Satellite

User's Manual

M30

Satellite

SATELLITE M30 SATELLITE M30 SATELLITE M30

Choose freedom.

computers.toshiba-europe.com

TOSHIBA

Copyright

TOSHIBA Satellite M30 Series Portable Personal Computer User's Manual

First edition September 2003

Disclaimer

This manual has been validated and reviewed for accuracy. The instructions and descriptions it contains are accurate for the TOSHIBA Satellite M30 Series 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.

Trademarks

IBM is a registered trademark and IBM PC is a trademark of International Business Machines Corporation.

Intel and Pentium are trademarks or registered trademarks of Intel Corporation.

Windows and Microsoft are registered trademarks of Microsoft Corporation.

Photo CD is a trademark of Eastman Kodak.

Other trademarks and registered trademarks not listed above may be used in this manual.

EU Declaration of Conformity

CE

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

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 contained 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 approval. 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.

Optical disc drive safety instructions

Be sure to check the international precautions at the end of this section.

CD-RW/DVD-ROM drives

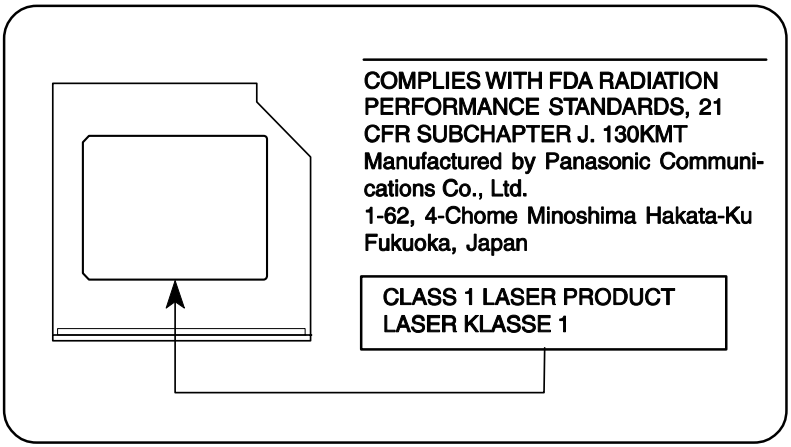
Panasonic UJDA750

The CD-RW/DVD-ROM drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.

Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.

To prevent direct exposure to the laser beam, do not try to open the enclosure.

Location of the required label



DVD-R/-RW drives

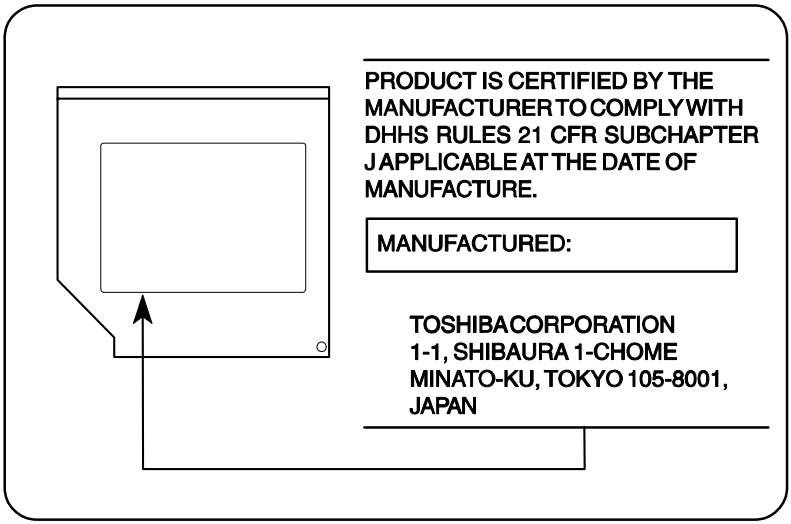
TOSHIBA SD-R6012

The DVD-R/-RW drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.

Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.

To prevent direct exposure to the laser beam, do not try to open the enclosure.

Location of the required label



DVD Multi drives

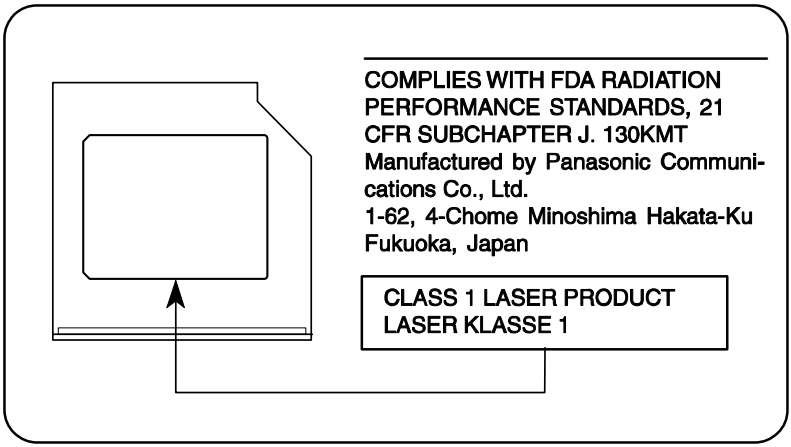
Panasonic UJ-811

The DVD Multi drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.

Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.

To prevent direct exposure to the laser beam, do not try to open the enclosure.

Location of the required label



TEAC DV-W22E

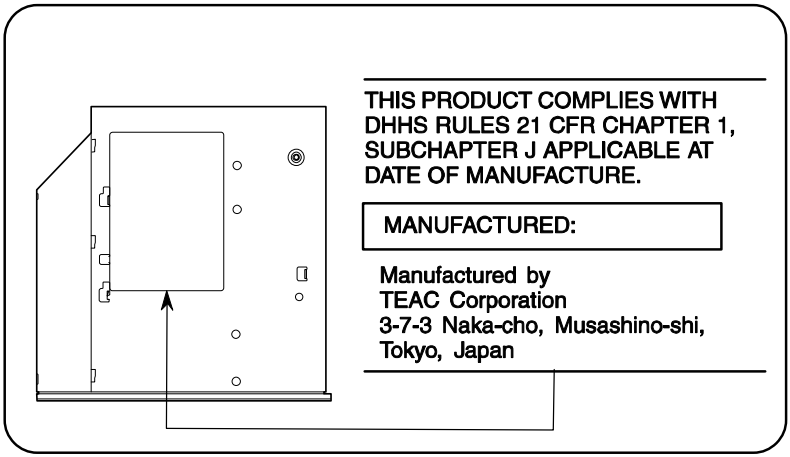
This product has been designed and manufactured according to FDA regulations “title 21. CFR. chapter 1, subchapter J. based on the radiation Control for Health and Safety Act of 1968,” and is classified as a class 1 laser product. There is no hazardous invisible laser radiation during operation because invisible laser radiation emitted inside of this product is completely confined in the protective housings.

The label required in this regulation is shown below.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

		Optical pickup
Type	:	PSH202
Manufacturer	:	TEAC
Laser output	:	Less than 1.5mW (Play) and 53.3mW (Record) on the objective lens
Wavelength	:	779-789nm (CD) 652 ~ 660nm (DVD)

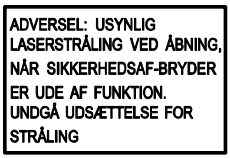
Location of the required label



International precautions

CAUTION: This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT." To use this model properly, read the instruction manual carefully and keep this manual for your future reference. In case of any trouble with this model, please contact your nearest "AUTHORIZED service station." To prevent direct exposure to the laser beam, do not try to open the enclosure

VORSICHT: Dieses Gerät enthält ein Laser-System und ist als "LASERSCHUTZKLASSE 1 PRODUKT" klassifiziert. Für den richtigen Gebrauch dieses Modells lesen Sie bitte die Bedienungsanleitung sorgfältig durch und bewahren diese bitte als Referenz auf. Falls Probleme mit diesem Modell auftreten, benachrichtigen Sie bitte die nächste "autorisierte Service-Vertretung". Um einen direkten Kontakt mit dem Laserstrahl zu vermeiden darf das Gerät nicht geöffnet werden.



ADVARSEL: Denne mærking er anbragt udvendigt på apparatet og indikerer, at apparatet arbejder med laserstråler af klasse 1, hviket betyder, at der anvendes laserstrlier af svageste klasse, og at man ikke på apparatets yderside kan bilve udsat for utilladellg kraftig stråling.

APPARATET BOR KUN ÅBNES AF FAGFOLK MED SÆRLIGT KENDSKAB TIL APPARATER MED LASERSTRÅLER!

Indvendigt i apparatet er anbragt den her gengivne advarselsmækning, som advarer imod at foretage sådanne indgreb i apparatet, at man kan komme til at udsætte sig for laserstråling.

OBS! Apparaten innehåller laserkomponent som avger laserstråining överstigande gränsen för laserklass 1.

VAROITUS. Suojakoteloa si saa avata. Laite sisältää laserdiodin, joka lähetää näkymätöntä silmilie vaarallista lasersäteilyä.

CAUTION: USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED IN THE OWNER'S MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

VORSICHT: DIE VERWENDUNG VON ANDEREN STEURUNGEN ODER EINSTELLUNGEN ODER DAS DURCHFÜHREN VON ANDEREN VORGÄNGEN ALS IN DER BEDIENUNGSANLEITUNG BESCHRIEBEN KÖNNEN GEFÄHRLICHE STRAHLENEXPOSITIONEN ZUR FOLGE HABEN.

General Precautions

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

Be certain to read the general precautions below and to note the cautions included in the text of the manual. Please also refer to the *Safety Instruction Manual*.

Stress injury

Carefully read the *Safety Instruction Manual*. It contains information on prevention of stress injuries to your hands and wrists that can be caused by extensive keyboard use. Chapter 3, *Getting Started*, also includes information on work space design, posture and lighting that can help reduce physical stress.

Heat Warning

- 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.

Mobile phones

Use of mobile phones can interfere with the PC sound system. The PC operation is not impaired but it is recommended that a distance of 30 cm is maintained between the PC & the mobile phone.

Pressure or impact damage

Do not apply heavy pressure to the computer or subject it to strong impact. Excessive pressure or impact can cause damage to computer components or otherwise cause malfunctions.

PC Card overheating

Some PC cards can become hot with prolonged use. Overheating of a PC Card can result in errors or instability in the PC Card operation. Also be careful when you remove a PC Card that has been used for a long time.

Mobile phones

Use of mobile phones can interfere with the audio system. Computer operation is not impaired but it is recommended that a distance of 30 cm be maintained between the computer and a mobile phone in use.

Central Processing Unit (CPU) Performance Disclaimer

CPU Performance in your computer product may vary from specifications under the following conditions:

- Use of certain peripheral products
- use of battery power instead of AC power
- use of certain multimedia games or videos with special effects
- use of standard telephone lines or low speed network connections
- use of complex modelling software, such as high end computer aided design applications
- use of the computer in areas with low air pressure (high altitude >1,000 meters or >3,280 feet above sea level)
- use of the computer at temperatures outside the range of 5°C to 35°C (41°F to 95°F) or >25°C (77°F) at high altitude (all temperature references are approximate).
- 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 under *Environmental Requirements* defined in the Appendix A*, Specifications*. Contact TOSHIBA Technical Service and Support for more information.

CE compliance

This product and the original options are designed to observe the related EMC (Electromagnetic compatibility) and safety standards. However, TOSHIBA should not guarantee that this product still observes these EMC standards if options or cables not produced by TOSHIBA are connected or implemented. In this case the persons who have connected / implemented those options / cables have to assure that the system (PC plus options / cables) still fulfils the required standards. To avoid in general EMC problems following advice should be observed:

- Only CE marked options should be connected / implemented
- Only best shielded cables should be connected

Working environment

This product was designed to fulfil the EMC (electromagnetic compatibility) requirements to be observed for so-called "Residential, commercial and light industry environments".

TOSHIBA do not approve the use of this product in working environments other than the above mentioned "Residential, commercial and light industry environments".

For example, the following environments are not approved:

- Industrial Environments (environments with a mains voltage >230V~)
- Medical Environments
- Automotive Environments
- Aircraft Environments

If this product is supplied with a network port, please refer to the paragraph "Network connection".

Any consequences resulting from the use of this product in working environments that are not approved are not the responsibility of TOSHIBA Europe GmbH.

The consequences of the use of this product in non-approved working environments may be:

- Interference with other devices or machines in the near surrounding area
- Malfunction of, or data loss from, this product caused by disturbances generated by other devices or machines in the near surrounding area

Therefore TOSHIBA strongly recommend that the electromagnetic compatibility of this product should be suitably tested in all non-approved working environments before use. In the case of automobiles or aircraft, the manufacturer or airline respectively should be asked for permission before use of this product.

Furthermore, for general safety reasons, the use of this product in environments with explosive atmospheres is not permitted.

Network connection (class A warning)

If this product has networking capabilities and will be connected to a network, Class A radiation limits will be observed (in accordance with technical conventions). This means that if the product will be used in a domestic environment, other devices in the near surrounding may suffer interference. Consequently, please do not use this product in such environments (for example a living room), otherwise you could be held responsible for any ensuing interference.

Information on the secure use of the CD-RW

Please adhere to the following information on the use of the CD-RW to minimise the risk of unsuccessful storing process. As the storing may be unsuccessful despite your adhering to these information, for example because of a defective storing medium, you should even if the software indicates a successful storage, always check if the data has been stored successfully.

About TOSHIBA Wireless Solution

Wireless LAN Card Types

The Wireless LAN Card is a wireless network card that complies with the IEEE 802.11 standard on wireless LANs (Revision B). The Wireless LAN Card supports data rates up to 11 Mbit/s.

- Wi-Fi (Wireless Fidelity) certified by the Wireless Ethernet Compatibility Alliance (WECA). This means that your Wireless hardware will communicate with other vendors' IEEE 802.11 compliant wireless LAN product.
- Fully compatible with any other wireless LAN system based on Direct Sequence Spread Spectrum (DSSS) radio technology that complies with the "IEEE 802.11 standard on wireless LANs (Revision B).

Wireless LAN cards

The Wireless LAN Card supports the following wireless LAN features:

- Automatic Transmit Rate Select mechanism in the transmit range of 11, 5.5, 2 and 1 Mbit/s.
- Frequent Channel Selection (2.4 GHz).
- Roaming over multiple channels.
- Card Power Management.
- Wired Equivalent Privacy (WEP) data encryption, based on the 128 bit RC4 encryption algorithm as defined in the IEEE 802.11 standard on wireless LANs.

Wireless Interoperability

The TOSHIBA Wireless LAN Mini PCI Card products are designed to be interoperable with any Wireless LAN product that is based on Direct Sequence Spread Spectrum (DSSS) radio technology, and is compliant to:

- The IEEE 802.11 Standard on Wireless LANs (Revision B), as defined and approved by the Institute of Electrical and Electronics Engineers.
- The Wireless Fidelity (WiFi) certification as defined by the WECA Wireless Ethernet Compatibility Alliance.

Wireless LAN and your Health

Wireless LAN products, like other radio devices, emit radio frequency electromagnetic energy. The level of energy emitted by Wireless LAN devices however is far much less than the electromagnetic energy emitted by wireless devices like for example mobile phones.

Because Wireless LAN products operate within the guidelines found in radio frequency safety standards and recommendations, TOSHIBA believes Wireless LAN 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 Wireless LAN may be restricted by the proprietor of the building or responsible representatives of the organisation. These situations may for example include:

- Using the Wireless LAN equipment on board of aeroplanes, 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 organisation or environment (e.g. airports), you are encouraged to ask for authorisation to use the Wireless LAN device prior to turning on the equipment.

Safety Instruction for Wireless Products

If your computer has wireless function, all safety instructions must be read carefully and must be fully understood, before attempting to use our Wireless Products.

This manual contains the safety instructions that must be observed in order to avoid potential hazards that could result in personal injuries or could damage your Wireless Products.

Limitation of Liability

For damage occurring due to an earthquake or thunder, fire beyond our responsibility, action by third party, other accident, intentional or accidental mistakes by a user, misuse, use under abnormal conditions, we do not take any responsibility.

For incidental damage (loss of business profit, business interruption, etc.) occurring due to use or disability of the product, we do not take any responsibility.

For damage occurring due to non observance of the contents described in the instruction manual, we do not take any responsibility.

For damage occurring due to erroneous operation or hang up caused by use in combination with products not related to our company, we do not take any responsibility.

Usage Restrictions

Do not use the Wireless Products for controlling equipment:

- Equipment directly linked with human life corresponds to the following.
  - Medical equipment such as life support systems, equipment used in operations, etc.
  - Exhaust systems for gases such as poisonous gas etc. and exhaust systems for smoke.
  - Equipment that must be set up in compliance with various laws such as the Fire Services Act, the Construction Standard Act, etc.
  - Equipment corresponding to that mentioned above.
- Equipment linked with human safety or having a serious influence on the safe maintenance of public function, etc., because it is not designed or manufactured for this type of use.
  - Traffic control equipment for air, railroad, road, marine transport, etc.
  - Equipment used in atomic power plants etc.
  - Equipment corresponding to that mentioned above.

WARNING

Turn OFF the Wireless Communication switch of Wireless Products in a congested place, such as a crowded commuter train.

Keep this product away from a cardiac pacemaker at least 22cm.

Radio waves can potentially affect cardiac pacemaker operation, thereby causing respiratory troubles.

Turn OFF the Wireless Communication switch inside a medical facility or near medical electric equipment. Do not bring medical electric equipment close to the product.

Radio waves can potentially affect medical electric equipment, thereby causing an accident due to malfunction.

Turn OFF the Wireless Communication switch near an automatic door, fire alarm or other automatic control equipment.

Radio waves can potentially affect automatic control equipment, thereby causing an accident due to malfunction.

Do not turn ON the Wireless Communication switch in aircraft or in places that generate or can generate radio interference.

Radio waves can potentially affect them, causing an accident due to malfunction.

Monitor possible radio interference or other troubles to other equipment while the product is used. If any effect is caused, turn OFF the Wireless Communication switch.

Otherwise, radio waves can potentially affect other equipment, thereby causing an accident due to malfunction.

When using the product in a car, check with the automobile dealer if the car has an adequate electromagnetic compatibility (EMC).

Radio waves of the product can potentially hamper safe driving.

Depending on car model, the product can rarely affect car electronic equipment if it is used in a car.

NOTE

Do not use the product in the following places:

Places near a microwave oven where a magnetic field generates and places where static electricity or radio interference generates.

Depending on environment, radio waves can not reach to the product.

Regulatory Information

The TOSHIBA Wireless LAN Mini PCI Card must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. This device complies with the following radio frequency and safety standards.

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.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC with essential test suites as per standards:

- EN 60950 Safety of Information Technology equipment
- ETS 300 328 Technical requirements for radio equipment
- ETS 300 826 General EMC requirements for radio equipment.

Belgium/ België/Belgique	For outdoor usage only channel 10 (2457 MHz) and 11 (2462 MHz) is allowed. For private usage outside buildings across public grounds over less than 300m no special registration with IBPT/BIPT is required. Registration to IBPT/BIPT is required for private usage outside buildings across public grounds over more than 300m. An IBPT/BIPT license is required for public usage outside building. For registration and license please contact IBPT/BIPT. Gebruik buiten gebouw alleen op kanalen 10 (2457 MHz) en 11 (2462 MHz). Voor privé-gebruik buiten gebouw over publieke groud over afstand kleiner dan 300m geen registratie bij BIPT/IBPT nodig; voor gebruik over afstand groter dan 300m is wel registratie bij BIPT/IBPT nodig. Voor publiek gebruik buiten gebouwen is licentie van BIPT/IBPT verplicht. Voor registratie of licentie kunt u contact opnemen met BIPT. L'utilisation en extérieur est autorisé sur le canal 10 (2457 MHz) et 11 (2462 Mhz). Dans le cas d'une utilisation privée, à l'extérieur d'un bâtiment, au-dessus d'un espace public, aucun enregistrement n'est nécessaire pour une distance de moins de 300m. Pour une distance supérieure à 300m un enregistrement auprès de l'IBPT est requise. Pour une utilisation publique à l'extérieur de bâtiments, une licence de l'IBPT est requise. Pour les enregistrements et licences, veuillez contacter l'IBPT.
Germany/ Deutschland	License required for outdoor installations. Check with reseller for procedure to follow Anmeldung im Outdoor-Bereich notwendig, aber nicht genehmigungspflichtig. Bitte mit Händler die Vorgehensweise abstimmen.

France	Restricted frequency band: only channels 10 and 11 (2457 MHz and 2462 MHz respectively) may be used in France. License required for every installation, indoor and outdoor installations. Please contact ART for procedure to follow. Bande de fréquence restreinte : seuls les canaux 10 à 11 (2457 et 2462 MHz respectivement) doivent être utilisés en France. Toute utilisation, qu'elle soit intérieure ou extérieure, est soumise à autorisation. Vous pouvez contacter l'Autorité de Régulation des Télécommuniations (http://www.art-telecom.fr) pour la procédure à suivre.
Italy/Italia	License required for indoor use. Use with outdoor installations not allowed E'necessaria la concessione ministeriale anche per l'uso interno. Verificare con i rivenditori la procedura da seguire. L'uso per installazione in esterni non e' permessa.
Nederland	License required for outdoor installations. Check with reseller for procedure to follow Licentie verplicht voor gebruik met buitenantennes. Neem contact op met verkoper voor juiste procedure

USA-Federal Communications Commission (FCC)

This device complies with Part 15 of FCC Rules. Operation of the devices in a Wireless LAN System is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference that may cause undesired operation.

TOSHIBA is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this TOSHIBA Wireless LAN Mini PCI Card, 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 Toshiba Wireless LAN Mini PCI Card will be installed with one of two types of antennas. Both antenna types, when installed are located at the upper edge of the LCD screen.

For both antennas, the radiated output power of the TOSHIBA Wireless LAN Mini PCI Card is far below the FCC radio frequency exposure limits. Nevertheless, the TOSHIBA Wireless LAN Mini PCI Card shall be used in such a manner that the potential for human contact during normal operation is minimized. In normal operating configuration, the LCD in the upright position, the distance between the antenna and the user should not be less than 20cm.

Refer to the Regulatory Statements as identified in the documentation that comes with those products for additional information.

Relevant transmitters include FCC IDs: CJ6PA3171WL, CJ6PA3121BT.

Taiwan

Article 14	Unless approved, for any model accredited low power radio frequency electric machinery, any company, trader or user shall not change the frequency, increase the power or change the features and functions of the original design.
Article 17	Any use of low power radio frequency electric machinery shall not affect the aviation safety and interfere with legal communications. In event that any interference is found, the use of such electric machinery shall be stopped immediately, and reusing of such products can be resumed until no interference occurs after improvement. The legal communications mentioned in the above item refer to radio communications operated in accordance with telecommunication laws and regulations. Low power radio frequency electric machinery shall resist against interference from legal communications or from industrial, scientific and medical radio emission electric machinery.

Using this equipment in Japan

In Japan, the frequency bandwidth of 2,400~2,483.5MHz 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).

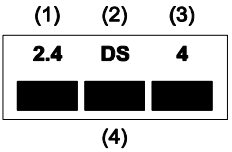
1. Sticker

   Please put the following sticker on devices incorporating this product.

> **In the frequency bandwidth of this equipment, industrial device, scientific device, medical device like microwave oven, licensed premises radio station and non-licensed specified low-power radio station for mobile object identification system (RF-ID) that is used in product line of factories, (Other Radio Stations) are used.**
>
> 1. **Please make sure before using this equipment that no Other Radio Stations are used in the neighbourhood.**
> 2. **In case that RF interference occurs to Other Radio Stations from this equipment, please change promptly the frequency for use, place to use, or stop emitting Radio.**
> 3. **Please contact TOSHIBA Direct PC if you have a problem, such as interference from this equipment to Other Radio Stations.**

2. Indication

   The indication shown below appears on this equipment.



(1) 2.4 : This equipment uses a frequency of 2.4GHz.

(2) DS : This equipment uses DS-SS modulation.

(3) 4 : The interference range of this equipment is less than 40m.

(4) ▬▬▬ : This equipment uses a frequency bandwidth from 2,400mhz to 2,483.5MHz.

It is impossible to avoid the band of mobile object identification systems.

Device Authorisation

This device obtains the Technical Regulation Conformity Certification and 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 Radio Law and the Telecommunications Business Law of Japan.

The Name of the radio equipment: MPCI3A-20/R

JAPAN APPROVALS INSTITUTE FOR TELECOMMUNICATIONS EQUIPMENT Approval Number: D01-1128JP

TELECOM ENGINEERING CENTER Approval Number: 01NY A1088

The following restrictions apply:

- Do not disassemble or modify the device.
- Do not install the embedded wireless module into other device.

Table of Contents

Chapter 3 Getting Started

Chapter 4 Operating Basics

Chapter 5 Keyboard

Chapter 6 Power

Chapter 7 HW Setup

Chapter 8 Optional Devices

Chapter 9 Troubleshooting

Preface

Congratulations on your purchase of the Satellite M30 Series 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 Satellite M30 Series 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 familiarise 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 organised, 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*.

Manual contents

This manual is composed of nine chapters, eight appendixes, a glossary and an index.

Chapter 1, *Introduction*, is an overview of the computer's features, capabilities, and options.

Chapter 2, *The Grand Tour*, identifies the components of the computer and briefly explains how they function.

Chapter 3, *Getting Started*, provides a quick overview of how to begin operating your computer and gives tips on safety and designing your work area.

Chapter 4, *Operating Basics*, includes instructions on using the following devices: Touch pad, USB diskette drive, optical media drives, audio/video controls, microphone, internal modem, Wireless LAN and LAN. It also provides tips on care of the computer, diskettes and CD/DVDs.

Chapter 5, *The Keyboard*, describes special keyboard functions including the keypad overlay and hot keys.

Chapter 6, *Power,* gives details on the computer's power resources and battery save modes. It also tells how to set passwords.

Chapter 7, *HW Setup,* explains how to configure the computer using the HW Setup program.

Chapter 8, *Optional Devices*, describes the optional hardware available.

Chapter 9, *Troubleshooting*, suggests courses of action if the computer doesn't seem to be working properly.

The Appendixes provide technical information about your computer.

The Glossary defines general computer terminology and includes a list of acronyms used in the text.

The Index quickly directs you to the information contained in this manual.

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.

Display

ABC

Names of Windows® or icons or text generated by the computer that appears on its display screen is presented in the type face you see to the left.

Text generated by the computer is usually preceded by the screen icon.

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*

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. Save the box and packing materials for future use.

Hardware

Check to make sure you have all the following items:

- Satellite M30 Series Portable Personal Computer
- Universal AC adaptor and power cord
- USB diskette drive (optional)
- Modular cable

Software

- The following software is preinstalled:
  - Microsoft® Windows XP Home Edition/Professional
  - Modem driver
  - Display Driver
  - TOSHIBA Utilities
  - Wireless LAN driver
  - Sound Driver
  - DVD-Video Player
  - LAN Driver
  - Pointing Device Driver
  - TOSHIBA Power Saver
  - TOSHIBA Console
  - Infrared Device Driver
  - Drag'n Drop CD+DVD
  - Online manual
- Product Recovery CD-ROM
- Tools & Utilities CD-ROM

Documentation

- *Satellite M30 Series Portable Personal Computer User's Manual*
- *Satellite M30 Series Quickstart*
- Microsoft Windows XP manual
- *Safety Instruction Manual*
- Warranty information

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

Features

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

Processor

Built-in

The computer is equipped with an Intel® Processor, which incorporates a math co-processor, a 64 KB level 1 cache memory and a 1 MB level 2 cache memory. It also supports Enhanced Intel® SpeedStep™ technology.

- 1.4 GHz Intel® Pentium® M processor 1.4 GHz
- 1.5 GHz Intel® Pentium® M processor 1.5 GHz
- 1.6 GHz Intel® Pentium® M processor 1.6 GHz
- 1.7 GHz Intel® Pentium® M processor 1.7 GHz

Some models of the computers carry Intel® CentrinoTM technology, which is based on three separate technologies of Intel® Pentium® M, Intel® PRO/Wireless Network Connection, and Intel® 855 Chipset Family.

Memory

Slots

256, 512 MB or 1 GB memory modules can be installed in the two memory slots for a maximum of 2 GB system memory.

Video RAM

32 or 64 MB of RAM is provided for video display.

Power

Battery pack	The computer is powered by one rechargeable lithium-ion battery pack.
RTC battery	The computer has an internal battery to back up the internal Real Time Clock (RTC) and calendar.
Universal AC adaptor	The universal AC adaptor provides power to the system and recharges the batteries when they are low. It comes with a detachable power cord. 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 *Universal AC adaptor* section in Chapter 2, *The Grand Tour*.

Disks

Hard disk drive	Available in three sizes. ■ 37.26 GB (40.0 billion bytes) ■ 55.89 GB (60.0 billion bytes) ■ 74.53 GB (80.0 billion bytes)
USB diskette drive (optional)	Accommodates either 3½" 1.44-megabyte or 720-kilobyte diskettes. It connects to a USB port. It is an option with some models.
Optical media drive	The computer is configured with one of the optical media drives listed below. Refer also to Chapter 2, *The Grand Tour*, for specifications and to Chapter 4, *Operating Basics*, for information on using the drives. **CD-RW/DVD-ROM drive** A full-size, CD-RW/DVD-ROM drive module 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 and CD-RW at up to 24 speed. A Mode Control button turns power to the CD-RW/DVD-ROM drive on and off so you can use the drive as a stand-alone audio CD player.

DVD-R/-RW drive
A full-size DVD-R/-RW drive module lets you record data to rewritable CD/DVDs as well as run either 12 cm (4.72") or 8 cm (3.15") 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 up to 16 speed, CD-RW at up to 10 speed, DVD-R and DVD-RW at single speed.

DVD Multi drive
A full-size, DVD Multi drive module lets you run either 12 cm (4.72") or 8 cm (3.15") 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 up to 16 speed, CD-RW at up to 8 speed, DVD-R and DVD-RAM at 2 speed, and DVD-RW at single speed.

Display

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

Built-in	15.4" TFT screen, 16 M colors, with a resolution of 1280 horizontal x 800 vertical pixels WXGA.
Graphics controller	A 128-bit graphics controller maximizes display performance. Refer to *Appendix D* for more information.

Keyboard

Built-in	85 keys or 86 keys, compatible with IBM® enhanced keyboard, embedded numeric overlay, dedicated cursor control, and keys. Refer to Chapter 5, *The Keyboard*, for details.

Pointing device

Built-in Touch pad	A Touch pad and control buttons in the palm rest enable control of the on-screen pointer and scrolling of windows.

Ports

Parallel	Parallel printer or other parallel device (ECP compatible).
External monitor	15-pin, analog VGA port supports VESA DDC2B compatible functions.
Universal Serial Bus (USB 2.0)	The computer has three Universal Serial Bus ports that comply with the USB 2.0 standard, which enables data transfer speeds 40 times faster than the USB 1.1 standard. (The ports also support USB 1.1.)
Infrared (Infrared model only)	The serial infrared port meets 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.
i.LINK™ (IEEE1394)	This port enables high-speed data transfer directly from external devices such as digital video cameras.

Slots

PC card	The PC card slot accommodates one 5 mm Type II card.
SD card	This slot lets you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, that use SD card flash-memory. It does not support MultiMedia cards.

Multimedia

Sound system	Windows sound system compatible sound system provides internal speakers and microphone as well as jacks for an external microphone and headphone. It also has a volume control dial.
S-Video out port	This S-Video port lets you transfer NTSC or PAL data to external devices.
Mode Control button	This button directly launches various CD, DVD and Digital Audio functions. Refer to Chapter 4, *Operating Basics*, for details.
Audio/Video control buttons	Audio/Video control buttons let you use the computer's optical media drive as a stand-alone audio CD player. You can also use the buttons to control the computer's DVD video player and Windows Media player when the system is on.
Headphone jack	This jack outputs analog audio signals.
Microphone jack	A 3.5 mm mini microphone jack enables connection of a three-conductor mini jack for monaural microphone input.

Communications

Modem	An internal modem provides capability for data and fax communication. It supports V.90 and V.92. (In the U.S., Canada, UK, France and Germany, both standards are supported; in other countries/regions, only V.90 is supported.) The speed of data transfer and fax depends on analog telephone line conditions. It has a modem jack for connecting to a telephone line.
LAN	The computer has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T) and Fast Ethernet LAN (100 megabits per second, 100BASE-Tx).
Wireless LAN	Your computeris equipped with a wireless LAN mini-PCI card that is compatible with other LAN systems based on Direct Sequence Spread Spectrum/Orthogonal Frequency Division Multiplexing radio technology that complies with the IEEE802.11 Standard (Revision B) and Turbo Mode. Revision-B supports a data transfer rate up to 11 Mbit/s. Turbo Mode supports a data transfer rate up to 108 Mbit/s.
Wireless communication switch	This switch turns the Wireless LAN functions on and off.

Security

Security lock slot	Connects an optional security lock to anchor the computer to a desk or other large object.

Software

Standard	Windows XP Home Edition/Professional operating system and TOSHIBA Utilities and drivers preinstalled on the hard disk.
Plug and Play	When you connect an external device to the computer, Plug and Play capability enables the system to recognize the connection and make the necessary configurations automatically.

Special features

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

Hot keys	Key combinations let you quickly modify 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 internal display when there is no input from the keyboard or pointing device for a time specified. Power is restored when any key is pressed or when there is input from a pointing device. You can specify the time in the *Turn off monitor* item of the *Power Save Mode* window 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 *Turn off hard disks* item of the *Power Save Mode* window in TOSHIBA Power Saver.
Hibernation	This feature lets you turn off the power without exiting from your software. The contents of main memory is 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.
System automatic Standby/Hibernation	This feature automatically shuts down the system in 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 System Standby or System Hibernate in the *System standby and System hibernate* item of the *Power Save Mode* window 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 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 a universal AC adaptor. You can monitor remaining battery capacity. Use the *Battery remaining* item of the *Power Save Modes* window in TOSHIBA Power Saver.
Battery save mode	This feature lets you save battery power. You can specify the Power Save Mode in the *Running on batteries* item of the *Power Save Modes* window in TOSHIBA Power Saver.
Panel power off/on	This feature turns power to the computer off when the display panel is closed and turns it back on when the panel is opened. You can specify the setting in the *When I close the lid* item of the *System Power Mode* window 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 *Battery Alarm* item of the *Alarm* window in TOSHIBA Power Saver.
Heat dispersal	The CPU has an internal temperature sensor that automatically activates cooling procedures. Refer to the *Heat dispersal* section in Chapter 4, *Operating Basics*, for details on setting the options for cooling methods.

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 files.

TOSHIBA Power Saver	To access this power savings management program, open the Control Panel and select the TOSHIBA Power Saver icon.
HW Setup	This program lets you customize your hardware settings according to the way you work with your computer and the peripherals you use. To start the utility, click the Windows Start button and click Control Panel. In the Control Panel, select the TOSHIBA HW Setup icon.
TOSHIBA Controls	This utility has two sections to let you do the following: ■ Buttons: Assign applications to the Internet button (default setting is the browser) and to the TOSHIBA Console button (default setting is the TOSHIBA Console). ■ Media Apps: Set the mode for the Audio/Video control buttons. Select the application for audio and video playback.
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 4, then click InterVideo WinDVD 4.
ConfigFree	ConfigFree is a suite of utilities to allow easy control of communication devices and network connections. ConfigFree also allows you to find communication problems and create profiles for easy switching between locations and communication networks. To start ConfigFree, click the Windows Start button, point to All Programs, point to TOSHIBA, point to Networking and click ConfigFree.
Drag'n Drop CD+DVD	This easy-to-use software lets you record CDs and DVDs with just a few mouse clicks. You can create CDs and DVDs in the following formats: audio and data CDs and data DVDs. Audio CDs can play on a standard stereo CD player.
TOSHIBA Password Utility	This utility lets you set a password that restricts access to the computer.

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 256, 512 MB or 1 GB memory module (PC2700, DDR) can easily be installed in the computer.
Standard battery pack	An additional battery pack can be purchased from your TOSHIBA dealer. Use it as a spare or replacement.
High-capacity battery pack	An additional battery pack can be purchased from your TOSHIBA dealer. Use it as a spare or replacement.
Universal AC adaptor	If you use your computer at more than one site frequently, it may be convenient to purchase an additional universal AC adaptor for each site so you will not have to carry the adaptor with you.
Security lock	A slot is available to attach a security cable to the computer to deter theft.
USB FDD Kit	A 3½" diskette drive accommodates 1.44-megabyte or 720-kilobyte diskette. It connects to a USB port. (You cannot format 720-kilobyte diskettes on Windows XP, but you can use previously formatted disks.)

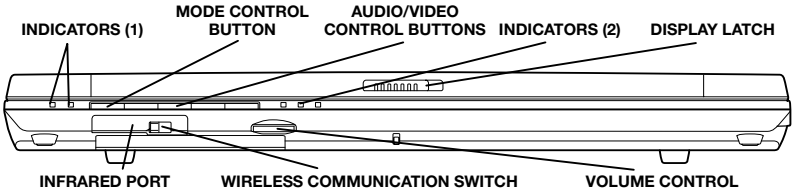
Chapter 2

The Grand Tour

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

Front with the display closed

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



Front of the computer with display closed

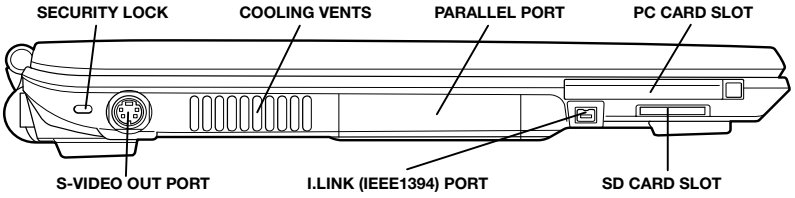
Indicators (1)	Two LEDs let you monitor the play of audio CD and MP3 status. Details are in the *Indicators* section.
Mode Control button	Press this button to switch the mode between CD/DVD and Digital Audio. Refer to Chapter 4, *Operating Basics*.
Audio/Video control buttons	Previous button: Plays the previous track/chapter/ data. Play/pause button: Begins or pauses play. Stop button: Halts play. Next button: Plays the next track/chapter/data. Refer to Chapter 4, *Operating Basics*.

Indicators (2)	These LEDs let you monitor the DC IN, power and battery status. Details are in the *Indicators* section.
Display latch	This latch secures the LCD panel in its closed position. Slide the latch to open the display.
Infrared port (Infrared model only)	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.
Volume control	Use this dial to adjust the volume of the stereo speakers or the stereo headphones.
Wireless Communication switch	This switch turns the Wireless functions on and off.

Set the switch to off in airplanes and hospitals. Check the wireless communication indicator. It will stop glowing when the wireless communication function is off.

Left side

The figure below shows the computer's left side.



The left side of the computer

Security lock	A security cable attaches to this slot. The optional security cable anchors your computer to a desk or other large object to deter theft.
Cooling vents	These vents provide an outlet for air pulled through the computer by the fan.

Be careful not to block the cooling vents. Also be careful to keep foreign objects out of them. A pin or similar object can damage the computer's circuitry.

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.
PC card slot	A PC card slot can accommodate one 5 mm Type II card. You can install any industry standard PC card such as a SCSI adaptor, Ethernet adaptor or flash memory card.

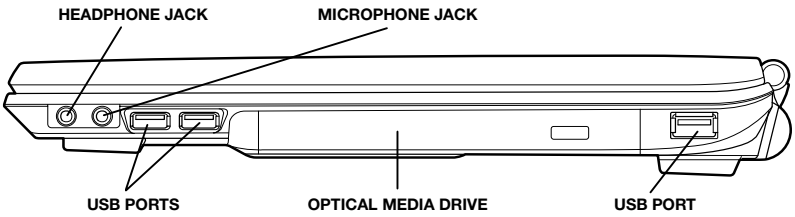
Keep foreign objects out of the PC card slot. A pin or similar object can damage the computer's circuitry.

S-Video out port	This S-Video port lets you transfer NTSC or PAL data to external devices.
i.LINK (IEEE1394) port	Connect an external device, such as a digital video camera to this port for high-speed data transfer.
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. An indicator on the right side of the slot glows when a card is being accessed.

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

Right side

The figure below shows the computer's right side.



The right side of the computer

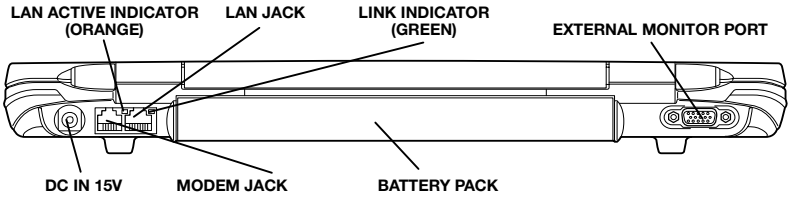
Headphone jack	This jack lets you connect digital speakers or a stereo headphone (16 ohm minimum). When you connect a digital speaker or headphones, the internal speakers are automatically disabled.
Microphone jack	A 3.5 mm mini microphone jack enables connection of a three-conductor mini jack for monaural microphone input.
Optical media drive	The computer is configured with a CD-RW/DVD-ROM drive, DVD-R/-RW drive or a DVD Multi drive.
Universal Serial Bus (USB 2.0) ports	Three Universal Serial Bus ports comply with the USB 2.0 standard, which enables data transfer speeds 40 times faster than the USB 1.1 standard. (The ports also support USB 1.1.)

Keep foreign objects out of the USB connectors. A pin or similar object can damage the computer's circuitry.

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

Back side

The figure below shows the computer's back side.



The back side of the computer

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) and Fast Ethernet LAN (100 megabits per second, 100BASE-Tx). The LAN has two indicators. See Chapter 4, *Operating Basics*, for details.

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

LAN active indicator (orange)	This indicator glows orange when data is being exchanged between the computer and the LAN.
Link indicator (green)	This indicator glows green when the computer is connected to a LAN and the LAN is functioning properly.

When the Wake-up on LAN function is activated, the LAN indicators do not glow while the computer is in standby mode (while it is waiting for a LAN wake-up signal).

External monitor port	This 15-pin port lets you connect an external video display.
DC IN 15V	The universal AC adaptor connects to this socket. Use only the model of universal AC adaptor that comes with the computer. Using the wrong adaptor can damage your computer.

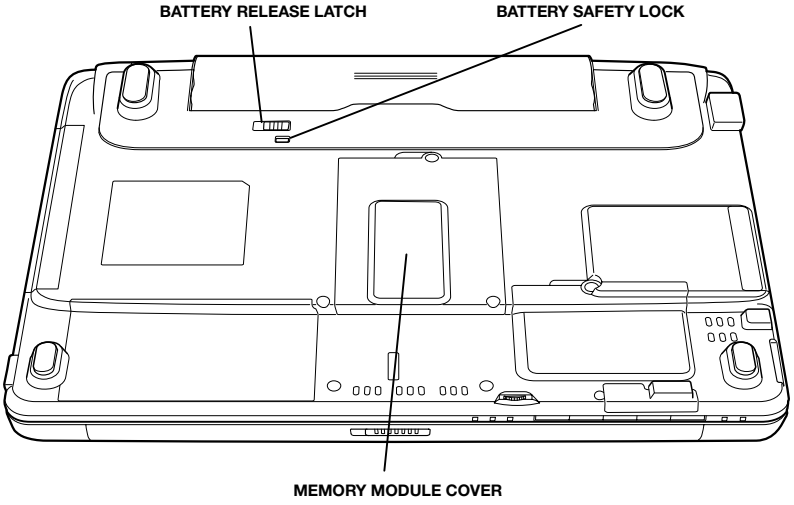
Modem jack	The modem jack lets you use a modular cable to connect the modem directly to a telephone line.

1. *In case of a lightning storm, unplug the modem cable from the telephone jack.*
2. *Do not connect the modem to a digital telephone line. A digital line will damage the modem.*

Battery pack	The battery pack powers the computer when the universal AC adaptor is not connected. For detailed information on the battery pack, refer to Chapter 6, *Power*.

Underside

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



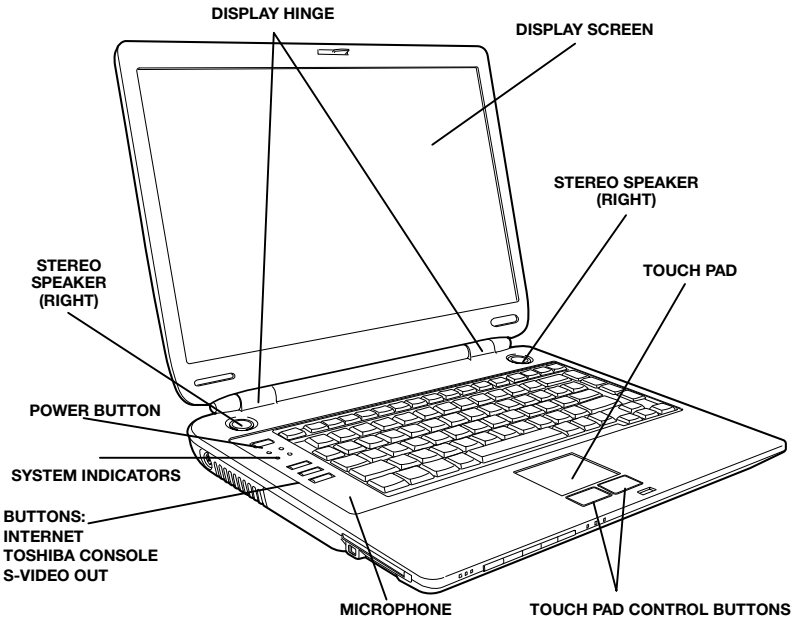
The underside of the computer

Memory module cover	This cover protects two memory module sockets. One or two modules are preinstalled. Refer to the *Memory expansion* section in Chapter 8, *Optional Devices.*

Battery release latch	Slide this latch to release the battery pack for removal.
Battery safety lock	Slide the battery safety lock forward to free the battery latch.

Front with the display open

The figure below shows the front of the computer with the display open. To open the display, slide the display latch on the front of the display and lift up. Position the display at a comfortable viewing angle.



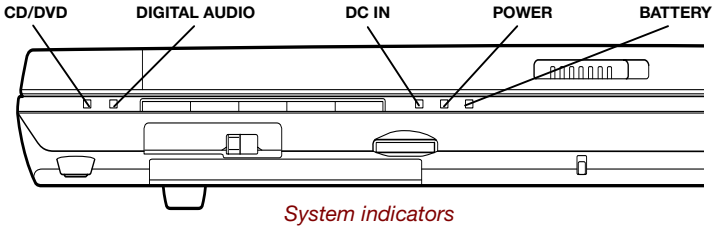
The front with the display open

Display hinge	The display hinge holds the display screen at easy-to-view angles.

Display screen	The LCD displays high-contrast text and graphics. The computer's WXGA screen consists of 1280 x 800 pixels. Refer to Appendix D. When the computer operates on the universal AC adaptor the display 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.
Microphone	A built-in microphone lets you record sounds into your applications. See *Using the microphone* in Chapter 4, *Operating Basics.*
Power button	Press the power button to turn the computer's power on and off.
System indicators	LEDs let you monitor the status of various computer functions. Details are given in the *Indicators* section.
Internet button	Press this button to launch an Internet browser. If the computer's power is off, you can press this button to turn on the computer's power and launch the browser automatically in one step.
TOSHIBA Console button	Press this button to launch an application automatically. The default is TOSHIBA Console.
S-Video out button	Press this button to set your display device to TV (Video-out). Press it again to return to LCD.
Touch pad	A Touch pad located in the palm rest is used to control the on-screen pointer. Refer to the *Touch pad* 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.

Indicators

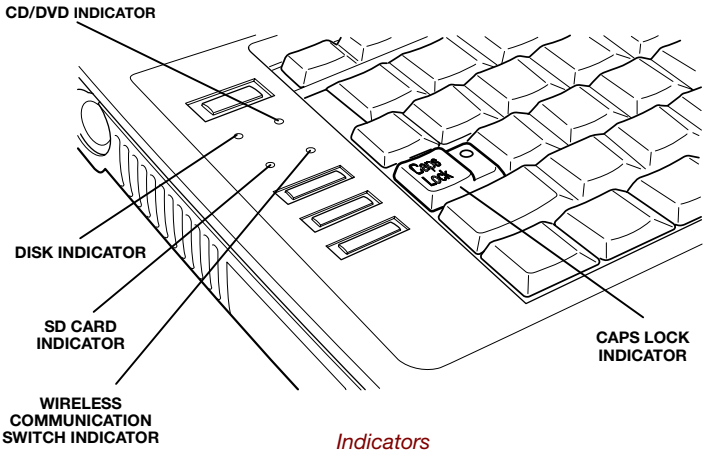
The following indicators on the front of the computer can be monitored even when the display panel is closed.



System indicators

CD/DVD	The **CD/DVD** indicator glows blue when the computer is accessing a CD/DVD. Refer to Chapter 4, *Operating Basics*, for details.
Digital Audio	The **Digital Audio** indicator glows blue when reproducing music files, such as WAVE, MIDI and MP3. Refer to Chapter 4, *Operating Basics*, for details.
DC IN	The **DC IN** indicator glows blue 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 blue when the computer is on. If you select **Standby** from `Shut Down Windows`, this indicator flashes orange (one second on, two seconds off) while the computer shuts down.
Battery	The **Battery** indicator shows the condition of the battery's charge: Blue indicates full charge, orange indicates battery charging and flashing orange indicates a low battery charge. Refer to Chapter 6, *Power*.

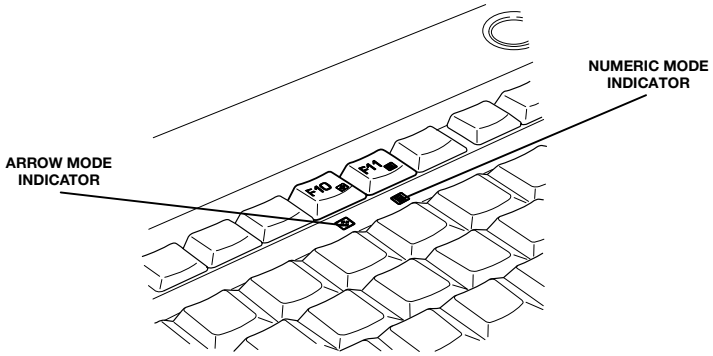
The following indicators are next to the keyboard under the display panel.



Indicators

	Disk	The **Disk** indicator glows blue when the computer is accessing the built-in hard disk.
	CD/DVD	The **CD/DVD** indicator glows blue when the computer is accessing a CD/DVD. Refer to Chapter 4, *Operating Basics*, for details.
	SD card	The **SD card** indicator glows blue when the computer is accessing the SD card slot.
	Wireless Communication switch	The **Wireless Communication switch** indicator glows orange when the Wireless LAN function is on.
	Caps Lock	The **Caps Lock** indicator glows green when the alphabet keys are locked in uppercase.

The following indicators show the status of the display overlay.

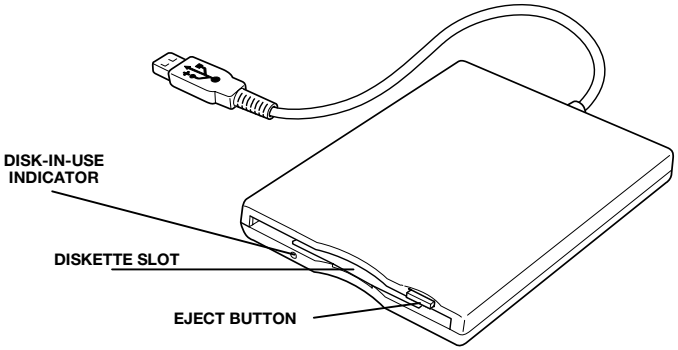


Keypad overlay indicators

Arrow mode	When the **Arrow mode** indicator lights blue, 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 blue. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*.

USB diskette drive (optional)

A 3½" diskette drive accommodates 1.44-megabyte or 720-kilobyte diskettes. It connects to the USB port.



USB diskette drive

Disk-In-Use Indicator	This indicator lights when the diskette is being accessed.
Diskette slot	Insert diskettes in this slot.
Eject button	When a diskette is fully seated in the drive, the eject button pops out. To remove a diskette, push in the eject button and the diskette pops out partially for removal.

Check the **Disk-In-Use** *indicator when you use the diskette drive. Do not press the eject button, turn off the computer or connect/disconnect another USB device, while the light is glowing. Doing so could destroy data and damage the diskette or the drive.*

1. *The external diskette drive should be placed on a flat, horizontal surface when in use. Do not set the drive on an incline greater than 20° while it is operating.*
2. *Do not set anything on top of the diskette drive.*

Optical media drives

One of the following optical media drives is installed in the computer: CD-RW/DVD-ROM drive, DVD-R/-RW drive or DVD Multi drive. 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 and on the Mode Control buttons refer to the *Using optical media drives* and *Audio/Video controls* section in Chapter 4, *Operating Basics*.

Region codes for DVD drives and media

CD-RW/DVD-ROM, DVD-R/-RW, DVD 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 Drag'n Drop CD+DVD 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 can be recorded more than once. Use either 1, 2, or 4 multi speed CD-RW discs or high-speed 4- to 10-speed discs. The write speed of the ultra-speed CD-RW discs is maximum 24-speed.

DVDs

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

Formats

The drives support the following formats:

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

CD-RW/DVD-ROM drive

The full-size CD-RW/DVD-ROM 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-R/-RW drive

The full- size DVD-R/-RW drive module lets you record data to rewritable CD/DVDs 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	1 speed
DVD-RW write	1 speed
CD read	24 speed (maximum)
CD-R write	16 speed (maximum)
CD-RW write	10 speed (maximum)

DVD Multi drive

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

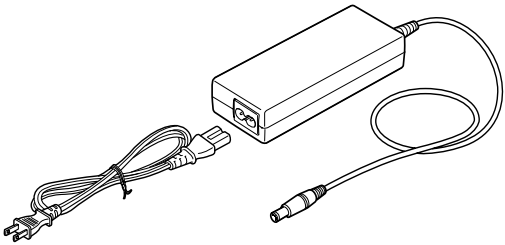
The read speed is slower at the center of a disc and faster at the outer edge.

DVD read	8 speed (maximum)
DVD-R write	2 speed
DVD-RW write	1 speed
DVD-RAM write	2 speed
CD read	24 speed (maximum)
CD-R write	16 speed (maximum)
CD-RW write	8 speed (maximum)

Universal AC adaptor

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

To recharge the battery, simply connect the universal AC adaptor to a power source and the computer. Refer to Chapter 6, *Power*, for details.



The universal AC adaptor

Use only the universal AC adaptor that came with the computer or an equivalent optional adaptor. Use of the wrong adaptor could damage your computer. TOSHIBA assumes no liability for any damage in such case.

Chapter 3

Getting Started

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

- Setting up your work space — for your health and safety

Be sure also to read the Safety Instruction Manual. This guide, which is included with the computer, explains product liability.

- 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.

Setting up your work space

Establishing a comfortable work site is important for you and your computer. A poor work environment or stressful work habits can result in discomfort or serious injury from repetitive strain to your hands, wrists or other joints. Proper ambient conditions should also be maintained for the computer's operation. This section discusses the following topics:

- General conditions
- Placement of the computer
- Seating and posture
- Lighting
- Work habits

General conditions

In general, if you are comfortable, so is your computer, but read the following to make sure your work site provides a proper environment.

- Make sure there is adequate space around the computer for proper ventilation.
- Make sure the AC power cord connects to an outlet that is close to the computer and easily accessible.
- The temperature should be 5 to 35 degrees Centigrade (41 to 95 degrees Fahrenheit) and the relative humidity should be 20 to 80 percent.
- Avoid areas where rapid or extreme changes in temperature or humidity may occur.
- Keep the computer free of dust, moisture, and exposure to direct sunlight.
- Keep the computer away from heat sources, such as electric heaters.
- Do not use the computer near liquids or corrosive chemicals.
- Do not place the computer near objects that create strong magnetic fields (e.g., stereo speakers).
- Some components in the computer, including data storage media, can be damaged by magnets. Do not place the computer near magnetic objects or bring magnetic objects close to the computer. Be careful of objects, such as stereo speakers, that produce strong magnetic fields during operation. Also, be careful with metal objects, such as bracelets, which can become magnetized.
- Do not operate the computer close to a mobile phone.
- Leave ample ventilation room for the fan. Do not block the vents.

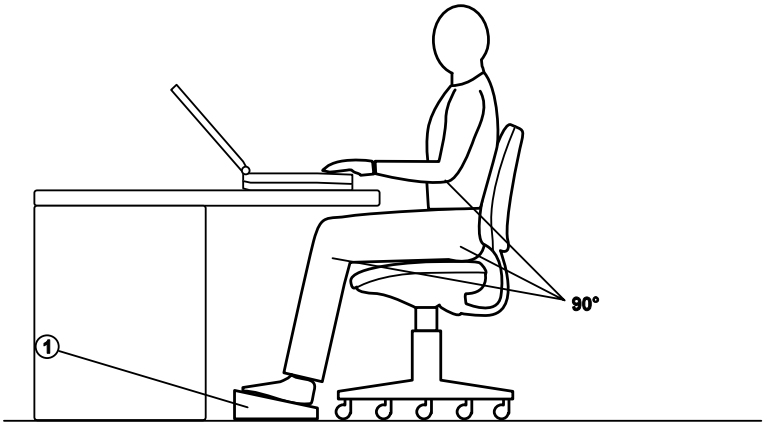
Placement of the computer

Position the computer and peripheral devices to provide comfort and safety.

- Set the computer on a flat surface at a comfortable height and distance. The display should be no higher than eye level to avoid eye strain.
- Place the computer so that it is directly in front of you when you work and make sure you have adequate space to easily operate other devices.
- Allow adequate space behind the computer to let you freely adjust the display. The display should be angled to reduce glare and maximise visibility.
- If you use a paper holder, set it at about the same height and distance as the computer.

Seating and posture

The height of your chair in relation to the computer and keyboard as well as the support it gives your body are primary factors in reducing work strain. Refer to the following tips.



Posture and positioning of the computer

- Place your chair so that the keyboard is at or slightly below the level of your elbow. You should be able to type comfortably with your shoulders relaxed.
- Your knees should be slightly higher than your hips. If necessary, use a foot rest (see "1" in the illustration) to raise the level of your knees to ease pressure on the back of your thighs.
- Adjust the back of your chair so it supports the lower curve of your spine.
- Sit straight so that your knees, hips and elbows form approximately 90 degree angles when you work. Do not slump forward or lean back too far.

Lighting

Proper lighting can improve legibility of the display and reduce eye strain.

- Position the computer so that sunlight or bright indoor lighting does not reflect off the screen. Use tinted windows, shades or other screen to eliminate sun glare.
- Avoid placing the computer in front of bright light that could shine directly in your eyes.
- If possible, use soft, indirect lighting in your computer work area. Use a lamp to illuminate your documents or desk, but be sure to position the lamp so that it does not reflect off the display or shine in your eyes.

Work habits

A key to avoiding discomfort or injury from repetitive strain is to vary your activities. If possible, schedule a variety of tasks into your work day. If you must spend long periods at the computer, finding ways to break up the routine can reduce stress and improve your efficiency.

- Sit in a relaxed posture. Good positioning of your chair and equipment as described earlier can reduce tension in your shoulders or neck and ease back strain.
- Vary your posture frequently.
- Occasionally stand up and stretch or exercise briefly.
- Exercise and stretch your wrists and hands a number of times during the day.
- Frequently, look away from the computer and focus your eyes on a distant object for several seconds, for example 30 seconds every 15 minutes.
- Take frequent short breaks instead of one or two long breaks, for example, two or three minutes every half hour.
- Have your eyes examined regularly and visit a doctor promptly, if you suspect you might be suffering from a repetitive strain injury.

A number of books are available on ergonomics and repetitive strain injury or repetitive stress syndrome. For more information on these topics or for pointers on exercises for such stress points as hands and wrists, please check with your library or book vendor. Also refer to the computer's *Safety Instruction Manual.*

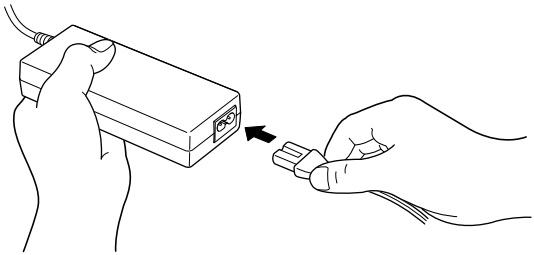
Connecting the AC adaptor

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*.

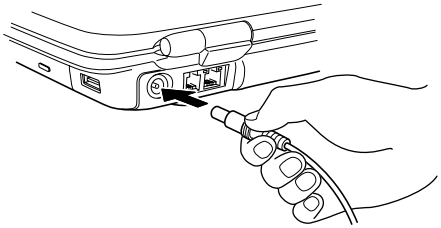
Use only the AC adaptor that came with the computer or an equivalent optional adaptor. Use of the wrong adaptor could damage your computer. TOSHIBA assumes no liability for any damage in such case.

1. Connect the power cord to the AC adaptor.



Connecting the power cord to the AC adaptor

2. Connect the AC adaptor's DC output plug to the **DC IN** input port on the back of the computer.



Connecting the adaptor to the computer

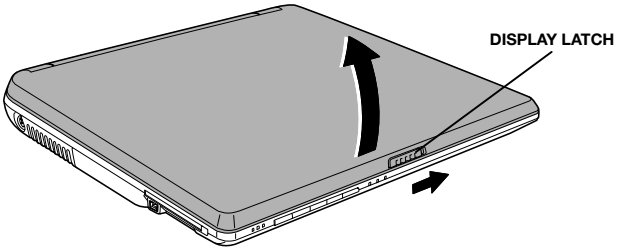
3. Plug the power cord into a live wall outlet. The **Battery** and **DC IN** indicators on the front of the computer should glow.

Opening the display

The 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 the right.
2. Lift the panel up and adjust it to the best viewing angle for you.

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



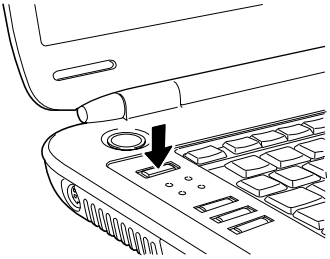
Opening the display

Turning on the power

This section describes how to turn on the power.

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, in this chapter.

1. Open the display.
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.

Be sure to read the License Agreement 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 diskette.
2. Make sure all disk (disk) activity has stopped, then remove the CD/DVDs or diskette.

Make sure the **Disk** *indicators are off. If you turn off the power while a disk is being accessed, you can lose data or damage the disk.*

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.

Hibernation mode

The hibernation 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 feature does not save the status of peripheral devices.

Save your data. While entering hibernation mode, the computer saves the contents of memory to the HDD. However, for safety sake, it is best to save your data manually.

Data will be lost if you remove the battery or disconnect the universal AC adaptor before the save is completed. Wait for the **Disk** *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

The hibernation 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, the hibernation feature must be enabled in two places in TOSHIBA Power Saver: the ***Hibernate*** *window and the* ***Battery Alarm*** *item of the* ***Alarm*** *window. Otherwise, the computer will shut down in Standby mode. If battery power becomes depleted, data saved in Standby 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

You can also enable Hibernation by pressing ***Fn + F4****. See 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. `Hibernate` is not displayed.
4. Press the **Shift** key. The `Standby` item will change to `Hibernate`.
5. 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. 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 **Disk** indicator will light.

After you turn off the computer and memory is 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.

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 works only if Wake-up on Keyboard 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 display panel. This feature must be enabled. Refer to the *System Power Mode* item in *Power Saver Utility* 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 *System Power Mode* item in *Power Saver Utility* 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 flashes 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.

Restarting the computer

Certain conditions require that you restart 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 restart 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 **Shutdown** 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, use the Product Recovery disk or the TOSHIBA Tools & Utilities CD-ROM to restore them.

Restoring the complete system

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

When you reinstall the Windows operating system, the hard disk will be reformatted and all data will be lost. Make sure you have a backup copy of your data, before you perform a complete system recovery.

1. Load the Product Recovery disk in the optical media drive and turn off the computer's power.
2. Hold down the **F12** key and turn on the power. When the TOSHIBA logo appears, release the **F12** key.
3. Use the up or down cursor key to select the **CD/DVD-ROM Drive** in the `Boot Devices` menu. For details, refer to the *Boot priority* section in Chapter 7, *HW Setup.*
4. Follow the on-screen instructions.
5. If your computer came with additional software installed, this software can not be recovered from the Product Recovery disk. 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. Use the Tools & Utilities CD-ROM according to instructions in the booklet contained in the CD box to reinstall TOSHIBA utilities and drivers.

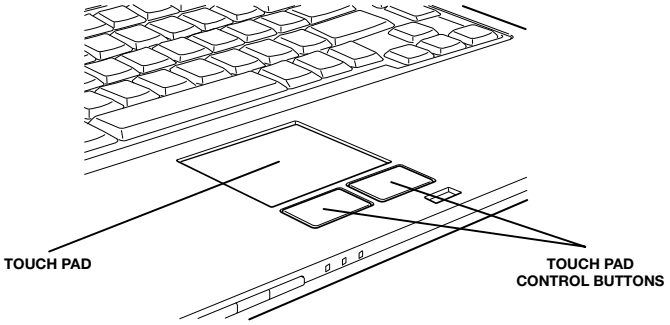
Chapter 4

Operating Basics

This chapter gives information on basic operations including using the Touch pad, USB diskette drive (optional in some models), optical media drives, audio/video controls, modem, Wireless LAN and LAN. It also provides tips on caring for your computer, diskettes and CD/DVDs.

Touch pad

The computer is equipped with a Touch pad as a pointing device. To use the Touch pad, simply touch and move your finger tip across it in the direction you want the on-screen pointer to go.



Touch pad and Touch pad control buttons

Two buttons below the keyboard 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 the Touch Pad 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.*

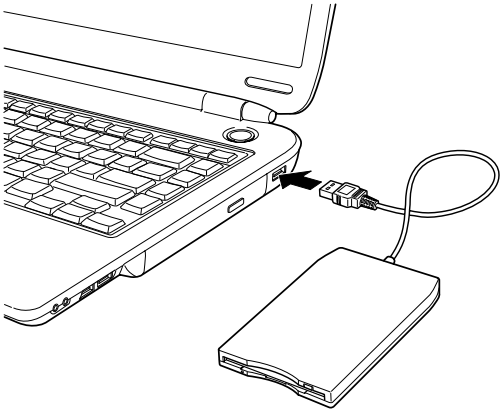
Using the USB diskette drive

A 3½" diskette drive connects to the computer's USB port. It accommodates 1.44-megabyte or 720-kilobyte diskettes. Refer to Chapter 2, *The Grand Tour*, for more information.

Connecting 3½" diskette drive

To connect the drive, plug the diskette drive connector into a USB port. Refer to figure below.

Make sure the connector is right 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 diskette drive

If you connect the diskette drive to use under Windows 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 3½" diskette drive

When you have finished using the diskette drive, follow the procedures below to disconnect it:

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

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

2. Click the **Safety Remove Hardware** icon on the Task Bar.
3. Click Diskette drive.
4. Pull the diskette drive connector out of the USB port.

Using optical media drives

The illustrations in this section might differ slightly from your drive, but operation is the same for all optical media 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, an indicator on the drive glows.

Use the WinDVD 4 application to view DVD-Video discs.

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

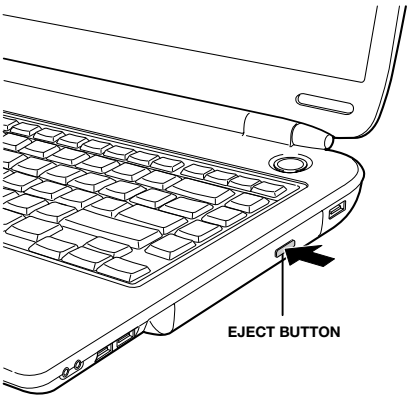
If you have a DVD-R/-RW drive, refer also to the *Writing CD/DVDs on DVD-R/-RW drive* section for precautions on writing to CDs.

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

Loading discs

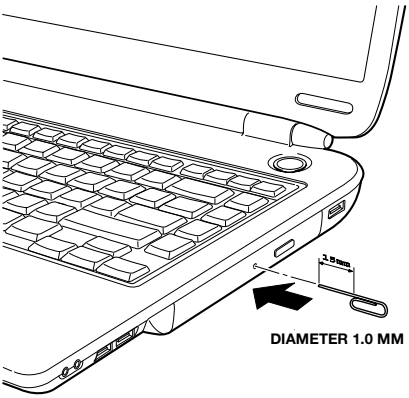
To load CD/DVDs, follow the steps below and refer to next figures.

1. a. When the power is on, press the eject button to open the drawer slightly.



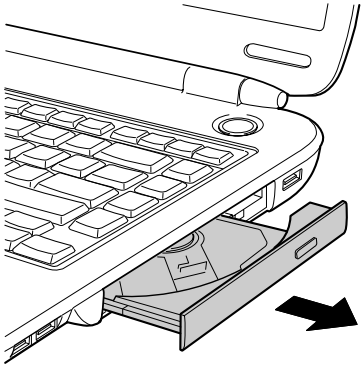
Pressing the eject button

b. Pressing the eject button will not open the drawer when the drive's power is off. If the power is off, you can open the drawer 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.



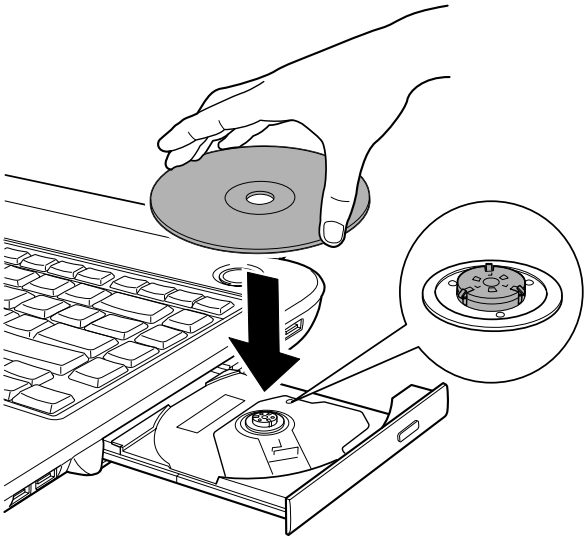
Manual release with the eject hole

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



Pulling the drawer open

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



Inserting a CD/DVD

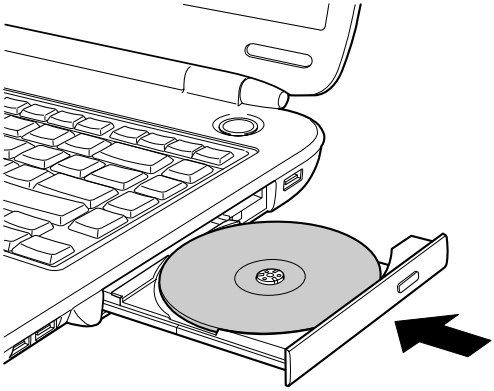
When the drawer is fully opened, the edge of the computer will extend slightly over the CD/DVD tray. Therefore, you will need to turn the CD/DVD at an angle when you place it in the tray. After seating the CD/DVD, however, make sure it lies flat, as shown in figure above.

Do not touch the laser lens. Doing so could cause misalignment.

Be careful to keep foreign matter from entering the drive. Check the back edge of the tray to make sure it carries no debris 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 drawer to close it. Press gently until it locks into place.

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



Closing the CD/DVD drawer

Removing discs

To remove the CD/DVD, follow the steps below and refer to next figure.

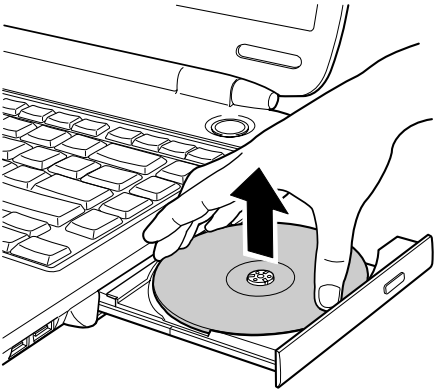
Do not press the eject button while the computer is accessing the optical media drive. Wait for the drive indicator to go out before you open the drawer. Also, if the CD/DVD is spinning when you open the drawer, wait for it to stop before you remove it.

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

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

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

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



Removing a CD/DVD

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

Audio/Video controls

This section describes how to use the audio/video control buttons. You do not have to turn on the computer's operating system to play audio CD/DVDs. The following controls let you use the computer as a stand-alone CD/DVD player. When the operating system is running, the buttons control video as well as audio.

Mode Control button

Besides the CD/DVD and Digital control functions described in the chart in the next section, you can use the Mode Control button to turn off the computer.

Controls for CD/DVD and Digital Audio

The chart below describes controls for CD/DVD and Digital Audio.

	CD/DVD control	Digital Audio control
Power is off and you press Play/Pause	If an audio CD is in the optical media drive, the system enters CD Player mode and operates as a stand-alone CD player. If a DVD is in the optical media drive, the operating system starts and the DVD Video player starts.	Operating system starts and Digital Audio Data play begins.
OS is running and you press Play/Pause	If an audio CD is in the optical media drive and CD audio play begins. If a DVD is in the optical media drive, the DVD Video player starts and DVD Video play begins.	Digital Audio Data play begins.
You press Mode Control for three seconds	If power is on, it turns off. If power is off it turns on in CD player mode.	If power is on, it turns off.
OS is running and you press Mode Control	The mode changes to Digital/Audio.	The mode changes to CD/DVD.

*If the computer power is off, the CD/DVD control functions only for the optical media drive. If you want to control the optical media drive by CD/DVD control when the OS is booted up, set the appropriate player application software. You cannot play optical media, only by setting the internal CD/DVD play drive on the **Media Apps** tab of the **TOSHIBA Controls**.*

*To play Digital Audio Data, you must set the play list in the Windows Media Player. The next time you play Digital Audio Data, the former play list will become active. If a CD was played the previous time, then **All Audio** will be used.*

Do not install or remove a memory module while the optical media drive power is on in CD Player mode. First press the Mode control button to turn off the power to the optical media drive.

Next and Previous buttons

A single button on a rocker controls the **Next** and **Previous** functions. Press on the icon to select the desired function.

Next Press the ▶▶| icon to advance to the next track, chapter or data.

Previous Press the |◀◀ icon to advance to the previous track, chapter or data.

If Random is selected in Windows Media Player, selecting Next or Previous advances to a random selection.

Play/Pause and Stop buttons

A single button on a rocker controls the **Play/Pause** and **Stop** functions. Press on the icon to select the desired function.

Play/Pause Press the ▶/❚❚ icon to begin or pause play.

Stop Press the ■ icon to stop play.

Audio

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**, point to **All Programs**, point to **Accessories**, point to **Entertainment** and click **Volume Control**.
- To launch Recording Control, click **Options**, point to **Properties**, choose **Recording** and 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**, point to **All Programs**, point to **Accessories**, point to **Entertainment** and click **Volume Control**.
2. Click Options and select Advanced Controls.
3. Click **Advanced**.
4. Check the **Microphone Boost** checkbox.

Audio controller

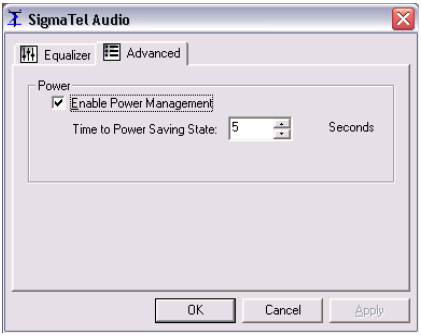
The audio controller can be powered down when the audio function is idle. To enable Audio Power Management, follow the steps below.

1. Click **Start**, point to **All Programs**, point to **Accessories**, point to **Entertainment** and click **Volume Control**.
2. Double-click the **SigmaTel Audio** icon.

Power management

1. Clicked the **Advanced** tab.
2. Select the **Enable Power Management** check box.
3. Input a time in **Time to Power Saving State**.

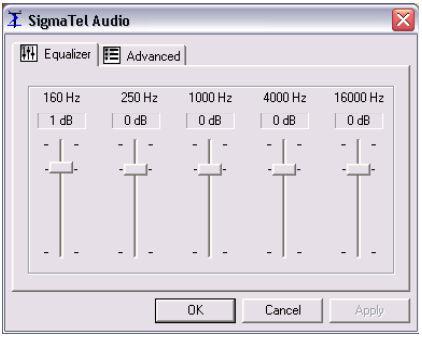
If the `Enable Power Management` *check box is not selected, the audio controller always runs.*



Advanced window

Sound quality

1. Adjust the equalizer settings to enhance sound quality.



Equalizer window

Feedback

Your computer's built-in microphone can be used to record monaural sounds into your applications and to issue voice commands to applications that support such functions.

Since your computer also has built-in speakers, "feedback" may be heard under certain conditions. Feedback occurs when sound from the speaker is picked up in the microphone and amplified back to the speaker, which amplifies it again to the microphone.

This feedback occurs repeatedly and causes a loud, high-pitched noise. It is a common phenomenon that occurs in any sound system when the microphone input is output to the speaker (throughput) and the speaker volume is too loud or too close to the microphone. You can control throughput by adjusting the volume as described in the *Volume control* item in this section.

Writing CDs on CD-RW/DVD-ROM drive

Depending on the type of drive installed, you may be able to write CDs. The CD-RW/DVD-ROM 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 media drives* section.

CD-R discs can be written to only once. CD-RW discs can be rewritten many times.

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: TAIYOYUDEN CO., LTD.
  MITUBISHI CHEMICAL CORPORATION
  RICOH Co., Ltd.
  Hitachi Maxell Ltd.

  CD-RW: MITUBISHI CHEMICAL CORPORATION
  RICOH Co., Ltd.

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

- CD-RW can generally be rewritten about 1,000 times. However, the actual number of rewrites is affected by the quality of the media and the way it is used.
- Be sure to connect the universal 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 HDD access speed. They may cause unstable operation and damage data.
- Write from the computer's HDD 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 Drag'n Drop CD+DVD 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 HDD to the CD. Do not use cut-and-paste. 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 PC.
  - Install, remove or connect external devices, including the following:
  - PC card, SD card, USB devices, external display, optical digital devices.
  - Use the CD/MP3 control buttons to reproduce music and voice.
  - Open the optical media drive.
- 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-R/-RW drive

You can use the DVD-R/-RW drive to write data to either CD-R/RW or DVD-R/-RW discs. The following applications for writing are supplied on CD-ROM:
Drag'n Drop CD+DVD, licensed by Easy Systems Japan Ltd., and DigiOn Inc., InterVideo WinDVD Creator 2 Platinum, which is a product of InterVideo, Inc.

Important message

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

Also refer to the disc-writing instructions in the next section, Writing CD/DVDs on DVD Multi drive.

Disclaimer

TOSHIBA does not bear responsibility for the following:

- Damage to any CD-R/RW or DVD-R/-RW 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 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.

Writing CD/DVDs on DVD Multi drive

You can use the DVD Multi drive to write data to either CD-R/RW or DVD-R/-RW/-RAM discs. The following applications for writing are supplied on CD-ROM:
Drag'n Drop CD+DVD, licensed by Easy Systems Japan Ltd., and DigiOn Inc., InterVideo WinDVD Creator 2 Platinum, which is a product of InterVideo, Inc.

Important message

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

Disclaimer

TOSHIBA does not bear responsibility for the following:

- Damage to any CD-R/RW or DVD-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/-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.

Read/write function chart

Disc type	CD-R	CD-RW	DVD-R	DVD-RW	DVD-RAM	DVD+R	DVD + RW
Read	Yes	Yes	Yes	Yes	Yes	No	No
Write	Yes	Yes	Yes	Yes	*1	No	No
Drag'n Drop CD+DVD*2	Yes	Yes	Yes	Yes	No	No	No
WinDVD Creator*2	No	No	Yes	Yes	Yes	No	No
DVD-Video*3	No	No	Yes	Yes	Yes	No	No
DVD VR*3 (DVD Video Recording)	No	No	No	No	Yes	No	No

*1 DVD Multi Drive: Yes. CD-RW/DVD-ROM and DVD-R/-RW Drive: No.
*2 Software supplied with the product can be used for writing to a disc.
*3 Video format can be written.

- Based on TOSHIBA's limited compatibility testing, we suggest the following manufacturers of CD-R/RW and DVD-R/-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: TAIYOYUDEN CO., LTD.
  MITUBISHI CHEMICAL CORPORATION
  RICOH Co., Ltd.
  Hitachi Maxell Ltd.

  CD-RW: MITUBISHI CHEMICAL CORPORATION
  RICOH Co., Ltd.

  DVD-R: **DVD Specifications for Recordable Disc for General Version 2.0**
  TAIYOYUDEN CO., LTD.
  PIONEER VIDEO CORPORATION
  MITSUBISHI CHEMICAL CORPORATION

  DVD-RW: **DVD Specifications for Re-recordable Disc for Version 1.1**
  VICTOR COMPANY OF JAPAN, LIMITED
  TDK Corporation

  DVD-RAM: **DVD Specifications for DVD-RAM Disc for Version 2.0 or Version 2.1**
  Matsushita Electric Industrial Co., Ltd.

- 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 or DVD-RW/-RAM is affected by the quality of the disc and the way it is used.

- There are two types of DVD 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. You cannot use a disc with a 2.6 GB single-sided capacity or 5.2 GB double-sided capacity.
- Other DVD-ROM drives for computers or other DVD players may not be able to read DVD-R/-RW discs.
- You cannot overwrite data that has been previously written to a DVD-RW disc.
- You cannot partially delete any data written to a DVD-RW disc.
- Data written to a CD-R/DVD-R disc cannot be deleted either in whole or in part.
- Data deleted (erased) from a CD-RW and DVD-RW/-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 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 will 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.
- Two types of DVD-R/-RW/-RAM discs are on the market: data and video. Use a video disc to store video data. You can use video discs on a DVD recorder as well as on your computer's DVD-ROM drive. You cannot use data discs on a DVD recorder.
- DVD-RAM formatted by FAT32 cannot be read in Windows 2000 without DVD-RAM Driver Software.

Before writing or rewriting

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

- 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 universal 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, 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 HDD access speed. They may cause unstable operation and data damage.
- Write from the computer's HDD 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 Drag'n Drop CD+DVD, InterVideo WinDVD Creator 2 Platinum is not recommended.

When writing or rewriting

Please observe/consider the following when you write or rewrite to a CD-R/RW or DVD-R/-RW/-RAM 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, USB devices, external display, optical digital devices.
  - Use the Audio/Video control button to reproduce music or voice.
  - Open the DVD Multi drive
- Do not use 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 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 HDD to the DVD-RAM. Do not use cut-and-paste. The original data will be lost if there is a write error.

Drag'n Drop CD+DVD

Note the following limitations when you use Drag'n Drop CD+DVD:

- DVD-Video cannot be created using Drag'n Drop CD+DVD.
- DVD-Audio cannot be created using Drag'n Drop CD+DVD.
- You cannot use Drag'n Drop CD+DVD's music CD function to record music to a DVD-R/-RW disc.

- Do not use the DISC Backup function of Drag'n Drop CD+DVD to copy DVD-Video and DVD-ROM with copyright protection.
- DVD-RAM disc cannot be backed up with the DISC Backup function of Drag'n Drop CD+DVD.
- You cannot backup a CD-ROM or CD-R/RW to DVD-R/-RW using the DISC Backup function of Drag'n Drop CD+DVD.
- You cannot back up DVD-ROM, DVD-Video or DVD-R/-RW to CD-R/RW using the DISC Backup function of Drag'n Drop CD+DVD.
- Drag'n Drop CD+DVD cannot record in packet format.
- You might not be able to use the DISC backup function of Drag'n Drop CD+DVD to back up a DVD-R/-RW disc that was made with other software on a different DVD-R/-RW recorder.
- If you add data to a 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. Some DVD-ROM and CD-RW/DVD-ROM drives cannot read added data regardless of the operating system.
- Drag'n Drop CD+DVD does not support recording to DVD-RAM discs. To record to a DVD-RAM, use Explorer or other utility.
- If you try to back up a DVD disc to a DVD-RW disc that was erased by the Quick erase option, you might get a error message. Use the Full erase option to clear the DVD-RW disc and try again.
- When you back up a DVD disc, be sure the source drive supports recording to DVD-R/-RW discs. If the source drive does not support recording to DVD-R/-RW discs, it might not be backed up correctly.

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. Right-click **Data BOX** and select **Options** to display the **DATA DISC Option** window.
2. Mark the **Record and Verify** check box and select **Byte compare**.
3. Click the **OK** button.

The "Record and Verify" function automatically checks whether data has been correctly recorded onto a CD/DVD. "Byte compare" compares the original data file with the data recorded on the CD/DVD and checks that the data completely matches.

Video (DVD-R/-RW/-RAM)

Note the following limitations when you write video to DVD:

- When installing, uninstalling or InterVideo WinDVD Creator 2 Platinum, the computer should be set to system administrator or equivalent privilege.
- When Drag'n Drop or similar software is resident in the computer's memory, the DVD Multi drive locks. In this situation, other software cannot be used to write data to the disc.
- While you are editing DVD-R/-RW/-RAM, you can display previews. However, if an application other than WinDVD is running, the preview might not display properly. To ensure proper display of previews, do not start other applications while you are editing DVD-R/-RW/-RAM disc.
- Do not change the resolution or the number of screen colors while InterVideo WinDVD Creator 2 Platinum is running.
- Although the online manual and Help files indicate that JPEG files can be used, in fact, they cannot be used.
- InterVideo WinDVD Creator 2 Platinum cannot make DVD-Audio, VideoCD, and miniDVD.
- DVD-R/-RW discs cannot be written in VR format.
- It may take several hours for InterVideo WinDVD Creator 2 Platinum to convert video to MPEG format, and several hours more to save the MPEG file to a DVD Multi drive.
- In order to write to a DVD-RW disc that has already been written to using InterVideo WinDVD Creator 2 Platinum, you will first have to delete all of the data with Drag'n Drop CD+DVD or similar software.
- You will need 2 GB of empty hard disk space for every hour to write to a DVD-R/-RW disc.
- You cannot edit DVD-RAM video data that has copyright protection, using InterVideo WinDVD Creator 2 Platinum.

Media care

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

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.

Diskettes

1. Store your diskettes in the container they came in to protect them and keep them clean. If a diskette is dirty, do not use cleaning fluid. Clean it with a soft damp cloth.
2. Do not slide back the diskette's protective metal covering or touch the diskette's magnetic surface. Fingerprints may prevent the diskette drive from reading data from the diskette.
3. Data may be lost if the diskette is twisted; bent; or exposed to direct sunlight, extreme heat or cold.
4. Do not place heavy objects on your diskettes.
5. Do not eat, smoke, or use erasers near your diskettes. Foreign particles inside the diskette's jacket can damage the magnetic surface.
6. Magnetic energy can destroy data on diskettes. Keep your diskettes away from speakers, radios, television sets and other sources of magnetic fields.

Modem

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

The internal modem does not support voice functions. All data and fax functions are supported.

In case of a lightning storm, unplug the modem cable from the telephone jack.

Do not connect the modem to a digital telephone line.

A digital line will damage the modem.

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.

To select a region, follow the steps below.

1. Click **start**, point to **All Programs**, point to **TOSHIBA**, **Networking** and 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 the following menu.

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

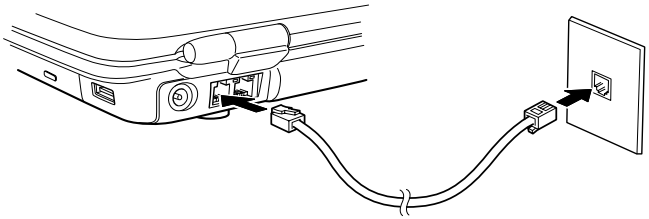
Select this item to display the dialing properties.

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 internal modem cable, follow the steps below.

1. Plug one end of the modular cable into the 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 a DVD-ROM drive, CD-RW/DVD-ROM drive or HDD connected to a 16-bit PC card, you might experience the following modem problems:

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

Disconnecting

To disconnect the internal modem 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 in the same manner.

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) and Turbo Mode.

Supported features

It supports the following features:

- Automatic Transmit Rate Select mechanism in the transmit range of 54, 48, 36, 24, 18, 12, 9 and 6 Mbit/s. (Revision A and G, Revision A/B, B/G, A/B/G combo type)
- Automatic Transmit Rate Select mechanism in the transmit range of 11, 5.5, 2 and 1 Mbit/s. (Revision B)
- Automatic Transmit Rate Select mechanism in the transmit range of 108, 96.72, 48, 36, 24, 18 and 12 Mbit/s. (Turbo Mode, Revision A/B/G combo type)
- Frequency Channel Selection (Revision A/Turbo Mode: 5 GHz, Revision B/G: 2.4 GHz)
- Roaming over multiple channels
- Card Power Management
- Wired Equivalent Privacy (WEP) data encryption, based on the 152 bit encryption algorithm. (Revision B/G, A/B/G combo type) Wired Equivalent Privacy (WEP) data encryption, based on the 128 bit encryption algorithm. (Revision B, A/B combo type)
- Advanced Encryption Standard (AES) data encryption, based on 256 bit encryption algorithm. (Revision B/G, A/B/G combo type)

Wake-up on LAN does not function on a Wireless LAN.

Security

- Be sure to enable the WEP (encryption) function to prevent unauthorized access to your Wireless LAN. Such access can enable illegal intrusion into data, eavesdropping and loss or destruction of data. TOSHIBA strongly recommends that you enable the WEP function.
- TOSHIBA is not liable for damage resulting from unauthorized access to a Wireless LAN including, but not limited to, illegal intrusion, eavesdropping and loss or destruction of data.

Wireless communication switch

You can enable or disable the Wireless LAN function, with the on/off switch. No transmissions are sent or received when the switch is off. Slide the switch toward the back of the computer to turn it on and toward the front of the computer to turn it off.

Set the switch to off in airplanes and hospitals. Check the indicator. It will stop glowing when the wireless communication function is off.

Turn the computer off when you enter an airplane and check the carrier's regulations before you use a computer on board.

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.
Indicator glows	Wireless communication switch is on.
	Wireless LAN is turned on by an application.

If you used the Task Bar to disable W-LAN, restart the computer or follow the procedures below to enable the system to recognize W-LAN. Open or click the following: **start**, **Control Panel**, **System**, **Hardware Device Manager**, **Network adapters**, **Intel® PRO/Wireless LAN 2100 3B Mini PCI Adapter** or **Intel® PRO/Wireless LAN 2100A 3B Mini PCI Adapter** or **Atheros AR5001X+ Wireless Network Adapter** and **enable**.

LAN

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

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.

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

When the Wake-up on LAN function is activated, the LAN indicators do not glow while the computer is in standby mode (while it is waiting for a LAN wake-up signal).

Connecting LAN cable

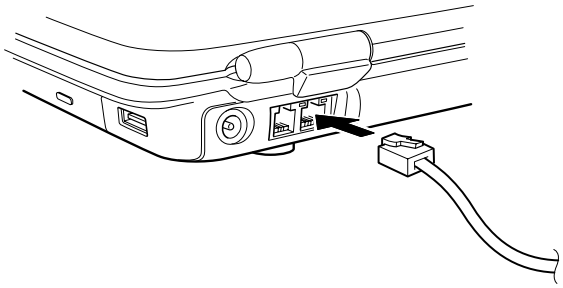
The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.

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

If you are using Ethernet LAN (10 megabits per second, 10BASE-T), you can connect with either a CAT5 or a CAT3.

To connect the LAN cable, follow the steps below.

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 dry cloth. You can use glass cleaner on the display. 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.

- Make sure all disk activity has ended before moving the computer. Check the **Disk** indicators on the computer.
- If a CD/DVD is in the drive, remove it. Also make sure the drawer is securely closed.
- Turn off the power to the computer.
- Disconnect the universal AC adaptor and all peripherals before moving the computer.
- Close the display. Do not pick up the computer by its display panel.
- Use the carrying case when transporting the computer.

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. You can select whether to control the CPU temperature by turning on the fan first, then if necessary, lowering the CPU speed. Or, by lowering the CPU speed first, then if necessary, turning on the fan. Use the *Cooling Method* item of the *Power Save Mode* window in TOSHIBA Power Saver.

Maximum Performance	Turn on the fan first, then if necessary, lower the CPU processing speed.
Performance	Use a combination of the fan and lowering the CPU processing speed.
Battery optimized	Lower the CPU processing speed first, then if necessary turn on the fan.

When the CPU temperature falls to a normal range, the fan is turned off and the CPU operation returns to standard speed.

If the CPU temperature reaches an unacceptably high level with either setting, the system automatically shuts down to prevent damage. 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 five types of keys: typewriter keys, keypad overlay, function keys, soft keys and cursor control keys.

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.

F1...F12 function keys

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.

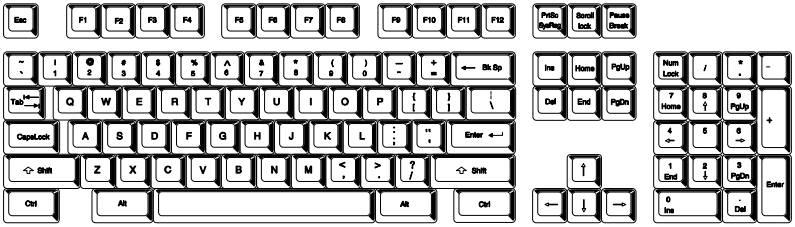
F1 through **F12** are called function keys because they execute programmed functions when pressed. Used in combination with the **Fn** key, keys marked with icons execute specific functions on the computer. See the section Soft keys: Fn key combinations in this chapter. The function executed by individual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

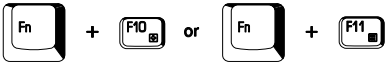
Emulating keys on enhanced keyboard



A 101-key enhanced keyboard layout

The keyboard is designed to provide all the features of the 101-key enhanced keyboard, shown above. 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 grey 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.

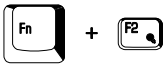
Press **Fn + Ctrl** to simulate the enhanced keyboard's right **Ctrl** key.

Hot keys

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

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.

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 Touch Pad. If a screensaver password is registered, a dialog box will appear. Enter the screensaver password and click **OK**. If no password is set, the screen will be restored when you press any key or press the Touch Pad.



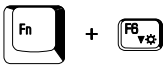
Power save mode: Pressing **Fn** + **F2** changes the power save mode.

If you press **Fn** + **F2** in a Windows environment, the Power Save Mode is displayed in a dialog box similar to the one below. Continue holding down **Fn** and press **F2** again to change the setting. You can also change this setting through the *Plugged in* or *Running on batteries* item of the *Power Saver Properties* window in Power Saver.

Standby: When you press **Fn** + **F3**, the computer enters Standby. To avoid entering Standby unexpectedly, a dialog box appears for verification. However, if you select the check box, it will not appear in the future.

Hibernation: When you press **Fn** + **F4**, the computer enters Hibernation. To avoid entering Hibernation unexpectedly, a dialog box appears for verification. However, if you select the check box, it will not appear in the future.

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 the keys for three seconds the selection will return to **LCD**.



LCD Display Brightness: Pressing **Fn** + **F6** decreases the display 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 *Monitor brightness* item of the *Power Save Mode* window in Power Saver.

LCD Display Brightness: Pressing **Fn** + **F7** increases the display 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 *Monitor brightness* item of the *Power Save Mode* window in Power Saver.

The brightness level is always set at the maximum value for about 18 seconds, when the LCD turns on. After 18 seconds, the brightness level will appear at the Power Save Mode setting or you can change it manually.

Display clarity increases with the brightness level.

Wireless setting: Fn + **F8** hotkeys are not used.

Touch pad: Pressing **Fn** + **F9** enables or disables the Touch pad function. When you press these hot keys, the current setting will change and be displayed as an icon.

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 Utilities** and click **Accessibility**.

Windows special keys

The keyboard provides two keys that have special functions in Windows: one activates the **start** menu and the other 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 centre of the keyboard with grey 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

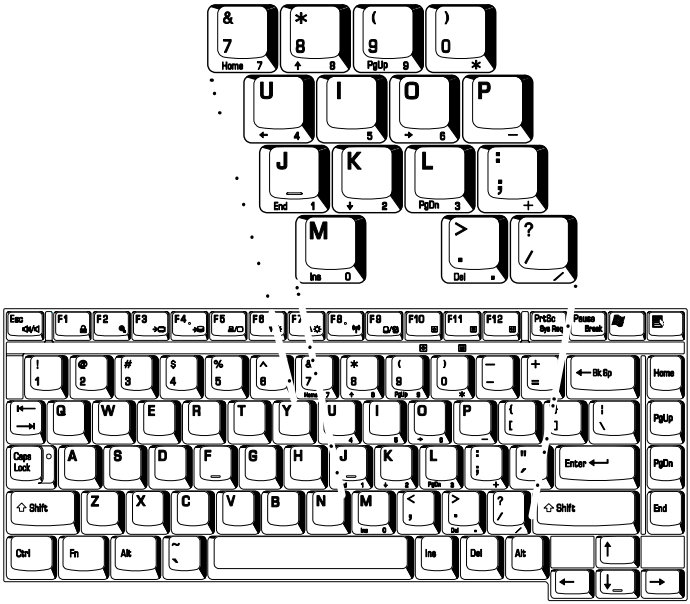
The numeric keypad overlay can be used for numeric data input or cursor and page control.

Arrow mode

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

Numeric mode

To turn on the Numeric mode, press **Fn** + **F11**. The Numeric mode **F11** indicator lights. Now try numeric data entry using the keys shown below. 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** icon lights, you can use the overlay for numeric entry. If the **Arrow mode** icon 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 **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

The computer's power resources include the AC adaptor 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 is installed and what the charge level is for the battery.

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

		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 exhausted	Computer goes into resume mode and shuts down	—
	No Battery installed	• Cannot operate • 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 panel 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. 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.
Blue	Indicates the AC adaptor is connected and the battery is fully charged.
No light	Under any other conditions, the indicator does not light.

If the battery becomes too hot while it is being charged, the charge will stop and the battery indicator will go out. When the battery'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 from the AC adaptor connected:

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

Power indicator

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

Blue	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 two types of batteries:

- Battery pack.
- Real Time Clock (RTC) battery

Battery pack

When the universal 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 battery pack. You can purchase additional battery packs for extended use of the computer away from an AC power source.

Before you remove the battery pack, set the computer to Hibernation mode or save your data and shut down the computer. Do not change the battery pack while the AC adaptor is connected.

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 universal AC adaptor is not connected, the battery pack supplies 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.

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 a universal 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.

Real Time Clock 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:

```
0250: RTC battery is low
0251: CMOS checksum is inconsistent
```

The computer's RTC battery is a nickel metal hydride (NiMH) 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.

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 assure safe operation and maximum performance.

Safety precautions

Mishandling of batteries can cause death, serious injury or property damage. Carefully observe the following advisories:

Danger: Indicates an imminently hazardous situation, which could result in death or serious injury, if you do not follow instructions.

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

Caution: Indicates a potentially hazardous situation, which if not avoided, may result in moderate or minor injury or property damage.

Note: Provides important information.

Danger

1. Never try to dispose of the battery pack by burning or expose it to a heating device such as a microwave oven. The battery pack could explode and cause bodily injury.
2. Never try to disassemble, repair or otherwise tamper with a battery pack. The battery pack will overheat and ignite. Leakage of caustic alkaline solution or other electrolytic substances will cause fire or injury, possibly resulting in death or serious injury.

3. Never short-circuit the battery pack by contacting the terminals with a metal object. A short-circuit can cause fire or otherwise damage the battery pack and possibly cause injury. To avoid accidental short-circuit, always wrap the battery pack in plastic and cover the terminals with electrical tape when storing or disposing of the battery pack.
4. Never puncture the battery pack with a nail or other sharp object. Never strike it with a hammer or other object. Never step on it.
5. Never try to charge the battery pack in any manner other than that described in the user's manual. Never connect the battery pack to a plug socket or to a automobile's cigarette lighter socket. It may rupture or ignite.
6. Use only the battery pack supplied with the computer or other device or an battery pack approved by the computer or device's manufacturer. Battery packs have different voltages and terminal polarities. Use of an improper battery could cause smoke, fire or rupture of the battery pack.
7. Never subject a battery pack to heat, such as storage near a heat source. Exposure to heat can cause the battery pack to ignite, explode or leak caustic liquid and cause death or serious injury. It could also fail or malfunction causing data loss.
8. Never expose the battery pack to abnormal shock, vibration or pressure. The battery pack's internal protective device will fail, causing it to overheat, explode, ignite or leak caustic liquids possibly resulting in death or serious injury.
9. Never let a battery pack become wet. A wet battery pack will overheat, ignite or rupture possibly resulting in death or serious injury.

Warning

1. Never allow caustic electrolyte fluid leaked from a battery pack to contact your eyes, skin or clothing. If caustic electrolyte fluid should contact your eyes, immediately wash your eyes with large amounts of running water and seek medical attention, to help prevent eye damage. If electrolyte fluid should contact your skin immediately wash it under running water to prevent rash. If it contacts your clothes, promptly remove them to prevent the fluid from contacting your skin or eyes.
2. Immediately turn off the power, disconnect the AC adaptor and remove the battery if any of the following events are observed in the battery pack: offensive or unusual odour, excessive heat, discoloration or deformation. Never use the computer again until it has been checked by a TOSHIBA service provider. It might generate smoke or fire, or the battery pack might rupture.
3. 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.
4. Keep the battery pack out or reach of infants and children. It can cause injury.

Caution

1. Never continue to use a battery pack after its recharging capacity has become impaired, or after the display of a warning message indicating that the battery pack's power is exhausted. Continued use of an exhausted or impaired battery pack could cause the loss of data.
2. Never dispose of battery packs with normal trash. Bring them to your TOSHIBA dealer or to another recycling centre to save resources and prevent environmental damage. Cover the terminals with electrical tape to prevent short-circuits, which could cause the battery pack to ignite or rupture.
3. Use only battery packs recommended by TOSHIBA as replacements.
4. Always make sure the battery pack is installed correctly and securely. Otherwise, a battery pack could fall out and possibly cause injury.
5. 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.
6. Be sure to monitor the remaining battery power. If the battery pack and real time clock battery discharge completely, Standby and Suspend will not function and data in memory will be lost. Also, the computer might register an incorrect time and date. In this case, connect the AC adaptor to recharge the batteries.
7. 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.

Note

1. 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.
2. 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.
3. 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.

*The computer enters Hibernate mode only if Hibernation is enabled in two places in TOSHIBA Power Saver: the **Hibernate** window and the **Battery Alarm** item of the **Alarm** window.*

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 socket 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 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**
Standard battery pack	about 4.0 to 10.0 or longer	about 2.7
High-capacity battery pack	about 8.0 to 20.0 or longer	about 3.4
RTC battery	8.0	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 Maximising 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. Plug in the AC adaptor.
3. Charge the battery until the **Battery** indicator glows blue.

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 the *Power Save Modes* window in Power Saver.

Wait at least 16 seconds after turning on the computer before trying to monitor the remaining operating time. The computer needs this time to check the battery's remaining capacity and to calculate the remaining operating time, based on the current power consumption rate and remaining battery capacity. The actual remaining operating time may differ slightly from the calculated time.

With repeated discharges and recharges, the battery's capacity will gradually decrease. Therefore, an often used, older battery will not operate for as long as a new battery even when both are fully charged. In this case, Power Save Modes window in 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.

Maximising battery operating time

A battery's usefulness depends on how long it can supply power on a single charge.

How long the charge lasts in a battery depends on:

- How you configure the computer (for example, whether you enable battery-power saving options). The computer provides a battery save mode, which can be set in TOSHIBA Power Saver, to conserve battery power. This mode has the following options:
  - Processor speed
  - Monitor brightness
  - System standby
  - System hibernate
  - Turn off monitor
  - Turn off hard disks
- How often and how long you use the hard disk, CD/DVD-ROM and the diskette drive.
- How much charge the battery contained to begin with.
- How you use optional devices, such as a PC card, to which the battery supplies power.
- Enabling Standby mode conserves battery power if you are frequently turning the computer off and on.
- Where you store your programs and data.
- Closing the display when you are not using the keyboard saves power.
- Operating time decreases at low temperatures.
- The condition of the battery terminals. Make sure the battery terminals stay clean by wiping them with a clean dry cloth before installing the battery pack.

Retaining data with power off

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

Standard battery pack	about 4 days (Standby mode) about 22 days (Boot mode)
High-capacity battery pack	about 9 days (Standby mode) about 45 days (Boot mode)
RTC battery	1 month

Extending battery life

To maximise the life of your battery pack:

- 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 below.

1. Turn off the computer's power.
2. Disconnect the universal AC adaptor and turn on the computer's power. If it does not turn on go to step 4.
3. Operate the computer on battery power for five minutes. If the battery pack has at least five minutes of operating time, continue operating until the battery pack is fully discharged. If the **Battery** indicator flashes or there is some other warning to indicate a low battery, go to step 4.
4. Connect the universal AC adaptor to the computer and the power cord to a power outlet. The **DC IN** indicator should glow blue, and the **Battery** indicator should glow orange to indicate that the battery pack is being charged. If the **DC IN** indicator does not glow, power is not being supplied. Check the connections for the universal AC adaptor and power cord.
5. Charge the battery pack until the **Battery** indicator glows blue.

- If you have extra battery packs, rotate their use.
- If you will not be using the system for an extended period, more than one month, remove the battery pack.
- Disconnect the universal AC adaptor when the battery is fully charged. Overcharging makes the battery hot and shortens life.
- If you are not going to use the computer for more than eight hours, disconnect the universal AC adaptor.
- Store spare battery packs in a cool dry place out of direct sunlight.

Replacing the battery pack

When the battery pack reaches the end of its operating life you will need to install a new one. The life of the battery pack is generally about 500 recharges. If the **Battery** indicator flashes orange shortly after fully recharging the battery, the battery pack needs to be replaced.

You might also replace a discharged battery pack with a charged spare when you are operating your computer away from an AC power source. This section explains how to remove and install the battery pack.

Removing the battery pack

To replace a discharged battery, follow the steps below.

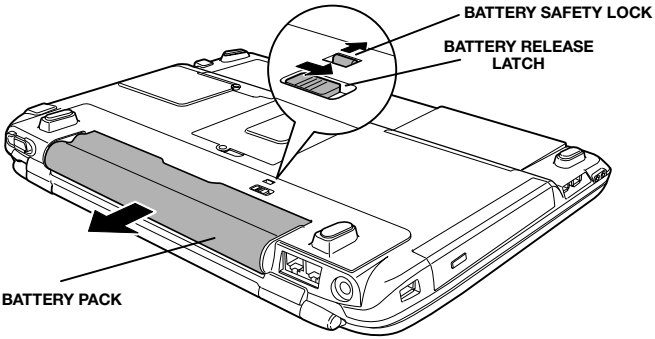
When handling battery packs, be careful not to short circuit the terminals. Also do not drop, hit or otherwise apply impact; do not scratch or break the casing and do not twist or bend the battery pack.

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 or disconnect the universal AC adaptor before the save is completed. Wait for the **Disk** *indicator to go out.*

Do not touch the battery release latch while holding the computer. The battery might accidently drop out causing damage to the battery or personal injury.

1. Save your work.
2. Turn the computer's power off. Make sure the **Power** indicator is off.
3. Remove all cables connected to the computer.
4. Turn the computer upside down.
5. Slide the battery safety lock forward to free the battery release latch.
6. Slide the battery release latch to free the battery pack for removal, then slide out the battery pack.



Releasing the battery pack

For environmental reasons, do not throw away a spent battery pack. Please return spent battery packs to your TOSHIBA dealer.

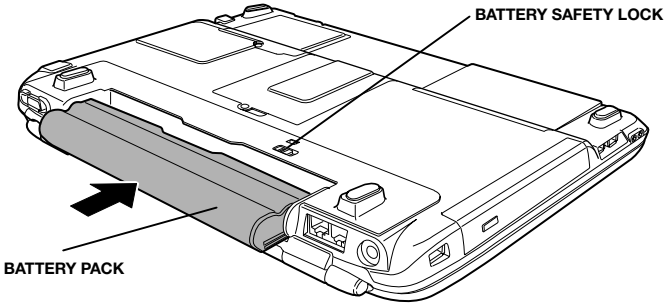
Installing the battery pack

To install a battery pack, follow the steps below.

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 touch the battery release latch while holding the computer. The battery might accidently drop out causing damage to the battery or personal injury.

1. Turn the computer's power off.
2. Disconnect all cables connected to the computer.
3. Insert the battery pack.
4. Secure the battery pack lock.



Securing the battery pack

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

The user password dialog box contains two main fields: `User Password` and `User Token`.

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

Start –> **All Programs** –> **TOSHIBA** –> **Utilities** –> **Password Utility**

User Password field

Set (button)	Click this button to register a password of up to 50 characters. After a password is set, you will be prompted to enter it when you start the computer.

After you set the password, a dialog box will be displayed asking whether you want to save it to a 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.

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**. The text will be displayed when you are prompted to enter a password. You can enter up to five lines of 40 characters in each line. Any entry exceeding that limit will be ignored.

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 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 revalidate old tokens, but you can use the same SD cards to create new tokens.

Supervisor password

To set a supervisor password, follow the steps below.

1. Click Start.
2. Click Run.
3. Enter the following: `C:\Program Files\Toshiba\Windows Utilities\SVPWTool\TOSPU.EXE`

If you set a supervisor password, some functions might be restricted when a user logs on with the user password.

This utility lets you do the following:

- Register, delete or change the supervisor password.
- Create or invalidate a supervisor 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

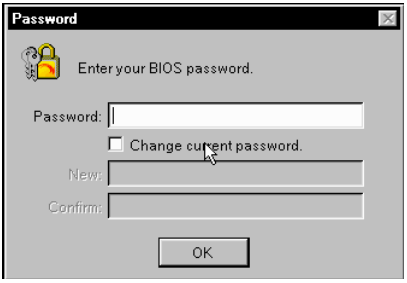
If you registered a password, there are two ways to start the computer:

- Insert a token before you turn on the computer. The computer will start normally, without displaying a password prompt.
- Enter the password manually.

The password is necessary only if the computer was shut down in boot mode. It is not needed in Hibernation or 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 be displayed:



BIOS password window

2. Follow the on-screen prompts to enter the password.

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.
- Standby: Data is maintained in the computer's main memory.

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

Windows utilities

You can specify the setting in TOSHIBA Power Saver.

Hot keys

You can use hot keys **Fn + F3** to enter Standby mode and **Fn + F4** to enter Hibernation. See 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 turns on in Standby or Hibernation mode but not in boot mode.

*If the panel power off function is enabled and you use **Shut down Windows**, do not close the display until the shut down function is 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

This chapter explains how to use TOSHIBA HW Setup program to configure your computer. TOSHIBA HW Setup lets you configure settings for General, Parallel/Printer, Display, Boot Priority, Keyboard, CPU and LAN.

Accessing HW Setup

To run HW Setup, click **start**, click **Control Panel** and select **TOSHIBA HW Setup**.

HW Setup window

The HW Setup window contains the following tabs: General, Parallel/Printer, Display, Boot Priority, Keyboard, CPU and LAN.

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**.

Setup

This field displays `BIOS Version` and date.

Default

Click **Default** to return all HW Setup values to the factory settings.

About

Click **About** to display the HW Setup version.

Parallel/Printer

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.

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

Lets you set the display to be used when the computer is booted.

`Auto-Selected`	Selects an external monitor if one is connected. Otherwise, it selects the internal LCD. (Default)
`LCD + Analog RGB`	Selects both the internal LCD and external monitor for simultaneous display.

Boot Priority

Boot Priority Options list

This option sets the priority for booting the computer. You can select from 24 options.

The default is:

HDD –> FDD –> CD-ROM –> LAN	The computer looks for bootable files in the following order: HDD, diskette drive, CD-ROM* and LAN.

* In this computer, CD-ROM refers to any optical media drive.

Temporarily changing the priority

To temporarily change the boot drive, follow the steps below.

1. Hold down **F12** and boot the computer.
2. A menu will be displayed with the following icons: Hard Drive, Removable Devices, CD/DVD-ROM Drive and Network Boot. The selected boot device will be effective only for the next boot.
3. Use the up/down cursor keys to highlight the boot device you want and press **Enter**.

If a supervisor password is set, the menu above does not appear when you use the user password to start the computer.

The selection method above does not change the boot priority settings in HW Setup.

If you press a key other than one of those above or if the selected device is not installed, the system will boot according to the current setting in HW Setup.

Support of PC (ATA) card boot is guaranteed only for TOSHIBA PC card HDDs.

A PC (ATA) card takes the position of HDD in the Boot Priority Options list, if the card is set up as the boot device in BIOS setup.

Built-in LAN disabled

Under certain conditions, **LAN** will automatically be moved to the last item in the boot priority list.

If you disable Built-in LAN in HW Setup, **LAN** will become the last item the next time you start the computer. For example:

1. Boot priority option is set to **HDD -> LAN -> FDD -> CD-ROM**.
2. You disable **Built-in LAN** in HW Setup and restart the computer.
3. The boot priority option setting will automatically change to **HDD -> FDD -> CD-ROM -> LAN**.

If you enable Built-in LAN and change the boot priority setting, LAN will remain in the last position the next time you start the computer. Your selected boot priority will become effective from the second time you start the computer.

Network Boot Protocol

This feature sets the protocol to remotely boot from the network when Wake-up on LAN is enabled.

[PXE]	Sets PXE as the protocol. (Default)
[RPL]	Sets RPL as the protocol.

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

Keyboard

Wake-up on Keyboard

When this feature is enabled and the computer is in Standby mode, you can turn on the computer by pressing any key. It is effective only for the internal keyboard and only when the computer is in standby mode.

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

CPU

This function lets you set the CPU operating mode.

Dynamic CPU Frequency Mode

This option lets you choose from the following settings:

Dynamically Switchable	CPU power consumption and clock speed automatic switching function is enabled. When the computer is in use, CPU operation is automatically switched when necessary. (Default)
Always High	CPU power consumption and clock speed automatic switching function is disabled. The CPU always runs at its fastest speed.
Always Low	CPU power consumption and clock speed automatic switching function is disabled. The CPU always runs at low power consumption and low speed.

LAN

Wake-up on LAN

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

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 universal 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.

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 cards
- SD cards
- Memory expansion

Power devices

- Battery packs
- Universal AC adaptor

Peripheral devices

- USB FDD kit
- External monitor
- TV
- Parallel printer
- i.LINK (IEEE1394)

Other

- Security lock

PC cards

The computer is equipped with a PC card expansion slot that can accommodate one 5 mm Type II card. Any PC card that meets industry standards (manufactured by TOSHIBA or other vendor) can be installed. The slot supports 32-bit cards, including CardBus PC cards, which provide superior performance for the greater demands of multimedia. It also supports 16-bit PC cards, including PC card 16's multifunction card.

Inserting a PC card

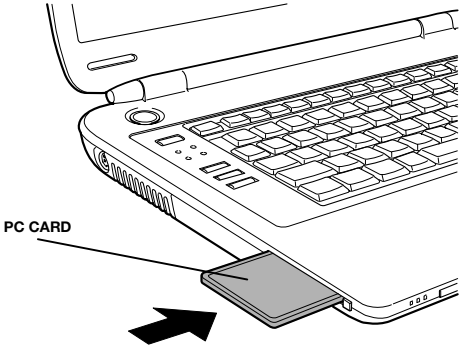
The PC card connector is located on the left side of the computer.

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 the PC card.
2. Press gently to ensure a firm connection.



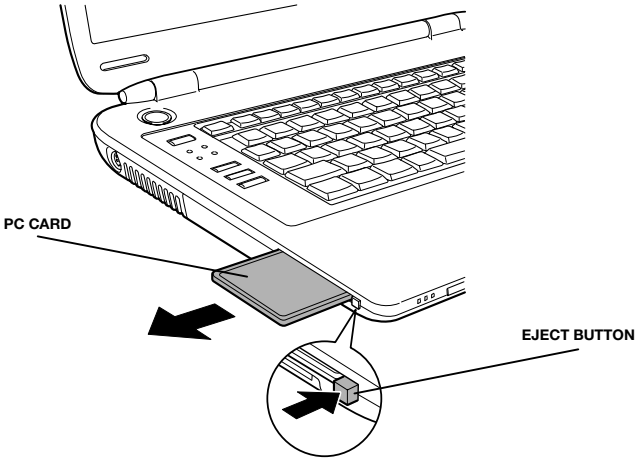
Inserting a PC card

3. Refer to the card's documentation and check the configuration in Windows to make sure it is appropriate for your card.

Removing a PC card

To remove the PC card, follow the steps below.

1. Click the **Safety Remove Hardware** icon on the System Tray.
2. Click **PC card**.
3. Press the PC card eject button to extend it.
4. Press the extended eject button to pop the card out slightly.
5. Grasp the PC card and remove it.



Removing a PC card

SD cards

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 MultiMedia cards.

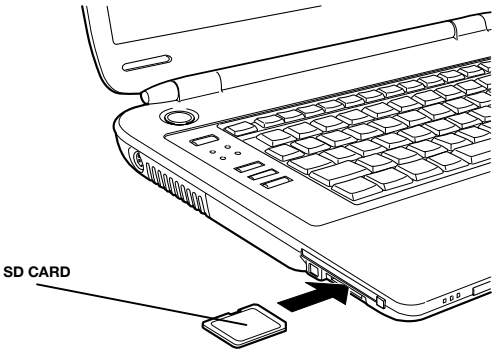
Keep foreign objects out of the SD card slot. A pin or similar object can damage the computer's circuitry.

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.

Inserting an SD card

To insert an SD card, follow the steps below.

1. Insert the SD card.
2. Press it gently to ensure a firm connection.



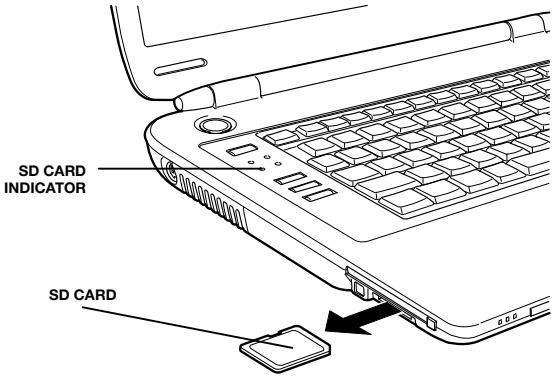
Inserting an SD card

Make sure the SD card is oriented properly before you insert it.

Removing an SD card

To remove an SD card, follow the steps below.

1. Click the **Safety Remove Hardware** icon on the System Tray.
2. Point to **SD card** and click.
3. Push in the card and release it to pop the card out slightly.
4. Grasp the card and remove it.



Removing an SD card

Make sure the **SD card** *indicator is out before you remove the 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.

1. Do not write to an SD card if the battery power is low. Low power could affect writing accuracy.
2. Do not remove an SD card while read/write is in progress.
3. The SD card is designed so that it can be inserted only one way. Do not try to force the card into the slot.
4. Do not leave an SD card partially inserted in the slot. Press the SD card until you hear it click into place.
5. Do not twist or bend SD cards.
6. Do not expose SD cards to liquids or store in humid areas or lay them close to containers of liquid.
7. After using an SD card, return it to its case.
8. Do not touch the metal part or expose it to liquids or let it get dirty.

Memory expansion

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

Use only memory modules approved by TOSHIBA.

Do not try to install or remove a memory module under the following conditions. You can damage the computer and the module. Also, data will be lost.

The computer is turned on.

The computer was shut down using Standby mode or Hibernation mode.

Wake-up on LAN is enabled.

Some memory modules can be physically installed but are not compatible with the computer. In this case, the computer will issue a warning. When you turn on the power, a series of short beeps will sound in the pattern of one, three, three, one. Shut down the power and remove the incompatible module.

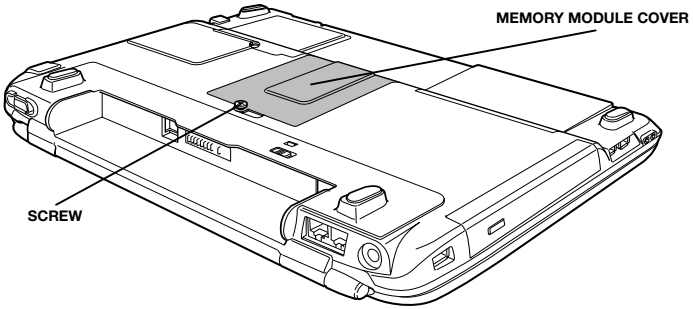
Be careful not to let screws or other foreign matter fall into the computer. It could cause malfunction or electric shock.

Use a 0-bit, Phillips screwdriver to loosen the screw. Use of an incorrect screwdriver can damage the screw head.

Installing a memory module

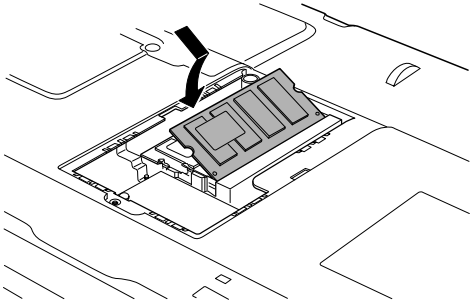
There are slots for two memory modules, one over the other. The procedures are the same for installing either module.

1. Set the computer to boot mode and turn the computer's power off. Make sure the **Power** indicator is off.
2. Remove universal 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*, for details.
4. Loosen one screw securing the memory module cover and lift off the cover.



Removing the memory module cover

5. Fit the memory module's connectors into the socket at about a 45 degree angle and push the module down until latches on either side snap into place.



Seating the memory module

Be careful not to drop the screw inside the computer.

Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.

6. Seat the memory module cover and secure it with one screw.
7. Install the battery pack. Refer to *Replacing the battery pack* section in Chapter 6, *Power*, for details.
8. Turn the power on and make sure the added memory is recognized. Open **System Properties** in the Control Panel and click the **General** tab.

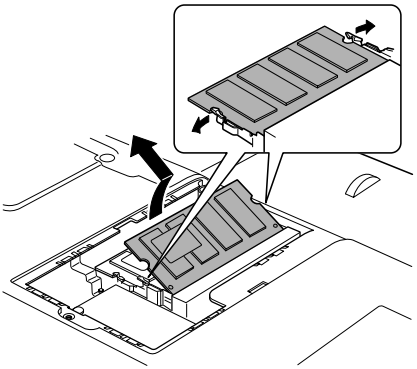
Removing memory module

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

1. Turn off the power and disconnect all cables from the computer.
2. Turn the computer upside down and remove the battery.
3. Loosen one screw securing the memory module cover and lift off the cover.
4. Push the latches to the outside to release the module. A spring will force one end of the module up.
5. 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

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

Battery packs

You can increase the portability of the computer with additional standard or high-capacity 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*.

Universal AC adaptor

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

USB FDD kit

The 3½" external diskette drive module can be connected to the USB port. For details on connecting the 3½" external diskette 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 VGA and Super VGA video modes. To connect a monitor, follow the steps below.

1. Turn the computer off.
2. Connect the monitor to the external monitor port.
3. Turn the monitor's power on.
4. Turn the computer on.

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

To change the display settings, press **Fn + F5**. If you disconnect the monitor before you turn the computer 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 S-Video out port on the computer. Follow the steps below.

Connecting a TV

1. Turn the computer off.
2. Use a video cable (not supplied) to connect the TV adaptor cable's mini-jack to the TV out port on the computer.
3. Connect the TV adaptor cable's S-Video jack to the S-Video jack on the TV.
4. Turn the television on.
5. Turn the computer on.

You can use the hotkeys **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 and click Control Panel.
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 nView Display Mode tab, click Device Settings and click Select Output Device.
e. Select Advanced and select TV in the Device Selection window.
f. Select the Format box and select the format that your TV supports.

Changing the resolution

After you connect a TV (NTSC), follow the steps below to set the Display resolution to 640 x 480.

1. Open **Display properties** and select the **Settings** tab.
2. Select **Advanced**.
3. Select the **Adapter** tab, then select **List All Modes...**.
4. Select 640 by 480, High Color (16 bit), 60 Hertz.

Parallel printer

You can connect any standard Centronics-compatible parallel printer to your computer. All you need is an IBM PC™ parallel printer cable. Your dealer can supply one or 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.
2. Insert one end of the cable into the computer's parallel port.
3. Tighten the screws that fasten the cable connector to the computer's parallel port.
4. Insert the other end 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.
7. Turn on the computer.
8. Start the HW Setup program. Refer to Chapter 7, *HW 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**, point to **Settings**, click **Printers** and double click the **Add Printer** icon.

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
- CD-RW drives

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

Precautions

- Make a backup 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.
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.
- Use S100, S200 or S400 cables no longer than three meters.
- 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

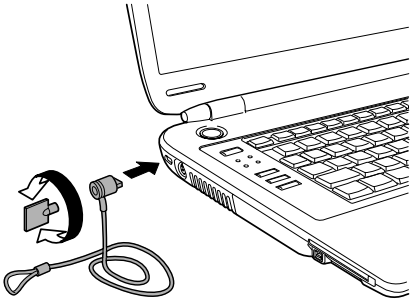
1. Open the **Safety Remove Hardware** icon on the System tray.
2. Point to **i.LINK (IEEE1394) device** and click.
3. Disconnect the cable from the computer then from the i.LINK device.

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

Security lock

A security lock enables you to anchor your computer to a desk or other heavy object to help prevent unauthorized removal of the computer.

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



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 recognise 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 SysReq**.

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 recognises 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 diskette, CD/DVD-ROM is correctly inserted and that the diskette'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.

Analysing 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, diskette drives, hard disk drive, optical media 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? Print a copy of the screen if you have a printer attached. 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 colour 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 OS 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.

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
- LCD panel
- Hard disk drive
- CD-RW/DVD-ROM drive
- DVD-R/-RW drive
- DVDMulti drive
- Diskette drive
- SD card
- PC card
- Infrared port
- Pointing device
- USB
- Memory expansion
- Sound system
- Monitor
- Modem
- LAN
- Wireless LAN
- TV output signal
- Printer
- Real time clock (RTC)

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 as well as PC card and memory module 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 intelligent power supply, Real Time Clock battery. These resources are interrelated and any one could affect apparent power problems. This section provides check lists for AC power and the main 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 shut down.

Problem	Procedure
Computer shuts down and **DC IN** indicator flashes orange	Leave the computer off until it reaches room temperature, then turn it back on. If the computer is still too warm, the **DC IN** indicator will continue blinking when you turn on the power. Let it cool longer and try again. If the computer has reached room temperature and still does not start, or if it starts but shuts down quickly 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,* for more information.

Problem	Procedure
AC adaptor doesn't power the computer (**DC IN** indicator does not glow blue)	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*.

Problem	Procedure
Battery doesn't power the computer	The battery may be discharged. Connect the AC adaptor to charge the battery.
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 at once. Wait a few minutes. If the battery still does not charge, make sure the outlet is supplying power. Plug in an appliance and see if it works. If it doesn't, try another power source. Check whether the battery is hot or cold. 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 the battery is securely seated. 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	Check the power consumption settings in TOSHIBA Power Saver Utility. Consider using a power saving mode.

RTC Battery

Problem	Procedure

The following message is displayed:
`0250: RTC battery is low`
`0251: CMOS checksum is inconsistent`	

The RTC battery is discharged	1. Click **Run Setup** to start the BIOS setup. 2. Set the system date. 3. Set the system time. 4. Press **F10** to exit the program. 5. When a confirmation dialog box appears, make sure your settings are correct and press **Yes**. 6. Restart the computer.

Password

For information on setting and using a password and on creating an SD card token, refer to Chapter 6, *Power*.

Problem	Procedure
Cannot enter or forgot password	If you cannot remember the password you can use an SD card token to start the computer. If you did not create an SD card token or cannot use it to start the computer, contact your dealer.

For information on setting a password, refer to Chapter 6, Power.

Keyboard

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

Problem	Procedure
Some letter keys produce numbers	Check that the numeric keypad overlay is not selected. Press **Fn** + **F10** 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.

LCD panel

Problem	Procedure
No display	Press hot keys **Fn** + **F5** to change the display priority, to make sure it is not set for an external monitor.
Markings appear on the LCD.	They might have come from contact with the keyboard or Touch pad. Try wiping the LCD gently with a clean dry cloth. If markings remain, use LCD cleaner. Be sure to let the LCD 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. Contact your dealer if the problems continue.

Hard disk drive

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

CD-RW/DVD-ROM 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 drawer is securely closed. Press gently until it clicks into place. Open the drawer and make sure the CD/DVD is properly seated. It should lie flat with the label facing up. A foreign object in the drawer 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. See the *Media care* section in Chapter 4 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), CD-G (Audio CD only), Addressing Method 2 Check the region code on the DVD. It must match that on the CD-RW/DVD-ROM drive. Region codes are listed in the *Optical media drives* section in Chapter 2, *The Grand Tour*.
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-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 drawer is securely closed. Press gently until it clicks into place. Open the drawer and make sure the CD/DVD is properly seated. It should lie flat with the label facing up. A foreign object in the drawer 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. See the *Media care* section in Chapter 4 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), CD-G (Audio CD only), Addressing Method 2 Check the region code on the DVD. It must match that on the CD-RW/DVD-ROM drive. Region codes are listed in the *Optical media 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 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 drawer is securely closed. Press gently until it clicks into place. Open the drawer and make sure the CD/DVD is properly seated. It should lie flat with the label facing up. A foreign object in the drawer 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. See the *Media care* section in Chapter 4 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), CD-G (Audio CD only), Addressing Method 2 Check the region code on the DVD. It must match that on the CD-RW/DVD-ROM drive. Region codes are listed in the *Optical media drives* section in Chapter 2, *The Grand Tour*.
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.

Diskette 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.
You cannot access the external 3 ½" diskette drive	Try another diskette. If you can access the diskette, the original diskette (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.
You cannot write to an SD card	Make sure the card is not write protected.
You cannot read a file	Make sure the target file is on the SD 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.

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.

Pointing device

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

Touch pad

Problem	Procedure
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 resume its normal shape and try again to move it.
Double-tapping does not work	Try changing the double-click speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Buttons** tab. 3. Set the double-click speed as instructed and click **OK**.
The mouse pointer moves too fast or too slow	Try changing the speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press Enter. 2. Click the **Pointer Options** tab. 3. Set the speed as instructed 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. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Buttons** tab. 3. Set the double-click speed as instructed and click **OK**.
The mouse pointer moves too fast or too slow	Try changing the speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Pointer Options** tab. 3. Set the speed as instructed and click **OK**.
The mouse pointer moves erratically	The mouse might be dirty. Refer to your mouse documentations for instructions on cleaning. If problems persist, contact your dealer.

USB

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 problems persist, contact your dealer.

Memory expansion

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

Problem	Procedure
Beeps sound in the pattern of one, three, three, one.	Make sure the memory module installed in the expansion slot is compatible with the computer. If an incompatible module has been installed, follow the steps below. 1. Turn off the power. 2. Disconnect the universal AC adaptor and all peripheral devices. 3. Remove the battery pack. 4. Remove the memory module. 5. Replace the battery pack and/or connect the universal AC adaptor. 6. Turn on the power. If problems persist, contact your dealer.

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.
Annoying sound is heard	You may be experiencing feedback. Refer to the Feedback item in the *Audio/Video controls* section 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 display.
Display error occurs	Check that the cable connecting the external monitor to the computer is attached firmly. 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.

Problem	Procedure
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	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.
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 or dealer.

TV output signal

Refer also to your Personal Conferencing Kit's documentation.

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, *Keyboard*. *If you turn the computer off in 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.* 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. Refer to Chapter 7, *HW Setup*. 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.

i.LINK (IEEE1394)

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.

If you need further assistance

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.

Appendix A

Specifications

This appendix summarises the computer's technical specifications.

Physical Dimensions

Weight	2.81 kilograms
Size	360 (w) x 270 (d) x 25.4/35.9 (h) millimeters (not including parts that extend beyond the main body)

Environmental Requirements

Conditions	**Ambient temperature**	**Relative humidity**
Operating	5°C (41°F) to 35°C (95°F)	20% to 80%
Non-operating	-20°C (-4°F) to 65°C (149°F)	10% to 95%
Thermal Gradient	20°C per hour maximum	
Wet-bulb temperature	26°C maximum	
Conditions	**Altitude (from sea level)**	
Operating	-60 to 3,000 metres	
Non-operating	-60 to 10,000 metres *maximum*	

Power Requirements

Universal 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 (analogue only)	
Type of dialling	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) Bell Fax ITU-T-Rec (Former CCITT)	 V.21/V.22/V.22bis/V.32/ V.32bis/V.34/V.90 103/212A V.17/V.29/V.27ter/ V.21 ch2
Communication speed	Data transmission and reception speed 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)

Certification

This product is approved for electrical safety and/or electromagnetic compatibility (EMC) by the following associations:

TÜV
DIN GOST TÜV
UL
CSA
FCC

CE

TOSHIBA declares that this product complies with the following directives to be observed for CE marking. CE-Marking is the responsibility of TOSHIBA Europe, Hammfelddamm 8, 41460 Neuss, Germany.

93/68/EEC	CE marking directive
89/336/EEC	EMC directive
73/23/EEC	Low voltage directive
99/05/EEC	R&TTE Directive
EN 60950	Electrical safety
EN 55022	EMC / Radio disturbances
EN 50082-1 or EN55024	EMC / Immunity
EN61000-3-2,-3-3	Disturbances in supply systems

Appendix B

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 metres
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 two conductor
Australia:	AS
Japan:	DENANHO

Europe:

Austria:	OVE
Belgium:	CEBEC
Denmark:	DEMKO
Finland:	SETI
France:	UTE
Germany:	VDE

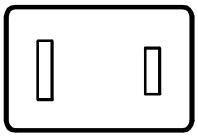
Italy:	IMQ
The Netherlands:	KEMA
Norway:	NEMKO
Sweden:	SEMKO
Switzerland:	SEV
United Kingdom:	BSI

In Europe, power cords must be VDE type, H05VVH2-F and two conductor.

For the United States and Canada, plug configuration must be a 2-15P (250 V) or 1-15P (125 V) as designated in the U.S. National Electrical code handbook and the Canadian Electrical Code Part II.

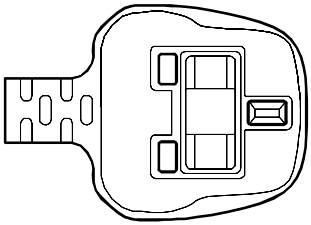
The following illustrations show the plug shapes for the U.S.A. and Canada, the United Kingdom, Australia and Europe.

USA and Canada



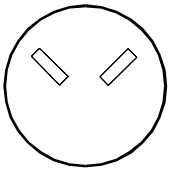
UL approved
CSA approved

United Kingdom



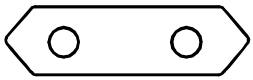
BS approved

Australia



AS approved

Europe

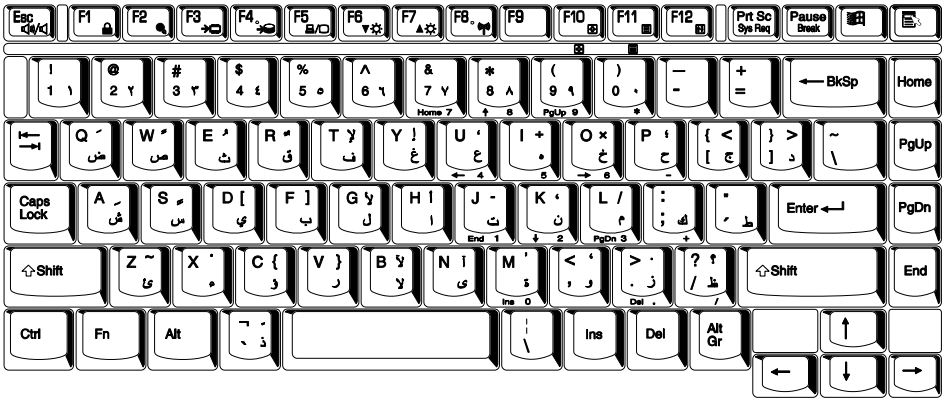


Approved by the appropriate agency

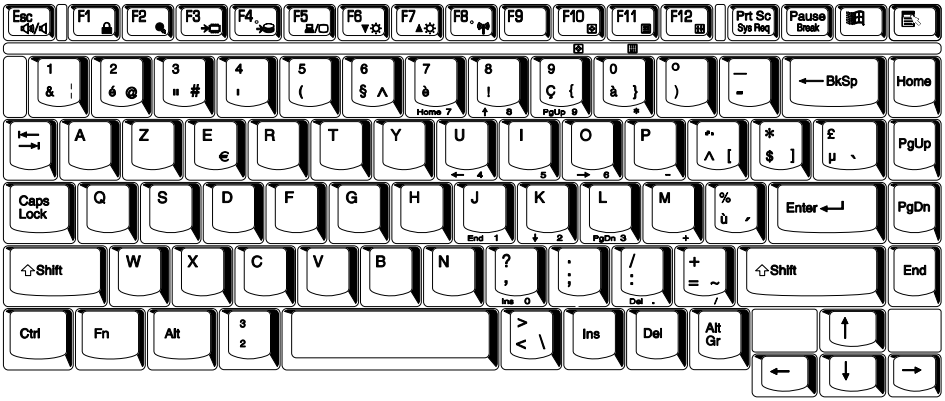
Appendix C

Keyboard Layouts

Arabic

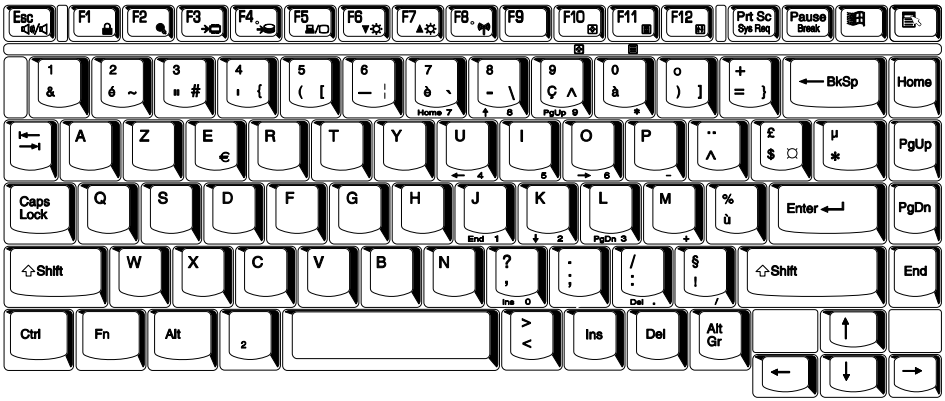


Belgian



Danish

French

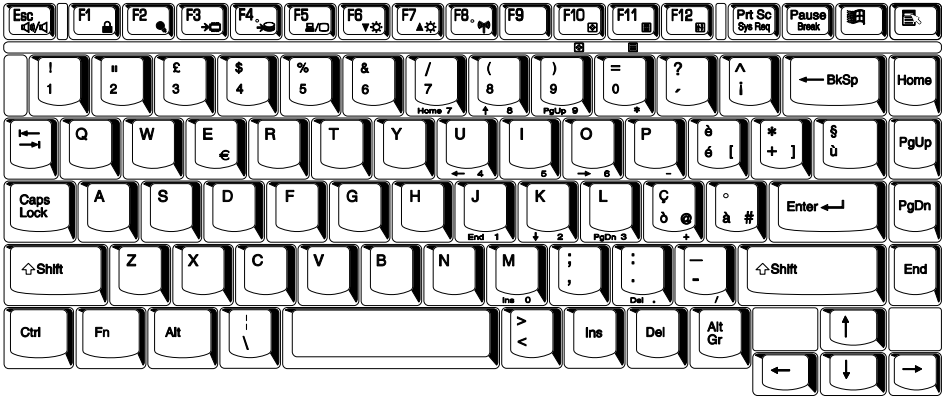


German

Greek

Hebrew

Italian



Norwegian

Polish

Portuguese

Russian

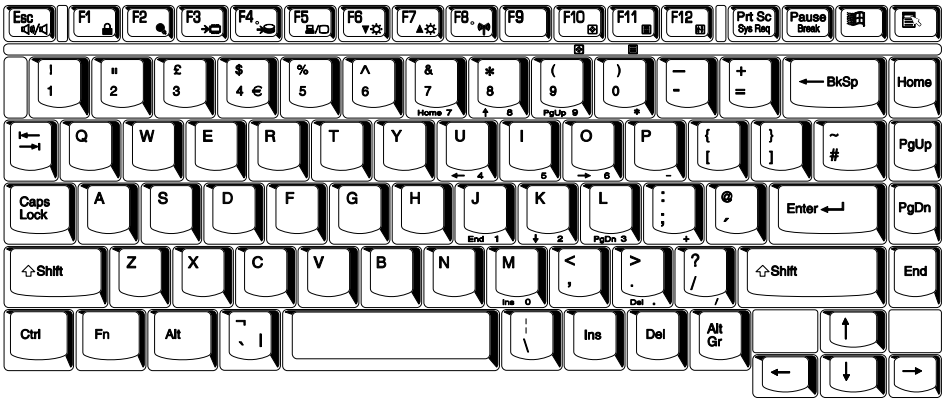
Spanish

Swedish

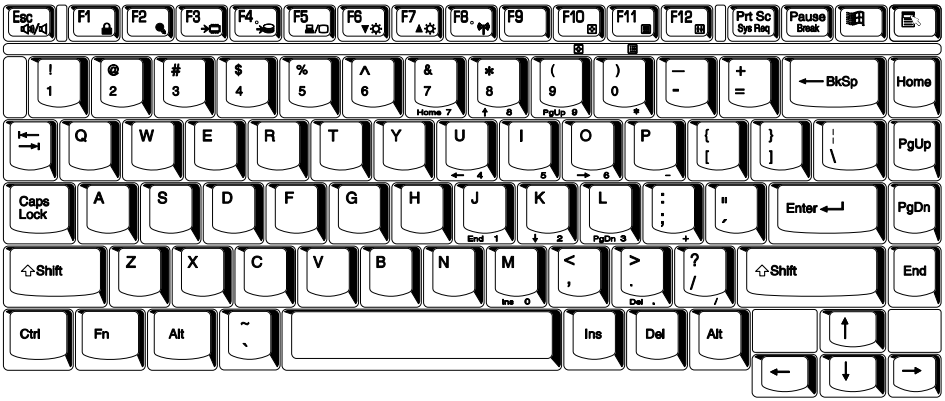
Swiss-German

Turkish

UK English



US English


Esc
F1
F2
F3
F4
F5
F6
F7
F8
F9
F10
F11
F12
Prt Sc
Sys Req
Pause
Break
BkSp
Home
PgUp
Caps Lock
Enter
PgDn
Shift
Shift
End
Ctrl
Fn
Alt
Ins
Del
Alt

Appendix D

Display Controller and Modes

Display controller

The display controller interprets software commands into hardware commands that turn particular pels on or off.

The controller is an advanced Video Graphics Array (VGA) that provides Wide Extended Graphics Array (WXGA) support for the internal LCD and external monitors.

The WXGA screen consists of 1280 x 800 pixels.

A high-resolution external monitor connected to the computer can display up to 2048 horizontal and 1536 vertical pixels at 16 M colors.

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 the screen.

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

The computer's display controller supports all VGA and SVGA modes, the most widely used industry standards.

Video modes

The computer supports video modes defined in the tables below. If your application offers a selection of mode numbers that do not match the numbers on the table, select a mode based on mode type, resolution, character matrix, number of colours and refresh rates. Also, if your software supports both graphics and text modes, the screen display may appear to operate faster using a text mode.

Table 1 Video modes (VGA)

Video Mode	Type	Resolution	Character matrix (pels)	LCD Colours	CRT Colours	Scanning frequency Vertical (Hz)
0, 1	VGA Text	40 x 25 Characters	8 x 8	16 of 256K	16 of 256K	70
2, 3	VGA Text	80 x 25 Characters	8 x 8	16 of 256K	16 of 256K	70
0*, 1*	VGA Text	40 x 25 Characters	8 x 14	16 of 256K	16 of 256K	70
2*, 3*	VGA Text	80 x 25 Characters	8 x 14	16 of 256K	16 of 256K	70
0+, 1+	VGA Text	40 x 25 Characters	9 x 16	16 of 256K	16 of 256K	70
2+, 3+	VGA Text	80 x 25 Characters	9 x 16	16 of 256K	16 of 256K	70
4, 5	VGA Grph	320 x 200 Pels	8 x 8	4 of 256K	4 of 256K	70
6	VGA Grph	640 x 200 Pels	8 x 8	2 of 256K	2 of 256K	70
7	VGA Text	80 x 25 Characters	9 x 14	Mono	Mono	70
7+	VGA Text	80 x 25 Characters	9 x 16	Mono	Mono	70
D	VGA Grph	320 x 200 Pels	8 x 8	16 of 256K	16 of 256K	70
E	VGA Grph	640 x 200 Pels	8 x 8	16 of 256K	16 of 256K	70
F	VGA Grph	640 x 350 Pels	8 x 14	Mono	Mono	70
10	VGA Grph	640 x 350 Pels	8 x 14	16 of 256K	16 of 256K	70
11	VGA Grph	640 x 480 Pels	8 x 16	2 of 256K	2 of 256K	60
12	VGA Grph	640 x 480 Pels	8 x 16	16 of 256K	16 of 256K	60
13	VGA Grph	320 x 200 Pels	8 x 8	256 of 256K	256 of 256K	70

Table 2 Video modes (WXGA)

Resolution	LCD colours	CRT colours	Vertical frequency (Hz)
640 x 480	256/256K	256/256K	60 75 85 100
800 x 600	256/256K	256/256K	60 75 85 100
1024 x 768	256/256K	256/256K	60 75 85 100
1280 x 800	256/256K	256/256K	60 75 85 100
1280 x 1024	256/256K (Virtual)	256/256K	60 75 85 100
1600 x 1200	256/256K (Virtual)	256/256K	60 75 85 100
1920 x 1440	256/256K (Virtual)	256/256K	60 75 85
2048 x 1536	256/256K (Virtual)	256/256K	60 75
640 x 480	64K/64K	64K/64K	60 75 85 100
800 x 600	64K/64K	64K/64K	60 75 85 100
1024 x 768	64K/64K	64K/64K	60 75 85 100
1280 x 800	64K/64K	64K/64K	60 75 85 100

Resolution	LCD colours	CRT colours	Vertical frequency (Hz)
1280 x 1024	64K/64K (Virtual)	64K/64K	60 75 85 100
1600 x 1200	64K/64K (Virtual)	64K/64K	60 75 85 100
1920 x 1440	64K/64K (Virtual)	64K/64K	60 75 85
2048 x 1536	64K/64K (Virtual)	64K/64K	60 75
640 x 480	16M/16M	16M/16M	60 75 85 100
800 x 600	16M/16M	16M/16M	60 75 85 100
1024 x 768	16M/16M	16M/16M	60 75 85 100
1280 x 800	16M/16M	16M/16M	60 75 85 100
1280 x 1024	16M/16M (Virtual)	16M/16M	60 75 85 100
1600 x 1200	16M/16M (Virtual)	16M/16M	60 75 85 100
1920 x 1440	16M/16M (Virtual)	16M/16M	60 75
2048 x 1536	16M/16M (Virtual)	16M/16M	60 75

Some video modes do not support multimonitor display.

Appendix E

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 was the warranty seal number (if available)?
- What is your address, phone, and fax number?

To register the theft, 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.

Your registration will be entered in a database, which is used to track TOSHIBA computers at our service points around Europe.

TOSHIBA Theft Registration

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

Fax number: +49 (0) 941 7807 925

Country stolen:	
Machine type: (e.g. Satellite M30)	
Model number: (e.g. PSM30 YXT)	
Serial number: (e.g. 70123456E)	
Date stolen:	
Warranty seal: (e.g. 9813 123456 049)	

Owner's details

Name:	
Company:	
Street:	
Postal Code/City:	
Country:	
Phone:	
Fax:	

Appendix F

ASCII Character Codes

This appendix shows the American Standard Code for Information Interchange (ASCII) on the following pages. The characters in the **IBM char** column appear on your display when you type the corresponding ASCII code (as described in Chapter 5, Keyboard). The characters that are printed, however, depend on the software you are using. For most software, the printed output for decimal codes 32 to 128 will match your screen display.

Dec code	Hex code	IBM char	Sort seq	Ctrl char
000	00		000	NUL
001	01	☺	1	SOH
002	02	☻	2	STX
003	03	♥	3	ETX
004	04	♦	4	EOT
005	05	♣	5	ENQ
006	06	♠	6	ACK
007	07	•	7	BEL
008	08	◘	8	BS
009	09	○	9	HT
010	0A	◙	10	LF
011	0B	♂	11	VT
012	0C	♀	12	FF
013	0D	♪	13	CR
014	0E	♫	14	SO
015	0F	☼	15	SI
016	10	►	16	DLE
017	11	◄	17	DC1
018	12	↕	18	DC2
019	13	‼	19	DC3
020	14	¶	20	DC4
021	15	§	21	NAK
022	16	▬	22	SYN
023	17	↨	23	ETB
024	18	↑	24	CAN
025	19	↓	25	EM
026	1A	→	26	SUB
027	1B	←	27	ESC
028	1C	∟	28	FS
029	1D	↔	29	GS
030	1E	▲	30	RS
031	1F	▼	31	US

Dec code	Hex code	IBM char	Sort seq
032	20	space	32
033	21	!	33
034	22	“	34
035	23	#	35
036	24	$	36
037	25	%	37
038	26	&	38
039	27	’	39
040	28	(	40
041	29	)	41
042	2A	*	42
043	2B	+	43
044	2C	,	44
045	2D	-	45
046	2E	.	46
047	2F	/	47
048	30	0	48
049	31	1	49
050	32	2	50
051	33	3	51
052	34	4	52
053	35	5	53
054	36	6	54
055	37	7	55
056	38	8	56
057	39	9	57
058	3A	:	58
059	3B	;	59
060	3C	<	60
061	3D	=	61
062	3E	>	62
063	3F	?	63

Dec code	Hex code	IBM char	Sort seq
064	40	@	64
065	41	A	65
066	42	B	66
067	43	C	67
068	44	D	68
069	45	E	69
070	46	F	70
071	47	G	71
072	48	H	72
073	49	I	73
074	4A	J	74
075	4B	K	75
076	4C	L	76
077	4D	M	77
078	4E	N	78
079	4F	O	79
080	50	P	80
081	51	Q	81
082	52	R	82
083	53	S	83
084	54	T	84
085	55	U	85
086	56	V	86
087	57	W	87
088	58	X	88
089	59	Y	89
090	5A	Z	90
091	5B	[	91
092	5C	\	92
093	5D	]	93
094	5E	^	94
095	5F	_	95

Dec code	Hex code	IBM char	Sort seq
096	60	′	96
097	61	a	97
098	62	b	98
099	63	c	99
100	64	d	100
101	65	e	101
102	66	f	102
103	67	g	103
104	68	h	104
105	69	i	105
106	6A	j	106
107	6B	k	107
108	6C	l	108
109	6D	m	109
110	6E	n	110
111	6F	o	111
112	70	p	112
113	71	q	113
114	72	r	114
115	73	s	115
116	74	t	116
117	75	u	117
118	76	v	118
119	77	w	119
120	78	x	120
121	79	y	121
122	7A	z	122
123	7B	{	123
124	7C	|	124
125	7D	}	125
126	7E	~	126
127	7F	⌂	127

Dec code	Hex code	IBM char	Sort seq
128	80	Ç	67
129	81	ü	85
130	82	é	69
131	83	â	65
132	84	ä	65
133	85	à	65
134	86	å	65
135	87	ç	67
136	88	ê	69
137	89	ë	69
138	8A	è	69
139	8B	ï	73
140	8C	î	73
141	8D	ì	73
142	8E	Ä	65
143	8F	Å	65
144	90	É	69
145	91	æ	65
146	92	Æ	65
147	93	ô	79
148	94	ö	79
149	95	ò	79
150	96	û	85
151	97	ù	85
152	98	ÿ	89
153	99	Ö	79
154	9A	Ü	85
155	9B	¢	36
156	9C	£	36
157	9D	¥	36
158	9E	Pt	36
159	9F	*f*	36

Dec code	Hex code	IBM char	Sort seq
160	A0	á	65
161	A1	í	73
162	A2	ó	79
163	A3	ú	85
164	A4	ñ	78
165	A5	Ñ	78
166	A6	ª	166
167	A7	º	167
168	A8	¿	63
169	A9	⌐	169
170	AA	¬	170
171	AB	½	171
172	AC	¼	172
173	AD	¡	33
174	AE	«	34
175	AF	»	34
176	B0	▒	
177	B1	▓	
178	B2	▒	
179	B3	│	
180	B4	┤	
181	B5	╡	
182	B6	╢	
183	B7	╖	
184	B8	╕	
185	B9	╣	
186	BA	║	
187	BB	╗	
188	BC	╝	
189	BD	╜	
190	BE	╛	
191	BF	┐	

Dec code	Hex code	IBM char	Sort seq
192	C0	└	
193	C1	┴	
194	C2	┬	
195	C3	├	
196	C4	─	
197	C5	┼	
198	C6	╞	
199	C7	╟	
200	C8	╚	
201	C9	╔	
202	CA	╩	
203	CB	╦	
204	CC	╠	
205	CD	═	
206	CE	╬	
207	CF	╧	
208	D0	╨	
209	D1	╤	
210	D2	╥	
211	D3	╙	
212	D4	╘	
213	D5	╒	
214	D6	╓	
215	D7	╫	
216	D8	╪	
217	D9	┘	
218	DA	┌	
219	DB	▉	
220	DC	▄	
221	DD	▌	
222	DE	▐	
223	DF	▀	

Dec code	Hex code	IBM char	Sort seq
224	E0	α	
225	E1	ß	83
226	E2	Γ	
227	E3	Π	
228	E4	Σ	
229	E5	σ	
230	E6	µ	
231	E7	ϒ	
232	E8	Φ	
233	E9	Θ	
234	EA	Ω	
235	EB	δ	
236	EC	φ	
237	ED	ϕ	
238	EE	E	
239	EF	Λ	
240	F0	Ξ	
241	F1	±	
242	F2	≥	
243	F3	≤	
244	F4	⌠	
245	F5	⌡	
246	F6	÷	
247	F7	≈	
248	F8	°	
249	F9	∙	
250	FA	·	
251	FB	√	
252	FC	η_2	
253	FD		
254	FE	■	
255	FF		

Appendix G

Wireless LAN

This appendix is intended to help you get your Wireless LAN network up and running, with a minimum of parameters.

Card specifications

Form Factor	■ Mini PCI Type III
Capability	■ 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	■ 54/48/36/24/18/12/9/6 Mb/s (Revision A and G) ■ 11/5.5/2/1 Mb/s (Revision B) ■ 108/96/72/48/36/24/18/12 Mb/s (Turbo Mode)

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, Turbo Mode) ■ Band2.4GHz (2400-2483.5 MHz) (Revision B and G)
Modulation Technique	Direct Sequence Spread Spectrum ■ DSSS-CCK, DSSS-DQPSK, DSSS-DBPSK (Revision B) ■ OFDM-BPSK, OFDM-QPSK, OFDM-16QAM, OFDM-64QAM (Revision A, G and Turbo Mode)

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 affected by "obstacles" in the signals 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 country/region, your Wireless LAN card may support a different set of 5GHz/2.4GHz channels.

Consult your Authorized Wireless LAN or TOSHIBA Sales office for information about the radio regulations that apply in your country/region.

Wireless IEEE 802.11 Channels Sets (Revision B/G)

Frequency Range	2400-2483.5 MHz
Channel ID	
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	5150-5850 MHz	**Note**
Channel ID		
36	5180	
40	5200	
44	5220	
48	5240	
52	5260	
56	5280	
60	5300	
64	5320	
149	5745	
153	5765	
157	5785	
161	5805	

Wireless Channels Sets (Turbo Mode)

Frequency Range	5150-5850 MHz	**Note**
Channel ID		
42	5210	US only *1
50	5250	US only *1
58	5290	US only *1
152	5760	US only *1
160	5800	US only *1

*1: Available Area: US (USA, CANADA) only

Appendix H

Internal Modem Guide

This appendix describes how to install and the remove the internal modem.

Do not disassemble the computer beyond the steps described in this instruction or touch any components not specifically described.

Installing the internal modem

The internal modem is preinstalled. The following is for information only.

Installing the modem board and jack

To install the modem board and jack, follow the steps below.

1. Save your data and turn off the computer.
2. Disconnect the AC adaptor and other peripheral devices.
3. Turn the computer upside down and remove the battery pack.
4. Remove one screw securing the memory module cover.
5. Pull the guide (plastic tab) toward the direction shown by arrow, then lift the HDD. Be careful not to damage the connector.
6. Remove two screws, which you use later to secure the modem board.
7. Connect the modem board cable and seat the modem board.
8. Secure the modem board with two screws removed in step 6.
9. Secure the cover with one screw.

Removing the internal modem

To remove the internal modem, follow the steps below.

1. Save your data and turn off the computer.
2. Disconnect the AC adaptor and any other peripheral device.
3. Turn the computer upside down and remove the battery pack.
4. Remove one screw securing the memory module cover.
5. Pull the guide (plastic tab) toward the direction shown by arrow, then lift the HDD. Be careful not to damage the connector.
6. Remove two screws and remove the modem board.
7. Disconnect the modem cable.
8. Secure the modem cover with one screw.
9. Install the battery pack.

   Refer to the installation procedures for details.

Glossary

The terms in this glossary cover topics related to this manual. Alternate naming is included for reference.

A

adaptor: A device that provides an interface between two dissimilar electronic devices. For example, the AC adaptor modifies the power from a wall outlet for use by the computer. This term also refers to the add-in circuit cards that control external devices, such as video monitors and magnetic tape devices.

allocate: To assign a space or function for a specific task.

alphanumeric: Keyboard characters including letters, numbers and other symbols, such as punctuation marks or mathematical symbols.

alternating current (AC): Electric current that reverses its direction of flow at regular intervals.

analog signal: A signal whose characteristics such as amplitude and frequency vary in proportion to (are an analog of) the value to be transmitted. Voice communications are analog signals.

ANSI: American National Standards Institute. An organisation 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 build-up 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, etc.

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 diskette (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-RW: A Compact Disc-Read/Write disc can be rewritten many times.

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.

diskette: A removable disk that stores magnetically encoded data used on a microcomputer. Also called floppy disk.

display: A CRT, plasma screen, 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.

driver: A software program, generally part of the operating system, that controls a specific piece of hardware (frequently a peripheral device such as a printer or mouse).

DVD-R: A Digital Versatile Disc-Recordable disk can be written once and read many times.

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 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 drive uses a laser to read data from the disc.

DVD-RW: A Compact Disc-Read/Write 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), signalling 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.

firmware: A set of instructions built into the hardware which controls and directs a microprocessor's activities.

fixed disk: *See* hard disk.

floppy disk: *See* diskette.

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

Fn-esse: A TOSHIBA utility that lets you assign functions to hot keys.

folder: An icon in Windows used to store documents or other folders.

format: The process of readying a blank disk for its first use. Formatting establishes the structure of the disk that the operating system expects before it writes files or programs onto the disk.

function keys: The keys labelled **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: The use of 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.

hotkey: A TOSHIBA 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

I/O devices: Equipment used to communicate with the computer and transfer data to and from it.

I/O: Input/output. Refers to acceptance and transfer of data to and from a computer.

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.

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.

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

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 the 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* 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 diskette (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.

on-line 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 fibreglass, 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'). To restart the computer, press **Ctrl + Alt + Del** while the computer is on. *See also* boot.

RGB: Red, green, and blue. A device that uses three input signals, each activating an electron gun for a primary additive colour (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 non-volatile 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 cards: Secure Digital cards are flash memory widely used in a variety of digital devices such as digital cameras and Personal Digital Assistants.

SIO: Serial Input/Output. The electronic methodology used in serial data transmission.

soft key: Key combinations that emulate keys on the IBM keyboard, change some configuration options, stop program execution, and access the numeric keypad overlay.

software: The set of programs, procedures and related documentation associated with a computer system. Specifically refers to computer programs that direct and control the computer system's activities. *See also* hardware.

stop bit: One or more bits of a byte that follow the transmitted character or group codes in asynchronous serial communications.

subpixel: Three elements, one red, one green and blue (RGB), that make up a pixel on the colour LCD. The computer sets subpixels independently, each may emit a different degree of brightness. *See also* pixel.

S-video: This connection provides separate lines for contrast and colour, which produces a video image superior to that produced by a composite connection.

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: Thin-film transistor. A color LCD technology that applies individual transistors to each pixel enabling fine display control and excellent screen legibility.

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 the computer is connected to a power source.

W

warm start: Restarting or resetting a computer without turning it off.

window: A portion of the screen that can display its own application or document. Often used to mean a Microsoft Windows window.

Wireless LAN: Local Area Network (LAN) through wireless communication. A short-range radio technology designed to simplify wireless communication with other LAN systems based on Direct Sequence Spread Spectrum radio technology that complies with the IEEE 802.11 Standard (Revision B).

write protection: A method for protecting a diskette (floppy disk) from accidental erasure.

Index

H

I

K

L

M

N

O

P

R

S

T

U

V

W