

**TOSHIBA**  
**Satellite P30 Series**  
User's Manual

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*TOSHIBA Satellite P30 Series Portable Personal Computer User's Manual*  
First edition August 2004

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## Safety Instructions

Use the following safety guidelines to help protect yourself and your computer.

### When Using Your Computer

Do not operate your portable computer for an extended period of time with the base resting directly on your body. With extended operation, heat can potentially build up in the base. Allowing sustained contact with the skin could cause discomfort or, eventually, a burn.

- Do not attempt to service the computer yourself and always follow installation instructions closely.
- Do not carry a battery in your pocket, purse, or other container where metal objects (such as car keys) could short-circuit the battery terminals. The resulting excessive current flow can cause extremely high temperatures and may result in damage from burns.
- Be sure that nothing rests on your AC adapter's power cable and that the cable is not located where it can be tripped over or stepped on.
- Place the AC adapter in a ventilated area, such as a desk top or on the floor, when you use it to run the computer or to charge the battery. Do not cover the AC adapter with papers or other items that will reduce cooling; also, do not use the AC adapter while it is inside a carrying case.
- Use only the AC adapter and batteries that are approved for use with this computer. Use of another type of battery or AC adapter may risk fire or explosion.
- Before you connect the computer to a power source, ensure that the voltage rating of the AC adapter matches that of the available power source.
  - 115 V/60Hz in most of North and South America and some Far Eastern countries such as Taiwan.
  - 100 V/50Hz in eastern Japan and 100 V/60Hz in western Japan.
  - 230 V/50 Hz in most of Europe, the Middle East, and the Far East.
- If you use an extension cable with your AC adapter, ensure that the total ampere rating of the products plugged in to it does not exceed the ampere rating of the extension cable itself.

- To remove power from the computer, turn it off, remove the battery, and disconnect the AC adapter from the electrical outlet.
- To help avoid the potential hazard of electric shock, do not connect or disconnect any cables or perform maintenance or reconfiguration of this product during an electrical storm.
- When setting up the computer for work, place it on a level surface.
- Do not dispose of batteries in a fire as they may explode. Check with local authorities for disposal instructions.
- When traveling, do not check the computer as baggage. You can put your computer through an X-Ray security machine, but never put your computer through a metal detector. If you have the computer checked by hand, be sure to have a charged battery available in case you are asked to turn on the computer.
- When traveling with the hard drive removed from the computer, wrap the drive in a non-conducting material, such as cloth or paper. If you have the drive checked by hand, be ready to install the drive in the computer. You can put the hard drive through an X-Ray security machine, but never, but the drive through a metal detector.
- When traveling, do not place the computer in overhead storage compartments where it could slide around. Do not drop your computer or subject it to other mechanical shocks.
- Protect your computer, battery, and hard drive from environmental hazards such as dirt, dust, food, liquids, temperature extremes, and overexposure to sunlight.
- When you move your computer between environments with very different temperature and/or humidity ranges, condensation may form on or within the computer. To avoid damaging the computer, allow sufficient time for the moisture to evaporate before using the computer.



*When taking the computer from low-temperature conditions into a warmer environment or from high-temperature conditions into a cooler environment, allow the computer time to acclimatise to room temperature before turning on the power.*

- When you disconnect a cable, pull on its connector or on its strain relief loop, not on the cable itself. As you pull out the connector, keep it evenly aligned to avoid bending any connector pins. Also, before you connect a cable make sure both connectors are correctly oriented and aligned.
- Before you clean your computer, turn it off, unplug it from its power source, and remove the battery.
- Handle components with care. Hold a component such as a memory module by its edges, not its pins.



*When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:*

- Do not use this product near water, for example, near a bathtub, washing bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- Use only the power cord indicated in this manual.
- Replace only with the same or equivalent type battery recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.



*Use only the battery pack that came with the computer or an optional battery pack. Use of the wrong battery could damage your computer.*

TOSHIBA assumes no liability for any damage in such case.

## FCC information

Model Name: Satellite P30

### FCC notice "Declaration of Conformity Information"

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



*Only peripherals complying with the FCC class B limits may be attached to this equipment. Operation with non-compliant peripherals or peripherals not recommended by TOSHIBA is likely to result in interference to radio and TV reception. Shielded cables must be used between the external devices and the computer's or expansion unit's external monitor port, USB port and microphone jack. Changes or modifications made to this equipment, not expressly approved by TOSHIBA or parties authorized by TOSHIBA could void the user's authority to operate the equipment.*

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## EMC Regulatory Information

### Contact

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<b>Address:</b>	TOSHIBA America Information Systems, Inc. 9740 Irvine Boulevard Irvine, California 92618-1697
<b>Telephone:</b>	(949)583-3000

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## EU Declaration of Conformity



TOSHIBA declares, that the product: Satellite P30 conforms to the following Standards:

Supplementary Information: "The product complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC and/or the R&TTE Directive 1999/05/EEC."

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

## Canadian Regulatory Information (Canada Only)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulation of the Canadian Department of Communications.

Note that Canadian Department of Communications (DOC) regulations provide, that changes or modifications not expressly approved by TOSHIBA Corporation could void your authority to operate this equipment.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la class B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

# Optical Disc Drive Safety Instruction



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

The optical drive that is used in this computer is equipped with a laser device. The classification label with the following sentence is affixed to the surface of the drive.

CLASS 1 LASER PRODUCT

LASER KLASSE 1

LUOKAN 1 LASERLAITE

APPAREIL A LASER DE CLASSE 1

KLASS 1 LASER APPARAT

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

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

This computer is equipped with one of the optical drives in the following list according to the model.

<b>Manufacturer</b>	<b>Type</b>
TOSHIBA Samsung	CD-RW/DVD-ROM SD-R2512
Matsushita	CD-RW/DVD-ROM UJDA760
Matsushita	DVD Super Multi UJ-831B
Matsushita	DVD Super Multi UJ-820B
TEAC	CD-RW/DVD-ROM DW-224E
TEAC	DVD Super Multi DV-W24E-0TT
HLDS	CD-RW/DVD-ROM GCC-4243N
Pioneer	DVD Dual DVR-K13TBT
Pioneer	DVD Dual DVR-K14TBT

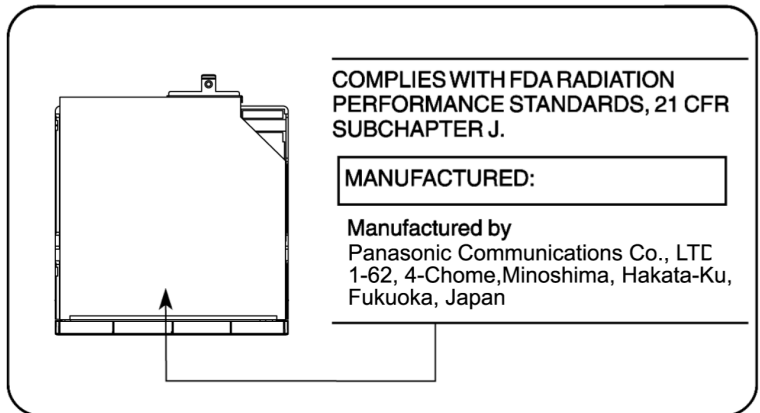
## International precautions



- *This 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

Sample shown below. Location of the label on the drive and manufacturing information may vary.



CLASS 1 LASER PRODUCT  
LASER KLASSE 1 PRODUKT  
TO EN 60825-1  
クラス1 レーザ<sup>®</sup> 製品

**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.



CLASS 1 LASER PRODUCT  
LASERSCHUTZKLASSE 1  
PRODUKT  
TO EN60825

**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: USYNLIG  
LASERSTRÅLING VED ÅBNING,  
NÅR SIKKERHEDSAF-BRYDER  
ER UDE AF FUNKTION.  
UNDGÅ UDSÆTTELSE FOR  
STRÅLING

**ADVARSEL:** Denne mærkning er anbragt udvendigt på apparatet og indikerer, at apparatet arbejder med laserstråler af klasse 1, hvilket betyder, at der anvendes laserstråler af svageste klasse, og at man ikke på apparatets yderside kan blive udsat for utilladellig kraftig stråling.

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

Indvendigt i apparatet er anbragt den her gengivne advarselsmærkning, 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 laserstråling överstigande gränsen för laserklass 1.

**VAROITUS.** Suojakoteloja si saa avata. Laitte 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.

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# 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 confirm with the additional requirements conditional in EG 201 121.

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

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

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

## Japan regulations

### Region selection

If you are using the computer in Japan, technical regulations described in the Telecommunications Business Law require that you select the Japan country mode.

It is illegal to use the modem in Japan with any other selection.

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## **Redial**

Up to two redial attempts can be made. If more than two redial attempts are made, the modem will return Black Listed. If you are experiencing problems with the Black Listed code, set the interval between redials at one minute or longer.

Japan's Telecommunications Business Law permits up to two redials on analogue telephones, but the redials must be made within a total of three minutes.

The internal modem is approved by Japan Approvals Institute for Telecommunications Equipment.



認定番号

A02-0604JP

## **Pursuant to FCC CFR 47, Part 68:**

When you are ready to install or use the modem, call your local telephone company and give them the following information:

- The telephone number of the line to which you will connect the modem
- The registration number that is located on the device

The FCC registration number of the modem will be found on either the device which is to be installed, or, if already installed, on the bottom of the computer outside of the main system label.

- The Ringer Equivalence Number (REN) of the modem, which can vary. For the REN of your modem, refer to your computer's user's guide.

The modem connects to the telephone line by means of a standard jack called the USOCRJ11C.

## **Type of service**

Your modem is designed to be used on standard-device telephone lines. Connection to telephone company-provided coin service (central office implemented systems) is prohibited. Connection to party lines service is subject to state tariffs. If you have any questions about your telephone line, such as how many pieces of equipment you can connect to it, the telephone company will provide this information upon request.

## **Telephone company procedures**

The goal of the telephone company is to provide you with the best service it can. In order to do this, it may occasionally be necessary for them to make changes in their equipment, operations, or procedures. If these changes might affect your service or the operation of your equipment, the telephone company will give you notice in writing to allow you to make any changes necessary to maintain uninterrupted service.

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### ***If problems arise***

If any of your telephone equipment is not operating properly, you should immediately remove it from your telephone line, as it may cause harm to the telephone network. If the telephone company notes a problem, they may temporarily discontinue service. When practical, they will notify you in advance of this disconnection.

If advance notice is not feasible, you will be notified as soon as possible. When you are notified, you will be given the opportunity to correct the problem and informed of your right to file a complaint with the FCC. In the event repairs are ever needed on your modem, they should be performed by TOSHIBA Corporation or an authorized representative of TOSHIBA Corporation.

### ***Disconnection***

If you should ever decide to permanently disconnect your modem from its present line, please call the telephone company and let them know of this change.

### ***Fax branding***

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity or individual sending the message and the telephone number of the sending machine or such business, other entity or individual. In order to program this information into your fax modem, you should complete the setup of your fax software before sending messages.

## Instructions for IC CS-03 certified equipment

1. NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection.

The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

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



*Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.*

2. The user manual of analog equipment must contain the equipment's Ringer Equivalence Number (REN) and an explanation notice similar to the following: The Ringer Equivalence Number (REN) of the modem, which can vary. For the REN of your modem, refer to your computer's user's guide.



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

3. The standard connecting arrangement (telephone jack type) for this equipment is jack type(s): USOC RJ11C.

The IC registration number of the modem is shown below.

Canada: 1353-11026A

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## General Precautions

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

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

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

### Pressure or impact damage

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

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## PC Card overheating

Some PC Cards can become hot with prolonged use. If two cards are installed, both can become hot even if only one is used extensively. 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 30cm 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 external peripheral products
- use of battery power instead of AC power
- use of certain multimedia, computer generated graphics or video applications
- use of standard telephone lines or low speed network connections
- use of complex modeling software, such as high end computer aided design applications
- use of several applications or functionalities simultaneously
- use of 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 30 °C (41°F to 86 °F) or > 25 °C (77 °F) at high altitude (all temperature references are approximate and may vary depending on the specific computer model).

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” in Appendix A, *Specifications*. Contact Toshiba Technical Service and Support for more information.

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**Glossary**

# Preface

Congratulations on your purchase of the Satellite P30 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 P30 computer. It also provides detailed information on configuring your computer, basic operations and care, using optional devices and troubleshooting.

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

If you are an experienced computer user, please continue reading the preface to learn how this manual is organized, then become acquainted with this manual by browsing through its pages. Be sure to look over the *Special features* section of the *Introduction*, to learn about features that are uncommon or unique to the computer.

---

## Manual contents

This manual has eight chapters, three appendixes and a Glossary.

Chapter 1, *Introduction*, is an overview of the computer's special features, utilities, 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. Be sure to read the sections on setting up the operating system and on restoring the preinstalled software.

Chapter 4, *Operating Basics*, includes instructions on using the specific devices on the computer including the Touch pad, the optical media drive, the internal modem, LAN and wireless LAN.

It also provides tips on care of the computer, diskettes and DVD/CD-ROMs.

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

Chapter 6, *Power and Power-Up Modes*, gives details on the computer's power resources.

Chapter 7, *Optional Devices*, describes the optional hardware available.

Chapter 8, *Troubleshooting*, provides helpful information on how to perform some diagnostic tests, and 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.

## 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.

**DISKCOPY A: B:** When procedures require an action such as clicking an icon or entering text, the icon's name or the text you are to type in is represented in the type face you see to the left.

## Display



**ABC**

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

## Messages

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



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



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



## Introduction

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



*Basic features are described in a separate pamphlet.*



*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. Check to make sure you have all the following items:

### Hardware

- Satellite P30 Series Portable Personal Computer
- Universal AC adaptor and power cord

## Software

- The following software preinstalled on your hard disk:
  - Microsoft® Windows® XP
  - TOSHIBA Utilities
  - Display Driver
  - Touch pad driver
  - Sound driver
  - Miscellaneous drivers (depending on the model you purchased these will include drivers for devices such as the modem, LAN, wireless LAN and Multiple Digital Media Card Slot)
  - Online help
- Product Recovery Disk
- TOSHIBA Tools & Utilities CD-ROM



*The system may not function properly if you use drivers that are not preinstalled or distributed by TOSHIBA*

## Documentation

- Your computer's documentation:
  - *Satellite P30 User's Manual*
  - *Satellite P30 Quickstart*
  - Microsoft® Windows XP Getting Started booklet
  - Safety Instruction Manual
  - Warranty information



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

## Features

The *Satellite P30* series 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

---

Intel® Celeron® Processor up to 2.8 GHz

Intel® Celeron® D Processor 325/330/335 or higher

Mobile Intel® Pentium® 4 Processor 2.8GHz/3.06GHz

Mobile Intel® Pentium® 4 Processor 2.8GHz/3.06GHz/3.2GHz supporting Hyper-Threading Technology

Mobile Intel® Pentium® 4 Processor 518/532/538 or higher, supporting Hyper-Threading Technology

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### Chip Set

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ATI MOBILITY™ RADEON™ 9000 IGP

ATI MOBILITY™ RADEON™ 9700 (depending on models)

ATI IXP150

ENE KB910 for the keyboard controller, battery management unit, and Real-Time Clock (RTC).

CB714 for Card Bus PCMCIA controller with Multiple Digital Media Card Slot

ALC250 for AC97 CODEC.

VIA VT6301S for IEEE 1394 controller.

Realtek RTL8100CL for the onboard LAN.

---

## Memory

<b>Slot</b>	Two DDR SODIMM sockets with support for 256MB/512MB/1GB modules Two DDR SODIMM sockets with support for 256MB/512MB/1GB modules
<b>L2 Cache</b>	128KB L2 Cache (Intel® Celeron® Processor up to 2.8GHz) 256KB L2 Cache (Intel® Celeron® D Processor 325/330/335 or higher) 512KB L2 Cache (Mobile Intel® Pentium® 4 Processor up to 3.2GHz) 1MB L2 Cache (Mobile Intel® Pentium® 4 Processor 518/532/538 or higher)
<b>Video RAM</b>	Up to 128MB memory for ATI MOBILITY™ RADEON™ 9000 IGP shared with main system memory External 64/128MB VGA DDR RAM for ATI MOBILITY™ RADEON™ 9700

## BIOS

1MB Flash ROM for system BIOS.  
Suspend to RAM/disk.  
Password protection (System power on).  
Various hot key functions for system control.  
Upgradable  
Complete ACPI 1.0b function support

## Power

<b>Battery Pack</b>	<p>12-cell Li-Ion smart battery pack with 14.8V*6450mAh capacity or 8-cell Li-Ion smart battery pack with 14.8V*4300mAh capacity (depending on the model)</p> <p>Approximately 12 hours or longer charging time to 100% battery capacity (system on).</p> <p>Approximately 4 hours charging time to 100% battery capacity (system off)</p> <p>Approximately 3 days discharge time in Standby Mode for the 12-cell battery and 2 days for the 8-cell battery.</p> <p>Discharge time when the computer is switched off is approximately 1 month.</p>
<b>RTC Battery</b>	<p>The computer has an internal battery to backup the Real Time Clock (RTC) and calendar functions. This battery will last for approximately 1 month when the computer is disconnected from mains power.</p>
<b>AC adaptor</b>	<p>The universal AC adaptor provides power to the system and recharges the batteries when they are low. It comes with a detachable power cord.</p>

## Floppy Diskette Drive Devices

External USB FDD

## Touch pad

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

## Display

17.0" TFT screen, 16 million colors with a resolution of 1440 horizontal x 900 vertical pixels, widescreen XGA

17.0" TFT screen, 16 million colors with a resolution of 1680 horizontal x 1050 vertical pixels, widescreen SXGA+

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## Disks

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<b>Fixed hard disk</b>	Either one 40GB/60GB/80GB/100GB or larger capacity hard drive Bus Master IDE 9.5m/m 2.5" HDD Support Ultra DMA 100
<b>CD-RW/DVD-ROM drive</b>	Some models are equipped with a full-size CD-RW/DVD-ROM module that lets you record data to rewritable CD-Rs and CD-RWs as well as run either 12cm (4.72") or 8cm (3.15") CD/DVDs without using an adaptor. It reads DVD-ROMs at a maximum 8 speed and CD-ROMs at a maximum 24 speed. It writes both CD-Rs and CD-RWs at up to 24 speed. The drive supports the following formats of media on a read-only basis. <ul style="list-style-type: none"><li>■ DVD-ROM</li><li>■ DVD-Video</li><li>■ DVD-RW</li><li>■ CD-Text</li><li>■ DVD-R</li><li>■ CD-DA</li><li>■ DVD-RAM</li><li>■ Photo CD (single/multi-session)</li><li>■ CD-ROM Mode1, Mode2</li><li>■ CD-ROMXA Mode2 (Form1, Form2)</li><li>■ Enhanced CD (CD-EXTRA)</li></ul>

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**DVD±R/±RW (DVD Dual) drive supporting Double Layer**

Some models are equipped with a full-size DVD Dual module that lets you record data to rewritable CD/DVDs as well as run either 12cm (4.72") or 8cm (3.15") CD/DVDs without using an adaptor. It reads DVD-ROMs at a maximum 8 speed and CD-ROMs at a maximum 24 speed. It writes CD-Rs at up to 24 speed, CD-RWs at up to 16 speed, DVD-Rs and DVD+Rs at a maximum 8 speed, DVD-RWs and DVD+RWs at a maximum 4 speed and DVD+Rs (Double Layer) at a maximum 2.4 speed. This drive supports the same formats as the CD-RW/DVD-ROM drive plus the following:

- DVD-ROM
  - DVD-Video
  - DVD-R
  - DVD-RW
  - DVD+R
  - DVD+RW
  - CD-DA
  - CD-Text
  - DVD+R (Double Layer)
  - Photo CD (single/multi-session)
  - CD-ROM Mode1, Mode2
  - CD-ROMXA Mode2 (Form1, Form2)
  - Enhanced CD (CD-EXTRA)
-

---

**DVD±R/±RW (DVD Dual) drive**

Some models are equipped with a full-size DVD Dual module that lets you record data to rewritable CD/DVDs as well as run either 12cm (4.72") or 8cm (3.15") CD/DVDs without using an adaptor. It reads DVD-ROMs at a maximum 8 speed and CD-ROMs at a maximum 24 speed. It writes CD-Rs at up to 16 speed, CD-RWs at a maximum 10 speed, DVD-Rs and DVD+Rs at a maximum 4 speed, and DVD-RWs and DVD+RWs at a maximum 2 speed. This drive supports the same formats as the CD-RW/DVD-ROM drive plus the following:

- DVD-ROM
  - DVD-Video
  - DVD-R
  - DVD-RW
  - DVD+R
  - DVD+RW
  - CD-DA
  - CD-Text
  - Photo CD (single/multi-session)
  - CD-ROM Mode1, Mode2
  - CD-ROMXA Mode2 (Form1, Form2)
  - Enhanced CD (CD-EXTRA)
-



---

**DVD Super Multi drive supporting Double Layer**

Some models are equipped with a full-size DVD Super Multi drive module that lets you record data to rewritable CD/DVDs as well as run either 12cm (4.72") or 8cm (3.15") CD/DVDs without using an adaptor. It reads DVD-ROMs at a maximum 8 speed and CD-ROMs at a maximum 24 speed. It writes CD-Rs at up to 24 speed, CD-RWs at up to 10 speed, DVD-Rs and DVD+Rs at maximum 8 speed, DVD-RWs and DVD+RWs at maximum 4 speed, DVD-RAM at maximum 3 speed and DVD+Rs (Double Layer) at maximum 2.4 speed. This drive supports the same formats as the CD-RW/DVD-ROM drive plus the following:

- DVD-ROM
  - DVD-Video
  - DVD-R
  - DVD-RW
  - DVD+R
  - DVD+RW
  - DVD-RAM
  - DVD+R9 (Double Layer)
  - CD-R
  - CD-RW
  - CD-DA
  - CD-Text
  - Photo CD (single/multi-session)
  - CD-ROM Mode1, Mode2
  - CD-ROMXA Mode2 (Form1, Form2)
  - Enhanced CD (CD-EXTRA)
-

### DVD Super Multi drive

Some models are equipped with a full-size DVD Super Multi drive module that lets you record data to rewritable CD/DVDs as well as run either 12cm (4.72") or 8cm (3.15") CD/DVDs without using an adaptor. It reads DVD-ROMs at a maximum 8 speed and CD-ROMs at a maximum 24 speed. It writes CD-Rs at up to 16 speed, CD-RWs at up to 8 speed, DVD-Rs at maximum 4 speed, DVD-RWs and DVD-RAM at maximum 2 speed, and DVD+Rs and DVD+RWs at maximum 2.4 speed. This drive supports the same formats as the CD-RW/DVD-ROM drive plus the following:

- DVD-ROM
- DVD-Video
- DVD-R
- DVD-RW
- DVD+R
- DVD+RW
- CD-R
- CD-RW
- CD-DA
- CD-Text
- DVD-RAM
- Photo CD (single/multi-session)
- CD-ROM Mode1, Mode2
- CD-ROMXA Mode2 (Form1, Form2)
- Enhanced CD (CD-EXTRA)



*Computers in this series can be configured with multiple types of optical media drive. For more information on the optical media drives available, talk to your dealer. More information on using the optical media drive can be found in Chapter 4, Operating Basics.*

## Slots

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<b>PC Card</b>	The computer is equipped with one Type II PC Card slot MODEM/LAN card PC Card 8.0 Compliant, supports 3V and 5V cards
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<b>Multiple Digital Media Card (SD/MMC/SM/MS/MS Pro/xD)</b>	This slot lets you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, that use flash-memory. You can use memory module in this slot
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## Ports (depending on configuration)

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<b>External monitor</b>	15-pin analog VGA port supports VESA DDC2B compatible functions.
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<b>Universal Serial Bus</b>	The computer has three Universal Serial Bus (USB) ports that comply with the USB 2.0 standard, which enables data transfer speeds more than 40 times faster than USB 1.1 (which this computer also supports.) The USB drives may be used to transfer data at Low, Full, and High speeds
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<b>i.LINK (IEEE1394)</b>	This port enables high-speed data transfer directly from external devices such as digital video cameras.
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<b>TV Out</b>	The 4-pin S-Video port is compatible with the PAL or NTSC TV standards, supporting Macrovision 7.02 copy protection.
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## Multimedia

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<b>Sound system</b>	The Windows sound system compatible sound system provides internal speakers as well as jacks for an external microphone and headphones.
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<b>Direct CD Play</b>	Let you use the computer's fixed optical media drive as a stand-alone audio CD-player. You can also use the buttons to control the computer's DVD video player or MP3 files when the system is on.
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<b>Headphone jack</b>	A standard 3.5mm headphone jack
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<b>Microphone jack</b>	A standard 3.5 mm mini microphone jack enables connection of monaural microphone input.
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## **Communications**

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<b>Modem</b>	An internal modem provides capability for data and fax communication. It supports V.90 or V.92 depending on the region. The speed of data and fax transfer depends on the analog telephone line conditions. It has a modem jack for connecting to a telephone line.
<b>LAN</b>	The computer has built-in support for Ethernet LAN (10 Mbps, 10BASE-T) and Fast Ethernet LAN (100 Mbps 100BASE-TX)
<b>Wireless LAN</b>	Some computers in this series are equipped with a wireless LAN mini-PCI card that is compatible with other LAN systems that support either the 802.11a/g or the 802.11g wireless communications standards. It has a Frequency Channel Selection (2.4 or 5 GHz) and allows roaming over multiple channels.

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## **Security**

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Boot-up password protection  
Two level password architecture

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## **Security Lock Slot**

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Receives an optional security lock in order to anchor the computer to a desk or other large, heavy object.

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## Special features

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

<b>Hotkeys</b>	Key combinations let you quickly modify the system configuration directly from the keyboard without running a system configuration program.
<b>Display Automatic Power off</b>	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 TOSHIBA Power Saver utility.
<b>HDD Automatic Power off</b>	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 TOSHIBA Power Saver utility.
<b>System Automatic Standby/Hibernation</b>	This feature automatically places the system into either 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 TOSHIBA Power Saver utility.
<b>Keypad Overlay</b>	A ten-key pad is integrated into the keyboard. Refer to the Keypad overlay section in Chapter 5, <i>The Keyboard</i> , for instructions on using the keypad overlay.
<b>Power-on Password</b>	Two levels of password security are available: supervisor and user. This feature prevents unauthorized access to your computer.
<b>Battery Save Mode</b>	This feature lets you save battery power. You can specify the level of power management used within the TOSHIBA Power Saver utility.
<b>Instant Security</b>	A hotkey function blanks the screen providing quick and easy data security.
<b>Panel Power Off/On</b>	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 TOSHIBA Power Saver utility.

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<b>Low Battery Automatic Hibernation</b>	When battery power is exhausted to the point that computer operation cannot be continued, the system automatically enters Hibernation Mode and shuts down. You can activate this setting in the TOSHIBA Power Saver utility.
<b>Hibernation</b>	This feature lets you turn off the power without exiting from your software. The contents of main memory are saved to the hard disk. When you turn on the power again, you can continue working right where you left off. Refer to the Turning off the power section in Chapter 3, <i>Getting Started</i> , for details.
<b>Standby</b>	In Standby Mode, power to the system remains on, but the CPU and all other devices are placed into a 'sleep' mode. When the computer is in Standby Mode, the Power LED flashes amber. The computer enters Standby Mode regardless of the associated setting for Hibernate Mode. Refer to the Turning off the power section in Chapter 3, <i>Getting Started</i> , for details.

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- Before switching the computer off into 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. Data in memory will be lost.

## Utilities

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

<b>TOSHIBA Power Saver</b>	There are two ways to display the Windows XP Control Panel. The default is Category View. TOSHIBA Power Saver utility is under the Performance and Maintenance item.
<b>TOSHIBA Controls</b>	<p>This utility provides you with the ability to configure the following two areas:</p> <ul style="list-style-type: none"> <li>■ Buttons           <p>There are 7 kinds of menu in the pull down menu list for the Buttons option. The default value for the CD/DVD button is 'CD/DVD'.</p> <ul style="list-style-type: none"> <li>■ CD/DVD</li> <li>■ TV out</li> <li>■ Outlook Express</li> <li>■ Disable button</li> <li>■ TOSHIBA Console</li> <li>■ Internet Explorer</li> <li>■ Select your program</li> </ul> </li> <li>■ Media Apps           <p>Set the mode for the Audio/Video controls. Select the application for audio and video playback.</p> </li> </ul>
<b>TOSHIBA Console</b>	TOSHIBA Console is a graphical user interface that provides easy access to help and services.
<b>DVD Player</b>	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 WinDVD5 then click Inter Video WinDVD5.
<b>Config Free</b>	<p>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 different locations and communication networks.</p> <p>To start ConfigFree, click the Windows Start Button, point to All Programs, point to TOSHIBA, point to Networking and click ConfigFree.</p>

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<b>TOSHIBA Touch pad On/Off Utility</b>	Pressing Fn+F9 in a Windows environment enables or disables the Touch pad function. When you press these hot keys, the current setting will change and be displayed as an icon.
<b>RecordNow! Basic for TOSHIBA</b>	You can create CD/DVDs in several formats including audio CDs that can be played on a standard stereo CD player and data CD/DVDs to store the files and folders on your hard disk drive. This software can be used on models fitted with either a CD-RW/DVD-ROM drive, a DVD±R/±RW drive or a DVD Super Multi drive.
<b>DLA for TOSHIBA</b>	DLA (Drive Letter Access) is the packet writing software which provides the function to write files and/or folders to DVD±RW or CD-RW media via a drive letter like a floppy disk or other removable disks.
<b>TOSHIBA Touch and Launch</b>	<p>TOSHIBA Touch and Launch is a tool that allows you to perform various tasks easily by using the Touch pad. It is useful in the following conditions.</p> <ul style="list-style-type: none"><li>■ To open a file located on the desktop whose icon is obscured by a window.</li><li>■ To open a page contained in the Internet Explorer Favorites menu.</li><li>■ To display the list of currently open windows and change the active window.</li><li>■ It also provides the following functions by customizing the settings.</li><li>■ To open a file stored in a predefined folder.</li><li>■ To quickly launch your frequently used applications which have been registered.</li></ul>
<b>TOSHIBA Zooming Utility</b>	This utility allows you to enlarge or reduce the icon size on the desktop or the application window.

---



## Options

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

---

<b>Memory Modules</b>	Two memory modules can be installed in the computer
-----------------------	---

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*The computer comes with at least one memory module pre-installed.*



*Use only PC2700 compatible DDR memory modules. See your TOSHIBA dealer for details*

---

<b>Battery Pack</b>	An additional battery pack can be purchased from your TOSHIBA dealer. Use it as a spare to increase your computer operating time.
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<b>AC Adaptor</b>	If you use your computer at more than one site frequently, it may be convenient to purchase an additional AC adaptor for each site so you will not have to carry the adaptor with you.
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<b>USB FDD Kit</b>	Lets you attach a floppy diskette device to your computer by means of a USB cable.
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## The Grand Tour

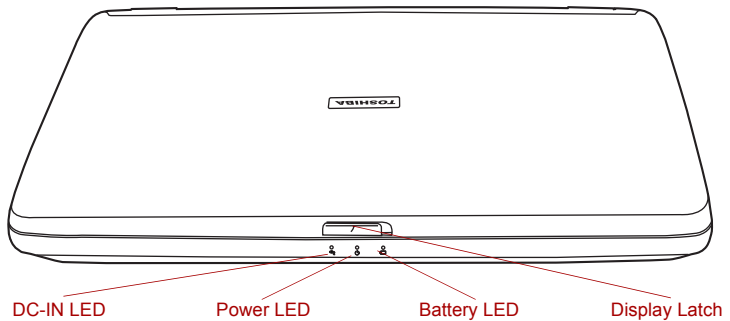
This chapter identifies the various components of your computer. Become familiar with each component before you operate the computer.



Certain notebook chassis are designed to accommodate all possible configurations for an entire product series. Your selected model may not have all the features and specifications corresponding to all of the icons or switches shown on the notebook chassis, unless you have selected all those features.

### Front with the display closed

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



*Front of the computer with display closed*



#### DC-in LED

The DC-IN LED indicates the computer is connected to the AC adapter and it is plugged into an AC power source.

**Power LED**

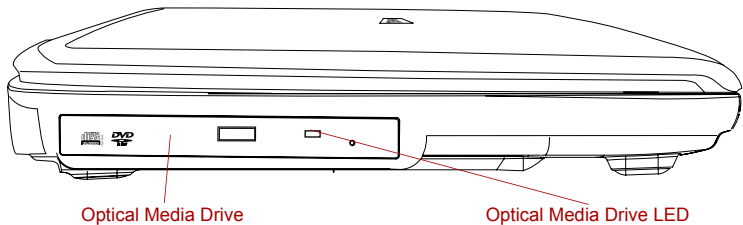
The Power LED flashes amber while the system is in Standby mode. The LED turns off when the computer is turned off or in hibernation mode. In normal operating mode, the LED is green.

**Battery LED**

The Battery LED indicates the battery's current charge/discharge status. It lights green when the battery is fully charged. It lights amber while the battery is being charged from the AC adapter. It flashes amber when the battery capacity is low.

## Left side

The following figure shows the computer left side



*The left side of the computer*

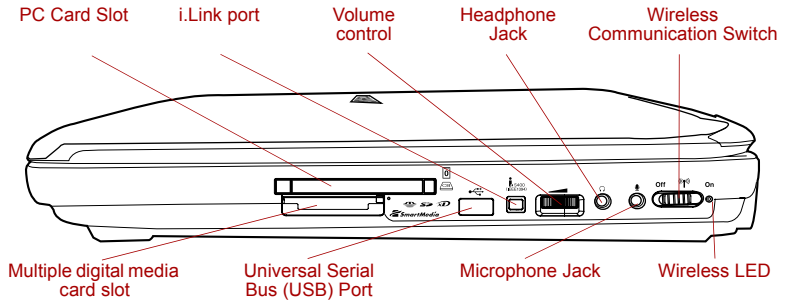
**Optical Media Drive**

The computer is configured with a full-size optical media drive module that lets you run either 12 cm (4.72") or 8 cm (3.15") discs without using an adaptor. See the Drives section in this chapter for technical specifications on each drive and Chapter 4, *Operating Basics*, for information on using the drive and caring for discs.

*The Optical Disc Access LED will light when the drive is accessed.*

## Right side

The following figure shows the computer right side



*The right side of the computer*

- \* Some models are not equipped with Wireless Communication Switch.
- \* i.LINK is provided with some models.



### PC Card Slot

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

### Multiple Digital Media Card Slot



This slot allows you easily transfer data from devices, such as digital cameras and Personal Digital Assistance, that use flash memory. You can insert several kinds of memory module (SD/MMC/SM/MS/MS Pro/xD) into this slot.



### Universal Serial Bus (USB) Port

The Universal Serial Bus (USB 2.0 and 1.1) port enables USB-equipped devices (such as keyboards, mice, hard drives, scanners, and printers).



### i.LINK (IEEE1394) Port

Connect an external device, such as a digital video camera to this port for high-speed data transfer. This only applies the i.LINK model of the computer. This feature may not be present, depending on your configuration.



### Volume Control

Use this dial to adjust the volume of the stereo speakers or headphones.



### Headphone Jack

The Headphone Jack lets you connect stereo headphones or other audio-output devices such as external speakers. Connecting headphones or other devices to this jack automatically disables the internal speakers.



### Microphone Jack

A standard 3.5 mm mini microphone jack enables connection of a three conductive type mini-jack for a monaural microphone.

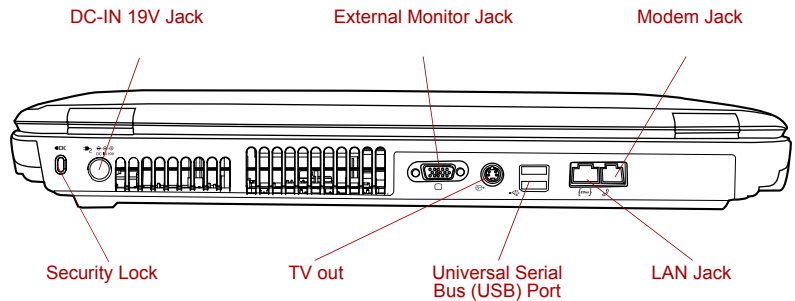


### Wireless Communication

The Wireless Communication Switch turns on the wireless networking transceiver. The Wireless Communication LED next to Wireless Communication switch indicates that wireless networking is turned on.

## Back side

The following figure shows the computer back panel.

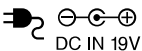


*The back side of the computer*



### Security Lock

A security cable attaches to this port. The optional security cable anchors your computer to a desk or other large object to deter theft.



### DC-IN 19V Jack

The DC-IN socket is where you plug in the AC adapter.



### External Monitor Port

This 15-pin port lets you connect an external video display to the computer.



### TV Out

Plug a 4-pin S- video cable into this connector for output of NTSC or PAL signal.



### Universal Serial Bus (USB) Port

The Universal Serial Bus (USB 2.0 and 1.1) port enables USB-equipped devices (such as keyboards, mice, hard drives, scanners, and printers).

**LAN Jack**

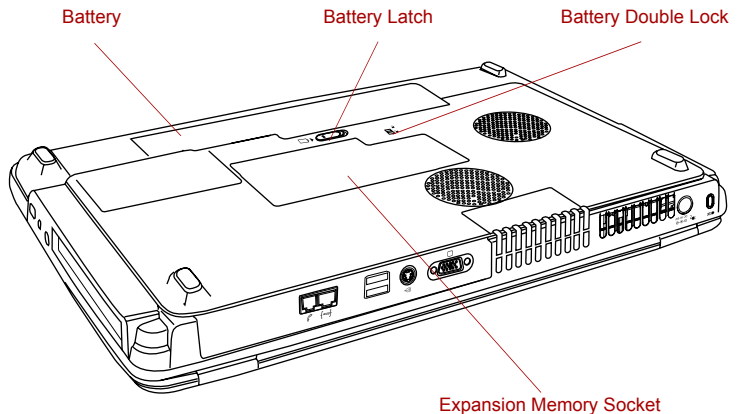
This jack lets you connect to a LAN. The adaptor has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T) and Fast Ethernet LAN (100 megabits per second, 100BASE-TX).

**Modem Jack**

In areas where an internal modem is installed as standard equipment, there is a modem jack that lets you use a modular cable to connect the modem directly to a telephone line. The modem is not supported in some marketing regions.

## Underside

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



*The bottom of the computer*

**Expansion Memory Socket**

Use this socket to install a memory module to increase your computer's memory. Refer to the Memory Expansion section in Chapter 7, *Optional Devices*.

**Battery**

This is the battery pack, which powers the computer when the AC adaptor is not connected. For detailed information on the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.

**Battery Double Lock**

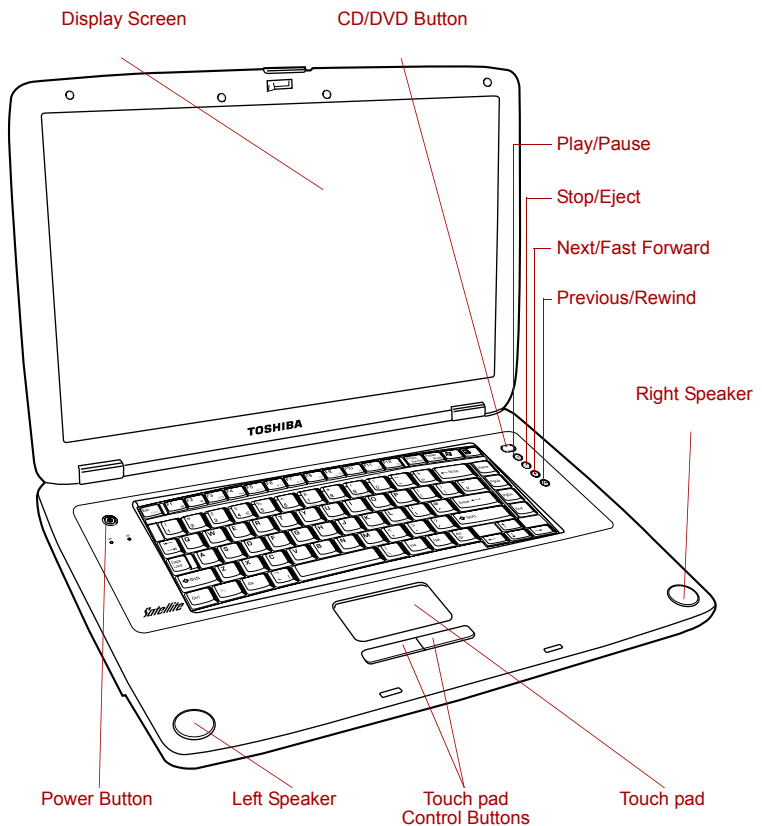
When you slide this latch to the position of lock, the battery can not be released even you have slid the battery latch.

**Battery Latch**

Slide this latch to remove the battery pack.








## Front with the display open

The following figure 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*

\* Some models are not equipped with a CD/DVD button and CD/DVD play control buttons.

	<b>Power Button</b>	Press the power button to turn the computer's power on and off. There is one LED inside of power button. The power button will shinning blue when the system is accessed.
<b>Left and Right Speakers</b>	The audio speakers.	
<b>TouchPad</b>	A pointer control device located in the center of the palm rest is used to control the on-screen pointer. Refer to the Using the TouchPad section in Chapter 4, <i>Operating Basics</i> .	
<b>TouchPad Control Buttons</b>	Control buttons below the TouchPad let you select menu items or manipulate text and graphics designated by the on-screen pointer.	
	<b>Previous/Rewind</b>	Skips back to previous tracks. If held down while a song is playing, it fast rewinds through it. Refer to Chapter 4, <i>Operating Basics</i> , for details.
	<b>Next/Fast Forward</b>	Skips forward to next tracks. If held down while a song is playing, it fast forwards through it. Refer to Chapter 4, <i>Operating Basics</i> , for detail
	<b>Stop</b>	Stops playing the CD, DVD or digital audio. Refer to Chapter 4, <i>Operating Basics</i> , for details.
	<b>Play/Pause</b>	Press this button to begin playing an audio CD, a DVD movie or digital audio files. This button also acts as a Pause button. Refer to Chapter 4, <i>Operating Basics</i> for details.
	<b>CD/DVD Button</b>	When system is off, pressing this button will turn on CD Playback mode. Pressing this button again will turn off CD Playback mode. When system is turned on, pressing this button will launch Windows Media Player or if pressing this button with DVD inside will launch WinDVD.
	<i>If Random or Shuffle is selected in Windows Media Player, selecting Next or Previous advances to a random selection.</i>	



## Display Screen

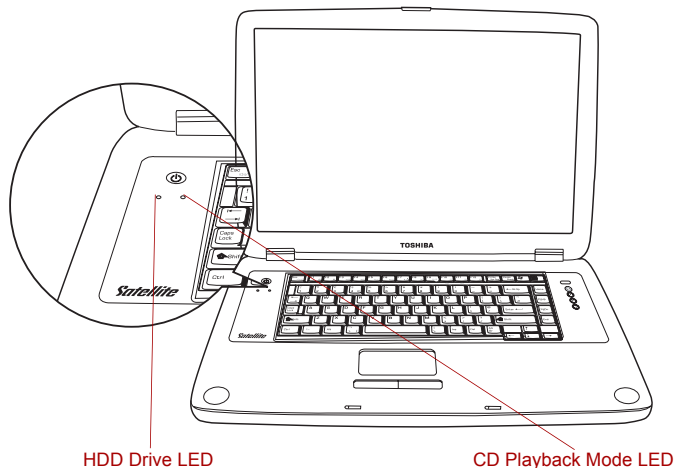
The LCD displays high-contrast text and graphics at up to 2048x1536 pixel. Refer to Appendix B, *Display Modes*. When the computer operates on the AC adaptor the display screen's image will be somewhat brighter than when it operates on battery power. The brightness level is intended to save battery power.



*To prolong the life of your display screen, use a screen saver when you're not working the computer and it is idle.*

## System Status Indicators

The following figure shows the system indicator lights, which light when various computer operations are in progress



### HDD Drive LED

The **Hard Drive** LED indicates that the HDD is being accessed. Every time your computer runs a program, opens a file, or performs some other function in which it must access the HDD, this light goes on.



### CD Playback Mode LED

The indicator of CD Playback mode. The LED Will be turned on when system in CD Playback Mode.

## Keyboard Indicators



Arrow Mode



Numeric Mode



Caps Lock



### Arrow Mode

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



### Caps Lock

The Caps Lock LED lights when you press the Caps Lock key. When this light is on, pressing a letter key on the keyboard produces an uppercase (capital) letter.

## Optical Media drive

One of the following optical media drives is installed in the computer: CD-RW/ DVD-ROM drive, DVD-ROM drive, DVD-R/-RW drive, DVD±R/±RW drive, DVD Super 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.

### Region codes for DVD drives and media

CD-RW/DVD-ROM, DVD-ROM, DVD-R/-RW, DVD±R/±RW drive, DVD Super Multi drive 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 Record Now! 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 (Ultra-speed is CD-RW/ DVD-ROM drive only) is maximum 24-speed.

#### DVDs

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

## Formats

The drives support the following formats

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

The full-size CD-RW/DVD-ROM 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 other edge.*

<b>DVD read</b>	8 speed (maximum)
<b>CD read</b>	24 speed (maximum)
<b>CD-R write</b>	24 speed (maximum)
<b>CD-RW write</b>	24 speed (maximum, ultra-speed media)

This drive can not use ultra-speed+ CD-RW media.

## DVD±R/±RW (DVD Dual) drive supporting Double Layer

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 other edge.*

<b>DVD read</b>	8 speed (maximum)
<b>DVD-R write</b>	8 speed (maximum)
<b>DVD-RW write</b>	4 speed (maximum)
<b>DVD+R write</b>	8 speed (maximum)
<b>DVD+RW write</b>	4 speed (maximum)
<b>CD read</b>	24 speed (maximum)
<b>CD-R write</b>	24 speed (maximum)
<b>DVD+R(DL) write</b>	2.4 speed (maximum)
<b>CD-RW write</b>	16 speed (maximum, ultra-speed media)

This drive can not use discs that allow writing faster than 8 speed (DVD-R, DVD+R with Single Layer), 4 speed (DVD-RW, DVD+RW), 2.4 speed (DVD+R with Double Layer), or ultra-speed+ (CD-RW).

## DVD±R/±RW (DVD Dual) 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 other edge.*

<b>DVD read</b>	8 speed (maximum)
<b>DVD-R write</b>	4 speed (maximum)
<b>DVD-RW write</b>	2 speed (maximum)
<b>DVD+R write</b>	4 speed (maximum)
<b>DVD+RW write</b>	2.4 speed (maximum)
<b>CD read</b>	24 speed (maximum)
<b>CD-R write</b>	16 speed (maximum)
<b>CD-RW write</b>	10 speed (maximum, high-speed media)

This drive can not use ultra-speed CD-RW medias and ultra-speed+ CD-RW medias.

## DVD Super Multi drive supporting Double Layer

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



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

<b>DVD read</b>	8 speed (maximum)
<b>DVD-R write</b>	8 speed (maximum)
<b>DVD-RW write</b>	4 speed (maximum)
<b>DVD+R write</b>	8 speed (maximum)
<b>DVD+RW write</b>	4 speed (maximum)
<b>DVD-RAM write</b>	3 speed (maximum)
<b>CD read</b>	24 speed (maximum)
<b>CD-R write</b>	24 speed (maximum)
<b>CD-RW write</b>	10 speed (maximum, ultra-speed media)
<b>DVD-R (DL) write</b>	2.4 speed (maximum)

This drive can not use discs that allow writing faster than 8 speed(DVD-R, DVD+R with Single Layer), 4 speed(DVD-RW, DVD+RW), 3 speed(DVD-RAM), 2.4 speed(DVD+R with Double Layer), or ultra-speed+(CD-RW).

## DVD Super Multi drive

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



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

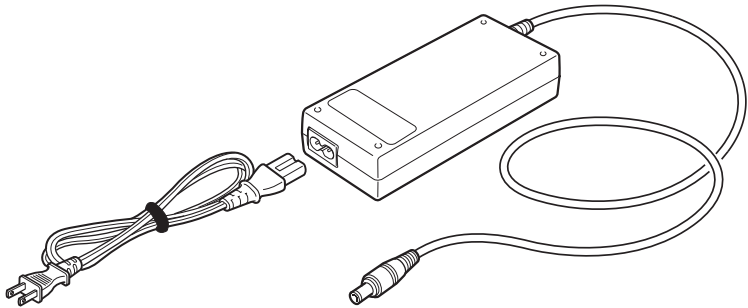
<b>DVD read</b>	8 speed (maximum)
<b>DVD-R write</b>	4 speed (maximum)
<b>DVD-RW write</b>	2 speed (maximum)
<b>DVD+R write</b>	2.4 speed (maximum)
<b>DVD+RW write</b>	2.4 speed (maximum)
<b>DVD-RAM write</b>	2 speed (maximum)
<b>CD read</b>	24 speed (maximum)
<b>CD-R write</b>	16 speed (maximum)
<b>CD-RW write</b>	8 speed (maximum, high-speed media)

This drive can not use discs that allow writing faster than 8 or more speed(DVD-R, DVD+R with Single Layer), 4 or more speed(DVD-RW, DVD+RW), 3 speed(DVD-RAM), ultra-speed+(CD-RW), or ultra-speed(CD-RW).

## AC adaptor

The 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 AC adaptor to a power source and the computer. See Chapter 4, *Operating Basics*, for details.



*The AC adaptor*



*Use of the wrong adaptor could damage your computer. TOSHIBA assumes no liability for any damage in such case. The output rating for the computer is 19 volts DC.*



*Please use only the AC Adapter supplied with the computer or an AC adapter certified by TOSHIBA.*

## 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 Instruction Manual for Safety & Comfort. 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 carefully read the section Starting up for the first time, which describe actions to take when you turn on the power 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 and peripheral devices
- 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.

- TOSHIBA Power Saver 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 30 degrees Centigrade (41 to 86 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.
- 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 be inadvertently magnetized.
- Do not operate the computer in close proximity to a mobile phone.
- Leave ample ventilation room for the fan. Ensure that there are no obstructions around any of the system inlets or exhaust vents.

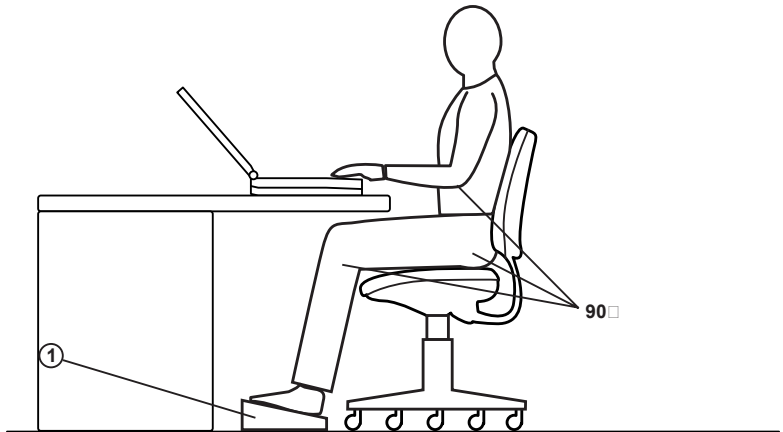
## Placement of computer

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 maximize 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 and to figure.



*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 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.
- Please check every couple of months to ensure the fan inlets or exhaust vents (see sections 2-5 and 2-7) are unobstructed. Clean them if necessary.

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*.

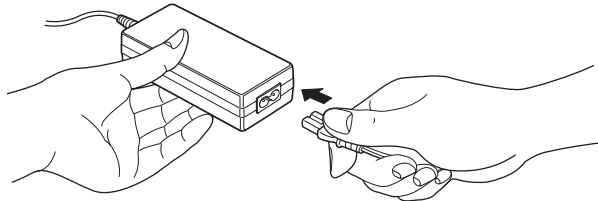
## Connecting the AC adaptor

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 and Power-Up Modes*.



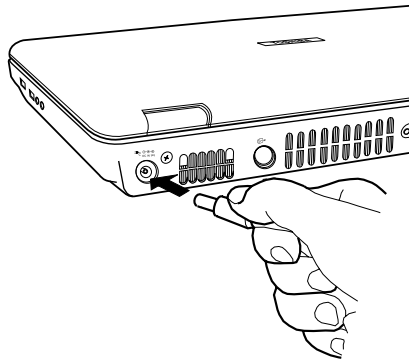
*Use of the wrong adaptor could damage your computer. TOSHIBA assumes no liability for any damage in such case. The output rating for the computer is 19 volts DC.*

1. Connect the power cord to the AC adaptor.



*Connecting the power cord to the AC adaptor*

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



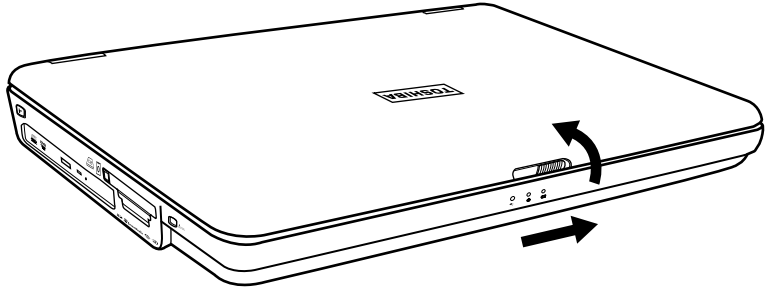
*Connecting the adaptor to the computer*

3. Plug the power cord into alive 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 to unlatch the display panel.



*Opening the display*

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.*

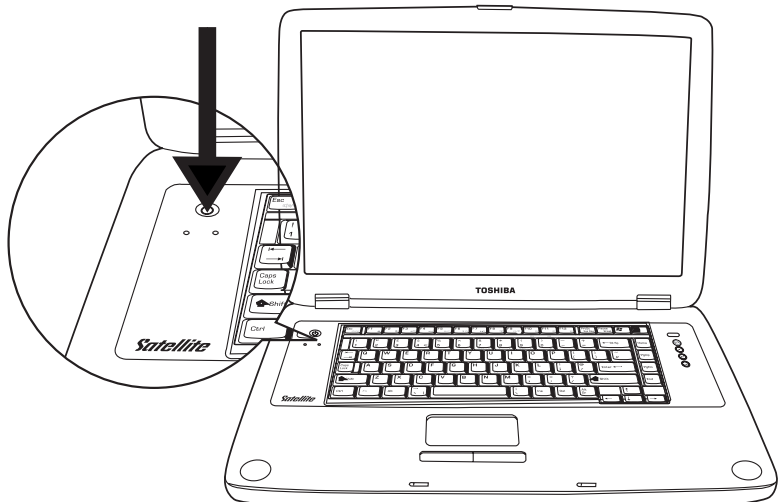
## Turning on the power

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. Make sure the diskette drive(optional) is empty. If a diskette is in the drive, press the eject button and remove the diskette.
2. Open the display panel.
3. Press the computer's power button and release.



*Turning on the power*

## Starting up for the first time

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

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

## Turning off the power

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

### Shut Down mode (Boot mode)

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

1. If you have entered data, save it to the hard disk or to a diskette.
2. Make sure all disk activity has stopped, then remove the CD/DVD-ROM or diskette.



*Make sure the **Built-in HDD** and **optical media drive** 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** and click **Turn Off Computer**. From the **Turn Off Computer** window click **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.



1. *While entering hibernation mode, the computer saves the contents of memory to the HDD. Data will be lost if you remove the battery or disconnect the AC adaptor before the save is completed. Wait for the **Built-in HDD** indicator to go out.*
2. *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 Power Save Modes tab and the Advanced tab. 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 **Hibernation** tab.
4. Select **Enable hibernate**, then click **OK** button.
5. Open **Toshiba Power Saver**.
6. Select **Setup Action** tab.
7. Enable the desired Hibernation settings for **When I press the power button** and **When I close the lid of my portable computer**.
8. 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 **Built-in HDD** 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

In standby mode the power remains on, but the CPU and all other devices are in sleep mode.



- *If the computer is not used or accessed in any way, including receipt of e-mail, for 15 or 30 minutes when the AC adaptor is connected, the computer will automatically enter Standby mode (TOSHIBA Power Saver default).*
- *To restore operation, press the power button.*
- *If a network application is active when the computer automatically enters Standby, it might not be restored when the computer wakes up from standby. To prevent the computer from automatically entering standby mode, disable Standby in the TOSHIBA Power Saver. Open the TOSHIBA Power Saver and click the Power Save Modes tab. Next select either an AC Power or Battery Power option and then click details. When the details page comes up, you can disable the Standby setting by moving the slider to Never. That action, however, will nullify the computer's Energy Star compliance.*

## Standby precautions

- Before entering Standby mode, be sure to save your data.
- Do not remove/install memory or remove power components:
  - Do not remove/install the memory module. The computer or the module could be damaged.
  - Do not remove the Battery Pack.

In any of the above cases, the standby configuration will not be saved.

- 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. To enable it, select the **TOSHIBA Power Saver** icon in the Control Panel and select the **Advanced** tab and then set your **When I close the lid** options to Standby.
3. Press the power button. This feature must be enabled. To enable it, select the **TOSHIBA Power Saver** icon in the Control Panel and select the **Advanced** tab.

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 glows amber.*
- *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 reset the system. For example, if:

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

There are three ways to reset the computer system:

1. Select **Restart** from the **Turn Off Computer** window in the **start** box.
2. If the computer is already on, press **Ctrl + Alt + Del**.
3. Press the power button to turn the computer off, then press it a second to time in order to restart.



*Only use step 3 if the operating system freezes or locks up due to a crash. Performing step 3 should only ever be a last resort as you will lose all unsaved data and could potentially damage critical files.*

## Restoring the preinstalled software

If preinstalled files are damaged, use the Product Recovery Media or the TOSHIBA Tools & Utilities CD-ROM to restore them. 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.*

1. Load the Product Recovery Disk in the drive and turn off the computer's power.
2. Power on your computer, when **In Touch with Tomorrow TOSHIBA** appears, press **F12** key. Boot Menu will appear.
3. Use the up or down cursor key to select the CD-ROM/DVD drive in the display menu.
4. Follow the on-screen instructions.

## Restoring TOSHIBA utilities and drivers

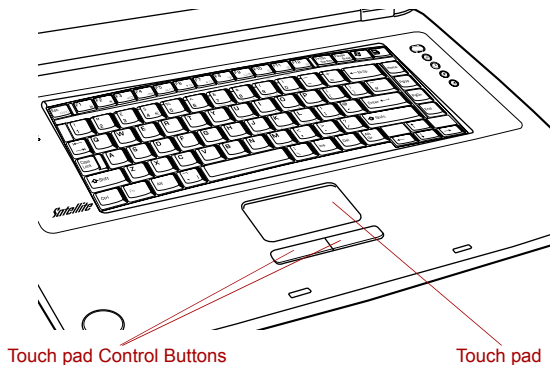
If Windows is working properly, individual drivers or applications can be separately restored. The Toshiba Tools & Utilities CD-ROM contains drivers and applications which were included with your computer system. If your system drivers or applications have become damaged in some way, this CD allows you to reinstall most of the components which are not part of the Windows operating system.

## Operating Basics

This chapter gives information on basic operations including using the Touch pad, optical media drives, the internal modem, LAN, wireless LAN. It also provides tips on caring for your computer and on heat dispersal.

### Using the Touch pad

To use the Touch pad, simply move your finger tip across it in the direction you want the on-screen pointer to go.



*Touch pad and 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.



*Do not press on the Touch pad too hard or press a sharp object such as a ball point pen against the Touch pad. The Touch pad could be damaged.*

The Touch pad has similar functions to a two-button mouse with a scroll wheel. For some functions, you can tap the Touch pad instead of pressing a control button.



*You can customize pointing device actions in Mouse Properties. Open the Control Panel, select the Mouse icon and press Enter to open the Mouse Properties window.*

<b>Click</b>	Click the left control button or tap the Touch pad one time.
<b>Double-click</b>	Click the left control button twice or tap the Touch pad twice.
<b>Scroll</b>	
Vertical:	Move your finger up or down the right edge of the Touch pad.
Horizontal:	Move your finger left or right along the bottom edge of the Touch pad.

## 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 5 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.

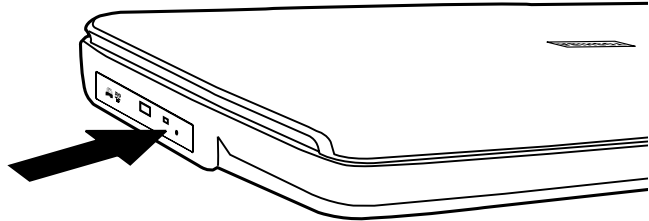
If you have a DVD±R/±RW drive, refer also to the Writing CD/DVDs on DVD±R/±RW drive section for precautions on writing to CDs.

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

## Loading optical media discs

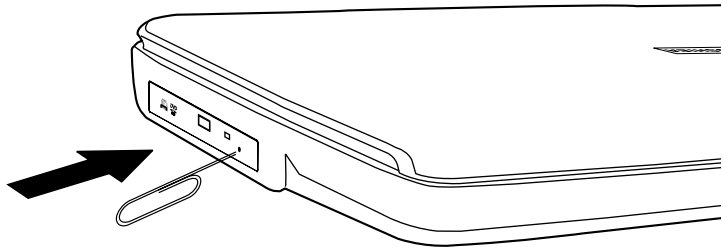
To load a DVD/CD, follow the steps below and refer the following figures.

1. Turn on the power.
2. a. Press the eject button to open the drawer slightly.



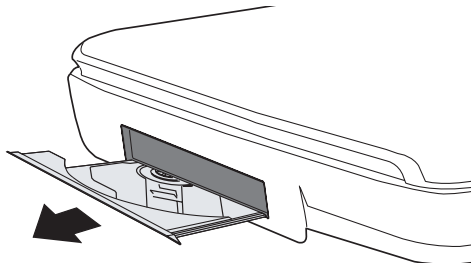
*Pressing the eject button*

- b. Pressing the eject button will not open the drawer when the computer'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.



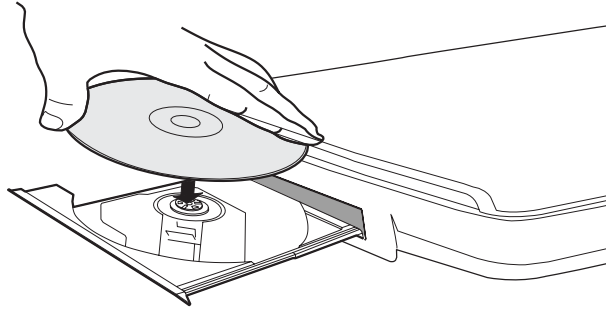
*Manual release with the eject hole*

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



*Pulling the drawer open*

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



*Inserting a DVD/CD*

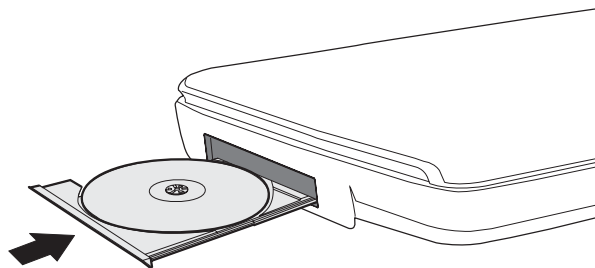


*Be careful not to touch the lens or the area around it. Doing so could cause the drive to malfunction.*

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



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



*Closing the DVD-ROM drawer*

## Removing optical media discs

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



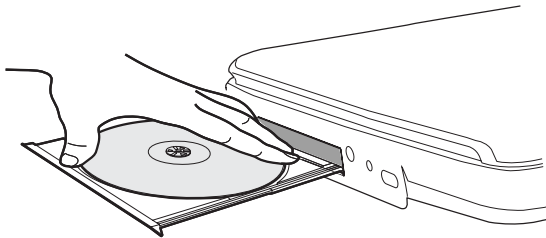
*Do not press the eject button while the computer is accessing the DVD drive. Wait for the **Diskette/Optical Media** indicator to go out before you open the drawer. Also, if the disc is spinning when you open it, wait for it to stop before you remove it.*

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 DVD/CD has stopped spinning before pulling the drawer fully open.*
- *Turn off the power before you use the eject hole. If the DVD/CD is spinning when you open the drawer, it could fly off the spindle cause injury.*

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



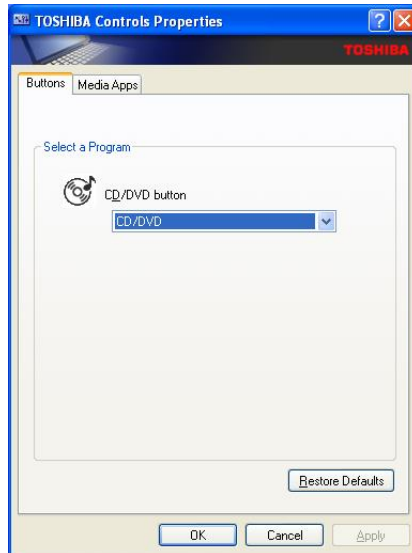
### *Removing a DVD/CD*

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



## CD/DVD Button

The CD/DVD button can be defined upon user's preference. Once the button has been defined, activate this button will launch the application defined. If without specific definition it will launch CD/DVD only.



Press CD/DVD or play buttons when the computer system power is off. If an audio CD is in the drive, the system enters CD playback mode and operates as a stand-alone CD player.

## CD/DVD play control buttons

In addition to the power button, the following four buttons control functions of the optical media drive and Digital Audio Data:

<b>Play/Pause</b>	Starts or pauses play.
<b>Stop</b>	Stops play.
<b>Next</b>	Advances to the next track, chapter or data
<b>Previous</b>	Returns to the previous track, chapter or data



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

## Writing CDs on a CD-RW/DVD-ROM drive

You can use the CD-RW/DVD-ROM drive to write data to CD-R/RW discs. The following applications for writing are preinstalled:  
Record Now!/DLA, licensed by Sonic Solutions.

### Important message

Before you write or rewrite to CD-R/RW disc, read and follow all setup and operating instructions in this section. If you fail to do so, the CD-RW/DVD-ROM 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/+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/+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.



*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.  
MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.  
Hitachi Maxell Ltd.

CD-RW: MITSUBISHI 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 Sonic RecordNow! has not been confirmed. Therefore, operation with other software cannot be guaranteed.

## Writing CD/DVDs on a DVD±R/±RW drive and a DVD±R/±RW drive supporting Double Layer

You can use the DVD±R/±RW drive to write data to either CD-R/RW or DVD-R/-RW/+R/+RW discs. The following applications for writing are preinstalled:

Record Now!/DLA, licensed by Sonic Solutions. 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/+R/+RW disc, read and follow all setup 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.

### Disclaimer

TOSHIBA does not bear responsibility for the following:

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

## Before writing or rewriting

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

- Based on TOSHIBA's limited compatibility testing, we suggest the following manufacturers of CD-R/RW or DVD-R/-RW/+R/+RW 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.  
MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.  
Hitachi Maxell Ltd.

CD-RW: MITSUBISHI 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 1.0 or Version 1.1, Version 1.2 (only for DVD±R/±RW drive supporting Double Layer)**  
VICTOR COMPANY OF JAPAN, LIMITED  
TDK Corporation

DVD+R: MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.

DVD+RW: MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.

DVD+R (Double Layer) MITSUBISHI CHEMICAL CORPORATION, only for DVD±R/±RW drive supporting Double Layer

- 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/+RW is affected by the quality of the disc and the way it is used.
- There are two types of DVD-R: authoring and general use discs. Do not use authoring discs. Only general use discs can be written to by a computer drive.
- Other DVD-ROM drives for computers or other DVD players may not be able to read DVD-R/+R/-RW/+RW discs.
- Data written to a CD-R/DVD-R/+R disc cannot be deleted either in whole or in part.

- Data deleted (erased) from a CD-RW and DVD-RW/+RW 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/+R/-RW/+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-R/-RW 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/+R/-RW/+RW 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..
- 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.
- 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 Sonic RecordNow! has not been confirmed. Therefore, operation with other software cannot be guaranteed."

## Writing CD/DVDs on a DVD Super Multi drive and a DVD Super Multi drive supporting Double Layer

You can use the DVD Super Multi drive to write data to either CD-R/RW or DVD-R/-RW/+R/+RW/-RAM discs. The following applications for writing are preinstalled:

Record Now!/DLA, licensed by Sonic Solutions.. 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/+R/+RW/-RAM disc, read and follow all set-up and operating instructions in this section. If you fail to do so, the DVD Super Multi drive may not function properly, and you may fail to write or rewrite, lose data or incur other damage.

### Disclaimer

TOSHIBA does not bear responsibility for the following:

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

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

## Before writing or rewriting

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

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

CD-R: TAIYOYUDEN CO., LTD.  
MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.  
Hitachi Maxell Ltd.

CD-RW: MITSUBISHI 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 1.0 or Version 1.1, Version 1.2(only for DVD Super Multi drive supporting Double Layer)**  
VICTOR COMPANY OF JAPAN, LIMITED  
TDK Corporation

DVD+R: MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.

DVD+RW: MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.

\*DVD-RAM: **DVD Specifications for DVD-RAM Disc for Version 2.0 or Version 2.1**  
Matsushita Electric Industrial Co., Ltd.  
\*DVD Multi drive and DVD Super Multi can use DVD-RAM.

DVD+R (Double Layer) MITSUBISHI CHEMICAL CORPORATION, only for DVD Super Multi drive supporting Double Layer

- 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/+RW/-RAM is affected by the quality of the disc and the way it is used.
- There are two types of DVD-R: 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/+R/-RW/+RW/-RAM discs.
- Data written to a CD-R/DVD-R/+R disc cannot be deleted either in whole or in part.
- Data deleted (erased) from a CD-RW and DVD-RW/+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/+R/-RW/+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-R/-RW 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/+R/-RW/+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.
- 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 Sonic RecordNow! has not been confirmed. Therefore, operation with other software cannot be guaranteed.


## RecordNow! Basic for TOSHIBA

Note the following limitations when you use RecordNow!:

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

## Data Verification

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

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

## DLA for TOSHIBA

Note the following limitations when you use DLA:

- This software supports only rewritable discs (DVD+RW, DVD-RW, and CD-RW). It does not support DVD+R, DVD-R, and CD-R discs that are not rewritable.
- DLA does not support formatting a DVD-RAM disc and writing to it. They are performed by DVD-RAM Driver Software. If DLA Format menu may appear when inserting a DVD-RAM disc into the drive and right-clicking the drive icon in Windows Explorer, please use "DVDForm" to format this disc. You can run "DVDForm" by clicking the Start button on the taskbar to display the Start menu and then selecting "All Programs", "DVD-RAM", "DVD-RAM Driver" and "DVDForm" sequentially.
- Do not use any discs that have been formatted with packet writing software other than DLA. Similarly, do not use any discs that have been formatted with DLA with any packet writing software other than DLA. When using a disc you are not familiar with, format it by selecting Full Format before using it.
- Do not use the Cut & Paste function for files and folders. A file or folder that has been cut may be lost if writing fails due to an error on the disc.
- When writing the Setup files for the program into a disc formatted by DLA and starting Setup from this disc, an error may occur. In this case, please copy them to your hard disk and then run Setup.

## Video

As for InterVideo WinDVD Creator Platinum. Only the model that can be written in to DVD is attached.

## When WinDVD Creator Platinum is used:

You can record video back to your digital camcorder via i.LINK (IEEE1394) using WinDVD Creator Platinum. However, there is a case where its playback sound is choppy.

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

## How to make a DVD-Video

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

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

## How to learn more about InterVideo WinDVD Creator

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

## Important information for use

Note the following limitations when you write video DVD:

### 1. Editing digital video

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

2. Before recording the video to DVD
  - When you record to DVD disc, please use only discs recommended by the Drive manufacturer.
  - Do not set the working drive to a slow device like a USB 1.1 hard disk drive or it will fail to write DVD.
  - Do not perform any of the following actions:
    - Operate the computer for any other function, including using a mouse or Touch pad or closing/opening the LCD panel.
    - Bump or cause vibration to the computer.
    - Use the Mode control button and Audio/Video control button to reproduce music or voice.
    - Open the DVD drive.
    - Install, remove or connect external devices, including the following:  
PC card, SD card, USB devices, external display, i.LINK. devices, optical digital devices.
  - Please verify your disc after recording important data.
  - DVD-R/+R/-RW disc cannot be written in VR format.
  - A maximum of about 2 hours of video data can be written in DVD Video format to DVD-R/+R/-RW/+RW disc.
  - WinDVD Creator cannot export to DVD-Audio, VideoCD, miniDVD format.
  - WinDVD Creator can write DVD-RAM/+RW in VR format, but the disc may only play on your computer.
  - When writing to DVD disc, WinDVD Creator requires 2GB or more over disk space every one hour of video.
  - When you make a fully recorded DVD, the chapter sequence may not play correctly.
3. About Disc Manager
  - WinDVD Creator can edit one play list on a disc.
  - WinDVD Creator might show a different a thumbnail than you previously set in CE DVD-RAM recorder.
  - Using the Disc Manager, you can edit DVD-VR format on DVDRAM, DVD+VR format on DVD+RW, and DVD-Video format on DVD-RW.
4. About recorded DVDs
  - Some DVD-ROM drives for personal computers or other DVD players may not be able to read DVD-R/+R/-RW/+RW/-RAM discs.
  - When playing your recorded disc on your computer, please use the WinDVD software application.
  - If you use an over-used rewritable disc, the full formatting might be locked. Please use a brand new disc.

## Media Care

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

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

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.

## Using the internal modem

This section describes how to make settings and connect the modem. Refer to the computer's online help files for more information. Refer also to the online help files for your modem software.



*The internal modem does not support the voice functions described in the help files. All data and fax functions are supported.*



■ *In case of a lightning storm, unplug the modem cable(optional) from the telephone jack.*

■ *Do not connect the modem to a digital telephone line. A digital line will damage the modem.*

### IMPORTANT SAFETY INSTRUCTIONS

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Do not use this product near water, for example, near a bathtub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord indicated in this manual.

### Region selection

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

1. Point to "**All Programs**", point to "**TOSHIBA**", point to "**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.



*The Region Selection icon*

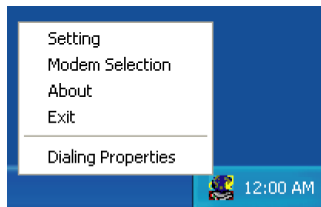
3. Click the icon with the primary mouse button to display a list of regions that the modem supports. A sub menu for telephony location information will also be displayed. A check will appear next to the currently selected region and telephony location.



4. Select a region from the region menu or a telephony location from the submenu.
  - 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.



*The properties menu*

## Setting

You can enable or disable the following settings:

### ***AutoRun Mode***

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, technical regulations described in the Telecommunications Business Law require that you select Japan region mode. It is illegal to use the modem in Japan with any other selection.*

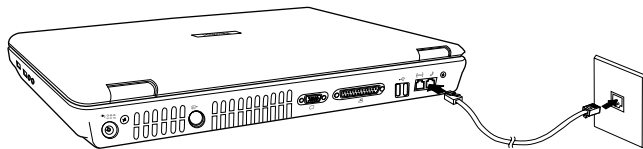
## Connecting

To connect the internal modem cable(optional), follow the steps below.



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

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 or HDD connected to a 16-bit PC card, modem speed might be slow or communication might be interrupted.*



*If modem speed is low or communication is interrupted when you are using modem, please check and set CPU speed to Maximum by TOSHIBA Power Saver utility.*

## Disconnecting

To disconnect the internal modem cable(optional), 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.

## LAN

The computer is equipped with LAN circuits that support 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.*



*Wake-up on LAN does not work without the AC adaptor. Leave it connected, if you are using this feature.*

### Connecting LAN cable



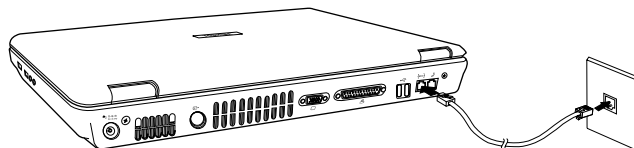
*The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.*

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.

### Disconnecting LAN cable

To disconnect the LAN cable, follow the steps below.

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.

## Wireless LAN

The wireless LAN is compatible with other LAN systems that comply with the IEEE 802.11a+g, and 802.11g wireless LAN standards.

It supports the following:

- Automatic Transmit Rate Select mechanism in the transmit range of 54, 11, 5.5, 2 and 1 Mbit/s. (54 Mbps is available only with 802.11a or 802.11g.)
- Advanced Encryption Standard (AES) data encryption, based on 128bit encryption algorithm. (Revision G, A/G combo type.)



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

- Frequency Channel Selection (5GHz and 2.4 GHz)
- Roaming over multiple channels
- Card Power Management
- Wired Equivalent Privacy (WEP) data encryption. Wake-up on LAN does not function on a wireless LAN.

## Security

1. Be sure to enable WEP(encryption) function. Otherwise your computer will allow illegal access by outside through Wireless LAN to cause illegal intrusion, eavesdropping, and loss or destruction of stored data. TOSHIBA strongly recommends the customer to enable the WEP function.
2. TOSHIBA is not liable for the eavesdropping of data due to the use of Wireless LAN and the damage thereof.

## Wireless communication switch

You can enable or disable wireless LAN function, with the on/off switch. No transmissions are sent or received when the switch is off. Slide the switch forward to turn it on and backward to turn it off.



*Turn the switch off in airplanes and hospitals. Check the LED. It stops glowing when the wireless communication function is off.*

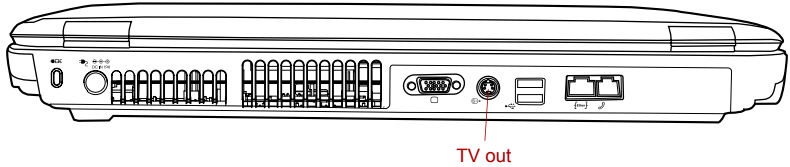
## Wireless communication LED

The LED indicates the status of the wireless communication functions.

LED status	Indication
LED off	Wireless communication switch is set to off
LED glows	Wireless communication switch is on

## TV-Out

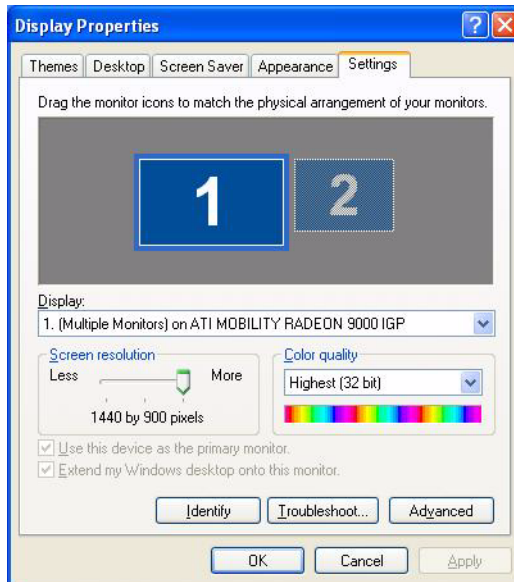
Use the TV-Out jack to connect to a television. Be sure to use a 4 pin type S-video cable. For more details, see Appendix B, *Display Modes*.



## Setting up more than one display

You can set up your computer to utilize more than one display, effectively spreading a single desktop screen across two monitors.

The Display Properties window allows you to adjust more precisely the relative positioning of the two displays when they are configured as an extended desktop. On the Display Properties window, the two displays can be positioned horizontally, vertically or in any diagonal configuration you wish, as shown below.





*If an external display will not be connected next time you use your computer, you should cancel any extended desktop or clone display settings before shutting down your computer.*

*Clone display settings are those where more than one device has been selected and is simultaneously applicable.*

## Cleaning the computer

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

- Be careful not to spill liquids into the computer. If the computer does get wet, turn the power off immediately and let the computer dry completely before you turn it on again.
- Clean the computer using a slightly damp (with water) cloth. You can use glass cleaner on the 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 **Built-in HDD** and **Diskette/Optical Media drive** indicators on the computer.
- If a diskette is in the diskette drive, remove it.
- If a disc is in the optical media drive, remove it. Also make sure the optical media drive drawer is securely closed.
- Turn off the power to the computer.
- Disconnect all peripherals before moving the computer.
- Close the display. Do not pick up the computer by its display panel or back (where the interface ports are located).
- Close all port covers.
- Disconnect the AC adaptor if it is connected.
- Use the carrying case when transporting the computer.

## 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. The typewriter keys and keypad overlay keys are gray. The other keys are dark gray.

### 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 are dark gray, but function differently from the other dark gray 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.*

### Emulation keys

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 gray keys with white numbers 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.

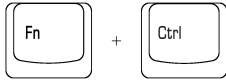


Press **Fn + F12 (ScrLock)** to lock the cursor on a specific line. The power on default is off.





















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.

## Hotkeys

	<b>Fn + ESC</b>	<b>Volume Mute</b> Turns the volume on and off.
	<b>Fn + F1</b>	<b>Instant Security</b> Enters screen saver mode and blanks the screen. To restore your desktop, press any key or use the TouchPad.
	<b>Fn + F2</b>	<b>Power Save Modes</b> Displays the power save modes and lets you change the power settings
	<b>Fn + F3</b>	<b>Standby</b> This hot key switches the system to Standby mode.
	<b>Fn + F4</b>	<b>Hibernate</b> This hot key switches the system to Hibernate mode.
	<b>Fn + F5</b>	<b>Display Selection</b> Changes displays.
	<i>Default resolution for simultaneous mode is set to XGA (1024x768). If you connect an external monitor that is not XGA resolution, change it in "Display Properties".</i>	
	<b>Fn + F6</b>	<b>Brightness Down</b>
	<b>Fn + F7</b>	<b>Brightness Up</b>
	<b>Fn + F8</b>	<b>Wireless Device Controls</b> Pressing this hot key allows you to switch between active wireless devices. Only works if the wireless switch has already been turned on.
	<b>Fn + F9</b>	<b>TouchPad On/Off</b>
	<b>Fn + F10</b>	<b>Cursor Keypad On/Off</b> This hot key enables/disables the embedded cursor keypad. Numeric lock state is logically disabled. See Chapter 3, <i>Getting Started</i> for more information.

	<b>Fn + F11</b>	<b>Numeric Keypad On/Off</b> This hot key enables/disables the embedded numeric keypad. Numeric lock state is logically enabled. See Chapter 3, <i>Getting Started</i> for more information.
	<b>Fn + F12</b>	<b>Scroll Lock On/Off</b>
	<b>Fn + Space</b>	<b>Change Resolution</b> Cycles sequentially from the current resolution to 800x600 to 1024x768 and back again to the original resolution.
	<b>Fn + 1</b>	<b>TOSHIBA Zooming Utility (reduce)</b> To reduce the icon size on the desktop or the application window, press 1 key while holding down teh Fn key.
	<b>Fn + 2</b>	<b>TOSHIBA Zooming Utility (enlarge)</b> To enlarge the icon size on the desktop or the application window, press 2 key while holding down teh Fn key.

## Windows special keys

The keyboard provides two keys that have special functions in Windows XP. One activates the Start menu and the other has the same function as the secondary mouse button.



This key activates the Windows XP Start menu



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



## Temporarily using normal keyboard (overlay on)

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

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

## Temporarily using overlay (overlay off)

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

1. Press and hold down **Fn**.
2. Check the keyboard indicators. Pressing **Fn** turns on the most recently used overlay. If the **Numeric mode** indicator lights, you can use the overlay for numeric entry. If the **Arrow mode** indicator lights, you can use it 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 and Power-Up Modes

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)
AC adaptor connected	Battery fully charged	<ul style="list-style-type: none"> <li>Operates</li> <li>No charge</li> <li>LED: <b>Battery</b> green <b>DC IN</b> green</li> </ul>	<ul style="list-style-type: none"> <li>No charge</li> <li>LED: <b>Battery</b> green <b>DC IN</b> green</li> </ul>
	Battery partially charged or no charge	<ul style="list-style-type: none"> <li>Operates</li> <li>Charge</li> <li>LED: <b>Battery</b> orange <b>DC IN</b> green</li> </ul>	<ul style="list-style-type: none"> <li>Charge</li> <li>LED: <b>Battery</b> orange <b>DC IN</b> green</li> </ul>
	No battery installed	<ul style="list-style-type: none"> <li>Operates</li> <li>No charge</li> <li>LED: <b>Battery</b> off <b>DC IN</b> green</li> </ul>	<ul style="list-style-type: none"> <li>No charge</li> <li>LED: <b>Battery</b> off <b>DC IN</b> green</li> </ul>

		Power on	Power off (no operation)
AC adaptor not connected	Battery charge is above low battery trigger point	<ul style="list-style-type: none"> <li>Operates</li> <li>LED: <b>Battery</b> off <b>DC IN</b> off</li> </ul>	—
	Battery charge is below low battery trigger point	<ul style="list-style-type: none"> <li>Operates</li> <li>Alarm sounds (depending on the TOSHIBA Power Saver utility setting)</li> <li>LED: <b>Battery</b> flashes amber <b>DC IN</b> off</li> </ul>	—
	Battery charge exhausted	Computer goes into Hibernation or shuts down (depending on the TOSHIBA Power Saver utility setting)	—
	No battery installed	<ul style="list-style-type: none"> <li>No operation</li> <li>LED: <b>Battery</b> off <b>DC IN</b> off</li> </ul>	—

## Power indicators

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

### Battery indicator

Check the **Battery** indicator to determine the status of the battery. The following indicator lights indicate the battery status.

<b>Flashing amber</b>	The battery charge is low. The AC adaptor must be connected to recharge the battery
<b>Amber</b>	Indicates the AC adaptor is connected and charging the battery.
<b>Green</b>	Indicates the AC adaptor is connected and the battery is fully charged.
<b>No light</b>	Under any other conditions, the indicator does not light.

## DC IN indicator

Check the **DC IN** indicator to determine the power status with the AC adaptor connected:

<b>Green</b>	Indicates the AC adaptor is connected and supplying proper power to the computer.
<b>No light</b>	Indicates the AC adaptor is not connected.

## Power indicator

Check the **Power** indicator to determine the power status with the AC adaptor connected:

<b>Blue/Green</b>	The power button will shinning blue while power is being supplied to the computer and the computer is turned on. The power indicator in front of computer will shinning green while system is on.
<b>Blinking amber</b>	Indicates power is being supplied to the computer while the computer is in Standby mode.
<b>No light</b>	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 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.

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

The battery is a disposable item. When its operation becomes short even when fully charged, replace it with a new one.



- *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.*
- *Battery type (depending on the model purchased):*  
8 cell-PA3385U-1BAS, PA3385U-1BRS  
12 cell- PA3383U-1BAS, PA3383U-1BRS

## 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:



```
ERROR 0271:Check date and time settings.
WARNING 0251:System CMOS checksum bad - Default
configuration used.
Press <F1> to resume, <F2> to Setup
```



*The computer's RTC battery is a lithium ion 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.*

When this error appears, the following action is recommended.

1. Plug in AC over 24 hours
2. Press F2 to enter BIOS setup menu
3. Set correct time and date



*If you still see error message after above action, please get contact with TOSHIBA service.*



## Care and use of the battery pack

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

### 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 an 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 odor, 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 of 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 center 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 30 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 Suspend or 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 amber 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.

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 amber when the battery is being charged.



*Use only the computer connected to an AC power source to charge the battery pack. Do not attempt to charge the battery pack with any other charger.*

## Time

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

### Charging time (hours)

Battery type	Power on	Power off
Battery pack	about 12 or longer	about 4 or longer
RTC battery	about 24	about 24 with AC or Battery pack



*The charging time when the computer is on is affected by ambient temperature, the temperature of the computer and how you use the computer.*

*If you make heavy use of external devices, for example, the battery might scarcely charge at all during operation. Refer also to the section Maximizing battery operating time.*

### Battery charging notice

The battery may not charge right away under the following conditions:

- The battery is extremely hot or cold. To make sure the battery charges to its full capacity, charge the battery at room temperature of 10° to 30°C (50° to 86°F).
- The battery is nearly completely discharged. Leave the AC adaptor connected for a few minutes and the battery should begin charging.



*Once a battery pack is fully charged, it is recommended that you operate the computer only on battery power until the battery pack completely discharges. Doing so extends battery life and helps ensure accurate monitoring of battery capacity.*

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 green.

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



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

## Monitoring battery capacity

Remaining battery power can be monitored by the TOSHIBA Power Saver utility. Refer to Utilities in Chapter 1, *Introduction*.



- *Wait for a moment 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.*
- *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.*

## Maximizing 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 to conserve battery power. This mode has the following options:
  - Display auto off
  - HDD auto off
  - System auto off
  - LCD brightness
- How often and how long you use the hard disk, CD-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 Resume 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 (standby mode)

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

<b>Battery</b>	Approximately 3 days (Standby mode, 12-cell)
	Approximately 2 days (Standby mode, 8-cell)
	Approximately 1 month (Shut down mode, both)
<b>RTC battery</b>	Approximately 1 month

## Extending battery life

To maximize the life of your battery pack:

- If you have extra battery packs, rotate their use.
- If you will not be using the system for an extended period, remove the battery pack.
- 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. If the **Battery** indicator flashes amber shortly after the battery has been fully recharged, 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.

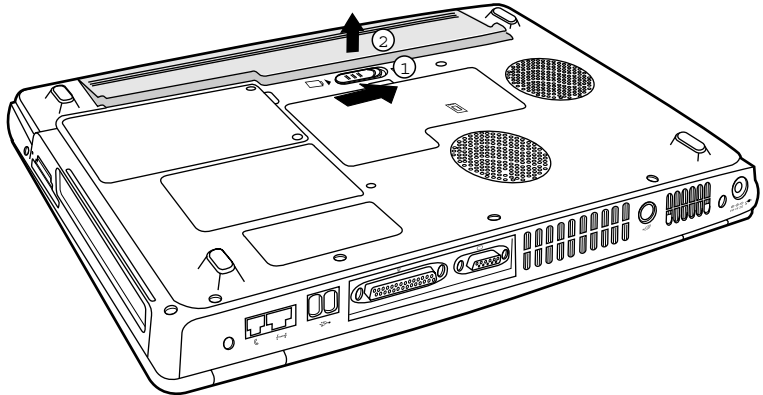
### Removing the battery pack

To replace a discharged battery pack, 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 in memory will be lost.*

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. Unlock the Battery Double Lock.
6. Slide the battery latch to the right, then pull the battery out of the battery bay.



*Removing the battery pack*



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

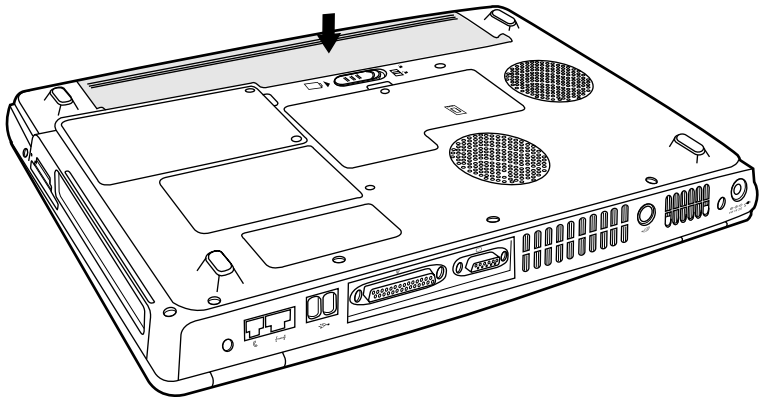
## Installing the battery pack

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.*

1. Turn the computer's power off.
2. Disconnect all cables connected to the computer.
3. Hold the battery pack so that the label faces down and the connectors on the battery face the connectors on the computer.
4. Gently press the battery into the battery bay until the latch clicks into place.
5. Lock the Battery Double Lock to secure the installation.



*Installing the battery pack*

## Power-up modes

The computer has three power-up modes:

- Hibernation (saves data in memory to the hard disk)
- Standby (Power remains on, saving data in RAM, but the CPU and all other devices enter sleep mode.)
- Boot (does not save data in memory)



*Refer also to the section Turning off the power in Chapter 3, Getting Started.*



## Panel power off/on

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 automatic Standby/ Hibernation

This feature automatically turns off the system in Standby or Hibernation mode if the computer is not used for a set duration.

Refer to Special Features, in Chapter 1, *Introduction* for an explanation of how to set the duration.

## Optional Devices

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

### *Cards/Memory*

- PC cards
- SD (Secure Digital)/MMC (MultiMediaCard)/SM (SmartMedia)/MS (Memory Stick)/MS Pro (Memory Stick Pro)/xD (xD-Picture Card) cards
- Memory modules

### *Power devices*

- Battery pack
- AC adaptor

### *Peripheral devices*

- External monitor
- Television
- i.LINK (IEEE1394)
- 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 slots support 16-bit PC cards, including PC card 16's multifunction card and CardBus PC cards. CardBus supports the new standard of 32-bit PC cards. The bus provides superior performance for the greater demands of multimedia data transmission.



- *Do not install a PC card while the computer is in Standby or Hibernation mode. Some cards might not work properly.*
- *Furthermore, an HDD or CD-ROM connected to a 16-bit PC card might affect the performance of the computer's sound system and data transmission, including slower transmission speeds and dialing errors.*

### Installing a PC card

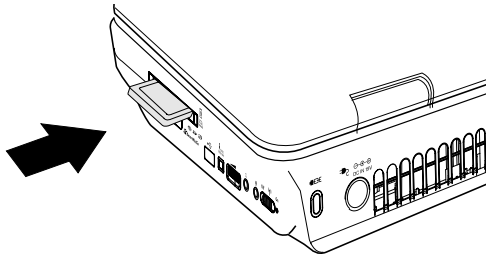
One PC card connector is located on the right side of the computer. The computer's hot-install feature lets you install PC cards while the computer's power is on.



*Do not install a PC card while the computer is in Standby or Hibernation mode. Some cards might not work properly.*

To install a PC card, follow the steps below.

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

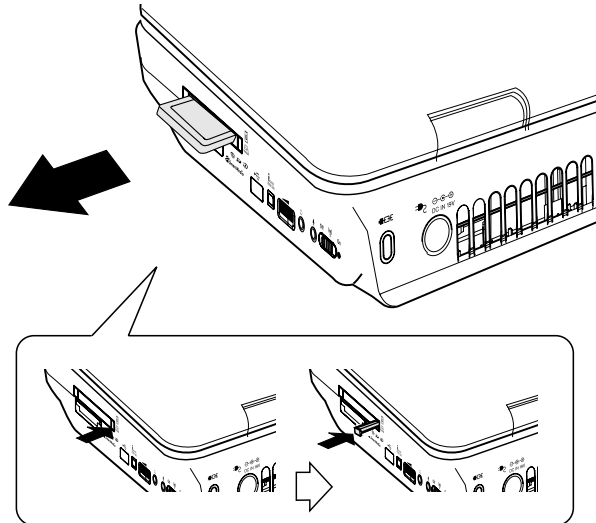


*Installing a PC card*

After installing the card, 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

1. Click the Safety Remove Hardware icon on the Task Bar.
2. Click the PC card you want to remove.
3. Press the eject button of the PC card 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/MMC/SM/MS/MS Pro/xD Memory Cards

The computer is equipped with a Multiple Digital Media Card Slot that can accommodate SD/MMC/SM/MS/MS Pro/xD memory cards. These memory cards let you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, that use flash-memory. See below for the card capacities:

Card Type	Capacities
SD	8MB, 16MB, 32MB, 64MB, 128MB, 256MB, 512MB
MMC	8MB, 16MB, 32MB, 64MB, 128MB, 256MB
SM	4MB, 8MB, 16MB, 32MB, 64MB, 128MB
MS	8MB, 16MB, 32MB, 64MB, 128MB, 256MB
MS Pro	256MB, 512MB, 1GB
xD	4MB, 8MB, 16MB, 32MB, 64MB, 128MB, 256MB, 512MB



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

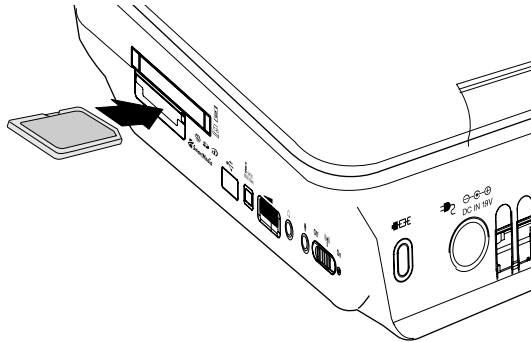


*Do not format Memory Cards by Windows. It might cause that Memory Cards cannot be used on peripheral devices.*

## Installing an Memory card

To install a memory card, follow the steps below.

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



*Inserting an memory card*



*Be sure the memory card is oriented properly before you insert it.  
If Windows fails to read the memory card, remove it then reinsert it.*

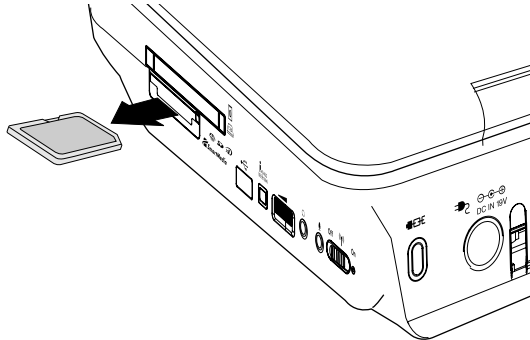


- *Two kinds of cards will not work at the same time. Insert only one card when using Multiple Digital Media Card Slot.*
- *5V SmartMedia card is not supported.*
- *Memory Stick Duo/ Memory Stick Pro Duo/ Mini-SD card is not supported.*

## Removing a Memory card

To remove a memory card, follow the steps below.

1. Click the **Safety Remove Hardware** icon on the Task Bar.
2. Stop a memory card device which you want to remove.
3. Grasp the card and remove it.



*Removing a memory card*



- *Make sure the memory 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 the card while the computer is in Standby or Hibernation mode. The computer could become unstable or data in the memory card could be lost.*
- *Do not turn off or make computer in Standby or Hibernation mode during data is being transferred. The computer could become unstable or data in the memory card would be lost.*

## Memory card care



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

1. Do not write to a memory card if the battery power is low. Low power could affect writing accuracy.
2. Do not remove a memory card while read/write is in progress.
3. The memory 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 a memory card partially inserted in the slot. Press the memory card until you hear it click into place.
5. Do not twist or bend memory cards.
6. Do not expose memory cards to liquids or store in humid areas or lay media close to containers of liquid.
7. After using a memory 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 module socket to increase the amount of RAM. This section describes how to install and remove a memory module.



- *Before you install or remove a memory module, turn off the computer with the Shut Down option in the Windows Start menu. If you install or remove a memory module while the computer is in Standby or Hibernation mode, data will be lost.*
- *Some memory modules can be physically installed but are not compatible with the computer. In this case the computer will issue a warning.*

**Satellite P30 series:** *There will be a long beep, 3 short beeps, 3 more short beeps and then a long beep when you turn the power on. In this case, shut down the power and remove the incompatible memory module.*

**CAUTION:** *If you want to upgrade system memory, you should only use certified modules. Ask your vendor or check the TOSHIBA web site for a list of approved memory products.*



## Installing memory module



*If you use the computer for a long time, the memory modules will become hot. In this case, let the memory modules cool to room temperature before you replace them.*

Follow these steps to install a memory module:

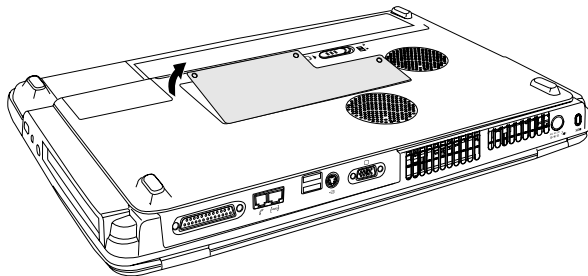
1. Set the computer to boot mode and turn off the power.



*Do not try to install a memory module under the following conditions. You can damage the computer and the module.*

- *The computer is turned on.*
- *The computer was shut down using the Stand by mode.*
- *Power to the optical media drive has been turned on by the CD Power switch.*

2. Remove all cables connected to the computer.
3. Turn the computer upside down and remove the battery (refer to Chapter 6, *Power and Power-Up Modes*).
4. Remove the two screws securing the memory module socket cover.
5. Slide your fingernail or a thin object under the cover and lift it off.



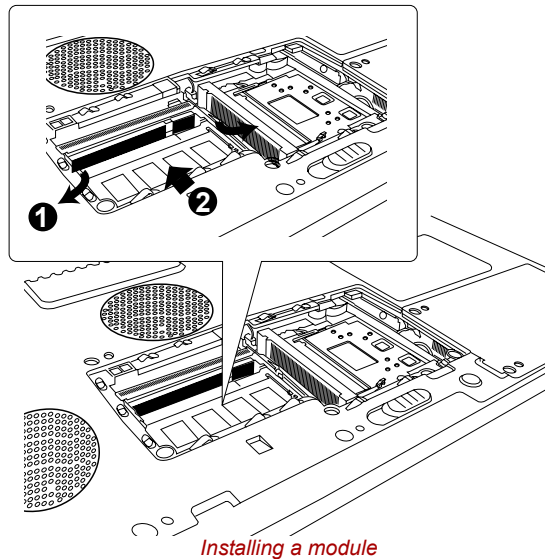
*Removing the memory module socket cover*

6. Fit the module's connectors into the computer's connectors at about a 45 degree angle and press the module carefully to ensure a firm connection.



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

7. Push the module down so it lies flat. Latches on either side will click into place to secure the module.



8. Seat the cover and secure it with two screws.
9. Replace the battery pack as described in Chapter 6, *Power and Power-Up Modes*.
10. Turn the power on and make sure the added memory is recognized.

## Removing memory module



*If you use the computer for a long time, the memory modules will become hot. In this case, let the memory modules cool to room temperature before you replace them.*

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

1. Be sure the power is off and all cables are disconnected from the computer.



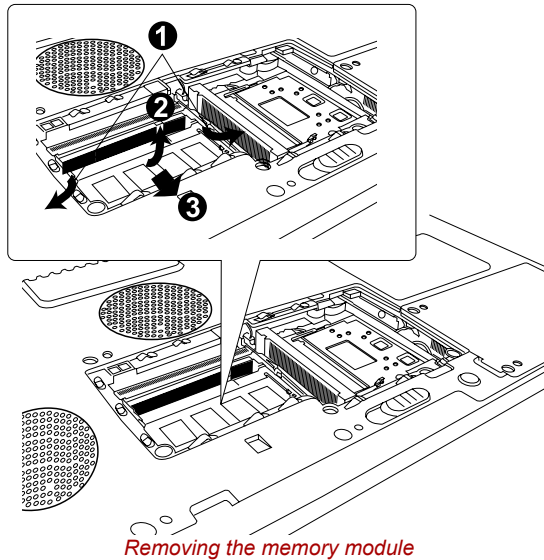
*Do not try to remove a memory module with the computer turned on. You can damage the computer and the module.*

2. Turn the computer upside down and remove the battery and two screws securing the memory module socket cover.
3. Slide your fingernail or a thin object under the cover and lift it off.
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 and pull it out.



*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 cover and secure its screws.
7. Replace the battery.

## **Additional battery pack**

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

## **Additional AC adaptor**

If you frequently carry the computer to different sites such as your home and office, having an AC adaptor at each location reduces the weight and bulk of your load.

---

## External monitor

An external analog monitor can be connected to the external monitor port on the computer.

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.

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.

## Television

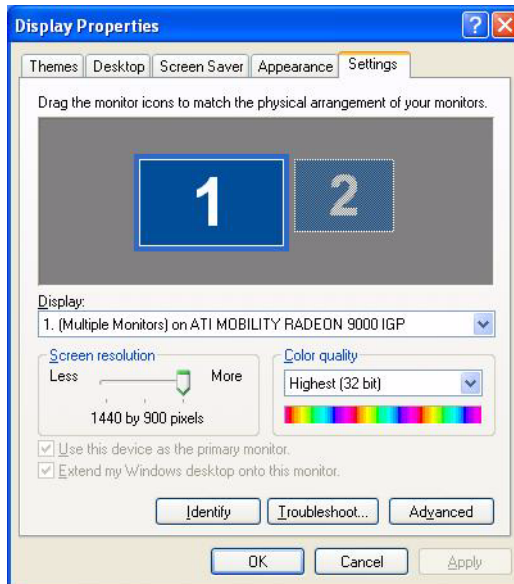
A television can be connected to the video out port on the computer. To connect a television, follow the steps below.

1. Turn the computer off.
2. Use a video cable (not supplied) to connect the television to the video out port.
3. Turn the television on.
4. Turn the computer on.

You can use the hotkeys **Fn + F5** or use the **TV-Out** button to change the display device. Refer to Chapter 5, *The Keyboard*.

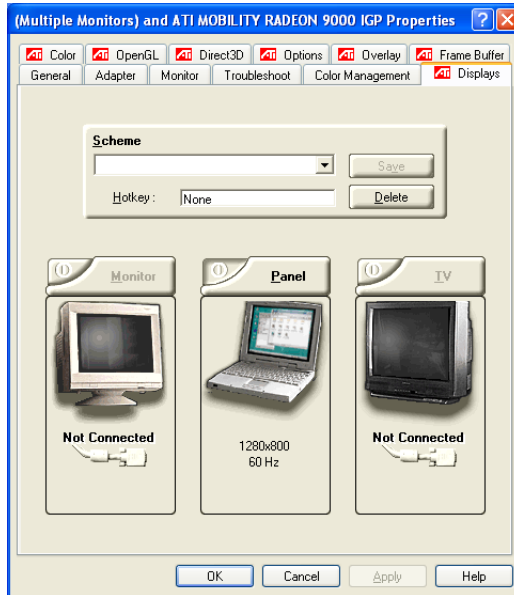
If a television is connected to the computer, set the TV type in Display Properties. Follow the steps below.

1. Click **Start > Control Panel > Appearance and Themes**.
2. Choose **Display** to open the **Display Properties** dialog box

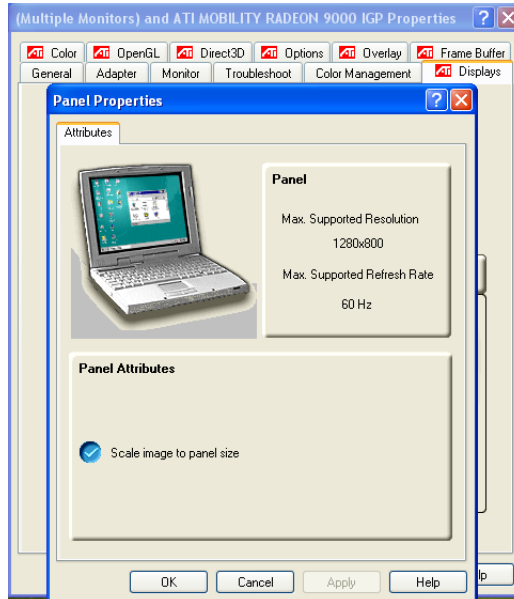


3. Click the **Settings** tab.

- Click the **Advanced** button and choose **Displays**



- Click the **TV** button to open the **TV Properties** dialog box.



- Adjust the TV properties accordingly

## 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
- Optical media 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 back-up of your data before transferring it to the computer. There is a possibility that the original data will be damaged. There is a particular risk that some frames will be deleted in the case of digital video transfer.
- 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.

### 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. Click the **Eject or Remove Hardware** icon on the Task Bar.
2. Point to **i.LINK (IEEE1394) device** and click.
3. Disconnect the cable from the computer then from the i.LINK device.

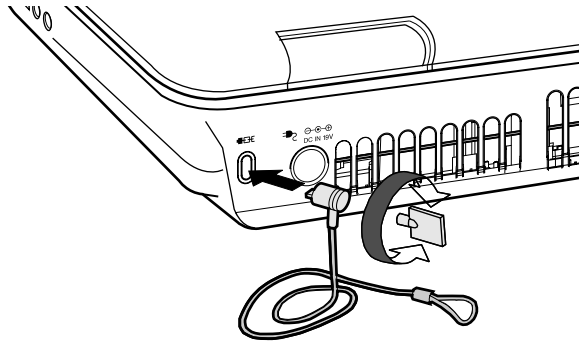


*Refer also to the documentation that came with your i.LINK device.*

## 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*



## Troubleshooting

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

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

### Problem solving process

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

- Stop immediately when you recognize a problem exists. Further action may result in data loss or damage. You may destroy valuable problem-Related information that can help solve the problem.
- Observe what is happening. Write down what the system is doing and what actions you performed immediately before the problem occurred. If you have a printer attached, print a copy of the screen using PrtSc.
- Isolate the problem. Using the tools available to you, such as the troubleshooting tips in this chapter, try to discover the specific actions that caused the problem.

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

## Preliminary checklist

Consider the simplest solution first. The items in this checklist are easy to fix and yet can cause what appears to be a serious problem.

- Make sure you turn on all peripheral devices before you turn on the computer.  
This includes your printer and any other external device you are using.
- Before you attach an external device, turn the computer off. When you turn the computer back on it recognizes the new device.
- Make sure all options are set properly in the setup program.
- Check all cables. Are they correctly and firmly attached? Loose cables can cause signal errors.
- Inspect all connecting cables for loose wires and all connectors for loose pins.
- Check that your diskette, CD-ROM or 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.

## Analyzing the problem

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

- Which part of the system is not operating properly: keyboard, diskette drives, hard disk drive, printer, 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 color are they? Do they stay on or blink? Write down what you see.
- Do you hear any beeps? How many? Are they long or short? Are they high pitched or low? Is the computer making any unusual noises? Write down what you hear.

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

<b>Software</b>	<p>The problems may be caused by your software or diskette. 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.</p> <p>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.</p> <p>Next, check any error messages in the OS documentation.</p>
<b>Hardware</b>	<p>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.</p>

## 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            | ■ PC Card               |
| ■ Self test                  | ■ Printer               |
| ■ Power                      | ■ Monitor               |
| ■ Overheating power down     | ■ Sound system          |
| ■ AC Power                   | ■ Pointing device       |
| ■ Battery                    | ■ USB                   |
| ■ Password                   | ■ LAN                   |
| ■ Keyboard                   | ■ Standby/Hibernation   |
| ■ LCD panel                  | ■ Memory expansion      |
| ■ Hard disk drive            | ■ Modem                 |
| ■ Memory cards               | ■ i.LINK (IEEE1394)     |
| ■ Wireless LAN               | ■ DVD Super Multi drive |
| ■ DVD±R/±RW (DVD Dual) drive | ■ Diskette drive        |
| ■ CD-RW/DVD-ROM drive        | ■ Real Time Clock       |

## 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:



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 computer's BIOS.

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 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.

### *AC power*

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

Problem	Procedure
AC adaptor doesn't power the computer ( <b>DC IN</b> indicator does not glow green).	<p>Check the connections. Make sure the cord is firmly connected to the computer and a power outlet.</p> <p>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.</p> <p>If the AC adaptor still does not power the computer, contact your dealer.</p>

## Battery

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

Problem	Procedure
<p>Battery doesn't power the computer.</p>	<p>The battery may be discharged. Connect the AC power cord to charge the battery.</p>
<p>Battery doesn't charge when the AC power cord is attached. (<b>Battery</b> indicator does not glow amber.)</p>	<p>If the battery is completely discharged, it will not begin charging at once. Wait a few minutes.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Connect the AC adaptor and replace the battery.</p> <p>Check the <b>Battery</b> indicator. If it does not glow, let the computer charge the battery for at least 20 minutes. If the <b>Battery</b> indicator glows after 20 minutes, let the battery continue to charge for at least another 20 minutes before turning on the computer.</p> <p>If the indicator still does not glow, the battery may be at the end of its operating life. Replace it.</p> <p>If you do not think the battery is at the end of its operating life, see your dealer.</p>
<p>Battery doesn't power the computer as long as expected.</p>	<p>Check the power consumption settings in the TOSHIBA Power Saver utility. Consider using a power saving mode.</p>

## Keyboard

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

Problem	Procedure
Some letter keys produce numbers.	Check that the numeric keypad overlay is not selected. Press <b>Fn + F10</b> 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
Lines appear broken.	Check if you are in DOS mode. In DOS, lines may appear broken, because of the LCD screen's higher resolution. The Windows display should appear normal.
No display	Press hotkeys <b>Fn + F5</b> to change the display priority, to make sure it is not set for an external monitor.  Make sure instant security was not activated. Try entering your password, if you have one registered. Or, turn the power off and back on to clear instant security .
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 drive.	<p>Insert a system diskette and reboot.</p> <p>There may be a problem with your operating system files. Refer to your OS documentation.</p>
Slow performance	<p>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.</p> <p>Contact your dealer if the problems continue.</p>

## 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.	<p>Make sure the drive's drawer is securely. Press gently until it clicks into place.</p> <p>Open the drawer and make sure the CD/DVD is properly seated. It should lie flat with the label facing up.</p> <p>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.</p> <p>Check whether the CD/DVD is dirty. If it is, wipe it with a clean cloth dipped in water or a neutral cleaner. Refer to <i>Media care</i> section in Chapter 4, <i>Operating Basics</i> for details on cleaning.</p>



Problem	Procedure
<p>Some CD/DVDs run correctly, but others do not.</p>	<p>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.</p> <p>Check the type of CD/DVD you are using. The drive supports:</p> <p>DVD-ROM: DVD-ROM, DVD-Video</p> <p>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</p> <p>Recordable: CD-R, CD-RW, CD</p> <p>Check the region code on the DVD. It must match that on the CD-RW/DVD-ROM drive. Region codes are listed in the <i>Optical media</i> section in Chapter 2, <i>The Grand Tour</i>.</p>
<p>Cannot write correctly</p>	<p>If you have trouble writing, make sure you are observing the following precautions:</p> <ul style="list-style-type: none"> <li>■ Use only media recommended by TOSHIBA.</li> <li>■ Do not use the mouse or keyboard during writing.</li> <li>■ Use only the software supplied with the computer for recording.</li> <li>■ Do not run or start other software during writing.</li> <li>■ Do not jar the computer during writing.</li> <li>■ Do not connect/ disconnect external devices or install/remove internal cards during writing.</li> </ul> <p>If problems persist, contact your dealer.</p>

## DVD±R/±RW drive (DVD Dual Drive)

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

Problem	Procedure
<p>Some CD run correctly, but others do not.</p>	<p>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.</p> <p>Check the type of CD/DVD you are using. The drive supports:</p> <p>DVD-ROM: DVD-ROM, DVD-Video, DVD-R, DVD-RW, DVD+R, DVD+RW</p> <p>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</p> <p>Check the region code on the DVD. It must match that on the DVD±RW drive.</p>
<p>You cannot access a CD/DVD in the drive.</p>	<p>Make sure the drive's drawer is securely closed. Press gently until it clicks into place.</p> <p>Open the drawer and make sure the CD/DVD is properly seated. It should lie flat with the label facing up.</p> <p>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.</p> <p>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 <i>Media care</i> section in Chapter 4, <i>Operating Basics</i> for details on cleaning.</p>

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Problem	Procedure
Cannot write correctly	<p>If you have trouble writing, make sure you are observing the following precautions:</p> <ul style="list-style-type: none"><li>■ Use only media recommended by TOSHIBA.</li><li>■ Do not use the mouse or keyboard during writing.</li><li>■ Use only the software supplied with the computer for recording.</li><li>■ Do not run or start other software during writing.</li><li>■ Do not jar the computer during writing.</li><li>■ Do not connect/ disconnect external devices or install/remove internal cards during writing.</li></ul> <p>If problems persist, contact your dealer.</p>

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## DVD Super Multi drive

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

Problem	Procedure
You cannot access a CD/DVD in the drive.	<p>Make sure the drive's drawer is securely closed. Press gently until it clicks into place.</p> <p>Open the drawer and make sure the CD/DVD is properly seated. It should lie flat with the label facing up.</p> <p>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.</p> <p>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 <i>Media care</i> section in Chapter 4, <i>Operating Basics</i> for details on cleaning.</p>

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Problem	Procedure
<p>Some CD run correctly, but others do not.</p>	<p>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.</p> <p>Check the type of CD/DVD you are using. The drive supports:</p> <p>DVD-ROM: DVD-ROM, DVD-Video, DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM</p> <p>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</p> <p>Check the region code on the DVD. It must match that on the DVD±RW drive.</p>
<p>Cannot write correctly</p>	<p>If you have trouble writing, make sure you are observing the following precautions:</p> <ul style="list-style-type: none"> <li>■ Use only media recommended by TOSHIBA.</li> <li>■ Do not use the mouse or keyboard during writing.</li> <li>■ Use only the software supplied with the computer for recording.</li> <li>■ Do not run or start other software during writing.</li> <li>■ Do not jar the computer during writing.</li> <li>■ Do not connect/ disconnect external devices or install/remove internal cards during writing.</li> </ul> <p>If problems persist, contact your dealer.</p>

## Diskette drive

For more information on the diskette drive, refer to Chapter 2, *The Grand Tour*. For information on diskette care refer to Chapter 4, *Operating Basics*.

Problem	Procedure
Some programs run correctly, but others do not.	The software or hardware configuration may be causing a problem. Make sure the hardware configuration match's your software's needs.
You cannot access the diskette drive probably causing the.	Try another disk. If you can access this disk, the original disk (not the disk drive) is problem. 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 Using the microphone in Chapter 4, <i>Operating Basics</i> . If problems persist, contact your dealer.

## PC Card

Refer also to Chapter 7, *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.

## Memory cards

Refer also to Chapter 7, *Optional Devices*.

Problem	Procedure
Memory card error occurs.	<p>Reset the memory card to make sure it is firmly connected.</p> <hr/> <p>Check the card's documentation.</p> <p>If problems persist, contact your dealer.</p>

## 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.	<p>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. You may also press <b>Fn + F9</b> to enable the Touch Pad and then try again to move it.</p>
Double-tapping does not work.	<p>Try changing the double-click speed setting in the mouse control utility.</p> <ol style="list-style-type: none"> <li>1. Open the <b>Control Panel</b>, select the <b>Mouse</b> icon and press <b>Enter</b>.</li> <li>2. Click the <b>Buttons</b> tab.</li> <li>3. Set the double-click speed as instructed and click <b>OK</b>.</li> </ol>
The mouse pointer moves too fast or too slow.	<p>Try changing the speed setting in the mouse control utility.</p> <ol style="list-style-type: none"> <li>1. Open the <b>Control Panel</b>, select the <b>Mouse</b> icon and press <b>Enter</b>.</li> <li>2. Click the <b>Pointer Options</b> tab.</li> <li>3. Set the speed as instructed and click <b>OK</b>.</li> </ol> <p>If problems persist, contact your dealer.</p>

## USB mouse

Problem	Procedure
On-screen pointer does not respond to Pad operation .	<p>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.</p> <p>Make sure the mouse is properly connected to the USB port.</p>
Double-tapping does not work .	<p>Try changing the double-click speed setting in the mouse control utility.</p> <ol style="list-style-type: none"> <li>1. Open the <b>Control Panel</b>, select the <b>Mouse</b> icon and press <b>Enter</b>.</li> <li>2. Click the <b>Buttons</b> tab.</li> <li>3. Set the double-click speed as instructed and click <b>OK</b>.</li> </ol>
The mouse pointer moves too fast or too slow.	<p>Try changing the speed setting in the mouse control utility.</p> <ol style="list-style-type: none"> <li>1. Open the <b>Control Panel</b>, select the <b>Mouse</b> icon and press <b>Enter</b>.</li> <li>2. Click the <b>Pointer Options</b> tab.</li> <li>3. Set the speed as instructed and click <b>OK</b>.</li> </ol>
The mouse pointer moves erratically.	<p>The mouse might be dirty. Refer to your mouse documentations for instructions on cleaning.</p> <p>If problems persist, contact your dealer.</p>

## USB

Refer also to your USB device's documentation.

Problem	Procedure
USB device does not work.	<p>Check for a firm cable connection between the USB ports on the computer and the USB device.</p> <p>Make sure the USB device drivers are properly installed. Refer to your Windows documentation for information on checking the drivers.</p> <p>If problems persist, contact your dealer.</p>

## Standby/Hibernation

Problem	Procedure
The system will not enter Standby/Hibernation.	Is Windows Media™ Player open? The system might not enter Standby/Hibernation, if Windows Media Player is either playing a selection or finished playing a selection. Close Windows Media Player before you select Standby/Hibernation.  If problems persist, contact your dealer.

## Real Time Clock

Problem	Procedure
The following message is Displayed on the LCD: RTC battery is low or CMOS checksum is inconsistent. Press [F2] key to set Date/Time.	The battery for RTC is wearing. Set the date and time in BIOS setup with the following steps: <ol style="list-style-type: none"><li>1. Press <b>[F1]</b> key. BIOS setup will boot up.</li><li>2. Press <b>[F2]</b> to set the date in [System Date].</li><li>3. Press <b>[F2]</b> to set the time in [System Time].</li></ol>



## Memory expansion

Refer also to Chapter 7, *Optional Devices*, for information on installing memory modules.

Problem	Procedure
The computer hangs up and issues beep sounds. (A long beep, three short beeps, three short beeps, and then a long beep.)	<p>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.</p> <ol style="list-style-type: none"> <li>1. Turn off the power.</li> <li>2. Disconnect the AC adaptor and all peripheral devices.</li> <li>3. Remove the battery pack.</li> <li>4. Remove the memory module.</li> <li>5. Replace the battery pack and/or connect the AC adaptor.</li> <li>6. Turn on the power.</li> </ol> <p>If problems persist, contact your dealer.</p>

## Modem

Problem	Procedure
Communication software can't initialize the modem.	Make sure the computer's internal modem settings are correct. Refer to Phone and Modem Options 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 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.
Communication is cut off unexpectedly.	The computer will automatically cut off communication when connection with the carrier is not successful for a set time interval. Try lengthening this time interval.
A <b>CONNECT</b> display is quickly replaced by <b>NO CARRIER</b> .	Check the error control setting in your communications application.

Problem	Procedure
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. If problems persist, contact your dealer.

## LAN

Problem	Procedure
Cannot access LAN LAN jack and the Wake up on LAN does not work .	Check for a firm cable connection between the LAN HUB. Make sure the AC adaptor is connected. You cannot access a LAN using the computer's battery power. 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. Use the Config Free program that comes pre-installed in your computer to see LAN status. If problems persist, consult your LAN administrator.

## Monitor

Refer also to Chapter 7, *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 hotkeys <b>Fn + F5</b> 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.

## 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 <b>Add New Hardware</b> icon. Follow the on-screen directions. Restart Windows. If problems persist, contact your dealer.

## TOSHIBA support

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

### Before you call

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

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

### Where to write

If you are still unable to solve the problem and suspect that it is hardware related, write to TOSHIBA at the location listed in the accompanying warranty booklet or visit [www.toshiba-europe.com](http://www.toshiba-europe.com) on the internet.

# Appendix A

## Specifications

This appendix summarizes the computer's technical specifications.

### Dimensions

420mm x 293mm x 39.9mm (Front)/47mm (Rear)

### Weight

4.3kg/9.49lbs

(Actual weight may vary depending on configuration.)

### Environmental Requirements

Conditions	Ambient temperature	Relative humidity
Operating	5°C to 30°C	20% to 80%
Non-operating	-20°C to 65°C	
Conditions	Altitude (from sea level)	
Operating	sea level to 10,000 meters	
Non-operating	sea level to 40,000 meters	

## Built-in Modem

<b>Network control unit (NCU)</b>		
<b>Type of NCU</b>	AA	
<b>Type of line</b>	Telephone line (analog only)	
<b>Type of dialing</b>	Pulse Tone	
<b>Control command</b>	AT commands EIA-578 commands	
<b>Monitor function</b>	Computer's speaker	
<b>Communication specifications</b>		
<b>Communication System</b>	Data: Fax:	Full duplex Half duplex
<b>Communication Protocol</b>	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/ V.92(only for USA and Canada)  103/212A  V.17/V.29/V.27ter /V.21 ch2
<b>Communication Speed</b>	Data transmission and reception 300/1200/2400/4800/7200/9600/12000/14400/ 16800/19200/21600/24000/26400/28800/31200/ 33600 bps  Data reception only with V.90/V.92 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	
<b>Error correcting</b>	MNP class 4 and ITU-T V.42	
<b>Data compression</b>	MNP class 5 and ITU-T V.42bis	

# Appendix B

## Display Modes

This appendix contains a table listing all the display modes currently supported by the ATI Mobility Radeon graphics controller.

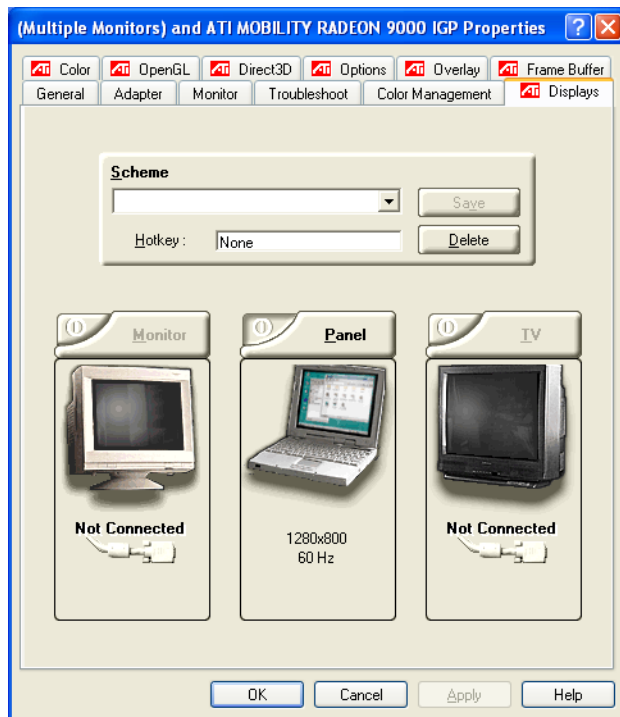
CRT Display Resolution	Color Depth (bpp)	Refresh Rate (Hz)
800 x 600	16 bpp	60, 75, 85, 100
	32 bpp	60, 75, 85, 100
1024 x 768	16 bpp	60, 75, 85, 100
	32 bpp	60, 75, 85, 100
1280 x 1024	16 bpp	60, 75, 85, 100
	32 bpp	60, 75, 85, 100
1600 x 1200	16 bpp	60, 75, 85, 100
	32 bpp	60, 75, 85, 100
1920 x 1440	16 bpp	60, 75, 85
	32 bpp	60, 75, 85
2048 x 1536	16 bpp	60
	32 bpp	60

## Displaying movies on a TV or CRT

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

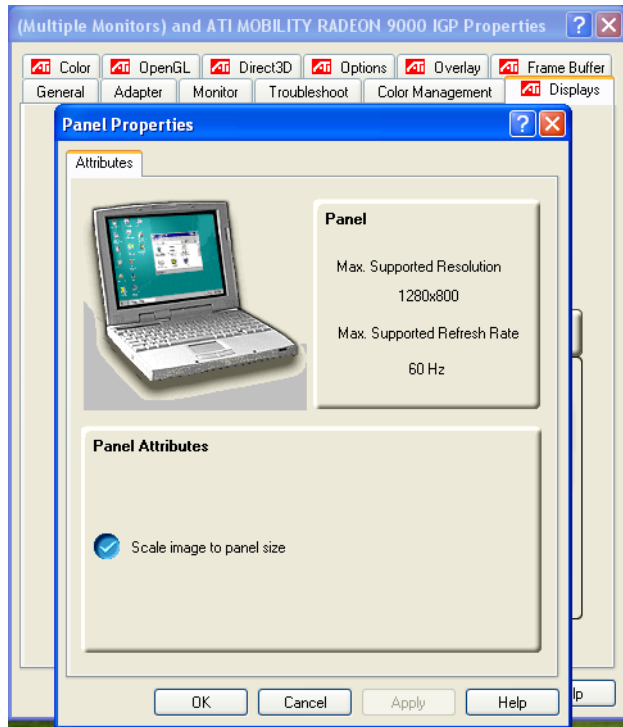
Follow the steps below.

1. Open the **Control Panel** and click **Appearance and Themes**.
2. Click **Display**.
3. Select the **Settings** tab and click **Advanced**.
4. Click the **Displays** tab.
5. Select the external display device you wish to use. It must be connected to the computer in order to be selected from the menu here.

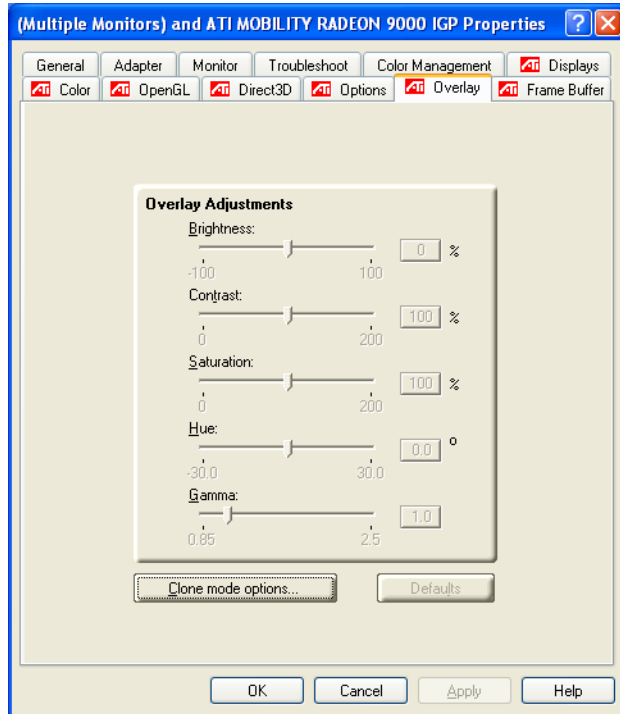




6. In the resulting properties box, if any additional options are available for your particular device, set them to your liking.



7. Finally, click the **ATI Overlay** tab to adjust the video overlay properties.



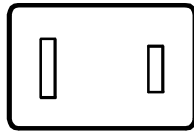
# Appendix C

## Power Cable Connectors

The Satellite computer features a universal power supply you can use worldwide. This appendix shows the configuration of typical AC power cord plugs and sockets in various parts of the world.

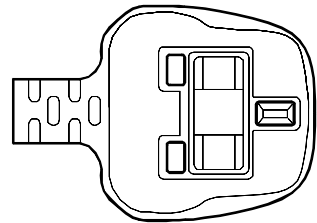
The following illustrations show the plug shapes for the U.S.A. and Canada, the United Kingdom, Australia and Europe

### USA and Canada



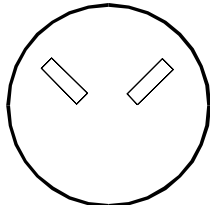
UL approved  
CSA approved

### United Kingdom



BS approved

### Australia



AS approved

### Europe



Approved by the  
appropriate agency

## If your computer is stolen



*Always take care of your computer and try to prevent it from being stolen. You are the owner of a valuable technical device, which may be highly attractive to thieves, so please do not leave it unattended in a public place. To further help protect against theft, security cables can be bought for use with your notebook when it is being used at home or in the office.*

*Make a note of your computer's machine type, model number, and serial number, and put it in a safe place. You will find this information on the underside of your notebook. Please also keep the receipt of the computer you purchased.*

**Should your computer be stolen**, however, we'll help you try to find it. Before contacting TOSHIBA, please prepare the following information which is necessary to uniquely identify your computer:

- In which country was your computer stolen?
- What type of machine do you have?
- What was the model number (PA number)?
- What was the serial number (8 digits)?
- When was it stolen, i.e. date?
- What is your address, phone, and fax number?

**To register the theft on paper, please follow these procedures:**

- Fill in the TOSHIBA Theft Registration form (or a copy of it) below.
- Attach a copy of your receipt showing where your computer was purchased.
- Either fax or send the receipt and registration form to the address below.

**To register the theft online, please follow these procedures:**

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

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

**TOSHIBA Theft Registration**

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

Fax number: +49 (0) 941 7807 921

Country stolen:							
Machine type: (e.g. Satellite A50)							
Model number: (e.g. PSA50 YXT)	<input type="text"/>						
Serial number: (e.g. 12345678G)	<input type="text"/>						
Date stolen:	<table border="1"> <tr> <td>Year</td> <td>Month</td> <td>Day</td> </tr> <tr> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </table>	Year	Month	Day	<input type="text"/>	<input type="text"/>	<input type="text"/>
Year	Month	Day					
<input type="text"/>	<input type="text"/>	<input type="text"/>					

**Owner's details**

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

# Glossary

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

## **Abbreviations**

- AC:** alternating current
- AGP:** accelerated graphics port
- ASCII:** American Standard Code for Information Interchange
- BIOS:** basic input output system
- CD-ROM:** Compact Disc-Read Only Memory
- CD-RW:** Compact Disc-Read/Write
- CMOS:** complementary metal-oxide semiconductor
- CPU:** central processing unit
- CRT:** cathode ray tube
- DC:** direct current
- DDC:** display data channel
- DMA:** direct memory access
- DOS:** disk operating system
- DVD:** digital versatile disc
- ECP:** extended capabilities port
- FDD:** floppy disk drive
- FIR:** fast infrared
- HDD:** hard disk drive
- IDE:** integrated drive electronics
- I/O:** input/output
- IrDA:** Infrared Data Association
- IRQ:** interrupt request
- KB:** kilobyte
- LCD:** liquid crystal display
- LED:** light emitting diode
- LSI:** large scale integration
- MS-DOS:** Microsoft Disk Operating System
- PCI:** peripheral component interconnect

**RAM:** random access memory  
**ROM:** read only memory  
**RTC:** real time clock  
**SCSI:** small computer system interface  
**TFT:** thin-film transistor  
**USB:** Universal Serial Bus  
**VESA:** Video Electronic Standards Association  
**VGA:** video graphics array  
**XGA:** extended graphics array

## A

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

**application:** A group of programs that together are used for a specific task such as accounting, financial planning, spreadsheets, word processing and games.

**ASCII:** American Standard Code for Information Interchange. ASCII code is a set of 256 binary codes that represent the most commonly used letters, numbers, and symbols.

## B

**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.

**boot:** Short for bootstrap. A program that starts or restarts the computer. The program reads instructions from a storage device into the computer's memory.

**bps:** Bits per second. Typically used to describe the data transmission speed of a modem.

**buffer:** The portion of the computer's memory where data is temporarily stored. Buffers often compensate for differences in the rate of flow from one device to another.

**bus:** An interface for transmission of signals, data or electric power.

**byte:** The representation of a single character. A sequence of eight bits treated as a single unit; also the smallest addressable unit within the system.

## C

- cache memory:** High speed memory which stores data that increases processor speed and data transfer rate. When the CPU reads data from main memory, it stores a copy of this data in cache memory. The next time the CPU needs that same data, it looks for it in the cache memory rather than the main memory, which saves time. The computer has two cache levels. Level one is incorporated into the processor and level two resides in external memory.
- capacity:** The amount of data that can be stored on a magnetic storage device such as a floppy disk or hard disk. It is usually described in terms of kilobytes (KB), where one KB = 1024 bytes and megabytes (MB), where one MB = 1024 KB.
- CardBus:** An industry standard bus for 32-bit PC cards.
- CD-ROM:** A Compact Disc-Read Only Memory is a high capacity disc that can be read from but not written to. The CD-ROM drive uses a laser, rather than magnetic heads, to read data from the disc.
- CD-R:** A Compact Disc-Recordable disc can be written once and read many times. See also CD-ROM.
- CD-RW:** A Compact Disc-Read/Write disc can be rewritten many times. See also CD-ROM.
- character:** Any letter, number, punctuation mark, or symbol used by the computer. Also synonymous with byte.
- 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.
- 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).
- 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).
- 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

**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.

**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.

**display:** A CRT, LCD, or other image producing device used to view computer output.

**DOS:** Disk Operating System. See operating system.

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

**DVD-RAM:** A Digital Versatile Disc Random Access Memory is a high-capacity, high performance disc that lets you store large volumes of data. The DVD-ROM drive uses a laser to read data from the disc.

**DVD-ROM:** A Digital Versatile Disc Read Only Memory is a high capacity, high performance disc suitable for play back of video and other high-density files. The DVD-ROM drive uses a laser to read data from the disc.

## E

**execute:** To interpret and execute an instruction.

## F

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

**floppy disk:** A removable disk that stores magnetically encoded data.

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

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

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

**function keys:** The keys labeled **F1** through **F12** that tell the computer to perform certain functions.

## G

**gigabyte (GB):** A unit of data storage equal to 1024 megabytes. *See also* megabyte.

**graphics:** Drawings, pictures, or other images, such as charts or graphs, to present information.

## H

**hard disk:** A non-Removable disk usually referred to as drive C. The factory installs this disk and only a trained engineer can remove it for servicing. Also called fixed disk.

**hard disk drive (HDD):** An electromechanical device that reads and writes a hard disk. *See also* hard disk.

**hertz:** A unit of wave frequency that equals one cycle per second.

**hot key:** The computer's feature in which certain keys in combination with the extended function key, **Fn**, can be used to set system parameters, such as speaker volume.

## I

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

**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.

**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.

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

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

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

## J

**jumper:** A small clip or wire that allows you to change the hardware characteristics by electrically connecting two points of a circuit.

## K

**K:** Taken from the Greek word kilo, meaning 1000; often used as equivalent to 1024, or 2 raised to the 10th power. *See also* byte and kilobyte.

**KB:** *See* kilobyte.

## L

**Light Emitting Diode (LED):** A semiconductor device that emits light when a current is applied.

**Liquid Crystal Display (LCD):** Liquid crystal sealed between two sheets of glass coated with transparent conducting material. The viewing-side coating is etched into character forming segments with leads that extend to the edge of the glass. Applying a voltage between the glass sheets alters the brightness of the liquid crystal.

**LSI:** Large Scale Integration.

- 1) A technology that allows the inclusion of up to 100,000 simple logic gates on a single chip.
- 2) An integrated circuit that uses large scale integration.

## M

**megabyte (MB):** A unit of data storage equal to 1024 kilobytes. *See also* kilobyte.

**mode:** A method of operation, for example, the boot mode, standby mode or the hibernation mode.

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

**monitor:** A device that uses rows and columns of pixels to display alphanumeric characters or graphic images. *See also* CRT.

**MP3:** An audio compression standard that enables high-quality transmission and real-time playback of sound files.

## N

**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

**operating system:** A group of programs that controls the basic operation of a computer. Operating system functions include interpreting programs, creating data files, and controlling the transmission and receipt (input/output) of data to and from memory and peripheral devices.

**output:** The results of a computer operation. Output commonly indicates data.

1) printed on paper, 2) displayed at a terminal, 3) sent through the serial port of internal modem, or 4) stored on some magnetic media.

## P

**parity:** 1) The symmetrical relationship between two parameter values (integers) both of which are either on or off; odd or even; 0 or 1.  
2) In serial communications, an error detection bit that is added to a group of data bits making the sum of the bits even or odd. Parity can be set to none, odd, or even.

**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.

**prompt:** A message the computer provides indicating it is ready for or requires information or an action from you.

## R

**Random Access Memory (RAM):** High speed memory within the computer circuitry that can be read or written to.

**restart:** Resetting a computer without turning it off (also called "warm boot" or "soft reset"). See *also* boot.

**RJ11:** A modular telephone jack.

**RJ45:** A modular LAN jack.

**ROM:** Read Only Memory: A nonvolatile memory chip manufactured to contain information that controls the computer's basic operation. You cannot access or change information stored in ROM.

## S

**SCSI:** Small Computer System Interface is an industry standard interface for connection of a variety of peripheral devices.

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

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

**system disk:** A disk that has been formatted with an operating system. For MS-DOS the operating system is contained in two hidden files and the COMMAND.COM file. You can boot a computer using a system disk. Also called an operating system disk.

## T

**terminal:** A typewriter-like keyboard and CRT display screen connected to the computer for data input/output.

**TFT display:** A liquid crystal display (LCD) made from an array of liquid crystal cells using active-matrix technology with thin film transistor (TFT) to drive each cell.

**Touch Pad:** A pointing device integrated into the TOSHIBA computer palm rest.

## 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.

## W

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

**write protection:** A method for protecting a floppy disk from accidental erasure.

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