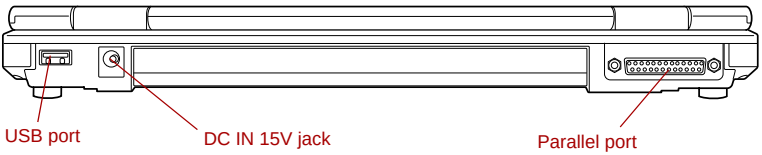
Modem jack	The modem jack allows you use to attach a modular cable in order to connect the internal modem directly to a telephone line.

- *Connection to any communication line other than an analog phone line could cause a PC system failure.*
  - *Connect the built-in modem only to ordinary analog phone lines.*
  - *Never connect the built-in modem to a digital line (ISDN).*
  - *Never connect the built-in modem to the digital connector on a public telephone or to a digital private branch exchange (PBX).*
  - *Never connect the built-in modem to a key telephone system for residences or offices.*
- *Never operate your PC on AC power during a thunderstorm. If you see lightning or hear thunder, immediately turn off the PC. An electric surge caused by the storm, may result in a system failure, loss of data or hardware damage.*

Ultra Slim Bay	A DVD-ROM and CD-R/RW drive, DVD Super Multi drive and Ultra Slim Bay HDD adaptor can be installed in the Ultra Slim Bay.
Serial port	Use this 9-pin port to connect serial devices such as an external modem, serial mouse or serial printer.

Back side

The following figure shows the computer's back side.

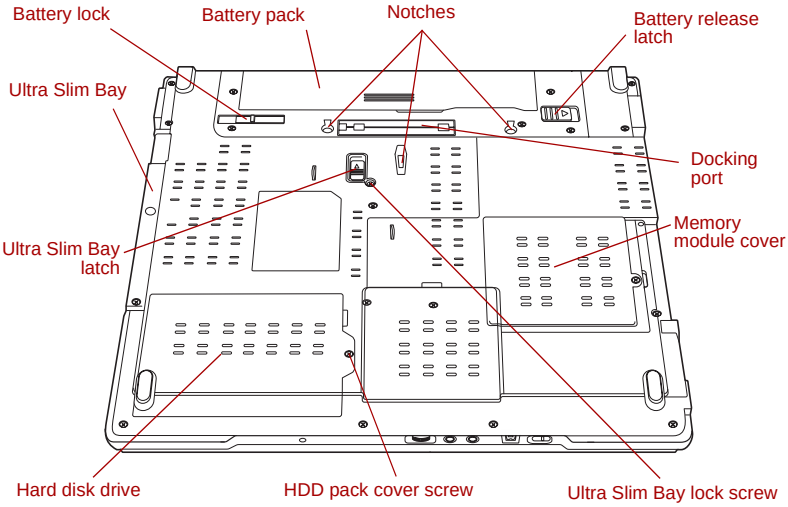


The back side of the computer

Universal Serial Bus (USB 2.0) port	One Universal Serial Bus port is on the back side. Refer to *Right side* section, for details.
DC IN 15V jack	The AC adaptor connects to this jack. Use only the model of AC adaptor that comes with the computer. Using the wrong adaptor can damage your computer.
Parallel port	This Centronics-compatible, 25-pin parallel port is used to connect a parallel printer or other parallel device. This port supports Extended Capabilities Port (ECP) standard.

Underside

The following figure shows the underside of the computer. Make sure the display is closed before turning over your computer.



The underside of the computer

Battery lock	Slide the battery lock to release the battery pack for removal.
Battery pack	The battery pack powers the computer when the AC adaptor is not connected. For detailed information on the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.
Notches	Notches on the computer engage hooks on the Advanced Port Replicator III Plus to ensure a secure connection.
Battery release latch	Slide and hold this latch to release the battery pack for removal. For detailed information on removing the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.
Docking port	This port enables connection of an optional Advanced Port Replicator III Plus described in Chapter 8, *Optional Devices*.

Keep foreign objects out of the docking port. A pin or similar object can damage the computer's circuitry. A plastic shutter protects the connector.

Ultra Slim Bay	See the *Right side* section in this chapter for details.

Ultra Slim Bay latch	Slide the latch to release or secure the Ultra Slim Bay ejector.

Be sure to lock the Ultra Slim Bay latch before you transport or carry the computer.

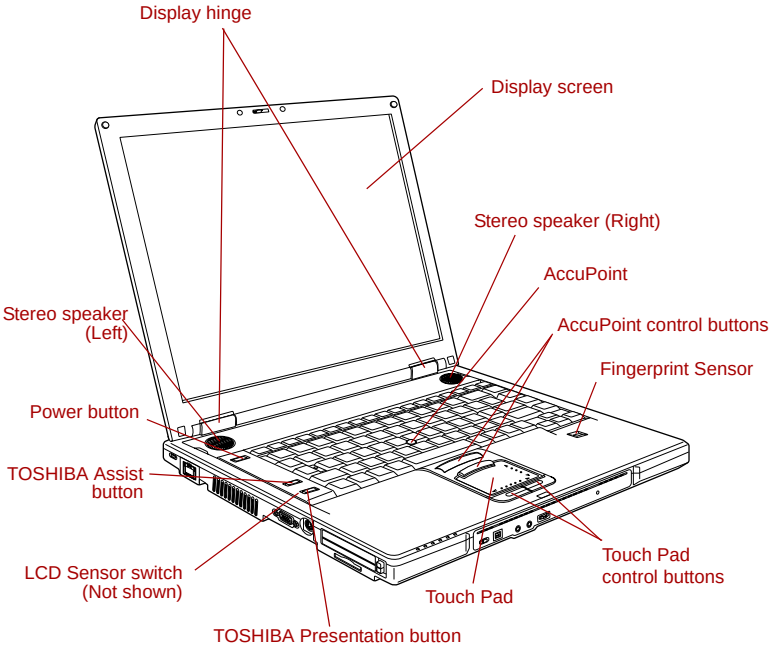
Ultra Slim Bay lock screw	One screw secures the Ultra Slim Bay latch.

Memory module cover	This cover protects memory module sockets. Refer to the *Memory expansion* section in Chapter 8, *Optional Devices*.

HDD pack cover screw	One screw secures the HDD cover.
Hard disk drive	This contains a Hard disk drive pack, which can be removed and reinstalled. For more information on how to remove or reinstall the *Hard disk drive pack*, refer to Chapter 8, *Optional Devices*.

Front with the display open

This section shows the computer with the LCD display panel open. Refer to the appropriate illustration for details. To open the display, slide the display latch on the front of the LCD display panel and lift up. Position the LCD display panel at a comfortable viewing angle.



The front of the computer with the LCD panel open

Display hinge	The display hinge holds the LCD display panel at easy-to-view angles.
Fingerprint Sensor	This sensor enables you to enroll and recognize a fingerprint. For detailed information on Fingerprint Sensor, refer to the *Using the Fingerprint Sensor* section in Chapter4, *Operating Basics*.

Display screen	The LCD screen displays high-contrast text and graphics. The available resolution depends on the model. With XGA, you can change the resolution between 800 × 600 and 1024 × 768 pixels. With SXGA+, between 800 × 600 and 1400 × 1050 pixels. Refer to *Display Controller and Modes* section in Appendix B. When the computer operates on the AC adaptor the LCD screen's image will be somewhat brighter than when it operates on battery power. The lower brightness level is intended to save battery power.
Stereo speakers	The speakers emit sound generated by your software as well as audio alarms, such as low battery condition, generated by the system.
AccuPoint control buttons	Control buttons below the keyboard let you select menu items or manipulate text and graphics designated by the on-screen pointer. Refer to the *Using the AccuPoint* section in Chapter 4, *Operating Basics*.
AccuPoint	A pointer control device located in the center of the keyboard is used to control the on-screen pointer. Refer to the *Using the AccuPoint* section in Chapter 4, *Operating Basics*.
Touch Pad control buttons	Control buttons below the Touch Pad let you select menu items or manipulate text and graphics designated by the on-screen pointer.
Touch Pad	A Touch Pad located in the center of the palm rest is used to control the on-screen pointer. Refer to the *Using the Touch Pad* section in Chapter 4, *Operating Basics*.

TOSHIBA Presentation button

Press this button to change internal display, simultaneous display, or multi-monitor display.

The default setting is the simultaneous display on LCD and CRT with resolution of 1024 × 768. When you press this button twice, the display mode returns to single display on LCD only. Setting of multi-monitor display in Windows XP, computer changes its display mode to the multi-monitor display on LCD and CRT. You can also return to single display by pressing this button twice.

The setting of TOSHIBA Presentation button can be changed through the properties of TOSHIBA Controls. Display mode is changed to the multi-monitor display by selecting “Different Image” (Windows XP only) or to the simultaneous display on internal and external display by selecting “Same Image”.

TOSHIBA Assist button

Press this button to launch a program automatically. When power-off, stand-by and hibernation, press this button to start the computer and launch the program.

You can select the function on TOSHIBA Controls properties.

The default is TOSHIBA Assist.

Power button

Press the power button to turn the computer’s power on and off.

LCD Sensor switch

This switch senses when the computer’s LCD display panel is closed or opened and activates the Panel Power Off/On feature. When you close the LCD display panel the computer enters Hibernation Mode and shuts down. When you open the computer’s LCD display panel the computer starts in Hibernation Mode. Use the TOSHIBA Power Saver Utility to enable or disable this feature. The default is “enabled”.

Refer to the TOSHIBA Power Saver Utility and Panel Power Off/On items in Chapter 1, *Special features*, for details on settings.

Do not put a magnetic object close to the switch. The computer will automatically enter Hibernation Mode and shut down even if the Panel Power Off features is disabled.

System indicators

LEDs beside icons, light when various computer operations are in progress.

System indicators

SD card	The **SD card** indicator glows green when the computer is accessing the SD card slot.
DC IN	The **DC IN** indicator glows green when DC power is supplied from the AC power adaptor. If the adaptor's output voltage is abnormal or if the power supply malfunctions, this indicator flashes orange.
Power	The **Power** indicator glows green when the computer is on. If you select **Standby** from **Shut Down Windows**, this indicator flashing (one second on, two seconds off) while the computer shuts down.
Battery	The **Battery** indicator shows the condition of the battery's charge: Green indicates full charge, orange indicates battery charging and flashing orange indicates a low battery charge. Refer to Chapter 6, *Power and Power-Up Modes*.
HDD	The **HDD** indicator glows green when the computer is accessing the built-in hard disk drive.
Wireless communication	The **Wireless communication** indicator glows when the Bluetooth and wireless LAN functions are turned on.

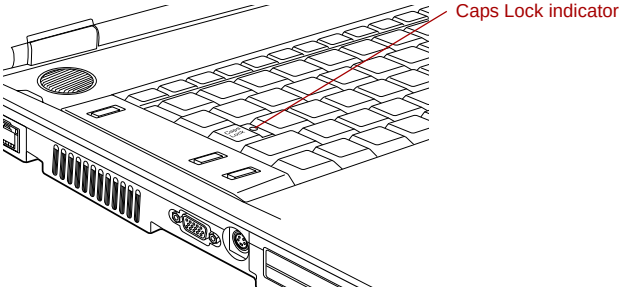
Keyboard indicators

The figures below show the positions of the keypad overlay indicators and the Caps Lock indicator.

When the Arrow mode indicator glows the keypad overlay lets you control the cursor.

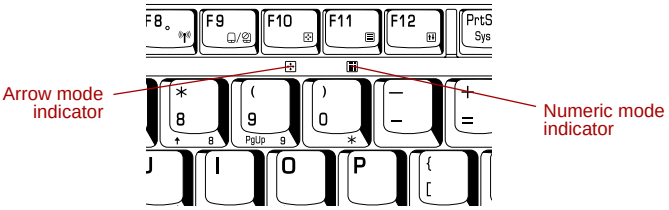
When the Numeric mode indicator glows the keypad overlay lets you enter numbers.

When the Caps Lock indicator glows the keyboard is in all-caps mode.



Caps Lock indicator

Caps Lock	This indicator glows green when the alphabet keys are locked in uppercase.

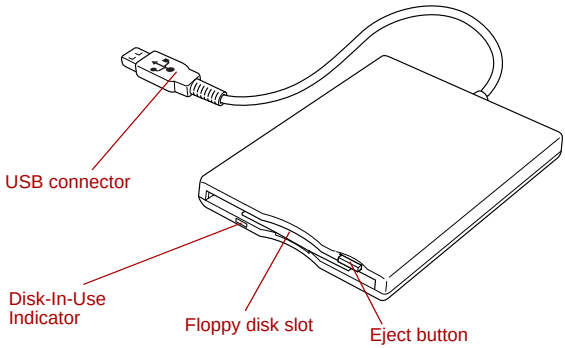


Keypad overlay indicators

Arrow mode	When the **Arrow mode** indicator lights green, you can use the keypad overlay (gray labeled keys) as cursor keys. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*.
Numeric mode	You can use the keypad overlay (gray labeled keys) for numeric input when the **Numeric mode** indicator lights green. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*.

USB floppy disk drive (optional)

The optional USB floppy disk drive accommodates 1.44-megabyte or 720-kilobyte floppy disks and connects to the USB port.



USB floppy disk drive

USB connector	Insert this connector into one of the USB ports of your computer.
Disk-In-Use Indicator	This indicator lights when the floppy disk is being accessed.
Floppy disk slot	Insert a floppy disk in this slot.
Eject button	When a floppy disk is fully seated in the drive, the eject button pops out. To remove a floppy disk, push in the eject button and the floppy disk pops out partially for removal.

Check the **Disk-In-Use** *indicator when you use the USB floppy disk drive. Do not press the eject button or turn off the computer while the light is glowing. Doing so could destroy data and damage the floppy disk or the drive.*

- *The USB floppy disk drive should be placed on a flat, horizontal surface when in use. Do not set the drive on an incline greater than 20ºC while it is operating.*
- *Do not set anything on top of the floppy disk drive.*

Optical disc drives

One of the following optical disc drives is installed in the computer: DVD-ROM and CD-R/RW and DVD Super Multi drives. An ATAPI interface controller is used for CD/DVD-ROM operation. When the computer is accessing a CD/DVD, an indicator on the drive glows.

For information on loading and unloading discs, refer to the *Using optical disc drives* section in Chapter 4, *Operating Basics*.

Region codes for DVD drives and media

DVD-ROM and CD-R/RW, DVD Super Multi drives and media are manufactured according to the specifications of six marketing regions. When you purchase DVD-Video, make sure it matches your drive, otherwise it will not play properly.

Code	Region
1	Canada, United States
2	Japan, Europe, South Africa, Middle East
3	Southeast Asia, East Asia
4	Australia, New Zealand, Pacific Islands, Central America, South America, Caribbean
5	Russia, Indian Subcontinent, Africa, North Korea, Mongolia
6	China

Writable discs

This section describes the types of writable CD/DVD discs. Check the specifications for your drive to for the type of discs it can write. Use RecordNow! to write compact discs. Refer to Chapter 4, *Operating Basics*.

CDs

- CD-R discs can be written only once. The recorded data cannot be erased or changed.
- CD-RW discs including multi speed CD-RW discs, high-speed CD-RW discs and ultra-speed CD-RW discs can be recorded more than once.

DVDs

- DVD-R and DVD+R discs can be written only once. The recorded data cannot be erased or changed.
- DVD-RW, DVD+RW and DVD-RAM discs can be recorded more than once.

Formats

The drives support the following formats:

- CD-ROM
- DVD-ROM
- CD-DA
- Photo CD™ (single/multi-session)
- CD-ROM XA Mode 2 (Form1, Form2)
- DVD -Video
- CD-Text
- CD-ROM Mode 1, Mode 2
- Enhanced CD (CD-EXTRA)
- Addressing Method 2

DVD-ROM and CD-R/RW drive

The full-size DVD-ROM and CD-R/RW drive module lets you record data to rewritable CDs as well as run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without using an adaptor.

The read speed is slower at the center of a disc and faster at the outer edge.

DVD read	8 speed (maximum)
CD read	24 speed (maximum)
CD-R write	24 speed (maximum)
CD-RW write	24 speed (maximum, Ultra-speed media)

DVD Super Multi drive

The full-size DVD Super Multi drive module lets you record data to rewritable CDs as well as run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without using an adaptor.

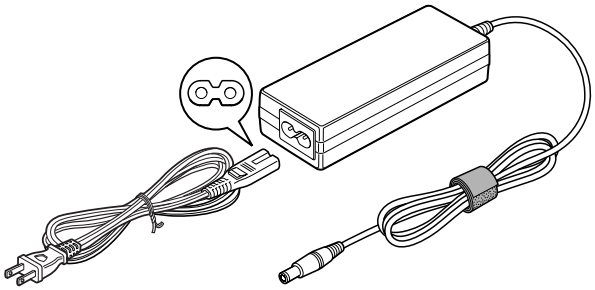
The read speed is slower at the center of a disc and faster at the outer edge.

DVD read	8 speed (maximum)
DVD-R write	8 speed (maximum)
DVD-R DL write	2 speed (maximum)
DVD-RW write	4 speed (maximum)
DVD+R write	8 speed (maximum)
DVD+R DL write	2.4 speed (maximum)
DVD+RW write	4 speed (maximum)
DVD-RAM write	3 speed (maximum)
CD read	24 speed (maximum)
CD-R write	24 speed (maximum)
CD-RW write	16 speed (maximum, Ultra-speed media)

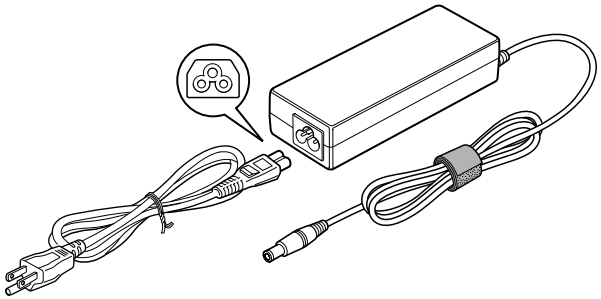
AC adaptor

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 any 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 the computer. Refer to Chapter 6, *Power and Power-Up Modes* for details.



The AC adaptor (2-pin plug)



The AC adaptor (3-pin plug)

- *Depending on the model, a 2-pin plug or 3-pin plug set of the above may be bundled.*
- *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 this region. For use in other regions, please buy power cords that conform to safety rules and regulations in the particular region.*

Always use the TOSHIBA AC adaptor that was provided with your PC and the TOSHIBA Battery Charger (that may have been provided with your PC), or use AC adaptors and battery chargers specified by TOSHIBA to avoid any risk of fire or damage to the PC possibly resulting in serious injury. TOSHIBA assumes no liability for any damage caused by use of an incompatible adaptor or charger.

Chapter 3

Getting Started

This chapter provides basic information to get you started using your computer. It covers the following topics:

- 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 preinstalled software

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.

Other Things to Note

- *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 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.*

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.

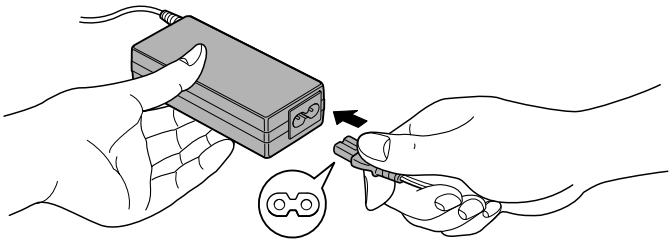
The AC adaptor can be connected to any power source supplying from 100 to 240 volts and 50 or 60 hertz. For details on using the AC adaptor to charge the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.

- *Always use the TOSHIBA AC adaptor that was provided with your computer and the TOSHIBA Battery Charger (that may have been provided with your computer), or use AC adaptors and battery chargers specified by TOSHIBA to avoid any risk of fire or other damage to the computer. Use of an incompatible AC adaptor or Battery Charger 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 or Battery Charger.*
- *Never plug the AC adaptor or Battery Charger 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.*

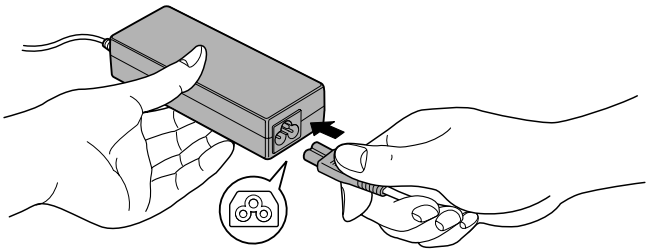
- *When you connect the AC adaptor to the computer, always follow the steps in the exact order as described in the User's Manual. Connecting the power cable to a live electrical outlet should be the last step otherwise the adaptor DC output plug could hold an electrical change and cause an electrical 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.



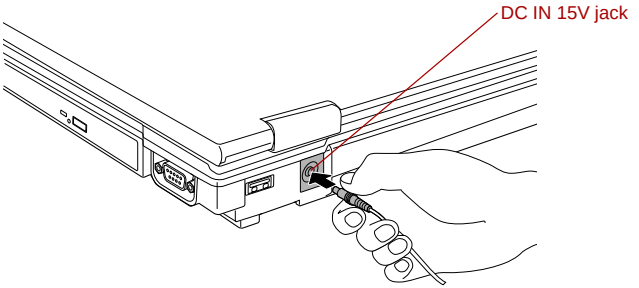
Connecting the power cord to the AC adaptor (2-pin plug)



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

Depending on the model, a 2-pin plug or 3-pin plug set of the above may be bundled.

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



Connecting the adaptor to the computer

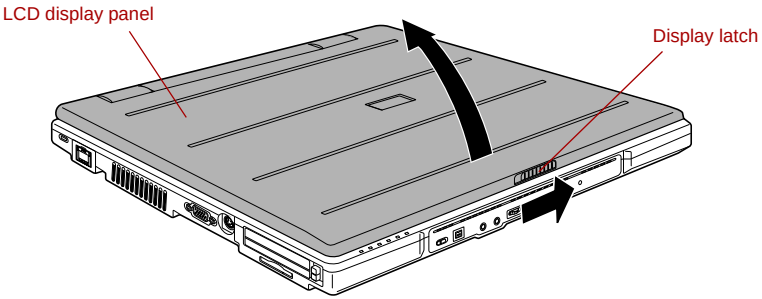
3. Plug the power cord into a live wall outlet. The **Battery** and **DC IN** indicators on the front of the computer should glow.

Opening the display

The computer's LCD display panel can be rotated in a wide range of angles for optimal viewing.

1. Slide the display latch on the front of the computer to unlatch the display panel.
2. While holding down the palm rest with one hand so that the main body is not raised, lift the panel slowly. Adjust the angle of the panel to provide optimal clarity.

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



Opening the LCD display panel

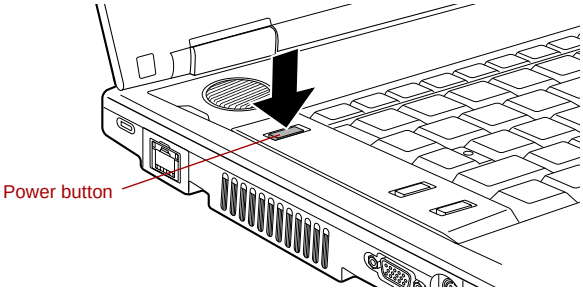
Turning on the power

This section describes how to turn on the power.

The Power button LED indicates the status. Refer to the *Power indicators* section in Chapter 6, *Power and Power-Up Modes*.

- *After you turn on the power for the first time, do not turn it off until you have set up the operating system. Refer to the section Starting up for the first time.*
- *If an optional USB floppy disk drive is connected, make sure it is empty. If a floppy disk is in the drive, press the eject button and remove the floppy disk.*

1. Open the computer's LCD display panel.
2. Press and hold the computer's power button for two or three seconds.



Turning on the power

Starting up for the first time

When you first turn on the power, the computer's initial screen is the Microsoft Windows XP Startup Screen Logo. Follow the on-screen directions for each screen. During setup, you can click the **Back** button to return to the previous screen.

Be sure to read the **Windows End User License Agreement** *display carefully.*

Turning off the power

The power can be turned off in one of the following modes: Shut down (Boot), Hibernation or Standby Mode.

Shut Down mode (Boot mode)

When you turn off the power in Shut Down mode no data is saved and the computer will boot to the operating system's main screen.

1. If you have entered data, save it to the hard disk or to a floppy disk.
2. Make sure all disk (disc) activity has stopped, then remove the CD/DVDs or floppy disk.

- *Make sure the HDD and Ultra Slim Bay's module indicators are off. If you turn off the power while a disk (disc) is being accessed, you can lose data or damage the disk (disc).*
- *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** then click **Turn Off Computer**. From the **`Turn Off Computer`** menu select **Turn Off**.
4. 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.

Standby Mode

If you have to interrupt your work, you can turn off the power without exiting from your software. Data is maintained in the computer's main memory. 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 Standby Mode according to the settings in the TOSHIBA Power Saver utility.*
- *To restore operation from Standby Mode, press the power button or press any key. The latter action only works on the internal keyboard if the Wake-up on Keyboard option is enabled in HW Setup.*
- *If the computer automatically enters Standby Mode while a network application is active, the application might not be restored when the computer wakes up from Standby.*
- *To prevent the computer from automatically entering Standby Mode, disable Standby in TOSHIBA Power Saver. That action, however, will nullify the computer's Energy Star compliance.*

- *Before entering Standby Mode, be sure to save your data.*
- *Do not install or remove a memory module while the computer is in Standby Mode. The computer or the module could be damaged.*
- *Do not remove the battery pack while the computer is in Standby Mode (unless the computer is connected to an AC power source). Data in memory will be lost.*
- *If you carry the computer on board an aircraft or into a hospital, be sure to shut down the computer in Hibernation Mode or in shutdown mode to avoid radio signal interference.*

Benefits of standby

The standby feature provides the following benefits:

- Restores the previous working environment more rapidly than does hibernation.
- Saves power by shutting down the system when the computer receives no input or hardware access for the duration set by the System Standby feature.
- You can use the panel power off feature.

Executing standby

You can also enable Standby by pressing **Fn** + **F3**. *See Chapter 5,* The Keyboard, *for details.*

You can enter Standby Mode in one of three ways:

1. Click **start**, click **Turn Off Computer** and click **Stand By**.
2. Close the computer's LCD display panel. This feature must be enabled. Refer to the *Setup Actions tab* in *TOSHIBA Power Saver Utility* described in the Control Panel.
   Open **Performance and Maintenance** and open **TOSHIBA Power Saver.**
3. Press the power button. This feature must be enabled. Refer to the *Setup Actions tab* in *TOSHIBA Power Saver Utility* described in the Control Panel.
   Open **Performance and Maintenance** and open **TOSHIBA Power Saver.**

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

- *When the computer is shut down in Standby Mode, the power indicator blinking orange.*
- *If you are operating the computer on battery power, you can lengthen the operating time by shutting down in Hibernation Mode. Standby Mode consumes more power.*

Standby limitations

Standby 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 when the computer is turned off. The next time the computer is turned on, the previous state is restored. The Hibernation Mode feature does not save the status of any peripheral devices.

- *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* **HDD** *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 when the computer automatically shuts down because of a low battery.

For the computer to shut down in Hibernation Mode, this feature must be enabled in two places: (a) the Hibernate tab in Power Options, (b) and the Setup Actions tab in TOSHIBA Power Saver.

If you do not configure this feature, the computer will shut down in Standby Mode - if battery power becomes depleted, data saved in Standby Mode will be lost.

- 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 duration set by the System hibernate feature.
- You can use the panel power off feature.

Starting Hibernation Mode

You can also enable Hibernation Mode by pressing **Fn** + **F4**. *Refer to Chapter 5,* The Keyboard*, for details.*

To enter Hibernation Mode, follow the steps below.

1. Click **start**.
2. Select **Turn Off Computer**.
3. Open the **Turn Off Computer** dialog box.
4. Select **Hibernate**.

Automatic Hibernation

The computer will enter Hibernate mode automatically when you press the power button or close the lid. First, however, make the appropriate settings according to the steps below.

1. Click **start** and open the **Control Panel**.
2. Open **Performance and Maintenance** and open **Power Options**.
3. Select the **Hibernate** window in the **`Power Options Properties`**, select the **Enable hibernation** check box and click the **Apply** button.
4. Open **TOSHIBA Power Saver**.
5. Select the **Setup Action** window.
6. Enable the desired Hibernation settings for **When I press the power button** and **When I close the lid**.
7. Click the **OK** button.

Data save in Hibernation Mode

When you turn off the power in Hibernation Mode, the computer takes a moment to save current memory data to the hard disk. During this time, the **HDD** indicator will light.

After you turn off the computer, and the content of memory has been saved to the hard disk, 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 system. For example, if:

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

There are three ways to reset the computer system:

1. Click **start** then click **Turn off computer**. From the **`Turn off computer`** menu select **Restart**.
2. Press **Ctrl** + **Alt** + **Del** to display the **`Windows Task Manager`**, then select **Shut Down** and **Restart**.
3. Press the power button and hold it down for five seconds. Wait 10 to 15 seconds, then turn the power on again by pressing the power button.

Restoring the preinstalled software

If preinstalled files are damaged, you can use the Product Recovery DVD-ROM to restore them.

Restoring the complete system

To restore the operating system and all preinstalled software, follow the steps below.

When sound mute is turned ON by the **Fn** + **Esc** *key, turn OFF before starting restore. Refer to Chapter 5,* The Keyboard*, for details.*

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

1. Load the Recovery Media in the optional optical disc drive and turn off the computer's power.
2. Hold down the **F12** key and turn on the power. When **`In Touch with Tomorrow TOSHIBA`** appears, release the **F12** key.
3. Use the left or right cursor key to select the CD-ROM icon in the display menu. For details, refer to the *Boot Priority* section in Chapter 7, *HW Setup & BIOS Setup*.
4. Follow the on-screen instructions.
5. If your computer came with additonal software installed, this software can not be recovered from the Product Recovery DVD-ROM. Re-install these applications (e.g. Works Suite, DVD Player, Games, etc.) separately from other media.

Restoring TOSHIBA utilities and drivers

If Windows is working properly, individual drivers or applications can be separately restored. The TOSHIBA Tools & Utilities folder (C:\TOOLSCD) contains drivers and applications, which are included with your computer system. If your system drivers or applications have become damaged in some way, you can reinstall most of the components from this folder.

Create a copy of this folder to an external media for more convenience.

Chapter 4

Operating Basics

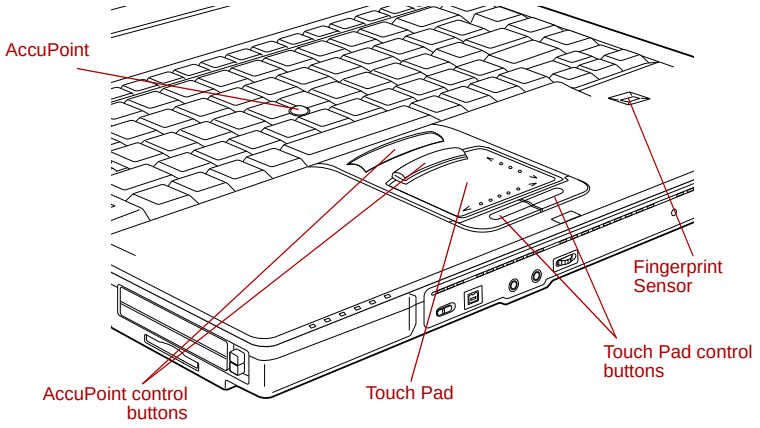
This chapter describes the basic operations of your computer and precautions when using it, as well as the handling of CDs/DVDs.

TOSHIBA Dual Pointing Device

The computer is equipped with a dual point system: a Touch Pad and an AccuPoint pointing stick.

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.



Touch Pad and Touch Pad control buttons

Two buttons below the Touch Pad are used like the buttons on a mouse pointer. Press the left button to select a menu item or to manipulate text or graphics designated by the pointer. 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.

Click: Tap once

Double-click: Tap twice

Drag and drop: Tap to select the material you want to move. Leave your finger on the Touch Pad after the second tap and move the material.

Using the AccuPoint

To use the AccuPoint, simply push it with your finger tip in the direction you want to move the on-screen pointer.
Two buttons above the Touch Pad work in the same way with the AccuPoint as they do with the Touch Pad. Refer to the *Using the Touch Pad* section for details.

AccuPoint precautions

Certain conditions can affect the on-screen pointer when using AccuPoint. For example, the pointer may travel contrary to AccuPoint operation or an error message may appear, if

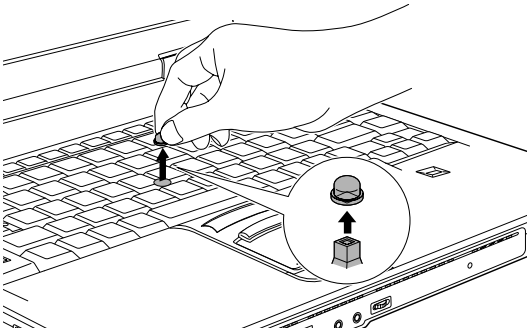
- You touch the AccuPoint during power-up.
- You apply constant, soft pressure during power-up.
- There is a sudden temperature change.
- Strong stress is applied to the AccuPoint.

If an error message appears, reboot the computer. If an error message does not appear, wait a moment for the pointer to stop, then continue operation.

Replacing the cap

The AccuPoint cap is an expendable item that should be replaced after prolonged use.

1. To remove the AccuPoint cap, firmly pinch the cap and pull it straight up.



Removing the AccuPoint cap

2. Position a new cap on the peg and press it into place.

The peg is square, so be careful to align the cap's square hole with the peg.

Using the Fingerprint Sensor

Your computer 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 Standby 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

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 up 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 following 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:

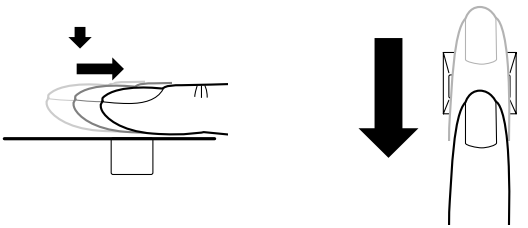
1. Click **start**, point to **All Programs**, point to **Protector Suite QL** and click **Control Center**.
2. The **Protector Suite Software** screen is displayed.
3. Click **Fingerprints** and click **Delete**.
4. Click **Settings** and click **Fingerprint Storage Inspector**.
5. The **Fingerprint 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.

Fingerprint Sensor Limitations

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.

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



Align your fingertip with the sensor as shown in the drawing and swipe.

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 Mysafe using this function - in these instances it is recommended that you backup these files to external media using standard file copy processes.

If Windows XP's file encryption function EFS (Encryption File System) is used to encrypt a file, the file cannot be further encrypted using the encryption function of this software.

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. Click **start** followed by **All Programs** followed by **Protector Suite QL** and then click **User Enrollment** Wizard.

You can also start User Enrollment Wizard using the following method.

- *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 switched on.

If you do not want to use the fingerprint authentication system for password authentication when the computer is switched on, but prefer to use the keyboard instead, simply press the **BkSP** (backspace) key 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 switched on.*
- *If the fingerprint authentication process fails more than 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 How to Enable Fingerprint Single Sign-on Feature. Check that the fingerprint is enrolled before configuring the settings. See Manual for Fingerprint Registration/ Enrollment 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. The **Fingerprint Software Managemen**t screen is displayed. Click **Settings** and click **System Settings**.
4. The **Protector Suite Settings** screen is displayed. Place a checkmark in Allow power-on security single sign-on within Enable logon support and 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.

How the Swipe the 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 at the center of the sensor, then lightly touch the sensor and swipe finger horizontally towards you until the sensor surface becomes visible. In performing this process, you should also take care to ensure that the center of your fingerprint is on the sensor.

- *Avoid swiping with the finger stiff or pressed-on too hard*

  Fingerprint reading may fail if the center of the fingerprint is not touching on the sensor, or when finger is swiped while pressing hard. Make sure that the center of the fingerprint is touching the sensor before swiping.
- *Confirm the center of the fingerprint whirl before swiping*

  Always confirm the center of the fingerprint whirl so that it is swiped along the center line of the sensor.
- *When fingerprint reading is not successful*

  There is a possibility of authentication failures if the finger is swiped too quickly or too slowly. Follow the onscreen instructions to adjust the speed of the swipe.

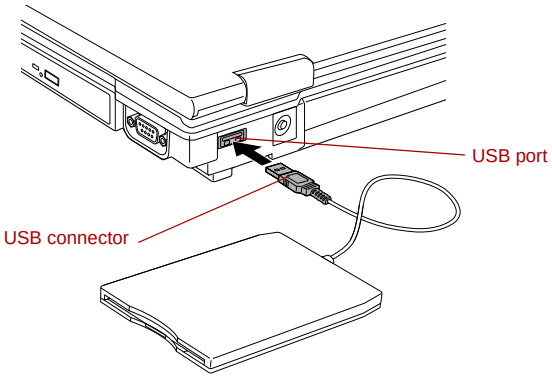
Using the optional USB floppy disk drive

The USB floppy disk drive accommodates 1.44-megabyte or 720-kilobyte floppy disks and connects to a USB port. Refer to Chapter 2, *The Grand Tour*, for more information.

Connecting USB floppy disk drive

To connect the drive, plug the floppy disk drive's USB connector into a computer's USB port. Refer to the following figure.

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



Connecting the USB floppy disk drive

If you connect the USB floppy disk drive after turning on the computer, it will take about 10 seconds for the computer to recognize the drive. Do not disconnect and reconnect before 10 seconds has elapsed.

Disconnecting USB floppy disk drive

When you have finished using the USB floppy disk drive, follow the procedures below to disconnect it:

1. Wait for the indicator light to go out to make sure all floppy disk activity has stopped.

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

2. Click the **Safely Remove Hardware** icon on the Task Bar.
3. Click **USB floppy disk drive** device that you want remove.
4. Pull the floppy disk drive's USB connector out of the computer's USB port.

Changing Ultra Slim Bay modules

This section explains how to change modules in the Ultra Slim Bay. The illustrations show replacement of the optical disc drive with the Ultra Slim Bay HDD adaptor.

To avoid injury, do not put your hand into the Ultra Slim Bay slot.

The TOSHIBA Mobile Extension is preinstalled to support hot swapping under Windows. Refer to Chapter 1, Introduction, for information on using this utility to change modules while the computer's power is on.

Removing a module

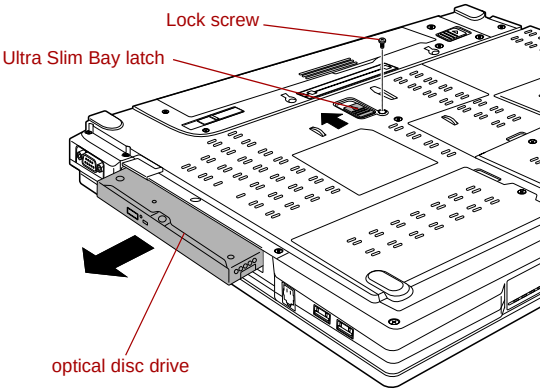
Remove the optical disc drive as described below.

1. You can confirm that the disks are not operating with indicators. If all indicators are off, it means that no disks are operating currently.
2. Turn the computer upside down.

Wait for all disk indicators to go out before you turn over the computer and lay the computer down gently. Shock can damage the HDD or other components.

3. Remove the screw near the icon securing the Ultra Slim Bay.
4. Make sure the screw in the Ultra Slim Bay lock screw is set in the hole for the unlock position.
5. Slide the Ultra Slim Bay latch to the unlock position.
6. Grasp the optical disc drive and slide it out.

The optical disc drive and other Ultra Slim Bay modules can become hot with use. Be careful when removing the module.

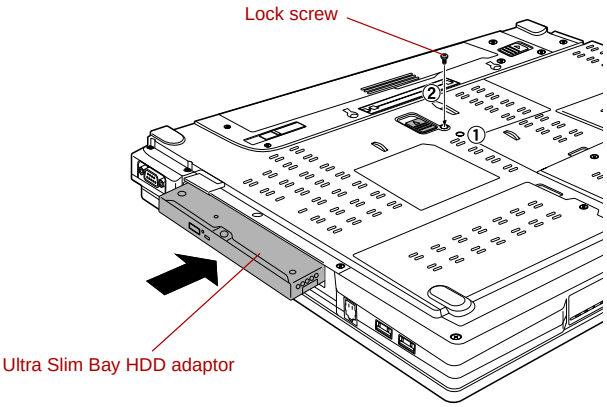


Removing the optical disc drive

Inserting a module

Insert the Ultra Slim Bay HDD adaptor as described below.

1. Insert the Ultra Slim Bay HDD adaptor in the computer as shown below and press until the ejector clicks.
2. If you want to lock the Ultra Slim Bay HDD adaptor, set the Ultra Slim Bay lock screw in the hole for the lock position (2). The lock screw is inserted in the unlock position (1) at the time of purchasing.



Inserting the Ultra Slim Bay HDD adaptor

Using optical disc drives

The full-size drive provides high-performance execution of CD/DVD-ROM-based programs. You can run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without an adaptor. An ATAPI interface controller is used for CD/DVD-ROM operation. When the computer is accessing a CD/DVD-ROM, an indicator on the drive glows.

Use the WinDVD application to view DVD-Video discs.

If you have a DVD-ROM and CD-R/RW drive, refer also to the *Writing CDs on DVD-ROM / CD-R/RW drive* section for precautions on writing to CDs.

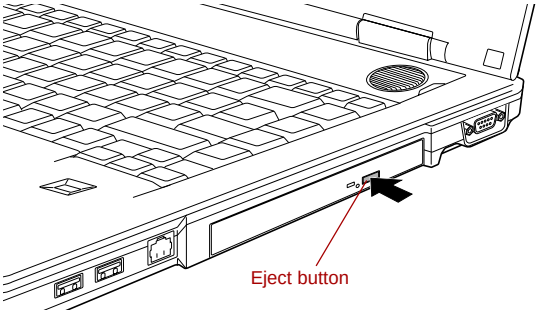
If you have a DVD Super Multi drive, refer also to the *Writing CD/DVDs on DVD Super Multi drive* section for precautions on writing to CDs/DVDs.

When the power of the optical disc drive is off, pressing the **Fn** + **Tab** *keys will turn the power of the optical disc drive on. Furthermore, it is possible to set it to turn the power of the optical disc drive on and eject the tray at the same time.*

Loading discs

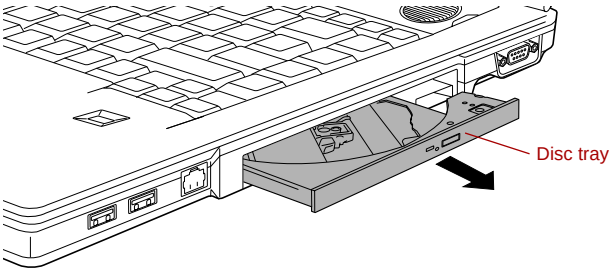
To load CD/DVDs, follow the steps below.

1. When the computer's power is on, press the eject button to open the disc tray slightly.



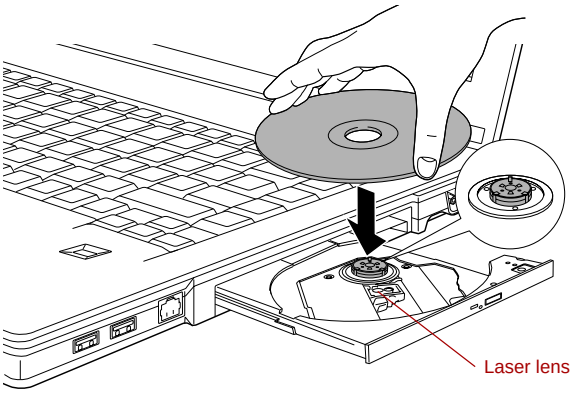
Pressing the eject button

2. Grasp the disc tray gently and pull until it is fully opened.



Pulling the disc tray open

3. Lay the CD/DVD, label side up, in the disc tray.



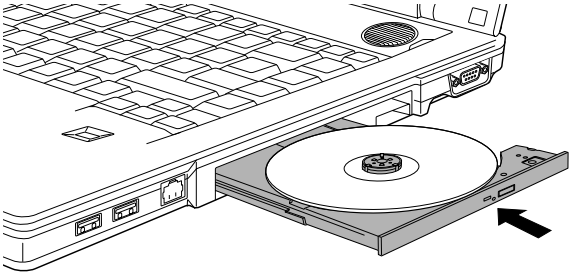
Inserting a CD/DVD

When the disc tray is fully opened, the edge of the computer will extend slightly over the CD/DVD tray. Therefore, you will need to turn the CD/DVD at an angle when you place it in the disc tray. After seating the CD/DVD, however, make sure it lies flat.

- *Do not touch a laser lens and its circumference portion. Doing so could cause misalignment.*
- *Prevent foreign objects from entering the drive. Check the surface of the disc tray, especially the area behind the front edge of the disc tray, to make sure there are no such objects before closing the drive.*

4. Press gently at the center of the CD/DVD until you feel it click into place. The CD/DVD should lie below the top of the spindle, flush with the spindle base.
5. Push the center of the disc tray to close it. Press gently until it locks into place.

If the CD/DVD is not seated properly when the disc tray is closed, the CD/DVD might be damaged. Also, the disc tray might not open fully when you press the eject button.



Closing the CD/DVD disc tray

Removing discs

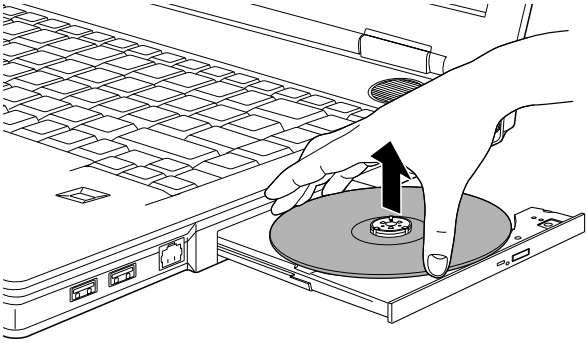
To remove the CD/DVD, follow the steps below.

Do not press the eject button while the computer is accessing the disc drive. Wait for the optical disc drive indicator to go out before you open the disc tray. Also, if the CD/DVD is spinning when you open the disc tray, wait for it to stop before you remove it.

1. To pop the disc tray partially open, press the eject button. Gently pull the disc tray out until it is fully opened.

When the disc tray pops open slightly, wait a moment to make sure the CD/DVD has stopped spinning before pulling the disc tray fully open.

2. The CD/DVD extends slightly over the sides of the disc tray so you can hold it. Hold the CD/DVD gently and lift it out.

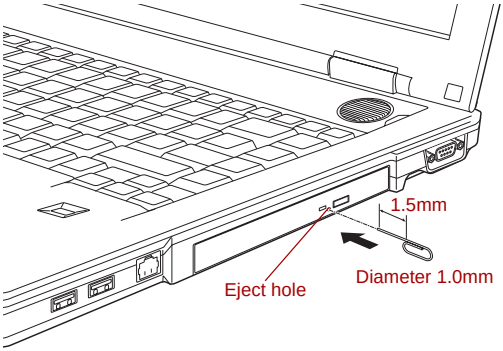


Removing a CD/DVD

3. Push the center of the disc tray to close it. Press gently until it locks into place.

How to remove CD/DVD when the disc tray will not open

Pressing the eject button will not open the disc tray when the computer power is off. If the power is off, you can open the disc tray by inserting a slender object (about 15 mm) such as a straightened paper clip into the eject hole just to the right of the eject button.



Manual release with the eject hole

Turn off the power before you use the eject hole. If the CD/DVD is spinning when you open the disc tray, the CD/DVD could fly off the spindle and cause injury.

Writing CDs on DVD-ROM / CD-R/RW drive

Depending on the type of drive installed, you may be able to write CDs. The DVD-ROM / CD-R/RW drive lets you write as well as read CD-ROMs. Observe the precautions in this section to ensure the best performance for writing CDs. For information on loading and unloading CDs refer to the *Using optical disc drives* section.

- *Refer to the Writable discs section in Chapter 2, The Grand Tour, for details about the types of writable CD/DVD discs.*
- *Do not turn off the power of the optical disc drive while the computer is accessing the drive. If you turn off the power, you may lose data.*
- *When the power of the optical disc drive is off, the disc tray will not open even if the eject button is pushed. Use the optical disc drive power icon to turn the power of the optical disc drive on. Refer to Chapter 1, Special features.*

When writing to media using an optical drive, always connect the AC adaptor to a power plug socket or power source to ensure maximum performance. If data is written while powered by the batteries, writing may sometimes fail due to low battery power and data loss may occur.

Before writing or rewriting

Please observe the following points when you write or rewrite the data.

- We recommend the following manufacturers of CD-R and CD-RW media. Media quality can affect write or rewrite success rates.

CD-R:

TAIYO YUDEN CO., LTD.

MITSUBISHI CHEMICAL CORPORATION

RICOH Co., Ltd.

Multi-Speed and High-Speed CD-RW:

MITSUBISHI CHEMICAL CORPORATION

RICOH Co., Ltd.

Ultra-Speed CD-RW:

MITSUBISHI CHEMICAL CORPORATION

TOSHIBA has confirmed the operation of CD-R and CD-RW media of the manufacturers above. Operation of other media cannot be guaranteed.

- The actual number of rewrites to CD-RW is affected by the quality of the disc and the way it is used.
- Be sure to connect the AC adaptor when you write or rewrite.
- Be sure to close all other software programs except the writing software.
- Do not run software such as a screen saver which can put a heavy load on the CPU.
- Operate the computer at full power. Do not use power-saving features.
- Do not write while virus check software is running. Wait for it to finish, then disable virus detection programs including any software that checks files automatically in the background.
- Do not use hard disk utilities, including those intended to enhance hard disk drive access speeds. They may cause unstable operation and damage data.
- Write from the computer's hard disk drive to the CD. Do not try to write from shared devices such as a LAN server or any other network device.
- Writing with software other than Sonic RecordNow! has not been confirmed. Therefore, operation with other software cannot be guaranteed.

When writing or rewriting

Note the following when you write or rewrite a CD-R or CD-RW.

- Always copy data from the hard disk drive to the optical media. Do not use cut-and-paste as the original data will be lost if there is a write error.
- Do not perform any of the following actions:
  - Change users in the Windows XP operating system.
  - Operate the computer for any other function, including use of a mouse or Touch Pad, closing/opening the LCD panel.
  - Start a communication application such as a modem.
  - Apply impact or vibration to the computer.
  - Install, remove or connect external devices, including the following: PC card, SD card, ExpressCard, USB devices, external monitor, i.LINK devices, optical digital devices.
  - Open the optical disc drive.
  - Remove the optical disc drive from the Ultra Slim Bay.
- If the media is poor in quality, dirty or damaged, writing or rewriting errors may occur.
- Set the computer on a level surface and avoid places subject to vibration such as airplanes, trains or cars. Do not use an unstable surface such as a stand.
- Keep mobile phones and other wireless communication devices away from the computer.

Writing CD/DVDs on DVD Super Multi drive

You can use the DVD Super Multi drive to write data to either CD-R/RW or DVD-R/-RW/+R/+RW/-RAM discs. The following applications for writing are provided: RecordNow!, and DLA licensed by Sonic Solutions, and InterVideo's WinDVD Creator Platinum.

- *Refer to the Writable discs section in Chapter 2 for details about the types of writable CD/DVD discs.*
- *Do not turn off the power of the optical disc drive while the computer is accessing the drive. If you turn off the power, you may lose data.*
- *When the power of the optical disc drive is off, the disc tray will not open even if the eject button is pushed. Use the optical disc drive power icon to turn the power of the optical disc drive on. Refer to Chapter 1, Special features.*

When writing to media using an optical drive, always connect the AC adaptor to a power plug socket or power source to ensure maximum performance. If data is written while powered by the batteries, writing may sometimes fail due to low battery power and data loss may occur.

Important message

Before you write or rewrite to CD-R/RW or DVD-R/-RW/+R/+RW/-RAM discs, read and follow all setup and operating instructions in this section. If you fail to do so, the DVD Super Multi drive may not function properly, and you may fail to write or rewrite, lose data or incur other damage.

Legal Footnote

TOSHIBA does not bear responsibility for the following:

- Damage to any CD-R/RW or DVD-R/-RW/+R/+RW/-RAM disc that may be caused by writing or rewriting with this product.
- Any change or loss of the recorded contents of CD-R/RW or DVD-R/-RW/+R/+RW/-RAM disc that may be caused by writing or rewriting with this product, or for any business profit loss or business interruption that may be caused by the change or loss of the recorded contents.
- Damage that may be caused by using third party equipment or software.

Given the technological limitations of current optical disc writing drives, you may experience unexpected writing or rewriting errors due to disc quality or problems with hardware devices. Also, it is a good idea to make two or more copies of important data, in case of undesired change or loss of the recorded contents.

Before writing or rewriting

- Based on TOSHIBA's limited compatibility testing, we suggest the following manufacturers of CD-R/RW and DVD-R/+R/-RW/+RW/-RAM disc. However, in no event does TOSHIBA guarantee the operation, quality or performance of any disc. Disc quality can affect write or rewrite success rates.

CD-R:

TAIYO YUDEN CO., LTD.
MITSUBISHI CHEMICAL CORPORATION
RICOH Co., Ltd.

CD-RW: (Multi-Speed and High-Speed)

MITSUBISHI CHEMICAL CORPORATION
RICOH Co., Ltd.

CD-RW: (Ultra-Speed)

MITSUBISHI CHEMICAL CORPORATION

DVD-R:

DVD Specifications for Recordable Disc for General Version 2.0

TAIYO YUDEN CO., LTD.

Matsushita Electric Industrial Co., Ltd.

DVD-R DL:

MITSUBISHI CHEMICAL CORPORATION

DVD+R:

MITSUBISHI CHEMICAL CORPORATION

RICOH Co., Ltd.

DVD+R DL:

MITSUBISHI CHEMICAL CORPORATION

DVD-RW:

DVD Specifications for Recordable Disc for Version 1.1 or version 1.2

VICTOR COMPANY OF JAPAN.LIMITED

MITSUBISHI CHEMICAL CORPORATION

DVD+RW:

MITSUBISHI CHEMICAL CORPORATION

RICOH Co., Ltd.

DVD-RAM:

DVD Specifications for DVD-RAM Disc for Version 2.0, Version 2.1 or Version 2.2

Hitachi Maxell Ltd.

- *This drive cannot use discs that allow writing faster than 8 speed (DVD-R, DVD+R), 4 speed (DVD-RW, DVD+RW), 5 speed (DVD-RAM), 2.4 speed (DVD-R DL), 2 speed (DVD-R DL).*
- *2.6GB and 5.2GB DVD-RAM media cannot be read from or written to.*
- *DISC created in DVD-R DL format4 (Layer Jump Recording) cannot be read.*

- If the disc is poor in quality, dirty or damaged, writing or rewriting errors may occur. Be careful to check the disc for dirt or damage before you use it.
- The actual number of rewrites to CD-RW, DVD-RW, DVD+RW or DVD-RAM is affected by the quality of the disc and the way it is used.
- There are two types of DVD-R discs: authoring and general use discs. Do not use authoring discs. Only general use discs can be written to by a computer drive.

- You can use DVD-RAM discs that can be removed from a cartridge and DVD-RAM discs designed without a cartridge.
- Other DVD-ROM drives for computers or other DVD players may not be able to read DVD-R/-RW or DVD+R/+RW discs.
- Data written to a CD-R/DVD-R/DVD+R disc cannot be deleted either in whole or in part.
- Data deleted (erased) from a CD-RW, DVD-RW, DVD+RW and DVD-RAM disc cannot be recovered. Check the content of the disc carefully before you delete it. If multiple drives that can write data to discs are connected, be careful not to delete data from the wrong drive.
- In writing to a DVD-R/-RW, DVD+R/+RW or DVD-RAM disc, some disc space is required for file management, so you may not be able to write the full capacity of the disc.
- Since the disc is based on the DVD standard, it might be filled with dummy data if the written data is less than about 1 GB. Even if you write only a small amount of data, it might take time to fill in the dummy data.
- DVD-RAM formatted by FAT32 cannot be read in Windows 2000 without DVD-RAM Driver Software.
- When multiple drives that can write data to discs are connected, be careful not to write to the wrong drive.
- Be sure to connect the AC adaptor before you write or rewrite.
- Before you enter standby/Hibernation Mode, be sure to finish DVD-RAM writing. Writing is finished if you can eject DVD-RAM media.
- Be sure to close all other software programs except the writing software.
- Do not run software such as a screen saver, which can put a heavy load on the CPU.
- Operate the computer in the full-power mode. Do not use power-saving features.
- Do not write while virus check software is running. Wait for it to finish and then disable virus detection programs including any software that checks files automatically in the background.
- Do not use hard disk utilities, including those intended to enhance hard disk drive access speed. They may cause unstable operation and data damage.
- CD-RW (Ultra Speed +) media is not available. If used, data may be lost or damaged.
- Write from the computer's hard disk drive to the CD/DVD. Do not try to write from shared devices such as a LAN server or any other network device.
- Writing with software other than RecordNow! and InterVideo WinDVD Creator Platinum are not recommended.

When writing or rewriting

Please observe/consider the following when you write or rewrite to a CD-R/RW, DVD-R/-RW/-RAM or DVD+R/+RW disc.

- Do not perform any of the following actions when writing or rewriting:
  - Change users in the Windows XP operating system.
  - Operate the computer for any other function, including using a mouse or Touch Pad or closing/opening the LCD panel.
  - Start a communication application such as a modem.
  - Apply impact or vibration to the computer.
  - Install, remove or connect external devices, including the following: PC card, SD card, ExpressCard, USB devices, external monitor, i.LINK devices, optical digital devices.
  - Use the Audio/Video control button to reproduce music or voice.
  - Open the optical disc drive.
  - Remove the optical disc drive from the Ultra Slim Bay.
- Do not use shut down/log off and standby/hibernation while writing or rewriting.
- Make sure writing or rewriting is completed before going into standby/hibernation. Writing is completed if you can open the DVD-ROM / CD-R/RW or DVD Super Multi drive tray.
- Set the computer on a level surface and avoid places subject to vibration such as airplanes, trains, or cars. Do not use an unstable surface such as a stand.
- Keep mobile phones and other wireless communication devices away from the computer.
- Always copy data from the hard disk drive to the optical media. Do not use cut-and-paste. The original data will be lost if there is a write error.

RecordNow! Basic for TOSHIBA

Note the following limitations when you use RecordNow!:

- DVD-Video cannot be created using RecordNow!.
- DVD-Audio cannot be created using RecordNow!.
- You cannot use RecordNow!'s "Audio CD for Car or Home CD Player" function to record music to the DVD-R/-RW or DVD+R/+RW discs.
- Do not use the "Exact Copy" function of RecordNow! to copy DVD-Video and DVD-ROM with copyright protection.
- DVD-RAM disc cannot be backed up with the "Exact Copy" function of RecordNow!.
- You cannot back up a CD-ROM or CD-R/RW to DVD-R/-RW or DVD+R/+RW using the "Exact Copy" function of RecordNow!.
- You cannot back up DVD-ROM, DVD-Video, DVD-R/-RW or DVD+R/+RW to CD-R/RW using the "Exact Copy" function of RecordNow!.
- RecordNow! cannot record in packet format.

- You might not be able to use the “Exact Copy” function of RecordNow! to back up a DVD-R/-RW or DVD+R/+RW disc that was made with other software on a different DVD-R/-RW or DVD+R/+RW recorder.
- If you add data to a DVD-R and DVD+R disc that you have already recorded to, you might not be able to read the added data under some circumstances. It cannot be read in 16-bit operating systems, such as Windows 98SE and Windows Me. In Windows NT4, you will need Service Pack 6 or later to read added data. In Windows 2000, you will need Service Pack 2 or later to read it. Some DVD-ROM and DVD-ROM / CD-R/RW drives cannot read added data regardless of the operating system.
- RecordNow! does not support recording to DVD-RAM discs. To record to a DVD-RAM, use Explorer or another utility.
- When you back up a DVD disc, be sure the source drive supports recording to DVD-R/-RW or DVD+R/+RW discs. If the source drive does not support recording to DVD-R/-RW or DVD+R/+RW discs, it might not be backed up correctly.
- When you back up a DVD-R, DVD-RW, DVD+R or DVD+RW, be sure to use the same type of disc.
- You cannot partially delete any data written to a CD-RW, DVD-RW or DVD+RW disc.

Data Verification

To verify that data is written or rewritten correctly, follow the steps below before you write or rewrite a Data CD/DVD.

1. Click the **Options** button () on the RecordNow! Console to open the Options panels.
2. Select the Data in the left-side menu.
3. Mark the Verify data written to the disc after burning check box in the Data Options.

Click the **OK** button.

DLA for TOSHIBA

Note the following limitations when you use DLA:

- This software supports only rewritable discs (DVD+RW, DVD-RW, and CD-RW). It does not support DVD+R, DVD-R, and CD-R discs that are not rewritable.
- DLA does not support formatting and writing to a DVD-RAM disc - these functions are performed by DVD-RAM Driver Software. Even if the DLA Format menu appears when inserting a DVD-RAM disc and right-clicking the drive icon in Windows Explorer, you should use the “DVDForm” command to format this disc. You can run “DVDForm” by clicking the Start button on the taskbar to display the Start menu and then selecting “All Programs”, “DVD-RAM”, “DVD-RAM Driver” and “DVDForm” sequentially.

- Do not use any discs that have been formatted with packet writing software other than DLA. Similarly, do not use any discs that have been formatted with DLA with any packet writing software other than DLA. When using a disc you are not familiar with, format it by selecting “Full Format” before using it.
- Do not use the cut-and-paste function for files and folders. A file or folder that has been cut may be lost if writing fails due to an error on the disc.
- When writing any setup files for an application to a disc formatted by DLA, and attempting to start Setup from this disc, an error may occur. In this case, please copy the files to your hard disk and then run Setup from there.

When using WinDVD Creator Platinum

You can record video back to your digital camcorder via i.LINK (IEEE1394) using WinDVD Creator Platinum. However, there is a case where its playback sound appears choppy - in this instance please follow the instructions below:

1. Click **start** and select the **Control Panel**.
2. Click the **Performance and Maintenance** icon in the Control Panel.
3. Click the **System** icon in the Performance and Maintenance window.
4. Click the **Advanced** tab in the System Properties window.
5. Click the **Settings** icon in the “Performance” section.
6. Click the **Advanced** tab in the Performance Options window.
7. Click the **Change** icon in the “virtual memory” section.
8. Select the **Custom size** button in the Virtual Memory window.
9. Specify much higher values for “Initial size” and “Maximum size.”
10. Click the **Set** button in the Virtual Memory window.
11. Click the **OK** button in the Virtual Memory window.

How to make a DVD-Video

Simplified steps for making a DVD-Video from video data captured from a DV-Camcorder:

1. Click **Start**] - **All Programs** - **InterVideo WinDVD Creator2** - **InterVideo WinDVD Creator** to launch WinDVD Creator.
2. Click **Capture** button then capture the video data from the DV-Camcorder via IEEE1394.
3. Click **Edit** button then drag the video clips from [Video Library] tab to the edit track.
4. Click **Make Movie** button in the top bar.
5. Double Click the Right arrow button icon in the center of right side.
6. Put a blank DVD-R/+R disc or an erased DVD-RW/+RW disc in the drive.
7. Click **Start** to record to the disc.

8. When recording is finished, the tray opens.

How to learn more about InterVideo WinDVD Creator

Please refer to the on-line Help for additional InterVideo WinDVD Creator information.

Important information for use

Note the following limitations when you write to a video DVD:

1. Editing digital video
   - Log in with Administrator rights to use WinDVD Creator.
   - Make sure that your computer is running on AC power when using WinDVD Creator.
   - Operate the computer at Full Power. Do not use power-saving features.
   - While you are editing a DVD-Video, you can display previews. However, if another application is running, the preview might not display properly.
   - WinDVD Creator cannot show video on the external monitor when in simultaneous mode.
   - WinDVD Creator cannot edit or play copy protected content.
   - Do not change display settings while using WinDVD Creator.
   - Do not enter standby/Hibernation Mode while using WinDVD Creator.
   - Do not operate WinDVD Creator immediately after turning on the computer. Please wait until all disk/disc drive activity has stopped.
   - When recording to a DV-Camcorder, to ensure you capture all of your data, let the camcorder record for a few seconds before you begin recording your actual data.
   - CD recorder, JPEG functions, DVD-Audio, mini DVD and Video CD functions are not supported in this version.
   - While recording video to DVD or tape, please close all other programs.
   - Do not run software like a screen saver because it can put a heavy load on the CPU.
   - Do not run communication applications like a modem or a LAN.
2. Before recording the video to DVD
   - When you record to DVD discs, please use only media recommended by TOSHIBA.
   - Do not set the working drive to a slow device like a USB 1.1 hard disk drive or it will fail to write the DVD.

- Do not perform any of the following actions:
  - Operate the computer for any other function, including using a mouse or Touch Pad or closing/opening the LCD panel.
  - Bump or cause vibration to the computer.
  - Use the Mode control button and Audio/Video control button to reproduce music or voice.
  - Open the optical disc drive.
  - Install, remove or connect external devices, including the following:
    PC card, SD card, ExpressCard, USB devices, external monitor, i.LINK devices, optical digital devices.
- Please verify your disc after recording important data.
- DVD-R/+R/-RW discs cannot be written in VR format.
- WinDVD Creator cannot export to DVD-Audio, VideoCD or miniDVD format.
- WinDVD Creator can write DVD-RAM/+RW in VR format, but the disc may only play on your computer.
- When writing to a DVD disc, WinDVD Creator requires 2GB or more of disk space for every one hour of video.
- When you make a fully recorded DVD, the chapter sequence may not play correctly.

3. About Disc Manager
   - WinDVD Creator can edit one play list on a disc.
   - WinDVD Creator might show a different thumbnail than you previously set in CE (Consumer Electronics) DVD-RAM recorder.
   - Using the Disc Manager, you can edit DVD-VR format on DVD-RAM, DVD+VR format on DVD+RW, and DVD-Video format on DVD-RW.
4. About recorded DVDs
   - Some DVD-ROM drives for personal computers or other DVD players may not be able to read DVD-R/+R/-RW/+RW/-RAM discs.
   - When playing your recorded disc on your computer, please use the WinDVD software application.
   - If you use an over-used rewritable disc, the full formatting might be locked. Please use a brand new disc.

Media care

This section provides tips on protecting data stored on your CD/DVDs and floppy disks.

Handle your media with care. The following simple precautions will increase the lifetime of your media and protect the data stored on them:

CD/DVDs

1. Store your CD/DVDs in the container they came in to protect them and keep them clean.
2. Do not bend the CD/DVD.
3. Do not write on, apply a sticker to, or otherwise mar the surface of the CD/DVD that contains data.
4. Hold the CD/DVD by its outside edge or the edge on the center hole. Fingerprints on the surface can prevent the drive from properly reading data.
5. Do not expose to direct sunlight, extreme heat or cold. Do not place heavy objects on your CD/DVDs.
6. If your CD/DVDs become dusty or dirty, wipe them with a clean dry cloth. Wipe from the center out, do not wipe in a circular direction around the CD/DVD. If necessary, use a cloth dampened in water or a neutral cleaner. Do not use benzine, thinner or similar cleaner.

Floppy disks

1. Store your floppy disks in the container they came in to protect them and keep them clean. If a floppy disk is dirty, do not use cleaning fluid. Clean it with a soft damp cloth.
2. Never open the shutter or touch the magnetic surface of your floppy disk. You could permanently damage it and lose data.
3. Always handle floppy disks with care, to prevent the loss of stored data. Always apply the floppy disk label in the correct location. Never apply a new label on top of an existing one. The label could come loose and damage the floppy drive.
4. Never use a pencil for writing on a floppy disk label. Pencil lead dust could cause a system malfunction. Always use a felt-tipped pen. When writing a title on a label, first write on the label, then apply the label to the floppy disk.
5. Never put a floppy disk in a location where water or other liquid may contact it or where it is excessively damp. It could cause data loss. Never use a wet or damp floppy disk. It could damage the floppy disk drive or other devices.
6. Data may be lost if the floppy disk is twisted; bent; or exposed to direct sunlight, extreme heat or cold.
7. Do not place heavy objects on your floppy disks.

8. Do not eat, smoke, or use erasers near your floppy disks. Foreign particles inside the floppy disk's jacket can damage the magnetic surface.
9. Magnetic energy can destroy the data on your floppy disks. Keep your floppy disks away from speakers, radios, television sets and other sources of magnetic fields.

Sound system

This section describes audio controls including sound levels and power management.

Volume Control

The Volume Control utility lets you control the audio volume in Windows for both playback and recording.

- To launch Volume Control for playback, click **start** followed by **All Programs** followed by **Accessories** followed by **Entertainment** and then click **Volume Control**.
- To launch Recording Control, click **Options** followed by **Properties** followed by **Realtek HD Audio input** and then click **OK**.
- To view details of the Volume Control, click **Help** on the Volume Control.

Microphone level

The change the microphone gain, follow the steps below.

1. Click **start** followed by **All Programs** followed by **Accessories** followed by **Entertainment** and then click **Volume Control**.
2. Click **Options** and then point to **Properties**.
3. Select **Recording** and then click **OK**.
4. Click **Options** and then select **Advanced Controls**.
5. Click **Advanced**.
6. Check the **Microphone Boost** checkbox.

TOSHIBA Mic Effect

TOSHIBA Mic Effect is a utility used to enable comfortable calls with echo cancellation function. The echo cancellation function removes or reduces any harsh echoes or howling sounds that occur when playing audio sounds recorded with a microphone through the speakers. The echo cancellation function is available only when you use telephony software such as Windows Messenger with a voice conversation function.

For more instructions for this software, click **start** followed by **All Programs** followed by **TOSHIBA** followed by **Utilities** and then click **Mic Effect Help.**

Modem

This section describes how to connect and disconnect the internal modem to and from a telephone jack.

- *Connection to any communication line other than an analog phone line could cause a PC system failure.*
  - *Connect the built-in modem only to ordinary analog phone lines.*
  - *Never connect the built-in modem to a digital line (ISDN).*
  - *Never connect the built-in modem to the digital connector on a public telephone or to a digital private branch exchange (PBX).*
  - *Never connect the built-in modem to a key telephone system for residences or offices.*
- *Never operate your PC on AC power during a thunderstorm. If you see lightning or hear thunder, immediately turn off the PC. An electric surge caused by the storm, may result in a system failure, loss of data or hardware damage.*

Region selection

Telecommunication regulations vary from one region to another, so you will need to make sure the internal modem's settings are correct for the region in which it will be used.

The built-in modem can be used only in specified countries and regions. Using the modem in an area not specified for use may cause a system failure. Check the specified areas carefully before using it.

To select a region, follow the steps below.

1. Click **start** followed by **All Programs** followed by **TOSHIBA** followed by **Networking** and then click **Modem Region Select**.

Do not use the Country/Region Select function in the Modem setup utility in the Control Panel if the function is available. If you change the Country/Region in the Control Panel, the change may not take effect.

2. The Region Selection icon will appear in the Windows Task Bar.
3. Click the icon with the primary mouse button to display a list of regions that the modem supports. A sub menu for telephony location information will also be displayed. A check will appear next to the currently selected region and telephony location.
4. Select a region from the region menu or a telephony location from the sub-menu.
   - When you click a region it becomes the modem's region selection, and the New Location for telephony will be set automatically.
   - When you select a telephony location, the corresponding region is automatically selected and it becomes the modem's current region setting.

Properties menu

Click the icon with the secondary mouse button to display properties menu on the screen.

Setting

You can enable or disable the following settings:

AutoRun Mode

The Region Select utility starts automatically when you start up the operating system.

Open the Dialing Properties dialog box after selecting region.

The dialing properties dialog box will be displayed automatically after you select the region.

Location list for region selection.

A submenu appears displaying location information for telephony.

Open dialog box, if the modem and Telephony Current Location region code do not match.

A warning dialog box is displayed if current settings for region code and telephony location are incorrect.

Modem Selection

If the computer cannot recognize the internal modem, a dialog box is displayed. Select the COM port for your modem to use.

Dialing Properties

Select this item to display the dialing properties.

If you are using the computer in Japan, the Telecommunications Business Law requires that you select Japan region mode. It is illegal to use the modem in Japan with any other selection.

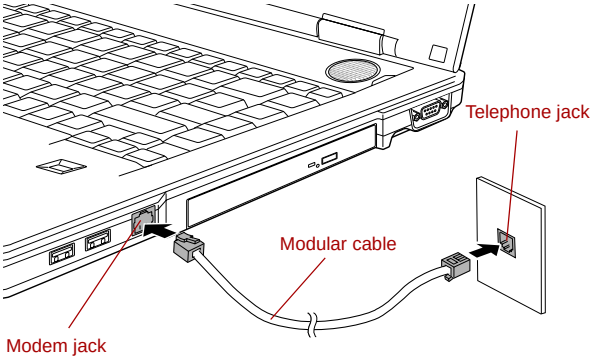
Connecting

To connect the modular cable, follow the steps below.

The modular cable that comes with the computer must be used to connect the modem. Connect the end of the modular cable with the core to the computer.

- *Connection to any communication line other than an analog phone line could cause a PC system failure.*
  - *Connect the built-in modem only to ordinary analog phone lines.*
  - *Never connect the built-in modem to a digital line (ISDN).*
  - *Never connect the built-in modem to the digital connector on a public telephone or to a digital private branch exchange (PBX).*
  - *Never connect the built-in modem to a key telephone system for residences or offices.*
- *Never operate your PC on AC power during a thunderstorm. If you see lightning or hear thunder, immediately turn off the PC. An electric surge caused by the storm, may result in a system failure, loss of data or hardware damage.*

1. Plug one end of the modular cable into the computer's modem jack.
2. Plug the other end of the modular cable into a telephone jack.



Connecting the internal modem

Do not pull on the cable or move the computer while the cable is connected.

If you use a storage device such as an optical drive or hard disk drive connected to a 16-bit PC card, you might experience the following modem problems:

- *Modem speed is slow or communication is interrupted.*
- *Skips may occur in sound.*

Disconnecting

To disconnect the internal modular cable, follow the steps below.

1. Pinch the lever on the connector in the telephone jack and pull out the connector.
2. Disconnect the cable from the computer's modem jack in the same manner.

Wireless communications

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

All models are provided with a Wireless Communication switch. Some models are equipped with both Wireless LAN and Bluetooth functions.

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 IEEE802.11 Wireless LAN standard (Revision A, B or G).

- Theoretical maximum speed: 54Mbps (IEEE802.11a, 802.11g)
- Theoretical maximum speed: 11Mbps (IEEE802.11b)
- Frequency Channel Selection
  (Revision A: 5 GHz, Revision B/G: 2.4 GHz)
- Roaming over multiple channels
- Card Power Management
- Wired Equivalent Privacy (WEP) data encryption, based on the 128 bit encryption algorithm.
- Wi-Fi Protected Access (WPA).
- Advanced Encryption Standard (AES) data encryption.

- *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.*

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 built-in Bluetooth functions and an optional Bluetooth SD card 3 simultaneously.

Bluetooth wireless technology has the following features:

Worldwide operation

The Bluetooth radio transmitter and receiver operate in the 2.4 GHz 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. The link is maintained even if the devices are not within line of sight.

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® 2000 Professional
- Microsoft® Windows® XP

Detailed information regarding the use with these operating systems is listed below. Please refer also to the electronic information which is included with each software.

This Bluetooth™ Stack is based on Bluetooth™ Version 1.1/1.2/2.0+EDR specification. TOSHIBA cannot confirm compatibility between any PC products and/or other electronic devices that use Bluetooth™ other than TOSHIBA mobile PCs.

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

1. Install:
   On Windows2000 or Windows XP, Bluetooth™ Stack for Windows® by TOSHIBA does not have a digital signature.
2. Fax application software:
   Regarding FAX application software, there are some software that you cannot use on this Bluetooth™ Stack.
3. Multi User:
   On Windows XP, the use of Bluetooth is not supported in a multi-user environment. This means that, when you use Bluetooth, other users logged onto the same computer will not be able to use its Bluetooth 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 LAN and Bluetooth 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.

- *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.*
- *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 functionality.*
- *Always turn off Wi-Fi or Bluetooth functionality if the PC 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.*

Wireless communication Indicator

The wireless communication indicator indicates the status of the wireless communication functions.

Indicator status	Indication
Indicator off	Wireless communication switch is set to off. Automatic power down because of overheating. Power malfunction.
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**, **Hardware Device Manager**, **Network adapters**, **Intel® PRO/ Wireless 3945BG/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.

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.

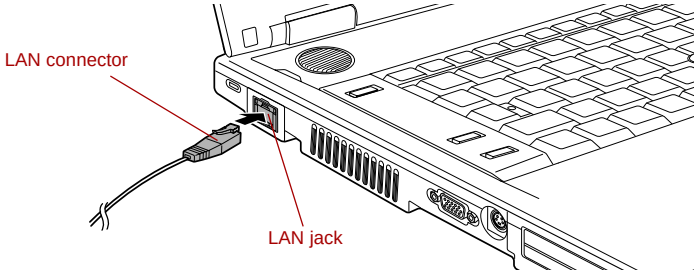
If you are using Ethernet LAN (10 megabits per second, 10BASE-T), you can connect with a CAT3 or higher.

Connecting LAN cable

To connect the LAN cable, follow the steps 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.



Connecting the LAN cable

3. Plug the other end of the cable into a LAN hub connector. Check with your LAN administrator before connecting to a hub.

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 LAN cable

To disconnect the LAN cable, follow the steps 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 in the same manner. Check with your LAN administrator before disconnecting from the hub.

Cleaning the computer

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

- 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 before you turn it on again.
- Clean the computer using a slightly damp (with water) cloth. You can use glass cleaner on the LCD display screen. Spray a small amount of cleaner on a soft, clean cloth and wipe 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

The computer is designed for rugged durability. However, a few simple precautions taken when moving the computer will help ensure trouble-free operation.

- Before moving the computer, it recommends changing the function of HDD Protection. Refer to the section, *Using Hard Disk Drive (HDD) Protection*, in this chapter.
- Make sure all disk activity has ended before moving the computer. Check the **HDD** indicator on the computer.
- If a CD/DVD is in the drives, remove it. Also make sure the disc tray is securely closed.
- Turn off the power to the computer.
- Disconnect the AC adaptor and all peripherals before moving the computer.
- Close the LCD display panel. Do not pick up the computer by its display panel.
- Before carrying your computer, shut down the computer, disconnect the power cable and wait until the PC cools down. Failure to follow this instruction could result in minor injury.
- Always turn off the power when you move the computer. If the power button has a lock, set it to the lock position. Also be careful not to subject the computer to impact. Failure to follow this instruction could result in damage to computer, computer failure or loss of data.
- Never transport your computer with PC cards installed. This could cause damage to your computer and/or PC card, resulting in product failure.
- Use the carrying 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 protruded portions.

Using Hard Disk Drive (HDD) Protection

This computer has an acceleration sensor function which is designed to reduce the risk of damage on the hard disk drive. By using the Hard Disk Drive Protection feature, the system will detect vibration, shocks, and similar events and automatically move the hard disk drive read/write heads to a safe position in order to reduce the risk of damage that could be caused to the drive by head-to-disk contact.

- *Please be aware that this function does not guarantee that the hard disk drive will not be damaged.*
- *The secondary hard disk drive is not supported by the TOSHIBA HDD protection function.*

When vibration or shock is detected, the following message will be displayed and the icon in the notification area of the Windows Task Bar changed to its “protection” state - this message will be displayed for thirty seconds or until the **OK** button is pressed. When the cause of the vibration or shock has subsided or been removed, the Task Bar icon returns to its normal state.

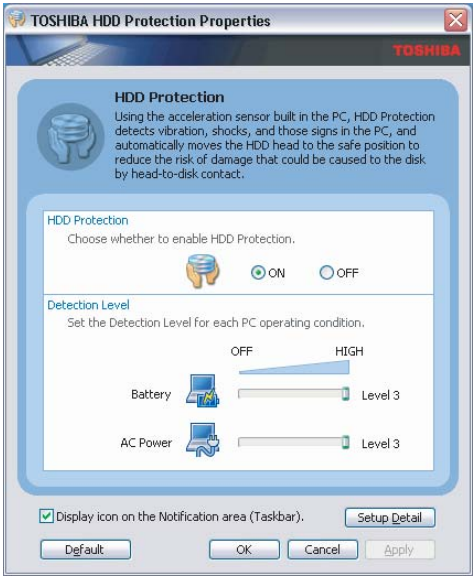
HDD Protection Message

Taskbar Icon

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

TOSHIBA HDD Protection Properties

You can change the settings associated with this feature by using the TOSHIBA HDD Protection Properties window, this can be opened by clicking **start** followed by **All Programs** followed by **TOSHIBA** followed by **Utilities** and then clicking **HDD Protection setting**. In addition, this window can also be started from the icon on the Windows Task Bar or from within the Control Panel.



TOSHIBA HDD Protection Properties

HDD Protection

This section allows you to configure whether the TOSHIBA Hard Disk Drive Protection function is enabled or disabled.

Detection Level

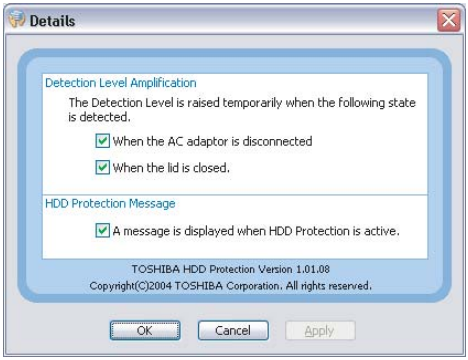
This function can be set to one of four levels (OFF, 1, 2 and 3) depending on the environment in which the computer is being used.

The Level 3 setting is recommended to provide a higher level of protection but, if the computer is used in a mobile or other unstable environment, this may result in frequent execution of the TOSHIBA Hard Disk Drive Protection feature which will slow down the drive in terms of reading and writing. In view of this you should configure a lower detection level when the speed of the hard disk drive's reading/writing is a priority.

In addition, this utility allows for different detection levels to be set depending on whether the computer is used as a mobile device, or whether it is used in a stable environment such as on a desk in the workplace or at home. This is achieved by allowing different detection levels to be set depending on whether the computer is running on battery power (mobile) or AC power (desktop) - with these settings configured, the detection level will automatically switch according to the power connection mode in use.

Details

To open the Details window, click the Setup Detail button in the TOSHIBA Hard Disk Drive Protection Properties window.



Details

Detection Level Amplification

These settings allow the hard disk drive protection feature to be configured such that when the AC adaptor is disconnected or the LCD display panel is closed, its assumes that the computer is about to be moved and sets the detection level to its maximum level for a period of ten seconds.

HDD Protection Message

This option specify whether a message will be displayed when the Hard Disk Drive Protection function is active.

- *Please note that this function does not work when the computer is starting, is in Standby Mode or Hibernation Mode, is transitioning into Hibernation Mode, is returning from Hibernation Mode or is powered off. In all of these scenarios take care to ensure that you do not subject the computer to any form of vibration, shock or impact.*
- *This function is only supported within Windows® XP.*

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 Cooling Method item of the Basic Setup tab in TOSHIBA Power Saver.

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 the 101/102-key keyboard functions can be executed on the computer.

The number of keys on your keyboard depends on which country/region's keyboard layout your computer is configured with. Keyboards for numerous languages are available.

There are six types of keys: typewriter keys, function keys, soft keys, Hot keys, Windows special keys and keypad overlay.

Typewriter keys

The typewriter keys produce the upper- and lower-case letters, numbers, punctuation marks, and special symbols that appear on the screen.

There are some differences, however, 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) are not interchangeable on computers as they are on a typewriter.
- The uppercase O (oh) and the 0 (zero) are not interchangeable.
- The **Caps Lock** function key locks only the alphabetic characters in uppercase while the shift lock 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 **Fn**) are the 12 keys at the top of your keyboard. These keys function differently from other keys.

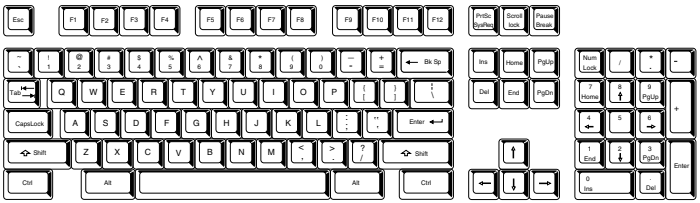
F1 through **F12** are called function keys because they execute programmed functions when pressed. Used in combination with the **Fn** key, keys marked with icons execute specific functions on the computer. Refer to the section, *Soft keys: Fn key combinations*, in this chapter. The function executed by individual keys depends 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.

Some software may disable or interfere with soft-key operations. Soft-key settings are not restored by the Standby feature.

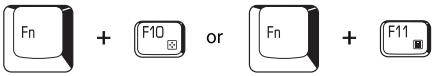
Emulating keys on enhanced keyboard



A 101-key enhanced keyboard layout

The 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. It also has additional **Enter** and **Ctrl** keys to the right of the main keyboard. Since the 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.

Your software may require you to use keys that the keyboard does not have. Pressing the **Fn** key and one of the following keys simulates the enhanced keyboard's functions.



Press **Fn** + **F10** or **Fn** + **F11** to access the integrated keypad. When activated, the keys with gray markings on the bottom edge become numeric keypad keys (**Fn** + **F11**) or cursor control keys (**Fn** + **F10**). Refer to the *Keypad overlay* section in this chapter for more information on how to operate these keys. 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 (**Fn** + a function or **Esc** key) let you enable or disable certain features of the computer.

Sound mute: Pressing **Fn** + **Esc** in a Windows environment turns sound on or off. When you press these hot keys, the current setting will change and be displayed as an icon. Pressing the Volume control dial turns Mute off. Refer to the *Front with the display closed* section in Chapter 2, *The Grand Tour*, for details.

Instant security: Press **Fn** + **F1** to blank the screen to prevent others from accessing your data. To restore the screen and original settings, press any key or press the Dual Pointing Device. If a Windows Logon Password is registered, a dialog box will appear. Enter the Windows Logon Password and click **OK**. If no password is set, the screen will be restored when you press any key or press the Dual Pointing Device.

Power save mode: Pressing **Fn** + **F2** changes the power save mode.

If you press **Fn** + **F2** in a Windows environment, the settings dialog box for the Power Save Mode will be displayed. Continue holding down **Fn**, and release and press **F2** again to toggle between the settings. Release both **Fn** and **F2** to put the new setting into effect. You can also change this setting through the *Profile* options in TOSHIBA Power Saver.

Standby: When you press **Fn** + **F3**, the computer enters the Standby Mode. Before entering Standby, a dialog box appears asking for your confirmation. This dialog box will not be displayed in the future when you click the check box.

Hibernation: When you press **Fn** + **F4**, the computer enters the Hibernation Mode. Before entering Hibernation, a dialog box appears asking for your confirmation. This dialog box will not be displayed in the future when you click the check box.

Display selection: Press **Fn** + **F5** to change the active display device. When you press these hot keys, a dialog box appears. Only selectable devices will be displayed. Hold down **Fn** and press **F5** again to change the device. When you release **Fn** and **F5**, the selected device will change. If you hold down these hot keys for five seconds the selection will return to the internal **LCD**.

Internal LCD screen Brightness: Pressing **Fn** + **F6** decreases the LCD screen brightness in decrements. When you press these hot keys, the current setting will be displayed for two seconds by an icon. You can also change this setting through the *Screen brightness* item of the *Basic Setup* tab in TOSHIBA Power Saver.

Internal LCD screen Brightness: Pressing **Fn** + **F7** increases the LCD screen brightness in increments. When you press these hot keys, the current setting will be displayed for two seconds by a pop-up icon. You can also change this setting through the *Screen brightness* item of the *Basic Setup* tab in TOSHIBA Power Saver.

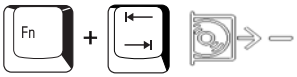
- *The brightness level is always set at the maximum value for about 18 seconds, when the internal LCD screen turns on.*
- *LCD screen clarity increases with the brightness level.*

Wireless setting: If your computer has both Bluetooth and Wireless LAN functions, you can press **Fn** + **F8** to select which type of wireless communication you want to use. When you press these hot keys, a dialog box will appear. Continue holding down **Fn** and press **F8** to change the setting. If wireless communication is turned off, **`Disabled Wireless Communication Switch`** will be displayed.

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

Dual Pointing Device: Pressing **Fn** + **F9** in a Windows environment enables or disables the Dual Pointing Device function. When you press these hot keys, the current setting will change and be displayed as an icon.

LCD screen resolution selection: Press **Fn** + **Space** keys to change the display resolution. Each time when you press these hot keys, the LCD screen resolution changes as follows: The available resolution depends on the model. With XGA, you can change the resolution between 800 × 600 and 1024 × 768 pixels. With SXGA+, between 800 × 600 and 1400 × 1050 pixels.



Optical disc drive power icon: Press the **Fn** + **Tab** keys to turn the power of the optical disc drive on or eject the disc tray. A dialog box is displayed when this hotkey is pressed. To choose between the functions, press the **Tab** key while holding down the **Fn** key. The chosen function is executed when the **Fn** + **Tab** keys are released.

TOSHIBA Zooming Utility (reduce): To reduce the icon size on the desktop or the application window, press the **1** key while holding down the **Fn** key.

TOSHIBA Zooming Utility (enlarge): To enlarge the icon size on the desktop or the application window, press the **2** key while holding down the **Fn** key.

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**, point to **All Programs**, point to **TOSHIBA,** point to **Utilities** and click **Accessibility**.

Windows special keys

The keyboard provides two keys that have special functions in Windows: Windows logo key activates the **start** menu and the other, the application key, has the same function as the secondary mouse button.

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

This key has the same function as the secondary mouse button.

Keypad overlay

Your computer's keyboard does not have an independent numeric keypad, but its numeric keypad overlay functions like one.

The keys in the center of the keyboard with gray letters make up the numeric keypad overlay. The overlay provides the same functions as the numeric keypad on the 101/102-key enhanced keyboard.

Turning on the overlays

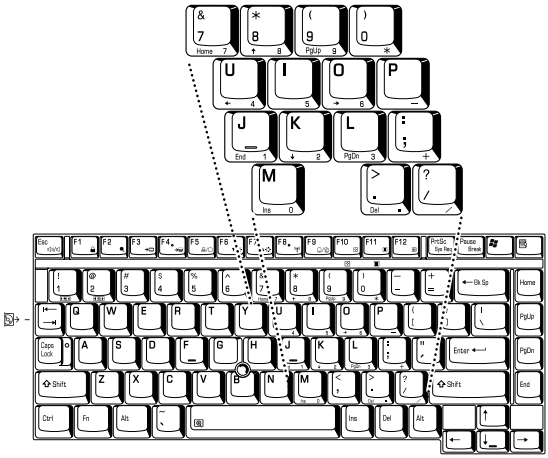
The numeric keypad overlay can be used for numeric data input or cursor and page control.

Arrow mode

To turn on the Arrow mode, press **Fn** + **F10**. The Arrow mode indicator lights. Now try cursor and page control. Press **Fn** + **F10** again to turn off the overlay.

Numeric mode

To turn on the Numeric mode, press **Fn** + **F11**. The Numeric mode indicator lights. Now try numeric data entry. Press **Fn** + **F11** again to turn off the overlay.



The numeric keypad overlay

Temporarily using normal keyboard (overlay on)

While using the overlay, you can temporarily access the normal keyboard without turning off the overlay:

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

Temporarily using overlay (overlay off)

While using the normal keyboard, you can temporarily use the keypad overlay without turning it on:

1. Press and hold down **Fn**.
2. Check the keyboard indicators. Pressing **Fn** turns on the most recently used overlay. If the Numeric mode indicator lights, you can use the overlay for numeric entry. If the Arrow mode indicator lights, you can use the overlay for cursor and page control.
3. Release **Fn** 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.

If the computer is in **Arrow mode**, you can switch temporarily to **Numeric mode** by pressing a shift key.

Generating ASCII characters

Not all ASCII characters can be generated using normal keyboard operation. But, you can generate these characters using their ASCII codes.

With the overlay on:

1. Hold down **Alt**.
2. Using the overlay keys, type the ASCII code.
3. Release **Alt**, and the ASCII character appears on the display screen.

With the overlay off:

1. Hold down **Alt** + **Fn**.
2. Using the overlay keys, type the ASCII code.
3. Release **Alt** + **Fn**, and the ASCII character appears on the display screen.

Chapter 6

Power and Power-Up Modes

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

Power conditions

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

Power conditions

		Power on	**Power off (no operation)**
AC adaptor connected	Battery fully charged	• Operates • No charge • LED: **Battery** green **DC IN** green	• LED: **Battery** green **DC IN** green
	Battery partially charged or no charge	• Operates • Quick Charge • LED: **Battery** orange **DC IN** green	• Quick charge • LED: **Battery** orange **DC IN** green
	No battery installed	• Operates • No charge • LED: **Battery** off **DC IN** green	• No charge • LED: **Battery** off **DC IN** green

Power conditions (continued)

		Power on	Power off (no operation)
AC adaptor not connected	Battery charge is above low battery trigger point	• Operates • LED: **Battery** off **DC IN** off	
	Battery charge is below low battery trigger point	• Operates • LED: **Battery** flashes orange **DC IN** off	
	Battery charge is exhausted	Computer goes into Hibernation Mode and shuts down	
	No battery installed	• No operation • LED: **Battery** off **DC IN** off	

Power indicators

As shown in the above table, the **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 battery pack. The following indicator lights indicate the battery status:

Flashing orange	The battery charge is low. The AC adaptor must be connected to recharge the battery.
Orange	Indicates the AC adaptor is connected and charging the battery.
Green	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, charge will resume. This occurs 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:

Green	Indicates the AC adaptor is connected and supplying proper power to the computer.
Flashing orange	Indicates a problem with the power supply. Plug the AC adaptor into another power outlet. If it still does not operate properly, contact your dealer.
No light	Under any other conditions, the indicator does not light.

Power indicator

Check the **Power** indicator to determine the power status:

Green	Indicates power is being supplied to the computer and the computer is turned on.
Blinking orange	Indicates power is being supplied to the computer while the computer is in Standby Mode. The indicator turns on for one second and off for two seconds.
No light	Under any other conditions, the indicator does not light.

Battery types

The computer has four types of batteries:

- Battery pack
- Extended capacity battery pack (option)
- High capacity battery pack (option)
- Real Time Clock (RTC) battery

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.

Do 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 set the computer to Hibernation Mode. 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.

- *The battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*
- *Always use the battery pack supplied as an accessory or an equivalent battery pack specified in the User's Manual. Other battery packs have different voltage and terminal polarities. Use of non-conforming battery packs could generate smoke or cause fire or rupture, possibly resulting in serious injury.*
- *Always dispose of used battery packs in compliance with all applicable laws and regulations. Put insulating tape, such as cellophane tape, on the electrode during transportation to avoid a possible short circuit, fire or electric shock. Failure to do so could possibly result in serious injury.*
- *Do not remove the battery pack while the computer is in Standby Mode. Data is stored in RAM, so if the computer loses power it will be lost. When the computer is powered off in Standby Mode, and the AC adaptor is not connected, the battery pack supplies power to maintain data and programs in memory. If the battery pack is completely discharged, Standby Mode will not function and the computer loses all data in memory.*

To ensure that the battery pack maintains its maximum capacity, operate the computer on battery power at least once a month until the battery pack is fully discharged. Refer to *Extending battery life* in this chapter for procedures. If the computer is continuously operated on AC power through an AC adaptor for an extended period, more than a month, the battery may fail to retain a charge. It may not function efficiently over the expected life of the battery and the **Battery** indicator may not indicate a low-battery condition.

Extended capacity battery pack (option)

An optional Extended capacity battery pack is installable instead of a main battery pack. The connection method of Extended capacity battery pack is the same as that of main battery pack.

- *The battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*
- *Do not remove the battery pack while the computer is in Standby Mode. Data is stored in RAM, so if the computer loses power it will be lost. When the computer is powered off in Standby Mode, and the AC adaptor is not connected, the main battery pack supply power to maintain data and program in memory. If the battery pack is completely discharged, Standby Mode does not function and the computer loses all data in memory.*
- *When the Extended capacity battery pack is connected to the computer, do not hold on only to the Extended capacity battery pack when lifting the computer up.*
  *The Extended capacity battery pack **may** separate from the computer, causing it to fall and cause injuries.*

High capacity battery pack (option)

An optional High capacity battery pack is installable instead of a main battery pack. The connection method of High capacity battery pack is the same as that of main battery pack.

- *The battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*
- *Do not remove the battery pack while the computer is in Standby Mode. Data is stored in RAM, so if the computer loses power it will be lost. When the computer is powered off in Standby Mode, and the AC adaptor is not connected, the main battery pack supply power to maintain data and program in memory. If the battery pack is completely discharged, Standby Mode does not function and the computer loses all data in memory.*
- *When the High capacity battery pack is connected to the computer, do not hold on only to the High capacity battery pack when lifting the computer up.*
  The High capacity battery pack may separate from the computer, causing it to fall and cause injuries.

Real Time Clock (RTC) battery

The Real Time Clock (RTC) battery provides power for the internal real time clock and calendar. It also maintains the system configuration.

If the RTC battery becomes completely discharged, the system loses this data and the real time clock and calendar stop working. The following message appears 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 pressing the **F1** key. Refer to Chapter 9, *Troubleshooting*, for the detail.

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 of. Dispose of the battery as required by local ordinances or regulations.

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

The battery pack is a vital component of portable computing. Taking proper care of it will help ensure longer operating time on battery power as well as a longer life for your battery pack. Follow the instructions in this section carefully to ensure safe operation and maximum performance.

Refer to the enclosed *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.*

- *Use only battery packs recommended by TOSHIBA as replacements.*
- *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 Standby Mode. Data will 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.*
- *To ensure the battery pack maintains maximum capacity, operate the computer on battery power once a week until the battery pack is fully discharged. Refer to the section Extending battery life in this chapter for procedures. If the computer is continuously operated on AC power for an extended period, more than a week, the battery might fail to retain a charge. It might not function efficiently over the expected life of the battery pack and the* **Battery** *indicator might not indicate a low-battery condition.*
- *After the battery pack is charged, avoid leaving the AC adaptor connected and the computer turned off for more than a few hours at a time. Continuing to charge a fully-charged battery pack can damage the battery.*

Charging the batteries

When the power in the battery pack becomes low, the **Battery** indicator flashes orange indicating that only a few minutes of battery power remain. If you continue to use the computer while the **Battery** indicator flashes, the computer enables Hibernation Mode (so you don't lose data) and automatically turns off.

For the computer to shut down in Hibernation Mode, this feature must be enabled in two places: (a) the Hibernate tab in Power Options, (b) and the Setup Actions tab in TOSHIBA Power Saver.

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 glows orange when the battery is being charged.

Use only the computer connected to an AC power source or the optional TOSHIBA Battery charger to charge the battery pack. Never attempt to charge the battery pack with any other charger.

Time

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

Charging time (hours)

Battery type	Power on	Power off
High capacity battery pack (8800mAh)	about 5.0 to 19.0	about 4.0
Extended capacity battery pack (7050mAh)	about 4.0 to 15.0	about 3.0
Battery pack (4700mAh)	about 3.0 to 10.0	about 3.0
RTC battery	14	Doesn't charge

The charging time when the computer is on is affected by ambient temperature, the temperature of the computer and how you use the computer. If you make heavy use of external devices, for example, the battery might scarcely charge at all during operation. Refer also to the section Maximizing battery operating time*.*

Battery charging notice

The battery may not charge right away 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, charge the battery at room temperature of 10° to 30°C (50° to 88°F).
- The battery is nearly completely discharged. 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 case, follow the steps below.

1. Fully discharge the battery by leaving it in the computer with the power on until the power automatically shuts off.
2. Connect the AC adaptor to the DC IN 15V jack of the computer, and the AC adaptor into power outlet.
3. Charge the battery until the **Battery** indicator glows green.

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

Leaving the AC adaptor connected will shorten battery life. At least once a month, run the computer on battery power until the battery is fully discharged, then recharge the battery.

Monitoring battery capacity

Remaining battery power can be monitored in TOSHIBA Power Saver.

- *You should wait for approximately fifteen 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. In this instance, the TOSHIBA Power Saver will indicate a 100% charge for both the old and new battery, but the displayed estimated time remaining will be shorter for the older battery.*

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:

- How you configure the computer in relation to its available power saving options. The computer provides the ability to configure various power saving settings through the TOSHIBA Power Saver, in order to conserve battery power. As an overview these settings cover:
  - Processor speed
  - Screen brightness
  - System cooling method
  - System Standby 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(c) 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 Standby 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 LCD 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.

Battery operating time can be extended by lowering the screen refresh rate from 60Hz to 40Hz. However, if the screen refresh rate is set to 40Hz, the screen may flicker which could cause physical discomfort such as eye strain. If you experience any of these problems, reset the screen refresh rate to 60Hz.

Take short, strategically spaced rest breaks to avoid eye strain and body fatigue. For example, stand up and walk around or stretch for a few minutes every hour.

To change the screen refresh rate, follow the steps as detailed below:

1. *Click* **start** *and click* **Control Panel***.*
2. *Click* **Appearance and Themes** *and click* **Display** *to open the* **Display Properties** *window.*
3. *Select the* **Settings** *window and click the* **Advanced** *button to open the* **Default Monitor and Mobile Intel® 945GM Express C...** *window.*
4. *Select the* **Intel® Graphics Media Accelerator Drive for Mobile** *window and click the* **Graphics Properties** *button.*

Select the **Settings** *window, then select* **40Hertz** *from the* **Refresh Rate** *pull down menu and click the* **Apply** *button.*

Retaining data with power off

When you turn off your computer with fully charged batteries, the batteries retain data for the following approximate time periods:

Retention time

Battery type	State and Retention Time
High capacity battery pack (8800mAh)	about 10 days (Standby Mode) about 140 days (Boot mode)
Extended capacity battery pack (7050mAh)	about 8 days (Standby Mode) about 110 days (Boot mode)
Battery pack (4700mAh)	about 5 days (Standby Mode) about 75 days (Boot mode)
RTC battery	60 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 switch 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 green, 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 green.

- 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.
- Disconnect the AC adaptor when the battery is fully charged - overcharging will make the battery hot and can shorten its operating life.
- If you are not going to use the computer for more than eight hours, disconnect the AC adaptor.
- 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.

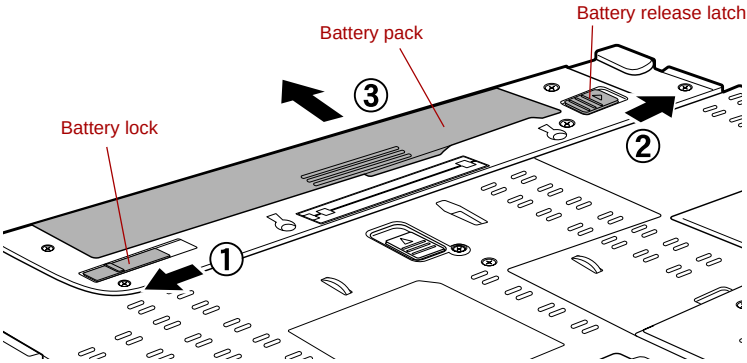
The operating life of the battery pack will gradually reduce through repeated charging and discharging, and will need to be replaced when it reaches the end of its operating life. In addition to this, you might also replace a discharged battery pack with a charged spare when you are operating your computer 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 Standby Mode. Data is stored in RAM, so if the computer loses power it will 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* **HDD** *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.*

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 LCD display panel and turn the computer upside down.
5. Slide the battery lock (1) into its (🔓) position.
6. Slide and hold the battery release latch (2) to disengage the battery pack and then remove it from the computer (3).

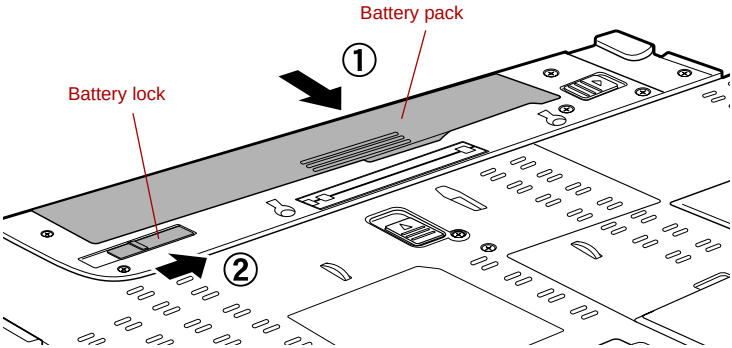


Releasing the battery pack

To install a battery pack, follow the steps below.

Do not touch the battery release latch while holding the computer. Or you may get injured by the dropped battery pack by unintentional release of the battery release latch.

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 and the battery lock (2) is in its (▭) position.



Securing the battery pack

3. Turn your computer over.

TOSHIBA Password Utility

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

Passwords set in TOSHIBA Password Utility 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

The User Password dialog box contains two main fields: **User Password and User Token**.

User authentication may be required to validate user rights when using "TOSHIBA Password Utility" to delete or change passwords, or create tokens, etc.

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.

- *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 or insert a proper token.
- **Change** (button)
  Click this button to change a registered password. Before you can change a password, you must first enter the current password correctly or insert a proper token.
- **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.

User Token field

- **Create** (button)
  You can use an SD card token, instead of entering the password. After you have registered a password, insert an SD card in SD card slot and click **Create**. You can use an SD card of any capacity, but it must be formatted correctly.

  If an unformatted card or one with an incompatible format is inserted, you will be prompted to format it with a tool named TOSHIBA SD Memory Card Format. To start the format tool, point to or click the following items:

  start -> All Programs -> TOSHIBA -> Utilities -> SD Memory Card Format

When you format an SD Memory card, all data will be deleted. Be sure to save data on the card to other media before you format the card.

- **Disable** (button)
  Click this button to invalidate the token. You cannot re-validate old tokens, but you can use the same SD cards to create new tokens.

After using the token created for authentication, do not leave it inserted in the SD card slot, ensure that the token is removed from the slot and stored in a safe location. If the token is left in the slot, there is a danger of theft or a third party using it for authentication and operating the user's computer (resulting in extraction, modification or deletion of data) when the user is not at their desk.

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\Windows Utilities\SVPWTool\TOSPU.EXE
```

This utility lets you do the following:

- Register, delete or change the Supervisor Password.
- Create or invalidate a Supervisor Password token.

This function in the TOSHIBA Password Utility lets you invalidate only supervisor tokens or all tokens, including user and supervisor tokens.

- 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:

- Insert an SD card token before you turn on the computer. The computer will start normally, without displaying a password prompt.
- Swipe your fingerprint on the sensor if you have already registered the fingerprint with the Fingerprint utility and enabled Fingerprint Power-on Security. 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 more than five times, you must enter the password manually to start the computer.
- Enter the password manually.

The password is necessary only if the computer was shut down in boot mode. It is not needed in Standby Mode.

To enter a password manually, follow these steps:

1. Turn on the power as described in Chapter 3, *Getting Started*. The following message will appear in the LCD:

   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.

Power-up modes

The computer has the following power-up modes:

- Boot: Computer shuts down without saving data. Always save your work before you turn the computer off in boot mode.
- Hibernation: Data in memory is saved to the hard disk drive.
- Standby: Data is maintained in the computer's memory.

Refer also to the sections Turning on the power *and* Turning off the power *in Chapter 3, Getting Started.*

Windows utilities

You can configure various settings associated with both Standby Mode and Hibernation Mode within TOSHIBA Power Saver.

Hot keys

You can use hot keys **Fn** + **F3** to enter Standby Mode and **Fn** + **F4** to enter Hibernation. Refer to Chapter 5, *The Keyboard,* for details.

Panel power on/off

You can set up your computer so that power turns off automatically when you close the display panel. When you open the panel, power will be turned on in Standby Mode or Hibernation Mode but not in boot mode.

If the panel power off function is enabled and you manually shut down Windows, do not close the computer's LCD 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 duration. The system shuts down in Standby Mode or Hibernation Mode in Windows.

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 other settings.

Accessing HW Setup

To run the HW Setup program, click **start** followed by **Control Panel** followed by **Printers and Other Hardware** and then click **TOSHIBA HW Setup**.

HW Setup window

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

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 **BIOS Version** and date.

Display

This tab lets you customize your computer's display settings for either the internal LCD screen or for 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 LCD display (default).
LCD + Analog RGB	Selects both the internal LCD and an external monitor for simultaneous display.

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.

When Windows starts up, the screen will be displayed on the external monitor if it was connected when the notebook was previously switched off and is still connected when the computer is switched on. Otherwise, the screen will be displayed on the internal LCD.

Boot Priority

Boot Priority Options

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

HDD –> **FDD** –> **CD-ROM** –> **LAN**	The computer looks for bootable files in the following order: HDD, floppy disk drive*1, CD-ROM*2 and LAN (Default).
FDD –> **HDD** –> **CD-ROM** –> **LAN**	The computer looks for bootable files in the following order: floppy disk drive*1, HDD, CD-ROM*2 and LAN.
HDD –> **CD-ROM** –> **LAN** –> **FDD**	The computer looks for bootable files in the following order: HDD, CD-ROM*2, LAN and floppy disk drive*1.
FDD –> **CD-ROM** –> **LAN** –> **HDD**	The computer looks for bootable files in the following order: floppy disk drive*1, CD-ROM*2, LAN and HDD.
CD-ROM –> **LAN** –> **HDD** –> **FDD**	The computer looks for bootable files in the following order: CD-ROM*2, LAN, HDD, floppy disk drive*1.
CD-ROM –> **LAN** –> **FDD** –> **HDD**	The computer looks for bootable files in the following order: CD-ROM*2, LAN, floppy disk drive*1 and HDD.

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 disk drive.
N	Selects the network.
1	Selects the primary HDD.
2	Selects the secondary HDD.
C	Selects the CD-ROM*2.
M	Selects the USB Memory.

*1 The floppy diskette drive will be used to start the computer when it contains a bootable disk. If an SD memory device is installed as well, the external floppy diskette drive will be checked first, followed by the SD memory device.

*2 CD-ROM is looked for when the boot disc is contained in external optical disc drive.

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 HDD, Ultra Slim Bay HDD, CD-ROM, FDD (or SD memory card), 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 a Supervisor Password has been set, manual boot device selection functions may be restricted.

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 -> 2nd HDD -> USB (Default)	The priority is set as built-in HDD -> 2nd HDD -> USB.
2nd HDD -> Built-in HDD -> USB	The priority is set as 2nd HDD -> built-in HDD -> USB.
Built-in HDD -> USB -> 2nd HDD	The priority is set as built-in HDD -> USB -> 2nd HDD.
2nd HDD -> USB -> Built-in HDD	The priority is set as 2nd HDD -> USB -> built-in HDD.
USB -> Built-in HDD -> 2nd HDD	The priority is set as USB -> built-in HDD -> 2nd HDD.
USB -> 2nd HDD -> Built-in HDD	The priority is set as USB -> 2nd HDD -> built-in HDD.

- *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

External Keyboard Fn key

Use this option to set a key combination on an external keyboard to emulate the **Fn** key on the computer's internal keyboard. Setting an **Fn** key equivalent will let you use Hot keys by pressing the set combination instead of the **Fn** key (PS/2 keyboard only).

Disabled	No **Fn** key equivalent (Default).		
Fn Equivalent	**Left Ctrl**	+	**Left Alt**
	Right Ctrl	+	**Right Alt**
	Left Alt	+	**Left Shift**
	Right Alt	+	**Right Shift**
	Left Alt	+	**Caps Lock**

If you select **Left Ctrl** + **Left Alt** or **Right Ctrl** + **Right Alt** *for this option, you cannot use the selected keys to reboot the computer in combination with the* **Del** *key. For example, if you select* **Left Ctrl** + **Left Alt**, *you must use* **Right Ctrl**, **Right Alt** *and* **Del** *to reboot the computer.* **Left Ctrl**, **Left Alt** *and* **Del** *cannot be used.*

Wake-up on Keyboard

When this feature is enabled, and the computer is in Standby 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 Standby Mode.

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

CPU

This function lets you set the CPU operating mode.

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).

Parallel/Printer

Some models are equipped with Parallel/Printer tab. This tab lets you set the Parallel Port Mode. Use the Windows Device Manager to make settings for the Parallel port.

Parallel Port Mode

The options in this tab are **ECP** and **Standard Bi-directional**.

ECP	Sets the port type to Extended Capabilities Port (ECP). For most printers, the port should be set to **ECP** (Default).
Standard Bi-directional	This setting should be used with some other parallel devices.

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 disk drive legacy emulation. If your operating system does not support USB, you can still use a USB floppy disk drive by setting the **USB-FDD Legacy Emulation** item to **Enabled**.

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

BIOS Setup Program

This section explains items and procedures other than those that can be done using the HW Setup program.

Notes before using the BIOS Setup

- *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, TOSHIBA Power Saver, 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 switched 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*

Starting and Ending the BIOS Setup Program

Starting the BIOS Setup Program

1. Switch 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 the *TOSHIBA Password Utility* section in Chapter 6, *Power and Power-Up Modes*, 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 to 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.

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).

Enhanced C-States

This feature enables or disables the Enhanced C-States.

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 CPU. 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 XP.

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).

LCD Display Stretch

Select the display function of the LCD.

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 Bar** 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.

*When using TPM, please install the **Infineon TPM Installation Guide** from the **TOSHIBA Application Installer** and ensure that the user reads the **Infineon TPM Installation Guide** 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 (Default)	The Diagnostic test is disabled.
Enabled	The Diagnostic test is enabled.

Chapter 8

Optional Devices

Optional devices can expand the computer's capabilities and its versatility. This chapter describes connection or installation of the following devices, which are available from your TOSHIBA dealer:

Cards/memory

- PC card
- ExpressCard
- SD card
- Memory expansion

Power devices

- Battery pack
- AC adaptor
- Battery charger

Peripheral devices

- Hard disk drive pack
- Ultra Slim Bay HDD adaptor
- USB floppy disk drive
- External monitor
- i.LINK (IEEE1394)
- Advanced Port Replicator lll Plus
- Parallel printer
- Serial devices

Other

- Security lock

PC card

The computer is equipped with a PC card slot that can accommodate a Type II card. Any PC card that meets industry standards (manufactured by TOSHIBA or other vendor) can be installed. The slot supports 16-bit PC cards, including PC card 16's multifunction card and CardBus PC cards.

CardBus supports the new standard of 32-bit PC cards. The bus provides superior performance for the greater demands of multimedia data transmission.

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

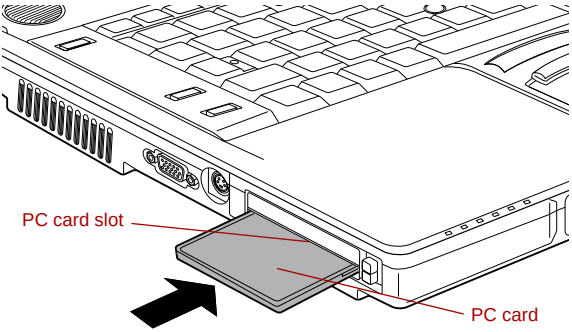
Inserting a PC card

Windows hot-install feature lets you insert PC cards while the computer's power is on.

Do not insert a PC card while the computer is in Standby or Hibernation Mode. Some cards might not work properly.

To insert a PC card, follow the steps below:

1. Insert a PC card in the PC card slot.
2. Press gently to ensure a firm connection.



Inserting the PC card

3. After inserting the PC card, refer to the PC card's documentation and check the configuration in Windows to make sure it is appropriate for your PC card.

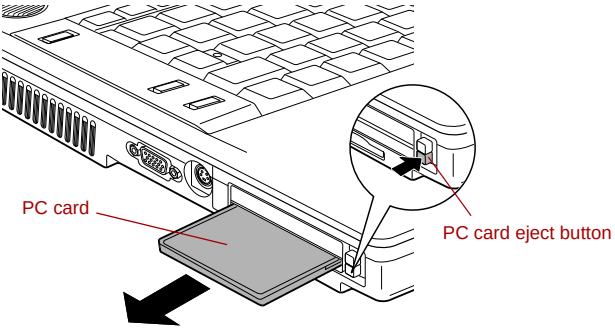
Removing a PC card

To remove the PC card, follow the steps below.

1. Open the **Safely Remove Hardware** icon on the Task Bar.
2. Point to **PC card** and click.
3. Press the PC card eject button to extend it.

If the PC card is not inserted all the way, the eject button may not cause it to pop out sufficiently to allows it to be grasped. Be sure to push the PC card firmly into the computer and slide the eject button again.

4. Press the extended eject button to pop the card out slightly.
5. Grasp the PC card and draw it out.



Removing the PC card

ExpressCard

The computer is equipped with an ExpressCard slot. Any ExpressCard that meets industry standards (manufactured by TOSHIBA or other vendor) can be installed. The slot supports hot plug connection and utilizes the PCI-Express interface that supports the reading and writing of data at a theoretical maximum rate of 2.5 Gbps.

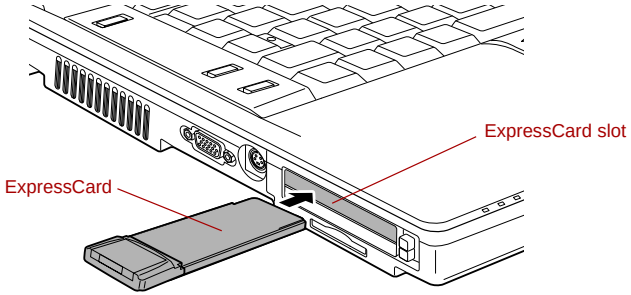
Inserting an ExpressCard

Windows' hot-install feature lets you insert an ExpressCard while the computer's power is on.

- *Do not insert an ExpressCard while the computer is in Standby or Hibernation Mode. Some cards might not work properly.*
- *The ExpressCard slot is the top slot of the two located on the left of the computer. Please confirm this with the following illustration, avoid confusion with the PC card slot and insert the card carefully.*

To insert an ExpressCard, follow the steps below:

1. Insert an ExpressCard in the ExpressCard slot.
2. Press gently to ensure a firm connection.



Inserting the ExpressCard

3. After inserting the ExpressCard, refer to the ExpressCard's documentation and check the configuration in Windows to make sure it is appropriate for your ExpressCard.

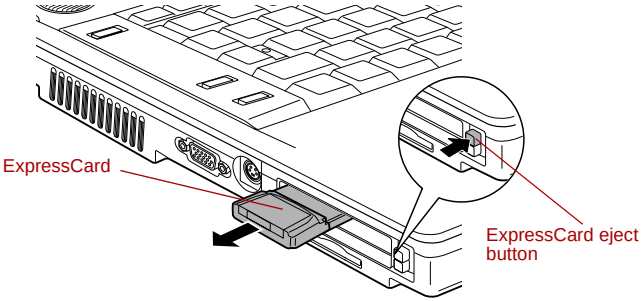
Removing an ExpressCard

To remove the ExpressCard, follow the steps below.

1. Open the **Safely Remove Hardware** icon on the Task Bar.
2. Point to **ExpressCard** and click.
3. Press the ExpressCard eject button to extend it.

If the ExpressCard is not inserted all the way, the eject button may not pop out. Be sure to push the ExpressCard firmly and press the eject button again.

4. Press the extended eject button to pop the card out slightly.
5. Grasp the ExpressCard and draw it out.



Removing the ExpressCard

SD card

The computer is equipped with an SD card slot that can accommodate Secure Digital flash memory cards with various memory capacities. SD cards let you easily transfer data from devices, such as digital cameras and Personal Digital Assistants that use SD card flash-memory. The cards have a high level of security and copy protection features. The slot cannot accommodate Multi Media cards.

Keep foreign objects out of the SD card slot. A pin or similar object can damage the computer's circuitry.

SD memory cards comply with SDMI (Secure Digital Music Initiative), which is a technology adopted to prevent unlawful copy or playback of digital music. For this reason, you cannot copy or playback protected material on another computer or other device. You may not use the reproduction of any copyrighted material except for your personal enjoyment.

Formatting an SD memory card

SD memory cards are sold already formatted in conformity to specific standards. If you format the SD card again, be sure to format it with the TOSHIBA SD memory card format utility, not with the format commands provided within Windows.

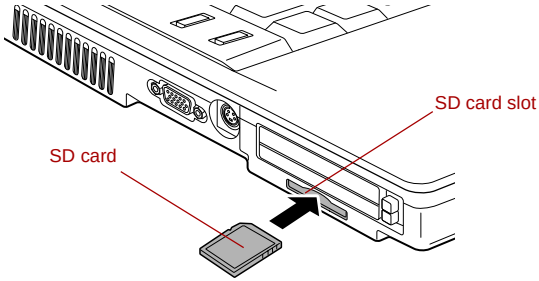
In order to run TOSHIBA SD memory card format, click **start**, point to **All Programs**, point to **TOSHIBA**, point to **Utilities** and click **SD memory card Format**.

The TOSHIBA SD memory card format utility does not format the protected area of the SD memory card. Should you need to format all areas of the memory card, including the protected area, you will need to obtain an appropriate application that applies the copy protection system.

Inserting an SD card

To insert an SD card, follow the steps below.

1. Insert an SD card in the SD card slot.
2. Press gently to ensure a firm connection.



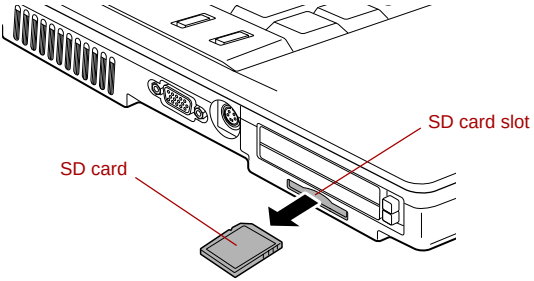
Inserting an SD card

- *Make sure the SD card is oriented properly before you insert it.*
- *Do not turn the computer off or switch to Standby Mode or Hibernate Mode while files are being copied - doing so may cause data to be lost.*

Removing an SD card

To remove an SD card, follow the steps below.

1. Open the **Safely Remove Hardware** icon on the Task Bar.
2. Point to **SD card** and click.
3. Push in the SD card and release it to pop the card out slightly.
4. Grasp the SD card and remove it.



Removing an SD card

- *Make sure the* **SD card** *indicator is out before you remove the SD card or turn off the computer's power. If you remove the card or turn off the power while the computer is accessing the card you may lose data or damage the card.*
- *Do not remove an SD card while the computer is in Standby or Hibernation Mode. The computer could become unstable or data in the SD card could be lost.*

SD card care

Set the write-protect switch to the lock position, if you do not want to record data.

- Do not write to an SD card if the battery power is low. Low power could affect writing accuracy.
- Do not remove an SD card while read/write is in progress.
- The SD card is designed so that it can be inserted only one way. Do not try to force the SD card into the SD card slot.
- Do not leave an SD card partially inserted in the slot. Press the SD card until you hear it click into place.

- Do not twist or bend SD cards.
- Do not expose SD cards to liquids or store in humid areas or lay media close to containers of liquid.
- After using an SD card, return it to its case.
- Do not touch the metal part or expose it to liquids or let it get dirty.

Creation of a boot disk

Within the TOSHIBA SD Memory Boot Utility, a bootable SD memory card can be created if required. Refer to the *Utilities* of Chapter 1, *Introduction* for details.

Memory expansion

You can install additional memory in the computer's memory module slot to increase the amount of RAM. This section describes how to install and remove a memory module.

- *Place a mat beneath the computer to prevent scratching or damaging the computer's lid when installing/replacing the memory module. Avoid mats made of materials that generate static electricity.*
- *When you install or remove a memory module, ensure that you do not touch any other internal areas of the computer.*

- *Use only memory modules approved by TOSHIBA.*
- *Do not try to install or remove a memory module under the following conditions as you can damage the computer and/or the module, and you risk losing data:*
  - *a. The computer is turned on.*
  - *b. The computer was shut down using either Standby Mode or Hibernation Mode.*
  - *c. Wake-up on LAN is enabled.*
- *Be careful not to let screws or other foreign matter fall into the computer. It could cause malfunction or electric shock.*
- *Expansion memory 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 expansion memory modules. To discharge your body's static electricity, simply touch any metal close to you with bare hands.*

Points to note about memory modules

If you install a memory module that is not compatible with the computer, the power LED will 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 green.
- If there is only an error in Slot B: repeatedly flashes orange, then green twice.
- If there is an error in Slot A and in Slot B: repeatedly flashes orange twice, then green twice.

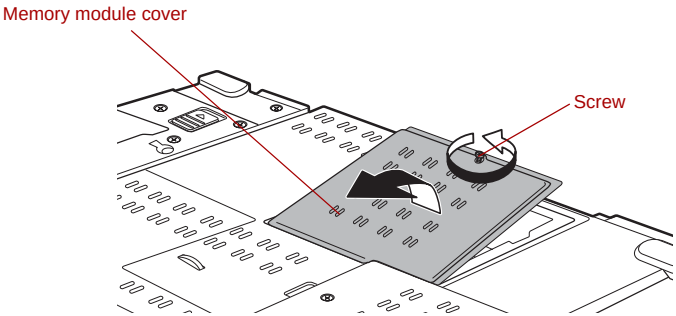
In all instances you should shut down the computer and remove the incompatible module(s).

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

Installing memory module

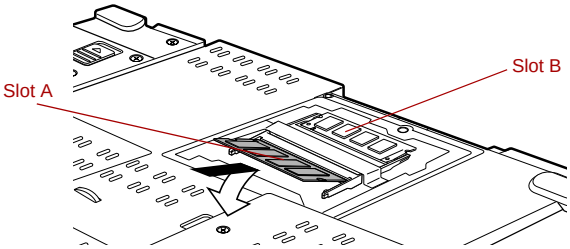
There are slots for two memory modules, one next to the other. The procedures are the same for installing either module.

1. Set the computer to boot mode and turn the computer's power off. Make sure the **Power** indicator is off. Refer to the *Turning off the power* section in Chapter 3, *Getting Started*.
2. Remove AC adaptor and all cables 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*, for details.
4. Loosen the screw securing the memory module cover. The screw is attached to the cover to prevent it from being lost.
5. Slide your fingernail or a thin object under the cover and lift it off.



Removing the memory module cover

6. 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 pressing it down until the latches on either side snap into place.



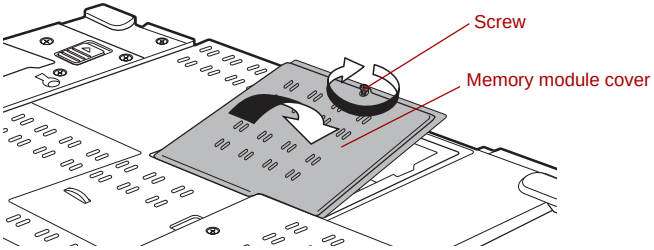
Seating the memory module

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 prize the locking tabs outwards using the tip of your finger. Ensure that you hold the memory module along its left and right hand edges - the edges with the grooves in.

- *Never allow metal objects, such as screws, staples and paper clips, to enter the PC or keyboard. Foreign metal objects can create a short circuit, which can cause PC 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.*

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

Be sure that the cover is closed firmly.



Seating the memory module cover

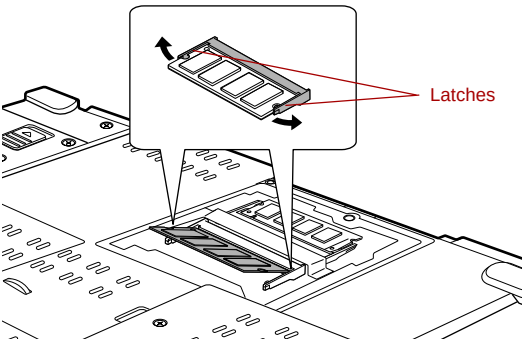
8. Install the battery pack. Refer to *Replacing the battery pack* section in Chapter 6, *Power and Power-Up Modes*, for details.
9. Turn your computer over.
10. Turn the power on and make sure the added memory is recognized. Click **start**, click **Control Panel**, click **Performance and Maintenance** and select the **System** icon. Open the **System Properties** window and click the **General** tab.

Removing memory module

To remove the memory module, make sure the computer is in boot mode then:

1. Set the computer to boot mode and turn the computer's power off. Make sure the **Power** indicator is off.
2. Remove AC adaptor and all cables 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*, for details.
4. Loosen the screw securing the memory module cover. The screw is attached to the cover 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 to the outside to release the module. A spring will force one end of the module up.
7. Grasp the module by the sides and pull it out.

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



Removing the memory module

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

Be sure that the cover is closed firmly.

9. Install the battery pack. Refer to *Replacing the battery pack* section in Chapter 6, *Power and Power-Up Modes*, for details.
10. Turn your computer over.

Battery pack

You can increase the portability of the computer with additional battery packs. If you're away from an AC power source and your battery runs low, you can replace it with a freshly charged battery. Refer to Chapter 6, *Power and Power-Up Modes*.

AC adaptor

If you frequently transport the computer between different sites such as your home and office, purchasing an AC adaptor for each location will reduce the weight and bulk of your carrying load.

Battery charger

The battery charger provides a convenient way to charge battery packs without requiring the use of your computer. The battery charger holds up to two battery packs (lithium ion).

Hard disk drive pack

An extra hard disk drive expands the flexibility of your system and lets you carry your data without carrying the computer.

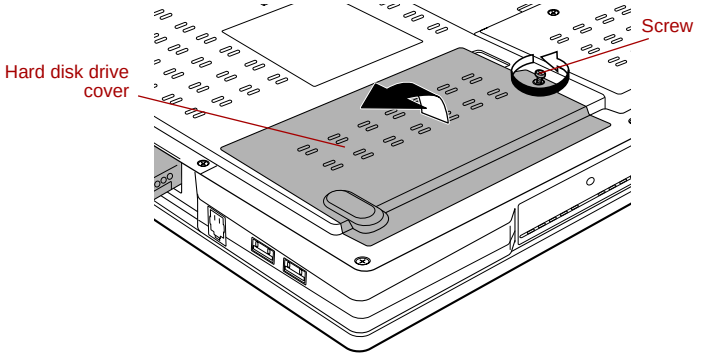
Use a #0 point Phillips screwdriver for the task described here.

Removing the hard disk drive pack

To remove the hard disk drive pack, follow the steps below.

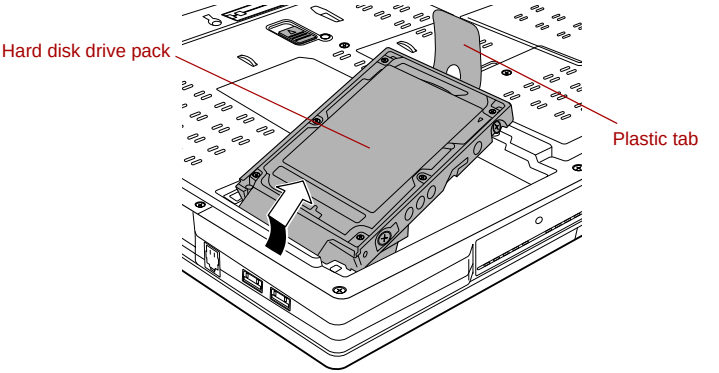
1. Set the computer to boot mode and turn off the power.
2. Disconnect the AC adaptor and all external cables connected to the computer.
3. Turn the computer upside down and remove the battery pack. Refer to *Replacing the battery pack* section in Chapter 6, *Power and Power-Up Modes*, for details.
4. Loosen one screw securing the hard disk drive cover.
5. A small row of ridges marks latches securing the cover. Press on these ridges until you hear a click.

6. Press on the arrows and lift the cover up and out to remove it.



Removing the hard disk drive cover

7. Reposition the hard disk drive until it is vertical.
8. With the hard disk drive in a vertical position, lift it straight up and away from the connector.



Removing the hard disk drive pack

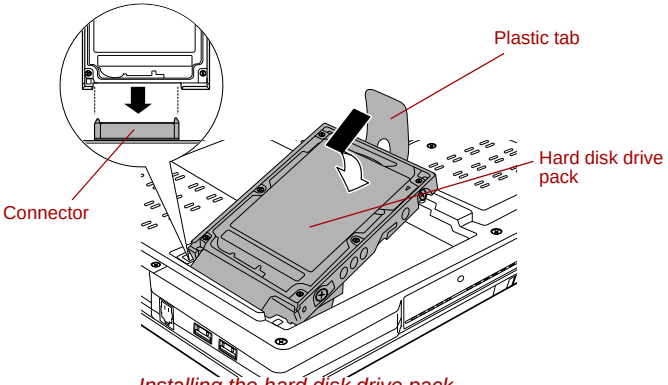
Installing the hard disk drive pack

To install the hard disk drive pack, follow the steps below.

1. Move the connector until it is vertical.
2. Hold the hard disk drive vertically with its label on the left.
3. Connect the hard disk drive to the connector.

Ensure that the hard disk drive is connected to the connector in a vertical position. If the hard disk drive is slanted and connected to the connector, it might damage the connector.

4. With the connector connected, lower the hard disk drive down to the storage position.



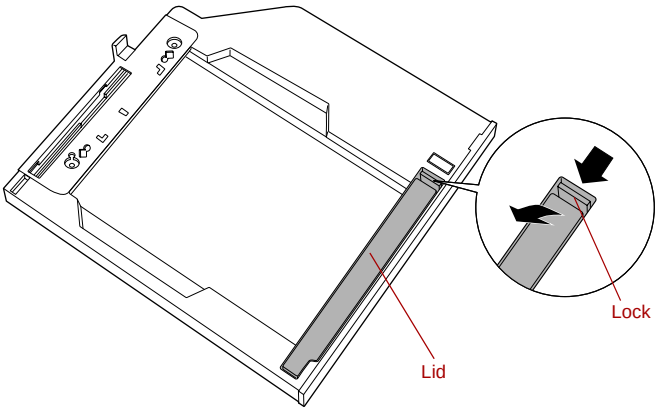
Installing the hard disk drive pack

5. Seat the cover and press down until the latches click into place.
6. Secure the cover with a screw.
7. Turn your computer over.

Ultra Slim Bay HDD adaptor

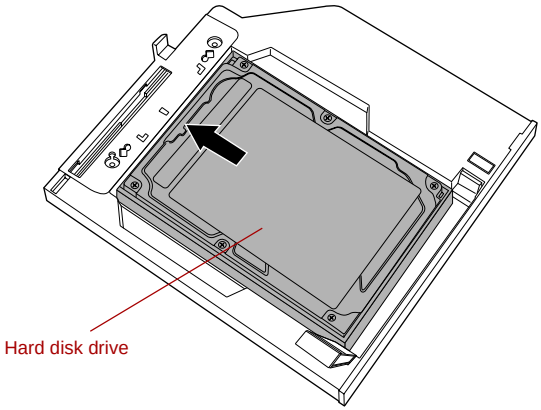
You can increase your computer's data storage capacity by installing an additional 80.0 billion bytes (74.53 GB) or 100.0 billion bytes (93.16 GB) hard disk drive in the Ultra Slim Bay.
To install an hard disk drive in the Ultra Slim Bay HDD adaptor follow the steps below.

1. Slide the lock to the unlock position and open the lid.



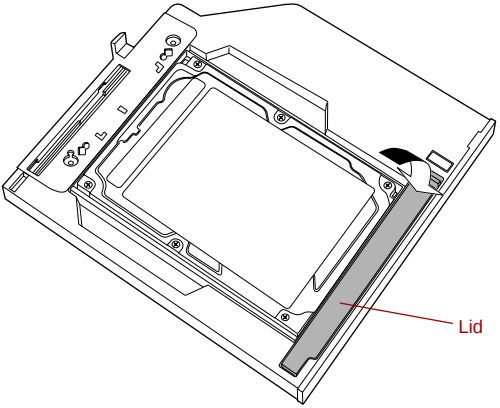
Opening the lid

2. Insert the hard disk drive in the Ultra Slim Bay HDD adaptor and push forward to ensure a firm connection.



Inserting the hard disk drive

3. Close the lid and slide the lock to the lock position.



Closing the lid

For details on inserting the Ultra Slim Bay HDD adaptor in the computer's Ultra Slim Bay slot, refer to Chapter 4, *Operating Basics*.

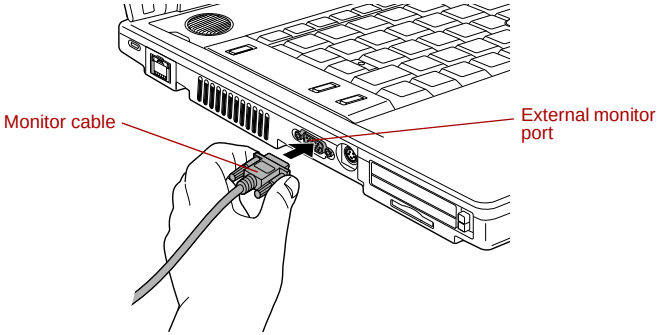
USB floppy disk drive

The USB floppy disk drive module can be connected to a USB port. For details on connecting the USB floppy disk drive module, refer to Chapter 4, *Operating Basics*.

External monitor

An external analog monitor can be connected to the external monitor port on the computer. The computer supports XGA and SXGA+ video modes. To connect a monitor, follow the steps below.

1. Turn the computer's power off.
2. Connect the monitor cable to the external monitor port and tighten the screws on the left and right hand side.



Connecting the monitor cable to the external monitor port

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

When you turn on the power, the computer automatically recognizes the monitor and determines whether it is color or monochrome.

However, the Windows Desktop appears on a display device that you used last time to shut down your computer, if the display device exists when you turn on the power.

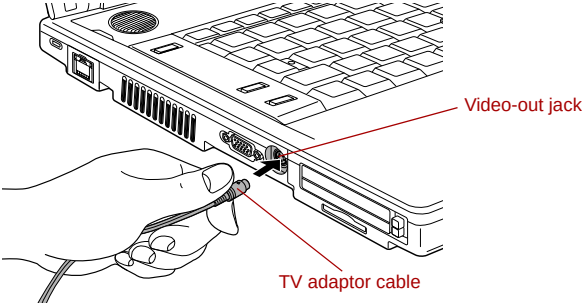
To change the display settings, press **Fn** + **F5**. If you disconnect the external monitor before you turn the computer's power off, be sure to press **Fn** + **F5** to switch to the internal display. Refer to Chapter 5, *The Keyboard*, for details on using hot keys to change the display setting.

TV

You can connect a television set to the Video out jack on the computer. Follow the steps below.

Using the TOSHIBA Presentation button

1. Connect the TV adaptor cable's S-Video plug to the Video-out jack on the computer.



Connecting the S-Video cable to the Video-out jack

2. Connect the TV adaptor cable's S-Video plug to the Video-out jack on the TV.
3. Press the TOSHIBA Presentation button.

You can use the hot keys **Fn** + **F5** to change the display device. Refer to Chapter 5, *The Keyboard*.

If a television is connected to the computer, set the TV type in Display Properties. Follow the steps below.

a. *Click* **start**, *click* **Control Panel**, *and click* **Appearance and Themes**.
b. *Double-click the* **Display** *icon to open the Display Properties window.*
c. *Click the* **Settings** *tab and click the* **Advanced** *button.*
d. *Click the* **Quadro NVS 110M** *tab, click* **Device Settings** *and click* **Select TV format.**
e. *Select* **Advanced** *and select* **TV Settings** *in the TV Settings window.*
f. *Select the* **Signal format** *box and select the format that your TV supports.*

Changing the resolution

If you want to change the resolution, follow the steps below.

1. Open **`Display properties`** and select the **Settings** tab.
2. Select **Advanced**.
3. Select the **Adapter** tab, then select **List all modes**.
4. Select a resolution from the menu.

Displaying movies on a TV or CRT

This section describes how to set up your system to display movies simultaneously on your computer's internal LCD and on an external TV or CRT monitor.
Follow the steps below.

1. Open the **Control Panel** and click **Appearance and Themes**.
2. Click **Display**.
3. Select the **Settings** tab and click **Advanced button**.
4. Select the **Quadro NVS 110M** tab.
   a. Click the **Quadro NVS 110M** button.
   b. Click **`Full Screen Video`** in the small menu.
   c. From the **`Full screen`** device drop down menu, select **Primary display** or **Secondary display** to enable movie display on an external TV or CRT monitor.
   Primary Device: Movies will be displayed full screen on the computer's internal LCD and in a window on the TV or CRT monitor.
   Secondary Device: Movies will be displayed full screen on the TV or CRT monitor and in a window on the computer's internal LCD.
   Disable: Movies will not be displayed on a TV or CRT monitor.

Even if the above does not set up, there are some as which the movies is simultaneously displayed depending on the type of the movies.

   d. Click **OK**.
   e. Click **OK** in the **`Display Properties`** screen.

i.LINK (IEEE1394)

i.LINK (IEEE1394) is used for high-speed data transfer for a range of compatible devices such as

- Digital video cameras
- Hard disk drives
- MO drives
- Writable optical disc drives

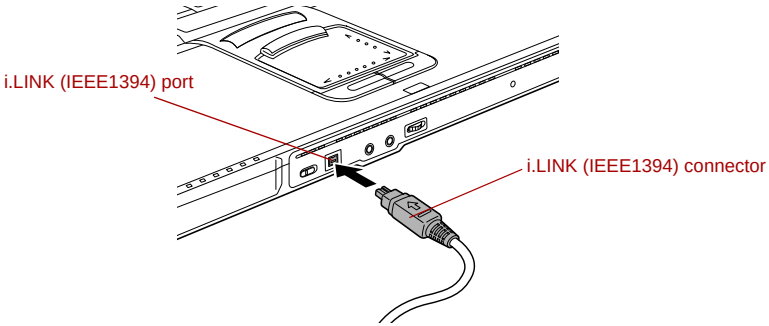
i.LINK uses a four-pin connector, which does not carry any electric current. External devices will need their own power supply to operate.

Precautions

- Make a back-up of your data before transferring it to the computer. There is a possibility that the original data will be damaged. There is a particular risk that some frames will be deleted in the case of digital video transfer. TOSHIBA assumes no liability for such loss of data.
- Do not transfer data in areas where static electricity is easily generated or in areas subjected to electronic noise. Data can be destroyed.
- If you are transferring data through an IEEE1394 hub, do not connect or disconnect other devices from the hub during data transfer. There is a likelihood that data will be damaged. Connect all devices to the hub before you turn on the computer's power.
- You may not use any copyrighted video or music data copied from a video camera except for your personal enjoyment.
- If you connect/disconnect an i.LINK device to/from another i.LINK device that is currently exchanging data with the computer, data frames might be dropped.
- Make sure data transfer has ended or turn off the computer, before you:
  - Connect/disconnect an i.LINK device to/from the computer.
  - Connect/disconnect an i.LINK device to/from another i.LINK device that is connected to the computer.

Connecting

1. Make sure the connectors are properly aligned and plug the i.LINK (IEEE1394) cable into the computer.



Connecting the i.LINK (IEEE1394) cable into the computer

2. Plug the other end of the cable into the device.

Note the following when you use i.LINK:

- You may need to install drivers for your i.LINK devices.
- Not all i.LINK devices have been tested. Therefore, compatibility with all i.LINK devices cannot be guaranteed.
- Some devices might not support standby or automatic off functions.
- Do not connect or disconnect an i.LINK device while it is using an application or when the computer is automatically shutting it down to save power. Data might be destroyed.

Disconnecting

1. Open the **Safely Remove Hardware** icon on the Task Bar.
2. Point to **i.LINK (IEEE1394) device** and click.
3. Disconnect the cable from the computer then from the i.LINK device.

Refer also to the documentation that came with your i.LINK device.

Advanced Port Replicator III Plus

In addition to the ports available on the computer, the Advanced Port Replicator III Plus provides separate ports for PS/2 mouse and PS/2 keyboard. The Advanced Port Replicator III Plus connects directly to the docking interface on the underside of the computer. The AC adaptor connects the Advanced Port Replicator III Plus to a power source.

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.

- *You must connect the AC adaptor before you connect to an Advanced Port Replicator III Plus.*
- *When an Advanced Port Replicator III Plus is connected to the computer, you can not use the following computer's ports: Modem jack, LAN jack, DC IN 15V jack, External monitor port, i.LINK (IEEE 1394) port, Video-out jack.*
- *Only the Advanced Port Replicator III plus can be used with this product (PC). Do not attempt to use any other Port Replicator.*

The following ports and accessories are available on the Advanced Port Replicator III Plus.

- RJ45 LAN jack
- RJ11 Modem jack
- External monitor port
- Parallel port
- Serial port
- PS/2 mouse port
- PS/2 keyboard port
- DC IN 15V jack
- Security lock slot
- Audio line-in, line-out jacks
- Universal Serial Bus 2.0 ports (four)
- i.LINK (IEEE 1394) port
- DVI port (This port is not supported by the computer.)

As the port operation of all DVI(Digital Visual Interface) monitors has not been confirmed, some DVI monitors may not function properly.

Parallel printer

You can connect any standard Centronics-compatible parallel printer to your computer. All you need is an IBM PC™ parallel printer cable. You can purchase one at most computer stores.

The cable's connectors are designed so that it is impossible for you to connect them incorrectly. To connect a printer, follow these steps:

1. Turn off the computer's power.
2. Connect the cable into the computer's parallel port.
3. Tighten the screws that fasten the connector to the computer's parallel port.
4. Connect the other connecter of the cable into the printer's parallel connector.
5. Fasten the connector to the printer with the clips on the parallel port.
6. Turn on the printer's power.
7. Turn on the computer's power.
8. Start the HW Setup program. Refer to Chapter 7, *HW Setup & BIOS Setup*.
9. Select the **Parallel/Printer** tab from the **TOSHIBA HW Setup** window.
10. Set the **Parallel Port Mode** and press **OK**.
11. Choose Reboot for the change to take effect.
12. Select the printer in Windows Add Print Wizard. To access the **Add Print Wizard** utility, click **start**, click **Control Panel**, click **Printers and Other Hardware** and select the **Add Printer**.

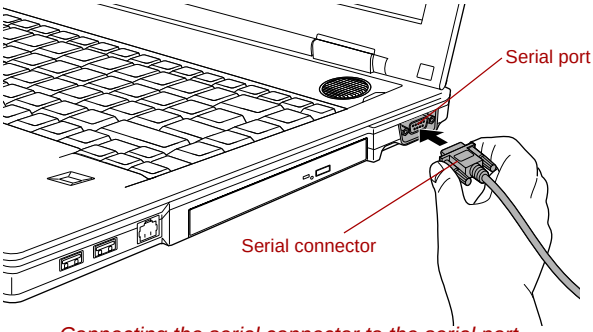
Serial devices

The serial port can be used to connect to RS-232C compatible devices. RS-232C compatible devices include the following:

- Modem
- Mouse

To connect a serial device, follow the steps below.

1. Turn the computer's power off.
2. Connect the serial connector to the serial port and tighten the screws on the left and right hand side.



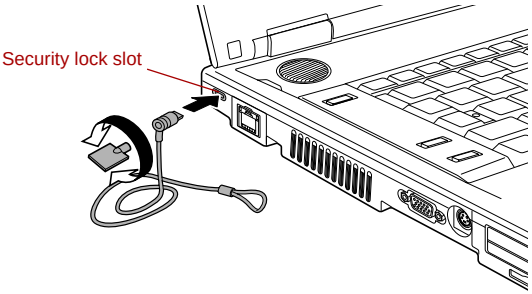
Connecting the serial connector to the serial port

Security lock

Security locks enable you to anchor your computer and optional Advanced Port Replicator III Plus to a desk or other heavy object to help prevent unauthorized removal of the computer or Advanced Port Replicator III Plus.

The computer has a security lock slot on the left side. Attach one end of a cable to a desk and the other end to the security lock slot.

1. Turn the computer so the left side faces you.
2. Align the holes for the security lock and attach the lock.



Security lock

Chapter 9

Troubleshooting

TOSHIBA designed the computer for durability. However, should problems occur, following the procedures in this chapter can help to determine the cause.

All readers should become familiar with this chapter. Knowing what might go wrong can help prevent problems from occurring.

Problem solving process

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

- Stop immediately when you recognize a problem exists. Further action may result in data loss or damage. 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 **PrtSc**.

The questions and procedures offered in this chapter are meant as a guide, they are not definitive problem solving techniques. Many problems can be solved simply, but a few may require help from your dealer. If you find you need to consult your dealer or others, be prepared to describe the problem in as much detail as possible.

Preliminary checklist

Consider the simplest solution first. The items 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, turn the computer off. When you turn the computer back on it recognizes the new device.
- Make sure all options are set properly in the setup program.
- Check all cables. Are they correctly and firmly attached? Loose cables can cause signal errors.
- Inspect all connecting cables for loose wires and all connectors for loose pins.
- Check that your floppy disk or CD/DVD-ROM is correctly inserted and that the floppy disk's write protect tab is correctly set.

Make notes of your observations and keep them in a permanent error log. This will help you describe your problems to your dealer. If a problem recurs, the log will help you identify the problem faster.

Analyzing the problem

Sometimes the system gives clues that can help you identify why it is malfunctioning. Keep the following questions in mind:

- Which part of the system is not operating properly: keyboard, floppy disk drives, hard disk drive, optical disc drive, display. Each device produces different symptoms.
- Is the operating system configuration set properly? Check the configuration options.
- What appears on the display screen? Does it display any messages or random characters? If you have a printer attached, print a copy of the screen using **PrtSc**. Look up the messages in the software and operating system documentation. Check that all connecting cables are correctly and firmly attached. Loose cables can cause erroneous or intermittent signals.
- Do any indicators light? Which ones? What color are they? Do they stay on or blink? Write down what you see.
- Do you hear any beeps? How many? Are they long or short? Are they high pitched or low? Is the computer making any unusual noises? Write down what you hear.

Record your observations so you can describe them to your dealer.

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. Try loading another copy of the software. If an error message appears while you are using a software package, check the software documentation. These documents usually include a problem solving section or a summary of error messages. Next, check any error messages in the operating system documentation.
Hardware	If you cannot find a software problem, check your hardware. First run through the items in the preliminary checklist above. 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 PC. Use of incompatible devices may cause injury or may damage your PC.

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 LCD display panel
- Hard disk drive
- DVD-ROM and CD-R/RW drive
- DVD Super Multi drive
- USB floppy disk drive
- SD card
- PC card
- ExpressCard
- Infrared port
- Dual Pointing Device
- Fingerprint Sensor
- USB device
- Memory expansion
- Sound system
- External monitor
- i.LINK (IEEE1394) device
- Modem
- LAN
- Wireless LAN
- Bluetooth
- Printer
- TV output signal

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, depending on how the Boot Priority is set in the TOSHIBA HW Setup program.

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

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

Turn off the computer and check all cable connections. If the test fails again, contact your dealer.

Power

When the computer is not plugged into an AC outlet, the battery pack is the primary power source. However, your computer has a number of other power resources, including an intelligent power supply and a Real Time Clock battery. These resources are interrelated and any one could affect apparent power problems. This section provides checklists for AC power and the battery. If you cannot resolve a problem after following them, the cause could lie with another power resource. In such case, contact your dealer.

Overheating power down

If the computer's internal temperature becomes too high, the computer will automatically enter Hibernation or Standby Mode and shut 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 still does not start, or if it starts but shuts down quickly contact your dealer.

Computer shuts down and its **DC IN** indicator is flashing green	Indicates a problem with the heat dispersal system. Please contact your dealer.

AC power

If you have trouble turning on the computer with the AC adaptor connected, check the **DC IN** indicator. Refer to Chapter 6, *Power and Power-Up Modes* for more information.

Problem	Procedure
AC adaptor doesn't power the computer (**DC IN** indicator does not glow green)	Check the connections. Make sure the cord is firmly connected to the computer and a power outlet.
	Check the condition of the cord and terminals. If the cord is frayed or damaged, replace it. If the terminals are soiled, wipe them with cotton or a clean cloth.
	If the AC adaptor still does not power the computer, contact your dealer.

Battery

If you suspect a problem with the battery, check the **DC IN** indicator as well as the **Battery** indicator. For information on indicators and battery operation see Chapter 6, *Power and Power-Up Modes*.

Problem	Procedure
Battery doesn't power the computer	The battery may be discharged. Connect the AC adaptor to charge the battery.

Problem	Procedure
Battery doesn't charge when the AC adaptor is attached (**Battery** indicator does not glow orange.)	If the battery is completely discharged, it will not begin charging immediately. Wait a few minutes. If the battery still does not charge, make sure the outlet of the AC adaptor is supplying power. Test it by plugging in an appliance.
	Check whether the battery is hot or cold to the touch. If the battery is too hot or too cold, it will not charge properly. Let it reach room temperature.
	Unplug the AC adaptor and remove the battery to make sure the terminals are clean. If necessary wipe them with a soft dry cloth dipped in alcohol. Connect the AC adaptor and replace the battery. Make sure it is securely seated. Check the **Battery** indicator. If it does not glow, let the computer charge the battery for at least 20 minutes. If the **Battery** indicator glows after 20 minutes, let the battery continue to charge at least another 20 minutes before turning on the computer. If the indicator still does not glow, the battery may be at the end of its operating life. Replace it. If you do not think the battery is at the end of its operating life, see your dealer.
Battery doesn't power the computer as long as expected	If you frequently recharge a partially charged battery, the battery might not charge to its full potential. Fully discharge the battery, then try to charge it again.
	Check the power consumption settings in TOSHIBA Power Saver utility. Consider using a power saving mode.

Real Time Clock

Problem	Procedure
The following message is Displayed on the LCD screen: **`RTC battery is low or CMOS checksum is inconsistent. Press [F1] key to set Date/Time.`**	The charge in the RTC battery has run out - you will need to set the date and time in the BIOS setup using the following steps: 1. Press **F1** key. BIOS setup will boot up. 2. Set the date in **System Date**. 3. Set the time in **System Time**. 4. Press **End** key. Confirmation message will appear. 5. Press **Y** key. BIOS setup will terminate and the computer will be rebooted.

Password

Problem	Procedure
Cannot enter password	Refer to the *TOSHIBA Password Utility* section in Chapter 6, *Power and Power-Up Modes*.

Keyboard

Keyboard problems can be caused by your setup configuration. For more information refer to Chapter 5, *The Keyboard*.

Problem	Procedure
Some letter keys produce numbers	Check that the numeric keypad overlay is not selected. Press **Fn** + **F11** and try typing again.
Output to screen is garbled	Make sure the software you are using is not remapping the keyboard. Remapping involves reassigning the meaning of each key. See your software's documentation. If you are still unable to use the keyboard, consult your dealer.

Internal LCD display panel

Apparent LCD problems may be related to the computer's setup. Refer to Chapter 7, *HW Setup & BIOS Setup*, for more information.

Problem	Procedure
No display	Press hotkeys **Fn** + **F5** to change the display priority, to make sure it is not set for an external monitor.
Markings appear on the LCD screen.	The marks may have come from contact with the keyboard, Touch Pad or AccuPoint. Try wiping the LCD screen gently with a clean dry cloth. If markings remain, use a good quality LCD screen cleaner, taking care to ensure you let the LCD screen dry before closing it.
Problems above remain unresolved or other problems occur	Refer to your software's documentation to determine if the software is causing the difficulty. Run a diagnostic test. Contact your dealer if the problems continue.

Hard disk drive

Problem	Procedure
Computer does not boot from hard disk drive	Check if a floppy disk is in the floppy disk drive or a CD-ROM is in the optical disc drive. Remove any floppy disk and/or CD/DVD and check the Boot priority. Refer to the *Boot Priority* section in Chapter 7, *HW Setup & BIOS Setup*.
	There may be a problem with your operating system files. Refer to your operating system documentation.
Slow performance	Your files may be fragmented. Run Disk Defragmenter to check the condition of your files and disk. Refer to your operating system's documentation or online HELP for information on running the Disk Defragmenter.
	As a last resort, reformat the hard disk. Then, reload the operating system and other files. If problems persist, contact your dealer.

DVD-ROM and CD-R/RW drive

For more information, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
You cannot access a CD/DVD in the drive	Make sure the drive's disc tray is securely closed. Press gently until it clicks into place.
	Check whether the drive power is on. If the power is off, click on the optical disc drive icon in the task tray and turn on the power.
	Open the disc tray and make sure the CD/DVD is properly seated. It should lie flat with the label facing up.
	A foreign object in the disc tray could block laser light from reading the CD/DVD. Make sure there is no obstruction. Remove any foreign object.
	Check whether the CD/DVD is dirty. If it is, wipe it with a clean cloth dipped in water or a neutral cleaner. Refer to the *Media care* section in Chapter 4, *Operating Basics*, for details on cleaning.
Some CD/DVDs run correctly, but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software's needs. Check the CD/DVD's documentation.
	Check the type of CD/DVD you are using. The drive supports: DVD-ROM: DVD-ROM, DVD-Video CD-ROM: CD-DA, CD-Text, Photo CD™ (single/multi-session), CD-ROM Mode 1, Mode 2, CD-ROM XA Mode 2 (Form1, Form2), Enhanced CD (CD-EXTRA), Addressing Method 2 Recordable CD: CD-R, CD-RW
	Check the region code on the DVD. It must match that on the DVD-ROM and CD-R/RW drive. Region codes are listed in the *Optical disc drives* section in Chapter 2, *The Grand Tour*.

Problem	Procedure
Cannot write correctly	If you have trouble writing, make sure you are observing the following precautions: ■ Use only media recommended by TOSHIBA. ■ Do not use the mouse or keyboard during writing. ■ Use only the software supplied with the computer for recording. ■ Do not run or start other software during writing. ■ Do not jar the computer during writing. ■ Do not connect/disconnect external devices or install/remove internal cards during writing. If problems persist, contact your dealer.

DVD Super Multi drive

For more information, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
You cannot access a CD/DVD in the drive	Make sure the drive's disc tray is securely closed. Press gently until it clicks into place.
	Check whether the drive power is on. If the power is off, click on the optical disc drive icon in the task tray and turn on the power.
	Open the disc tray and make sure the CD/DVD is properly seated. It should lie flat with the label facing up.
	A foreign object in the disc tray could block laser light from reading the CD/DVD. Make sure there is no obstruction. Remove any foreign object.
	Check whether the CD/DVD is dirty. If it is, wipe it with a clean cloth dipped in water or a neutral cleaner. Refer to the *Media care* section in Chapter 4, *Operating Basics*, for details on cleaning.

Problem	Procedure
Some CD/DVDs run correctly, but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software's needs. Check the CD/DVD's documentation.
	Check the type of CD/DVD you are using. The drive supports: DVD-ROM: DVD-ROM, DVD-Video CD-ROM: CD-DA, CD-Text, Photo CD™ (single/multi-session), CD-ROM Mode 1, Mode 2, CD-ROM XA Mode 2 (Form1, Form2), Enhanced CD (CD-EXTRA), Addressing Method 2
	Check the region code on the DVD. It must match that on the DVD Super Multi drive. Region codes are listed in the *Optical disc drives* section in Chapter 2, *The Grand Tour*.

USB floppy disk drive

For more information, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
Drive does not operate	There may be a faulty cable connection. Check the connection to the computer and to the drive.
Some programs run correctly but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software needs.
You cannot access the external 3 1/2" floppy disk drive	Try another floppy disk. If you can access the floppy disk, the original floppy disk (not the drive) is probably causing the problem. If problems persist, contact your dealer.

SD card

Refer also to Chapter 8, *Optional Devices*.

Problem	Procedure
SD card error occurs	Reseat the SD card to make sure it is firmly connected. Check the card's documentation.

Problem	Procedure
You cannot write to an SD memory card	Make sure the card is not write protected.
You cannot read a file	Make sure the target file is on the SD memory card inserted in the slot. If problems persist, contact your dealer.

PC card

Refer also to Chapter 8, *Optional Devices*.

Problem	Procedure
PC card error occurs	Reseat the PC card to make sure it is firmly connected.
	Make sure the connection between the external device and the card is firm.
	Check the card's documentation. If problems persist, contact your dealer.

ExpressCard

Refer also to Chapter 8, *Optional Devices*.

Problem	Procedure
ExpressCard error occurs	Reseat the ExpressCard to make sure it is firmly connected.
	Make sure the connection between the external device and the card is firm.
	Check the card's documentation. If problems persist, contact your dealer.

Infrared port

Refer also to the documentation for your IrDA compatible device and related software.

Problem	Procedure
Infrared devices do not work as expected	Make sure there is no obstruction blocking communication between the computer and the target device. If problems persist, contact your dealer.

Dual Pointing Device

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

Touch Pad/AccuPoint

Problem	Procedure
Either the Touch Pad or the AccuPoint does not work.	Check the Device Select settings. Click **start**, click **Control Panel**, click **Printers and Other Hardware** and select **Mouse** icon. Open the **Mouse Properties** and click **Dual Pointing Device** tab. Then click the **Detail Setting** button and click the **Device Select** tab. Check whether the Touch Pad is selected or not. Pressing **Fn** + **F9** to enable TOSHIBA Dual Pointing Device.
On-screen pointer does not respond to Pad operation	The system might be busy. If the pointer is shaped as an hourglass, wait for it to return to its normal shape and try again to move it.
The mouse pointer moves too fast or too slow	Try changing the speed setting in the mouse control utility. 1. Click **start**, click **Control Panel**, click **Printers and Other Hardware** and select **Mouse** icon. 2. Click the **Pointer Options** tab. 3. Set the speed as required and click **OK**.
Double-tapping (Touch Pad) or double-clicking (AccuPoint) does not work	Try changing the double-click speed setting in the mouse control utility. 1. Click **start**, click **Control Panel**, click **Printers and Other Hardware** and select **Mouse** icon. 2. Click the **Buttons** tab. 3. Set the double-click speed as required and click **OK.** If problems persist, contact your dealer.

USB mouse

Problem	Procedure
On-screen pointer does not respond to mouse operation	The system might be busy. If the pointer is shaped as an hourglass, wait for it to resume its normal shape and try again to move it.
	Make sure the mouse is properly connected to the USB port.
Double-clicking does not work	Try changing the double-click speed setting in the mouse control utility. 1. Click **start**, click **Control Panel**, click **Printers and Other Hardware** and select **Mouse** icon. 2. Click the **Buttons** tab. 3. Set the double-click speed as required and click **OK**.
The mouse pointer moves too fast or too slow	Try changing the speed setting in the mouse control utility. 1. Click **start**, click **Control Panel**, click **Printers and Other Hardware** and select **Mouse** icon. 2. Click the **Pointer Options** tab. 3. Set the speed as required and click **OK**.
The mouse pointer moves erratically	The mouse might be dirty. Refer to your mouse documentation for instructions on cleaning. If problems persist, contact your dealer.

Fingerprint Sensor

Problem	Procedure
Reading of the fingerprint was not successful.	Please try again using the correct posture. Refer to *Using the Fingerprint Sensor* in Chapter 4, *Operating Basics*. Try the recognition process again using another enrolled finger.
The fingerprint cannot be read due to injuries to the finger.	Try the recognition process again using another enrolled finger. If fingerprints from all the enrolled fingers cannot be read, please logon by using the keyboard to input the password for the time being. If problems persist, contact your dealer.

USB device

Refer also to your USB device's documentation.

Problem	Procedure
USB device does not work	Check for a firm cable connection between the USB ports on the computer and the USB device.
	Make sure the USB device drivers are properly installed. Refer to your Windows XP documentation for information on checking the drivers.
	If you are using an operating system that does not support USB, you can still use a USB mouse and/or USB keyboard. If these devices do not work, make sure the USB KB/Mouse Legacy Emulation item in HW Setup is set to **Enabled**. If problems persist, contact your dealer.

Memory expansion

Refer also to Chapter 8, *Optional Devices*, for information on installing memory modules.

Problem	Procedure
If there is a memory malfunction, the power LED 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 green. If there is only an error in Slot B: repeatedly flashes orange, then green twice. If there is an error in Slot A and in Slot B: repeatedly flashes orange twice, then green twice.	In the event of "power LED" flashing indicated on the left being seen when the computer is switched 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: 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. Switch on the computer. If you are still unable to resolve the problem, contact your reseller, dealer or service provider.

Sound system

Refer also to documentation for your audio devices.

Problem	Procedure
No sound is heard	Adjust the volume control dial.
	Check the software volume settings.
	Make sure the headphone connection is secure. If problems persist, contact your dealer.
	Check Windows Device Manager. Make sure the sound function is enabled and that settings for I/O address, Interrupt level and DMA are correct for your software and do not conflict with other hardware devices that you may have connected to the computer.
Annoying sound is heard	You may be experiencing feedback. Refer to *Sound system* in Chapter 4, *Operating Basics*. If problems persist, contact your dealer.

External monitor

Refer also to Chapter 8, *Optional Devices,* and to your monitor's documentation.

Problem	Procedure
Monitor does not turn on	Make sure that the external monitor's power switch is on. Confirm that the external monitor's power cable is plugged into a working power outlet.
No display	Try adjusting the contrast and brightness controls on the external monitor.
	Press hot keys **Fn** + **F5** to change the display priority and make sure it is not set for the internal LCD.
Display error occurs	Check that the cable connecting the external monitor to the computer is attached firmly. If problems persist, contact your dealer.

i.LINK (IEEE1394) device

Problem	Procedure
i.LINK device does not function	Make sure the cable is securely connected to the computer and to the device.
	Make sure the device's power is turned on.
	Reinstall the drivers. Open the Windows Control Panel and double-click the **Add Hardware** icon. Follow the on-screen directions.
	Restart Windows. If problems persist, contact your dealer.

Modem

Problem	Procedure
Communication software can't initialize modem	Make sure the computer's internal modem settings are correct. Refer to *Phone and Modem* Properties in the Control Panel.
You can hear a dial tone but can't make a call	If the call is going through a PBX machine, make sure the communication application's tone dial detection feature is disabled. You can also use the ATX command.
You place a call, but a connection can't be made	Make sure the settings are correct in your communications application.
After making a call you can't hear a ring	Make sure the tone or pulse selection in your communications application is set correctly. You can also use the ATD command.
Communication is cut off unexpectedly	The computer will automatically cut off communication when connection with the carrier is not successful for a set time interval. Try lengthening this time interval.
A **CONNECT** display is quickly replaced by **NO CARRIER**	Check the error control setting in your communications application. You can also use the AT\N command.
Character display becomes garbled during a communication session	In data transmission, make sure the parity bit and stop bit settings correspond with those of the remote computer. Check the flow control and communication protocol.

Problem	Procedure
You cannot receive an incoming call	Check the rings before auto answer setting in your communications application. You can also use the ATS0 command. If problems persist, contact your dealer.

LAN

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

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	Make sure the computer's wireless communication switch is set to on. If problems persist, contact your LAN administrator.

Bluetooth

For more information on wireless communication, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
Cannot access Bluetooth device	Make sure the computer's wireless communication switch is set to on.
	Make sure the Bluetooth Manager is running and the power to the Bluetooth device is turned on.
	Make sure no optional Bluetooth PC card and Bluetooth SD card are installed in the computer. The built-in Bluetooth function and an optional Bluetooth PC card cannot operate simultaneously. If problems persist, contact your dealer.

Printer

Refer also to the *Parallel printer* sections in Chapter 8, *Optional Devices*, and to the troubleshooting and other relevant sections in your printer and software documentation.

Problem	Procedure
Printer does not turn on.	Check that the printer is connected to an electric outlet. Make sure the outlet is supplying power by plugging in an appliance.
Computer/printer do not communicate	Make sure the printer is turned on and is online (ready to use). Inspect the cable connecting the printer to the computer for damage. Make sure it is securely connected. A parallel printer connects to the parallel port. Make sure the port is configured correctly. Make sure your software is configured to recognize the printer. Check your printer and software documentation.
Printer error	Check your printer documentation. If problems persist, contact your dealer.

TV output signal

Problem	Procedure
Display on TV is poor	Make sure the TV type is correct for your area: NTSC (US, JAPAN), PAL (Europe).
No display	Try adjusting the contrast and brightness controls on the external monitor.
	Press hotkeys **Fn** + **F5** to change the display. Refer to Chapter 5, *The Keyboard*. If problems persist, contact your dealer.

If you turn the computer off into Standby Mode while the display is on TV, the computer will select either the internal LCD or an external computer CRT as the display device the next time is switched on.

Disposing of PC and PC batteries

- Discard this PC in accordance with applicable laws and regulations. For further information, contact your local government.
- This PC 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. This product contains mercury. Disposal of this material may be regulated due to environmental considerations. For disposal, reuse or recycling information, please contact your local government.
- If your hard disk 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 PC, 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, it is important to investigate other sources of assistance first. Before contacting TOSHIBA, try the following:

- Review troubleshooting sections in the documentation for software and peripheral devices.
- If a problem occurs when you are running software applications, consult the software documentation for troubleshooting suggestions. Call the software company's technical support for assistance.
- Consult the dealer you purchased your computer and/or software from. They are your best sources 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.

Chapter 10

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 Footnote 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.

CPU

Central Processing Unit (“CPU”) Performance Legal Footnote.

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 PC 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 9, *Troubleshooting*, for more information.

Memory (Main System)

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

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

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 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

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 will not be able to increase the brightness of the screen.

Graphics Processor Unit (“GPU”)

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

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.

Non-applicable Icons

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.

Copy Protection

Applicable copy protection standards included in certain media may prevent or limit recording or viewing of the media.

Images

All images are simulated for purposes of illustration.

Appendix A

Specifications

This appendix summarizes the computer's technical specifications.

Physical Dimensions

Size	338 (+6) (w) × 280 (+6) (d) × 29.9/38.6 (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 95%
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 VDC 5.0 amperes

Built-in Modem

Network control unit (NCU)	
Type of NCU	AA
Type of line	Telephone line (analog only)
Type of dialing	Pulse Tone
Control command	AT commands EIA-578 commands
Monitor function	Computer's speaker
Communication specifications	
Communication system	Data: Full duplex Fax: Half duplex
Communication protocol	Data ITU-T-Rec (Former CCITT) V.21/V.22/V.22bis/V.32 /V.32bis/V.34/V.90 Bell 103/212A Fax ITU-T-Rec (Former CCITT) V.17/V.29/V.27ter /V.21 ch2
Communication speed	Data transmission and reception 300/1200/2400/4800/7200/9600/12000/14400/ 16800/19200/21600/24000/26400/28800/31200/ 33600 bps Data reception only with V.90 28000/29333/30666/32000/33333/34666/36000/ 37333/38666/40000/41333/42666/44000/45333/ 46666/48000/49333/50666/52000/53333/54666/ 56000 bps Fax 2400/4800/7200/9600/12000/14400 bps

Transmitting level	-10 dBm
Receiving level	-10 to -40 dBm
Input/output impedance	600 ohms ±30%
Error correcting	MNP class 4 and ITU-T V.42
Data compression	MNP class 5 and ITU-T V.42bis
Power supply	+3.3V (supplied by computer)

Appendix B

Display Controller and Modes

Display controller

The display controller interprets software commands into hardware commands that turn particular parts on the screen on or off.

Because of the LCD's increased resolution, lines may appear broken in DOS mode.

The display controller also controls the video mode, which uses industry standard rules to govern the screen resolution and the maximum number of colors that can be displayed on screen.

Software written for a given video mode will run on any computer that supports the mode.

Video modes

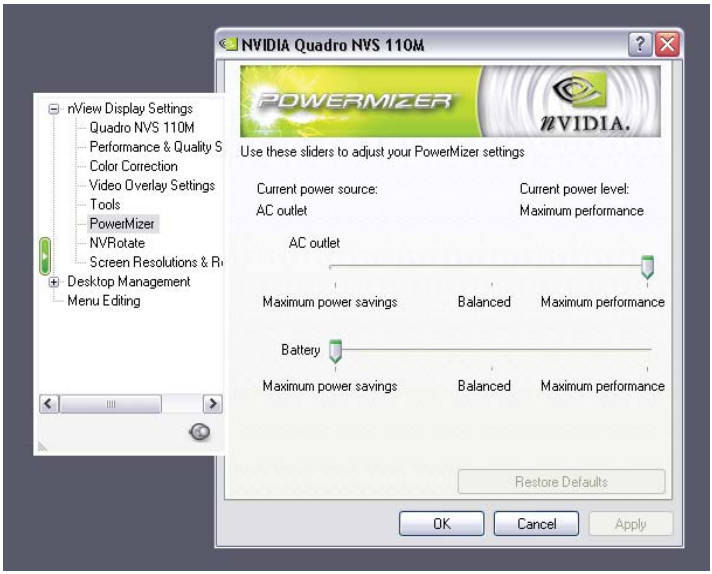
Video mode settings are configured via the Display Properties dialog. To open the Display Properties dialog, click on the Start button, select Control Panel, and from the Control Panel click on Appearance and Themes and then click on Display. When the Display Properties dialog appears, click on the Settings tab.

PowerMizer

PowerMizer is a graphics processor installed on this computer. The performance of PowerMizer can be configured in three ways. To define the performance, select the menu options shown below:

Display Property -> **Settings** -> **Advanced** -> **Quadro NVS 110M tab** -> **Quadro NVS 110M button** -> **nView Display Settings** -> **PowerMizer**

The graphics processor offers three options, Maximum Power Savings, Balanced and Maximum Performance, in each of the AC power mode and battery power mode.



Multiple Monitors and Quadro NVS 110M

Appendix C

Wireless LAN

Card Specifications

Form Factor	PCI-Ex MiniCard Type
Compatibility	■ 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	■ Microsoft Windows® Networking
Media Access Protocol	■ CSMA/CA (Collision Avoidance) with Acknowledgment (ACK)
Data Rate	■ Theoretical maximum speed: 54Mbps (IEEE802.11a/IEEE802.11g: 11b/g, 11a/b/g combo 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 Refer to the sheet *Approved Countries/Regions for use* for the countries/regions that 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

TOSHIBA RAID

TOSHIBA RAID provides the RAID function.

2 hard disk drives can be used to construct a RAID configuration (RAID-1: mirroring).

When using RAID-1 (mirroring), the data is stored on 2 HDDs so that even if there are problems with one of the hard disk drive, the other hard disk drive can be used to recover the data.

Please refer to the TOSHIBA RAID help for details.

- *By changing this setting you are reconfiguring your hard disk. In which case, all data and programs in the hard disk, including the operating system (e.g. Windows), will be erased. If you have not yet done so, launch the Recovery Disc Creator and create the recover discs now. If you have data on the hard drive that you wish to keep, make a backup of that data onto external media (such as a CD) now. You will not be able to create recovery discs, nor access any data from the hard disk after reconfiguring your hard disk.*
- *A power-on password can help restrict access to your data. It can also help restrict access to System Setup, where some of your computer's configuration settings are kept. If you do not have a power-on password set, someone with access to it could (i) set a power-on password, locking you out of your own computer, or (ii) change your configuration settings, which could result in data loss. We recommend that you consider using a power-on password.*

Windows Manual Setup

Use the following procedures when manually setting up Windows.

Before Setting Up Windows

Before setting up Windows, create the TOSHIBA RAID Driver Disk and configure the BIOS setup program.

Creating the TOSHIBA RAID Driver Disk

1. Connect the USB floppy disk drive and insert a floppy disk.
2. From the **start** menu, select **TOSHIBA Application Installer** and click the **Next** button.
3. Select the **TOSHIBA RAID Driver** and click the **Install** button.
4. Specify the folder and click the **Unzip** button.
   The driver file will be copied to the floppy disk.

Configuring the BIOS Setup Program

In the RAID ARRAY setting of the BIOS setup program, set the built-in HDD to 1RAID-0.

It is not necessary to change the setting if it has already been set as such.

Refer to the *Starting, Modifying and Ending the BIOS Setup Program*, in this chapter.

Windows Setup Procedure

1. Insert the Windows Setup CD-ROM into the CD-ROM drive and boot up.
   The Windows Setup program will start.
2. When the message "**`Press F6 if you need to install a third party SCSI or RAID driver`**" appears on the screen, press the **F6** key.
3. When the message "**`Setup will load support for the following mass storage device(s):`**" appears on the screen, press the **S** key and install the TOSHIBA RAID Driver using the TOSHIBA RAID Driver Disk that was created.
4. Follow the onscreen instructions to continue Windows setup.

- *Please use only hard disk drives supported by the computer. Correct operations cannot be guaranteed if other hard disk drives are used.*
- *The following types of applications might not work correctly:*
  - *Applications that directly access the hardware and read/write to the hard disk drive.*
  - *Using an OS such as Linux to run applications that read/write to the hard disk drive.*

- *Boot menu*
  When 2 hard disk drives are connected, it is possible to select which hard disk drive to boot from in the boot menu. However, if a RAID configuration is used, the 2 hard disk drives are recognized as 1 drive and there is no change in the boot configuration no matter which hard disk drive is selected.
- *When using a RAID-1 (mirroring) configuration, the additional hard disk drive's capacity must be equal to or more than the capacity of the existing hard disk drive.*
- *The hard disk drives used in the RAID configuration should not be removed and used in other computers.*
- *When using the RAID-1 (mirroring) configuration, the OS recognizes the lesser capacity of the 2 hard disk drives.*
  For example, if a 60 GB and an 80 GB hard disk drive are used in the mirroring configuration, the OS will recognize the capacity as a 60 GB hard disk drive.
  The additional 20 GB capacity (over the 60 GB hard disk drive) of the 80 GB hard disk drive cannot be used.
- *If a hard disk drive had been replaced, execute the rebuild command and rebuild the RAID-1 (mirroring) configuration.*
- *Implementing the media checking schedule*
  Media checks should be carried out regularly to ensure even more stable operation of the RAID configuration and to make it easier for maintenance and repair measures to be carried out in case of hard disk drive failures.
  For RAID-1 with data redundancy, if a hard disk drive failure occurs, the hard disk drive is replaced and its data reconstructed from the other hard disk drive which did not fail.
  If there are bad blocks, etc., in the hard disk drive that did not fail, it is possible that portion of data might not be recovered and system down might occur.
  An effective way to ensure that such situations do not happen is to carry out RAID-1 media checks regularly.
  The TOSHIBA RAID utility is set as default to carry out media checks every month on the third Wednesday from noon.

Starting, Modifying and Ending the BIOS Setup Program

Starting the BIOS Setup Program

1. Switch on your computer while pressing the **Esc** key.
   If **`Password =`** is displayed, enter the User Password and press the **Enter** key.
   Please refer to the *TOSHIBA Password Utility* section in Chapter 6, *Power and Power-Up Modes*, for details about the User Password.
   The "**`Check system. Then press [F1] key.`**" message is displayed.
2. Press the **F1** key.
   The BIOS setup program will start up.

Modifying the BIOS

1. Select the RAID ARRAY setting in the SYSTEM SETUP (3/3) screen.

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

2. The settings are explained as follows. Modify the settings as necessary.

Current State	Shows the current hard disk status.
Create State	Modify the hard disk configuration. (Modifications are made with this setting).
Built-in HDD	Status of the connected hard disk.
Second HDD	Status of the second hard disk.

Configuration status and settings

JBOD	No RAID settings. Windows cannot be installed in this disk except for using recovery CD/DVD.
1RAID-0	Including RAID settings. Windows can be installed in this disk.
2RAID-0	Set to RAID-0 for 2 hard disks. This cannot be set in this computer (Current State Only).
RAID-1	Set to RAID-1 for 2 hard disks (Current State Only).
UNKNOWN	A RAID status except for the above status and settings (Current State Only).
No Drive	No hard disks connected (Current State Only).

3. The Execute Creation message is displayed once the configuration is modified. Move the cursor to the appropriate location and press the space bar to continue.

Pressing the Home key will revert the modified Create State settings back to the Current State settings.

4. The following message will be displayed. Follow the instructions and press the keys in the order of 1, 2, 3, 4, [**Enter**].

Warning: If you change the RAID array, you will need to install the OS again. Are you sure? All data on the HDD(s) will be destroyed. Do you really want to do this? If "Yes", please type the key string which is written in the manual.

Ending the BIOS Setup Program

Save the changes and end the program.

1. Press the **End** key.
   The "**Are you sure? (Y/N) The changes you made will cause the system to reboot.**" message is displayed.
2. Press the **Y** key.
   The configured settings are saved and the BIOS setup program ends. The computer may reboot depending on the settings that were modified.

Appendix E

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 étre prét 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).

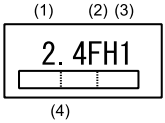
1. Sticker

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

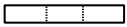
The indication shown below appears on this equipment.



(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.

Approved Countries/Regions for use (Bluetooth™ wireless technology)

Bluetooth™ Card from TOSHIBA equipment is approved to the radio standard by the countries/regions in the following table.

Do not use this equipment except in the countries/regions in the following table.

Australia	**Austria**	**Belgium**
Canada	**Cyprus**	**Czech Republic**
Denmark	**Estonia**	**Finland**
France	**Germany**	**Greece**
Hungary	**Iceland**	**Ireland**
Italy	**Latvia**	**Liechtenstein**
Lithuania	**Luxembourg**	**Malta**
Netherlands	**New Zealand**	**Norway**
Poland	**Portugal**	**Slovakia**
Slovenia	**Spain**	**Sweden**
Switzerland	**UK**	**USA**
Japan	**Bulgaria**	**China**
Egypt	**Hong Kong**	**Jordan**
Korea	**Kuwait**	**Lebanon**
Oman	**Philippines**	

Countries/regions that have approved Bluetooth™ Card from TOSHIBA

Appendix F

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 2 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

Europe:

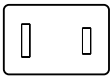
Austria:	OVE	**Italy:**	IMQ
Belgium:	CEBEC	**The Netherlands:**	KEMA
Denmark:	DEMKO	**Norway:**	NEMKO
Finland:	FIMKO	**Sweden:**	SEMKO
France:	LCIE	**Switzerland:**	SEV
Germany:	VDE	**United Kingdom:**	BSI

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.

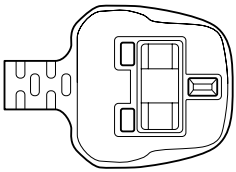
The following illustrations show the plug shapes for the U.S.A. and Canada, the United Kingdom, Australia and Europe.

USA



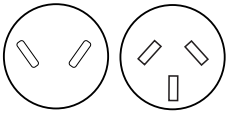
UL approved

United Kingdom



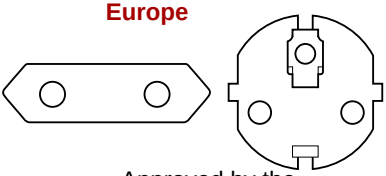
BS approved

Australia



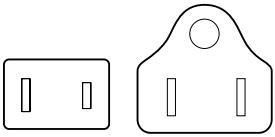
AS approved

Europe



Approved by the appropriate agency

Canada



CSA approved

Appendix G

TOSHIBA Anti-theft Protection Timer

This function sets the limit for the number of days during which you are able to bypass authentication for the BIOS, Hard Disk Drive and Fingerprint.

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 up 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 up 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 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.

To register the theft online, please follow these procedures:

- Visit www.toshiba-europe.com on the Internet. In the product area, choose **Computer Systems**.
- In the Computer Systems page, open the **Support & Downloads** menu and choose the **Stolen Units Database** option.

Your entries are used to track your computer at our service points.

TOSHIBA Theft Registration

Send to: TOSHIBA Europe GmbH
Technical Service and Support
Leibnizstr. 2
93055 Regensburg
Germany

Fax number: +49 (0) 941 7807 921

Country stolen:	
Machine type: (e.g. Satellite A50)	
Model number: (e.g. PSA50 YXT)	
Serial number: (e.g. 12345678G)	
Date stolen:	Year Month Day

Owner's details

Last name, first name:	
Company:	
Street:	
Postal Code/City:	
Country:	
Phone:	
Fax:	

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 disk drive
FIR: fast infrared
HDD: hard disk drive
IDE: integrated drive electronics
I/O: input/output
IrDA**:** Infrared Data Association
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
SXGA+: super extended graphics array plus
TFT: thin-film transistor
UART: universal asynchronous receiver/transmitter
USB: Universal Serial Bus
UXGA: ultra extended graphics array
VESA: Video Electronic Standards Association
VGA: video graphics array
VRT: voltage reduction technology
WXGA: wide extended graphics array
XGA**:** extended graphics array

A

AccuPoint: A pointing device integrated into the TOSHIBA computer keyboard.

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 disk or hard disk. It is usually described in terms of kilobytes (KB), where one KB = 1024 bytes and megabytes (MB), where one MB = 1024 KB.

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).

Dual Pointing Device: Pointing device consisting of AccuPoint and Touch Pad. Both of these device can function together or separately. *See* AccuPoint and Touch Pad.

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 disk: A removable disk that stores magnetically encoded data.

floppy disk drive (FDD): An electromechanical device that reads and writes to floppy disks.

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.

i.LINK (IEEE1394): This port enables high-speed data transfer directly from external devices such as digital video cameras.

infrared port: A cableless communications port capable of using infrared signals to send serial data.

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.

IrDA 1.1: An industry standard that enables cableless infrared serial data transfer at speeds of up to 4 Mbps.

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, Standby Mode or the Hibernation Mode.

modem: Derived from modulator/demodulator, a device that converts (modulates) digital data for transmission over telephone lines and then converts modulated data (demodulates) to digital format where received.

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 disk 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

parallel interface: Refers to a type of information exchange that transmits information one byte (8 bits) at a time. *See also* serial interface.

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 Utility: 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.

RJ11: A modular telephone jack.

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.

serial communications: A communications technique that uses as few as two interconnecting wires to send bits one after another.

serial interface: Refers to a type of information exchange that transmits information sequentially, one bit at a time. Contrast: Parallel interface.

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 disk from accidental erasure.

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