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Operations are subject to the following two conditions:

(1) This device must not be allowed to cause harmful interference, (2) This device must accept any interference received, including interference that may cause undesired operation.

Website : www.fujitsu-pc-asia.com

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions carefully. Save these instructions for future reference.

2. Follow all warnings and instructions marked on the product.

3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

4. Do not use this product near water.

5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

6. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.

7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

8. This product is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This will only plug into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.

9. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.

10. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed 15 amperes.

11. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points that could result in a fire or electric shock. Never spill liquid of any kind on the product.

12. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.

13. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    a. When the power cord or plug is damaged or frayed.
    b. If liquid has been spilled into the product.
    c. If the product has been exposed to rain or water.
    d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.
    e. If the product has been dropped or the cabinet has been damaged.
    f. If the product exhibits a distinct change in performance, indicating a need for service.

14. **CAUTION. When replacing the battery, be sure to install it with the polarities in the correct position. There is a danger of explosion if the battery is replaced with an incorrect type or is mistreated. Do not recharge, disassemble or dispose of in fire. Replace only with the same or equivalent type recommeded by the manufacturer. Dispose of the used battery according to the manufacturer's instructions.**

15. Use only the proper type of power supply cord set (provided in your accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, BS1363, ASTA, SS145 certified, rated 10A 250V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

High Safety Required Use

This Product is designed, developed and manufactured as contemplated for general use, including without limitation, general office use, personal use, household use and ordinary industrial use, but is not designed,developed and manufactured as contemplated for use accompanying fatal risks or dangers that, unless extremely high safety is secured, could lead directly to death, personal injury,severe physical damage or other loss (hereinafter 'High Safety Required Use'), including without limitation, nuclear power reactioncore control in nuclear atomic facility, airplane automatic aircraft flight control, air traffic control, operation control in mass transport control system, medical instrument for life support system, missile launching control in weapon system. You shall not use this Product without securing the sufficient safety required for the High Safety Required Use.

Data Storage Media and Customer Responsibilities

The only effective protection for the data stored in a computer, such as on a hard disk, is for you, Purchaser to regularly back up the data. Fujitsu and its affiliates, suppliers, service providers and resellers shall not be responsible for any software programs, data or other information stored or used on any media or part of any Product returned to Fujitsu or its service providers for Warranty Service or other repair, including but not limited to the costs of recovering such programs, data or other information. It is solely your responsibility as the Purchaser to back up any software programs, data, or information stored on any storage media or any part of a Product returned for Warranty Service or repair to the designated service centers.

AUSTRALIAN WARNINGS

WARNING

FOR SAFETY REASONS, ONLY CONNECT EQUIPMENT WITH A TELECOMMUNICATIONS COMPLIANCE LABEL. THIS INCLUDES CUSTOMER EQUIPMENT PREVIOUSLY LABELLED PERMITTED OR CERTIFIED.

Connection of Non Certified/Approved peripherals may result in the equipment operating outside the Australian EMI Standards.

Modems connected to the Australian telecommunications network must be operated in accordance with the Labelling Notice. This modem has been specifically configured to ensure compliance with the ACA Standards. Do not adjust your modem or software outside the values indicated below. To do so would result in your modem being operated in a non-compliant manner.

Call Attempts/Retries:

Applications software shall be configured so that no more than 3 attempts are made to establish a connection to a given number (Note: if the modem can detect service tones, up to 10 attempts can be made). If the call sequence is unsuccessful, there shall be a delay of at least 30 minutes before attempting to call the number again.

Failure to set the modem, and any application software used with the modem, to the values shown above will result in the modem being operated in a non-compliant manner. Consequently, this would be in violation of the Labelling Notice for this equipment, and the Telecommunications Act 1997 prescribes penalties for the connection of non-compliant equipment.

NEW ZEALAND WARNINGS

The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

This equipment is not capable under all operating conditions of correct operation at the higher speeds for which it is designed. 56 KBPS connections are likely to be restricted to lower bit rates when connected to some PSTN implementations. Telecom will accept no responsibility should difficulties arise in such circumstances.

Immediately disconnect this equipment should it become physically damaged, and arrange for its disposal or repair.

This equipment shall not be used in any manner, which could constitute a nuisance to other Telecom customers.

This equipment shall not be set to make automatic calls to the Telecom "111" Emergency Service.

This device is equipped with pulse dialing while the New Zealand standard is DTMF tone dialing. There is no guarantee that Telecom lines will always continue to support pulse dialing. It is strongly recommended that pulse dialing is not used.

Some parameters required for compliance with Telecom's Telepermit requirements are dependent on the equipment (PC) associated with this device. The associated equipment shall be set to operate within the following limits for compliance with Telecom's Specifications:

For repeat calls to the same number.

There shall be no more than 10 call attempts to the same number within any 30 minute period for any single manual call initiation, and

The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next attempt.

For Automatic calls to different numbers.

The equipment shall go on-hook for a period of not less than 5 seconds between the end of one attempt and the beginning of the next attempt.

For Automatically answered Incoming Calls

Incoming calls shall be answered between 3 and 30 seconds from the start of the ringing.

For correct operation, the total of the RNs of all devices connected to a single line at anytime should not exceed 5. The RN of this Equipment is 0.5.

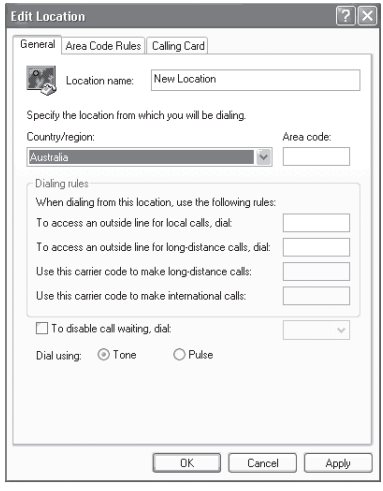
WARNING

CONNECTION OF NON CERTIFIED/ APPROVED PERIPHERALS MAY RESULT IN THE EQUIPMENT OPERATING OUTSIDE THE NEW ZEALAND EMI STANDARDS.

Note: Modem setting in Windows XP

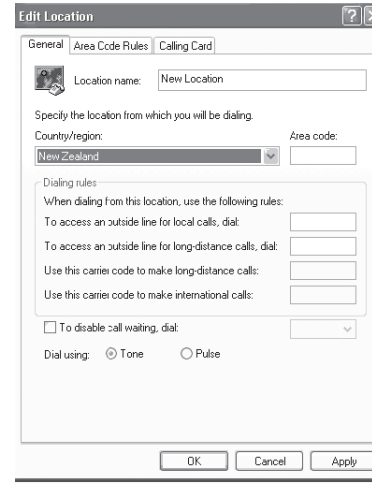
A. If you are located in Australia

1. Click Start select Control panel select "Phone and Modem Options".
2. Double click New Location.
3. Choose "Australia" in Country/region pull down menu bar.
4. Select Phone system as “Tone Dialing”.
5. Click OK and Apply.



B. If you are located in New Zealand

1. Click start select Control panel select "Phone and Modem Options".
2. Double click New Location.
3. Choose "New Zealand" in Country/ region pull down menu bar.
4. Select Phone system as “Tone Dialing”.
5. Click OK and Apply.



Note:
The screens and illustrations shown in this examples may slightly vary depending on the operating environment that you have installed.

Fujitsu LifeBook® E Series
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Troubleshooting

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CARE AND MAINTENANCE

Care and Maintenance

1 Preface

Preface

ABOUT THIS GUIDE

The LifeBook® E Series notebook from Fujitsu is a powerful notebook computer. It is powered by an Intel microprocessor, has a built-in color display, a number of possible configurations, and brings the computing power of desktop personal computers (PCs) to a portable environment.

This manual explains how to operate your LifeBook notebook's hardware and built-in system software. Your notebook is compatible with the IBM® PC AT.

The LifeBook notebook is a completely self-contained unit with either an active-matrix XGA or SXGA+ TFT color LCD display. It has a powerful interface that enables it to support a variety of optional features.

Conventions Used in the Guide

Keyboard keys appear in brackets.

Example: [Fn], [F1], [ESC], [ENTER] and [CTRL].

Pages with additional information about a specific topic are cross-referenced within the text.

Example: *(See page xx.)*

On screen buttons or menu items appear in bold.

Example: Click **OK** to restart your LifeBook notebook.

DOS commands you enter appear in Courier type.

Example: `Shut down the computer?`

POINT

The point icon highlights information that will enhance your understanding of the subject material.

CAUTION

The caution icon highlights information that is important to the safe operation of your computer, or to the integrity of your files. Please read all caution information carefully.

WARNING

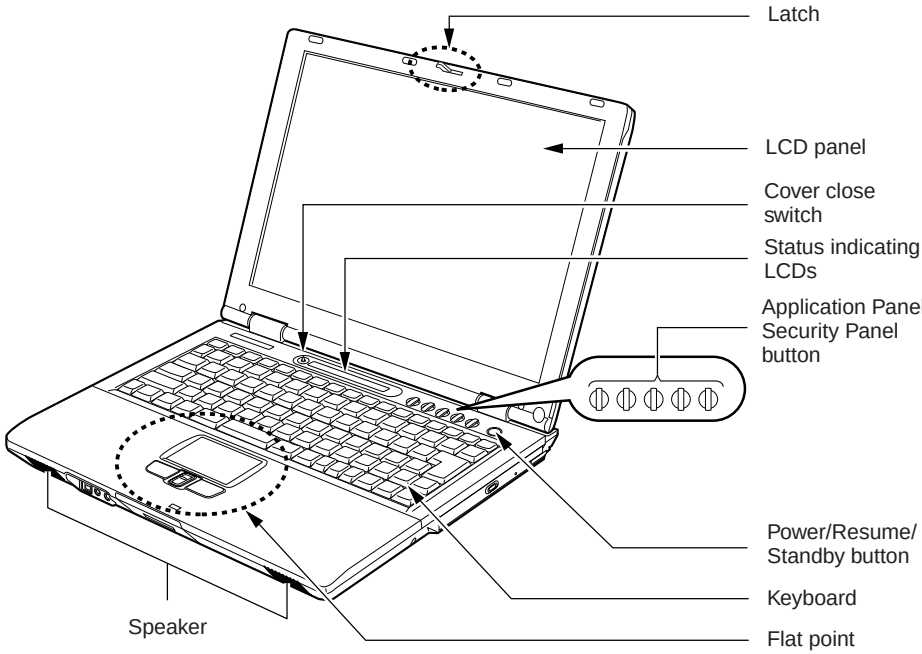
The warning icon highlights information that can be hazardous to either you, your LifeBook notebook, or your files. Please read all warning information carefully.

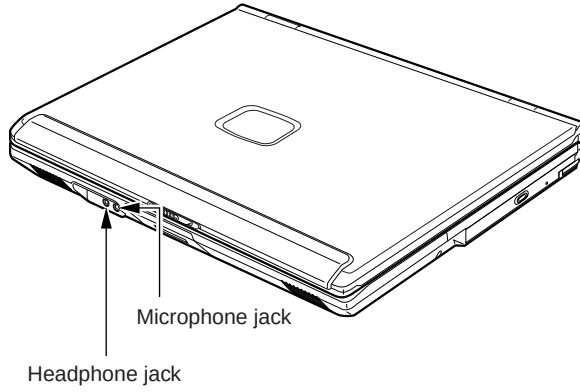
2

Getting to Know Your LifeBook NoteBook

Names of the Parts and their Functions

Exterior features: Front panels





Latch

Used to lock the LCD panel to prevent it from opening accidentally.
To unlock the LCD panel, slide the knob to the right.

LCD panel

Displays images output by the computer.

POINT

About the characteristics of LCD panels
The phenomena described below are due to the characteristics of LCD panels and do not indicate that LCD panels are defective.

- The TFT color LCD of your computer, composed of more than 2,350,000 picture elements (number of dots when the screen resolution is set to 1024 by 768 pixels) was manufactured through the use of high technologies. For technical reasons, your LCD panel may have pixels that do not light up or pixels that always stay on, which however does not indicate that your LCD panel is in a defective condition.
- Colors reproduced by LCD panels vary to some extent from product to product for reasons of manufacturing processes. Also, a slight unevenness of density may show up as a result of changes in temperature.

Cover close switch

When your close or open the LCD panel, this switch automatically places your computer into standby (hibernation) mode, makes it resume operation, or turns on or off the backlight of the LCD.

Status indicating LCDs

Indicate the operating status of the computer.

Application Panel/Security Panel button

To use this button, you need to install the supplied application “Security Panel Application” and “LifeBook Application Panel” on your computer.

The application “Security Panel Application” enables you to set up a password for your computer to protect it from unauthorized use.

The application “LifeBook Application Panel” lets you set up the one-touch buttons so that you can call up a computer’s feature by simply clicking a button.

Power and Resume/Standby button

Used to turn on and off the computer, to place it in standby (sleep) mode, and to make it resume operation.

POINT

You can turn off your computer forcibly by pressing and holding down this button for 4 seconds or more.

Keyboard

Used to type characters and enter commands in your computer.

Flat point

Used to move the mouse pointer from place to place on the screen.
To use the scroll button at the center, you need to install the supplied “Alps Pointing-device Driver” in advance.

IMPORTANT

Your hard disk drive is installed under the flat point. So be careful not to apply excessive pressure to the flat point to avoid damage to your hard disk drive.

POINT

There may be cases where you cannot use the scroll button to scroll up or down through a document, depending on the application used.

Speaker

The computer uses this speaker to produce a voice output.

CAUTION

HEARING LOSS

- Before connecting headphones or a microphone to your computer, always turn down your computer's master volume to a minimum by pressing the [Fn] key and the [F8] key at the same time.

  Failure to do so could result in damage to the connected audio unit or could adversely affect your hearing.

Headphone jack

Allows you to connect commercially available headphones with a 3.5 mini plug. This jack is not compatible with some types of cable connectors, so you should consult a salesperson before purchasing headphones.

CAUTION

HEARING LOSS

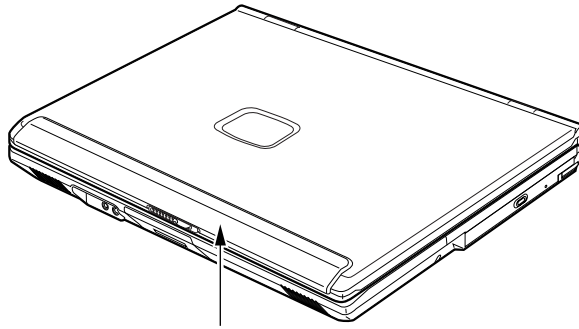
- When you are listening to music with headphones, be careful not to turn up the volume excessively. Listening to very loud sounds for a long time can adversely affect your hearing.

HEARING LOSS

- When you are wearing headphones connected to the computer, do not turn or off the computer, or very loud sounds could adversely affect your hearing.

Microphone jack

Allows you to connect a commercially available monaural microphone with a 3.5 mini plug. This jack does not support some types of microphones (e.g., dynamic microphone), so you should consult a salesperson before purchasing microphones.



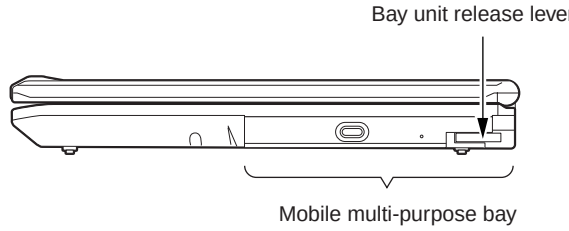
Built-in wireless
LAN antenna

Exterior features: Top panel

Built-in wireless LAN antenna

Your computer has a built-in wireless LAN antenna.

Do not touch the antenna when your computer is running, especially when communication is held with the wireless LAN device. Do not install your computer in a place surrounded by conductors (substances that electricity can easily pass through), such as steel walls or partitions. Doing so might cause degradation in communication performance or might make it impossible for your LAN device to carry out communications, depending on the environment in which your computer is installed.



Exterior features: Right panel

Mobile multi-purpose bay

Your computer came with one of the following units installed in this bay.

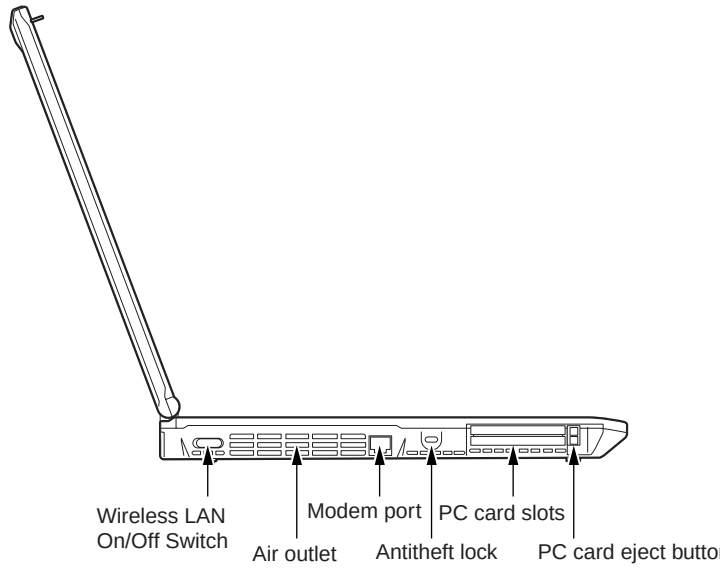
- Internal CD-ROM drive unit
- Internal CD-R/RW drive unit
- Internal Combo (DVD/CD-RW) drive unit
- Mobile multi-purpose bay cover

POINT

- To avoid a system failure, do not use your computer with the multi-purpose bay left vacant.

Bay unit release lever

Raise the lever to remove the unit from the multi-purpose bay.



(Your computer or situation may look different from this illustration.)

Exterior features: Left panel

Following is a brief description of your LifeBook notebook's left-side components.

Wireless LAN On/Off Switch
Used to turn on and off the wireless LAN device. Turn the switch off where the use of electronic devices are restricted, for example, in a hospital and on an airplane.

Air outlet
Opening through which heat is forcibly discharged from the computer. When you turn on the computer, the cooling fan rotates for a few seconds. When the temperature in the computer rises high, the cooling fan automatically starts to rotate to discharge heat from the computer.

CAUTION

FAILURE

- Do not obstruct the air outlet. Doing so prevents heat from being discharged from the computer and could result in damage to your computer.

IMPORTANT

Do not put anything around the air outlet. Objects placed around it, if any, may be heated by heat discharged through the air outlet.

Modem Port
Used to connect a modular cable.

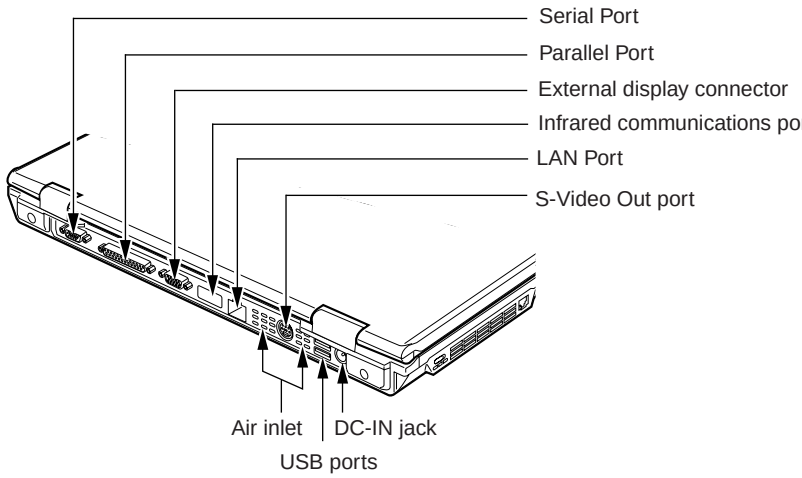
Antitheft lock
Allows you to connect a commercially available antitheft cable.

PC card slots
Allow you to insert optional PC cards. The upper and lower slots are referred to as slot 1 and slot 2, respectively.

POINT

- Your computer came with a dummy card in this slot.
- "Slot 1" and "slot 2" may be referred to as "slot 0" and "slot 1," respectively, depending on the operating system used.

PC card eject button
Press this button to eject the PC card.



(Your computer or situation may look different from this illustration.)

Exterior features: Rear panel

Serial Port

Allows you to connect an RS-232C-compliant device.

Parallel Port

Allows you to connect a device with a parallel connector, such as a parallel printer.

External display connector

Allows you to connect an external display, e.g., an optional CRT display.

Infrared communications port

An interface that allows you to carry out communications by means of infrared rays.

POINT

- The infrared communications port can be used for wireless links.
- When communications are carried out with the infrared communications device, do not bring the AC adapter or the external display close to the infrared communications port. Doing so might cause the device to malfunction because of noise.

LAN Port

Allows you to connect a LAN cable.

S-Video Out Port

The S-Video out port is used to transmit a higher resolution video signal to a compatible TV or VCR.

Air inlet

Opening used to take outside air into your computer to discharge heat through the air outlet.

CAUTION

FAILURE

- Be careful not to obstruct the air inlet. Doing so prevents heat from being discharged from the computer and could result in damage to your computer.

USB ports

Allow you to connect Universal Serial Bus standard (USB)-compliant peripheral devices, such as USB printers. Although these ports are compliant with USB2.0, they are compatible with both USB1.1 and USB2.0 peripheral devices.

POINT

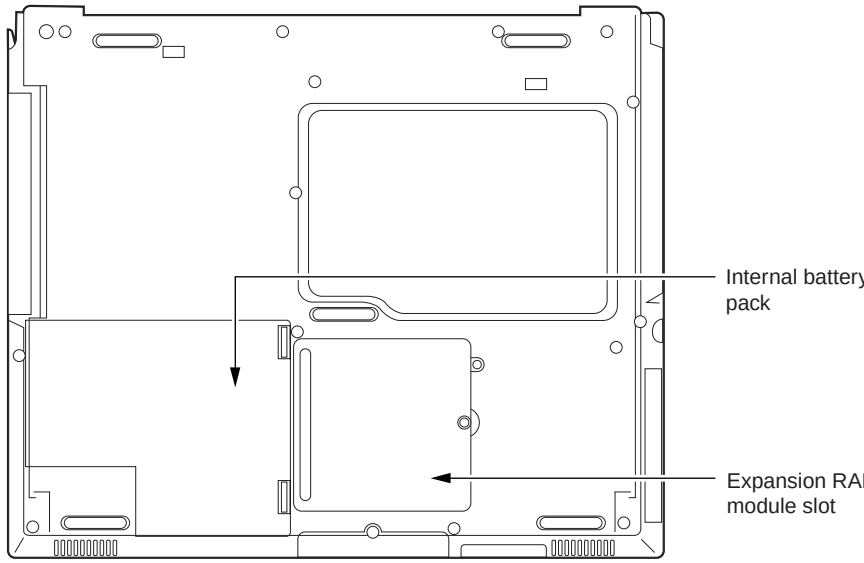
If a USB2.0-compliant device is connected to your computer via a hub or any other interconnect device, the performance of the USB device connected may be degraded in, depending on the performance of the interconnect device used.

DC-IN jack

Used to connect the supplied AC adapter to your computer.

IMPORTANT

When plugging in a peripheral device in a USB port, make sure the plug is oriented correctly and insert it straight into the port.



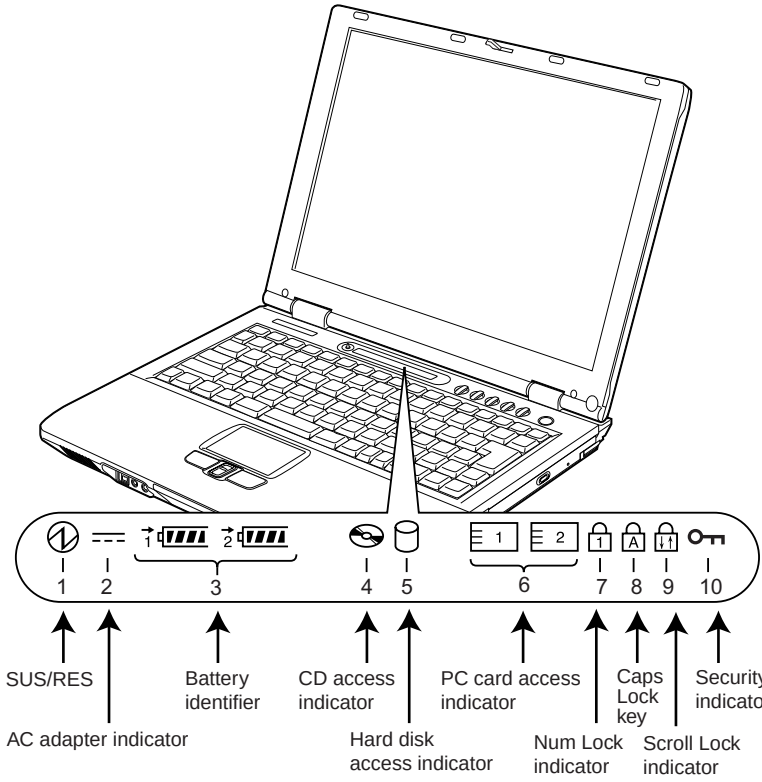
Exterior features: Bottom

Internal battery pack

The internal battery pack is installed here.

Expansion RAM module slot

Used to install memory for your computer.



About the status indicating LCDs

POINT

When your computer is turned off, no indicators are displayed on the status indicating LCD, except when the battery pack is being charged.

SUS/RES (⏻)

Lit when the computer is running or blinks when the computer is on standby.

AC adapter indicator (⎓)

Lit when your computer is powered from the AC adapter.

- **Battery attachment indicator (1, 2, ▭)**
  Lit when a battery (or batteries) is installed. The number 1 to the left of the indicator refers to the internal battery pack, and the number 2 refers to the add-on battery unit (optional) installed in the mobile multi-purpose bay.
- **Battery charging indicator (➞)**
  Lit when a battery (or batteries) is charged.
- **Battery power level indicator (▮▮▮)**
  Indicate the power level of the battery.

CD access indicator ( )

Lit when access is being made to the CD or DVD inserted.

Hard disk access indicator ( )

Lit when access is being made to the internal hard disk drive.

POINT

To avoid damage to the data on the hard disk, never press the power button when the hard disk access indicator is lit.

PC card access indicator (,)

Lit when access is being made to the PC card inserted. The lower and upper slots are referred to as slot 1 and slot 2, respectively.

POINT

"Slot 1" and "slot 2" may be referred to as "slot 0" and "slot 1," respectively, depending on the operating system used.

Num Lock (Numerical Lock) indicator ( )

Lit when the keyboard is placed in [Num Lock] mode.
To enter or exit [Num Lock] mode, press the [Num Lock] key.

Caps Lock key ( )

Lit when the keyboard is placed in [Caps Lock] mode (in which you can type uppercase letters without pressing and holding down the [Shift] key).
To enter or exit [Caps Lock] mode, press the [Caps Lock] key.

Scroll Lock indicator ( )

Lit when the window is locked so that it cannot be scrolled up or down.
To enter or exit [Scroll Lock] mode, press the [Num Lock] key while holding down the [Fn] key. The reaction of the window depends on the application used.

Security indicator ( )

If you set up a password for your computer, using the supplied application "Security Panel Application" this indicator will light up each time you try to start Windows. If the security indicator lights up when you turn on the computer or you try to resume system operation, enter your password.

Before connecting a peripheral device

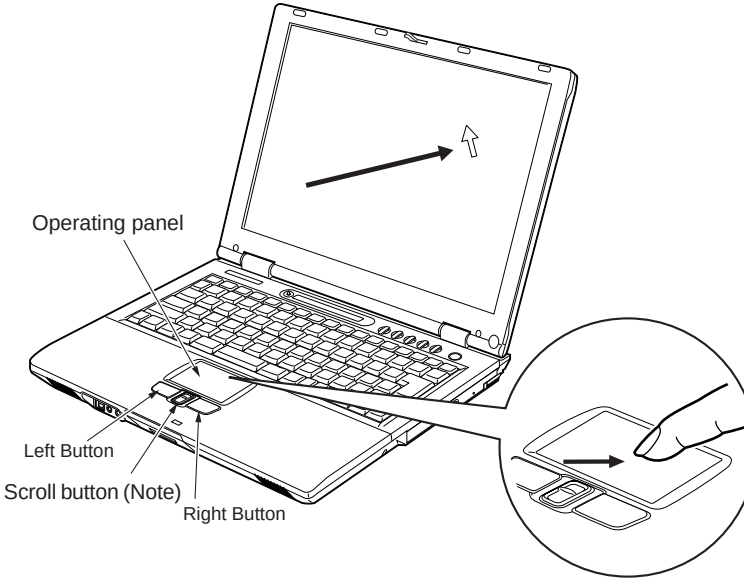
Precautions

This section explains what your should keep in mind when connecting a peripheral device to your computer.

- **Some peripheral devices need to be set up.**
  You cannot make all peripheral devices ready to use by simply connecting them to a computer. Depending on the peripheral device you use, you might need to set it up after connecting to your computer. For example, to use a printer or PC card along with your computer, you need to install its "driver" (a computer program needed for the computer to operate the peripheral device) on your computer after connecting it. On the other hand, there are also peripherals such as memory that require no setup. So before connecting a peripheral device, read this manual carefully and connect it correctly.
- **Read this manual carefully.**
  Follow the instructions in this manual to connect a cable. Connecting a cable incorrectly could result in damage to your computer or peripheral device.
  The ways to connect cables shown in this manual are just a few examples. So for the way to connect your peripheral device, refer also to its user guide.
- **Use ACPI-compatible peripheral devices.**
  Your computer is factory-configured so as to meet ACPI (Advanced Configuration and Power Interface: A battery power management scheme). The use of a peripheral device that does not support ACPI might the power saving features of your computer to malfunction. If your peripheral device supports only the low-level standby mode (ACPI S1), do not place your computer into standby or hibernation mode.
- Turn on peripheral devices before turning on your computer.
  When a peripheral device that needs to be switched on for use is connected to your computer, turn it on before turning on the computer, and turn it off after turning off the computer.

IMPORTANT

- When plug a peripheral device in a port on your computer, make sure the plug is oriented correctly and insert the plug straight into the port.
- When connecting two or more peripheral devices, connect and set up them one by one.



Note: To use the scroll button at the center, you need to install the supplied "Alps Pointing Device driver" in advance.

About the pointing device

Flat point

The flat point is a very handy pointing device that allows you to move the mouse pointer in any direction you want with one finger. It consists of a touch-sensitive operating panel, two buttons on this side of the operating panel, and a scroll button at the center.

The operating panel, which has the same function as the ball in a mouse, allows you to move the mouse pointer on the desktop by moving your finger along the panel surface. By tapping the operating panel, you can also click, double-click, point to, and drag objects on the desktop.

The left- and right-hand buttons are counterparts of the left and right mouse buttons, respectively. The functions that they can perform vary depending on the application you are using.

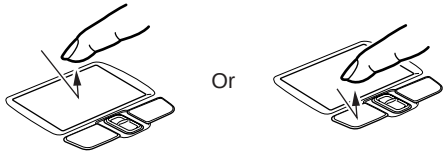
POINT

- For reasons of principle of operation, the pointing performance of the flat point may vary depending on the degree of dryness of the user's finger.
- The flat point might malfunction if its operating panel surface is dirty or clouded with condensation. In such a case, wipe it gently with a dry, soft cloth. If suborn or greasy dirt persists, wipe it off with a soft cloth dampened with dilute neutral detergent.
- Some applications may not allow you to scroll up or down through a document, using the scroll button.
- When using a mouse, you can specify whether to use both the mouse and the flat point at the same time, using the BIOS Setup (Keyboard/mouse settings).

How to use the flat point

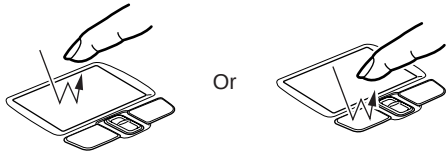
Clicking

To "click," press and quickly release the left button once or tap the operating panel once. To "right-click," press and release the right button once.



Double-clicking

To "double-click," tap the operating panel twice in rapid succession or press the left button twice. You can adjust the double-click speed, using the "Mouse Properties" dialog box.

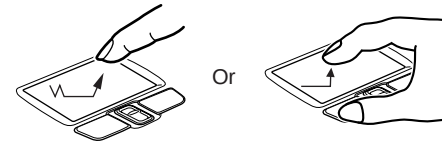


Pointing

To point means to move the mouse pointer onto an object or a menu item on your desktop. When you point to an object, the object is highlighted or an explanation of the object is displayed. If the menu item to which you pointed has a sub-menu*, the submenu will appear on the screen.

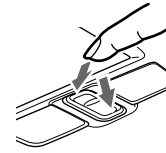
Dragging

To drag an object from one place to another: Move the mouse pointer onto the object, tap the operating panel twice in rapid succession, move your finger along the panel surface without taking your finger off the panel after tapping the panel for the second time, and take your finger off when the object reaches the position where you want to place it. Or, move the mouse pointer onto the object, move your finger along the panel surface while holding down the left button, and take your finger off the panel when the object reaches the position where you want to place it.



Scrolling

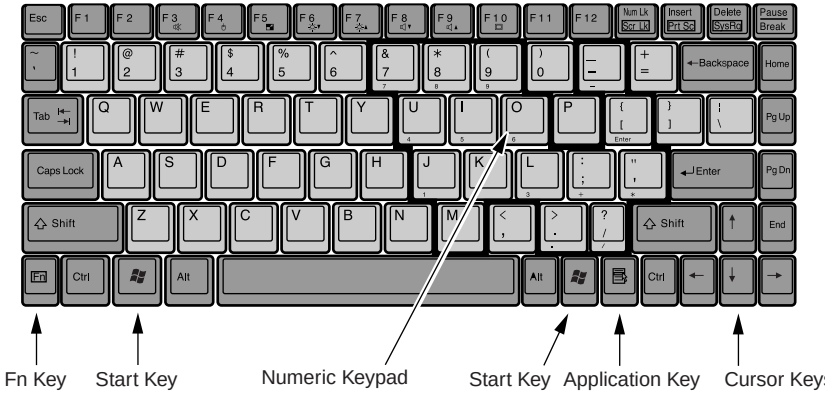
To scroll up or down through a document in the window, click the area where the document you want to scroll is displayed, and then press the scroll button forward or toward you.



To move upward: Press the button forward.
To move downward: Press the button toward you.

POINT

- The functions of the left and right buttons described above hold when the buttons are configured for right-handed persons. You can change the functions assigned to them, using the "Mouse Properties" dialog box.
- When tapping the operating panel, do it lightly and quickly with a finger tip. It is not necessary to apply an excessive pressure to the operating panel.
- The mouse pointer moves on the screen in the same direction you move your finger along the operating panel surface. When your finger reaches an edge of the operating panel, take your finger off the panel temporarily and put it in another area on the panel, and then restart moving your finger along the panel surface.
- To use the scroll button at the center, you need to install the supplied "Alps Pointing-device Driver" in advance.



About the keyboard

Key features

[Esc] key
Used to cancel the task currently performed to return to the previous task.

[F1] to [F12] keys
The functions assigned to these keys vary from application to application.

[Num Lk] key
Used to place the keyboard into ten-key mode.

[Prt Sc] key / [Insert] key
[Prt Sc] key
To print the active window, press this key while holding down [Fn] key.

[Insert key]
Used to switch between insertion and overtype modes.

[Delete key]
Used to delete characters typed in.
You can reset your computer by pressing this key while holding down the [Crtl] and [Alt] keys.

[Caps Lock] key
Used to switch between uppercase and lowercase modes.

[Shift] key
Used in combination with other keys.

- [Fn] key
  This key, unique to your computer, has the following functions:
- [Fn] + [F3]
  Turns on and off the speakers and headphones.
- [Fn] + [F4]
  Turns on and off the internal pointing device when Manual under Internal pointing device is selected in the BIOS Setup window.
- [Fn] + [F5]
  Maximizes or restores a window.
- [Fn] + [F6]
  Dims the backlight of the LCD panel.
- [Fn] + [F7]
  Brightens the backlight of the LCD panel.
- [Fn] + [F8]
  Turns down the volume.
- [Fn] + [F9]
  Turns up the volume.
- [Fn] + [F10]

When an external display is connected, pressing these buttons switches from one display to another: LCD display, external display, and LCD display + external display.

[Back Space] key
Used to move the cursor to the left to delete letters.

[Enter] key
Used to start a new line or to confirm a command or a word typed in.
This key is also called the return key.

[Pg Up] key
To return to the previous window, press this key while holding down the [Fn] key.

[↑], [↓], [←] and [→] keys
Used to move the cursor.

[Ctrl] key
Used in combination with other keys.

[ ] (Windows) key
Used to display the Start menu.

[Alt] key
Used in combination with other keys.

[Space] key
Used to insert a blank. (Long key marked with nothing at the center on this side of the keyboard)

[ ] (application) key
Used to display the shortcut menu of the item selected. This key has the same function as the right mouse button.

[Home] key
To return the cursor to the beginning of the line, press this key while holding down the [Fn] key.
To jump to the beginning of the document, press the [Ctrl] key along with the [Home] + [Fn] keys,

[Pg Dn] key
To move to the next window, press this key while holding down the [Fn] key.

[End] key
To jump to the end of the document, press this key while holding down the [Fn] key.

About the ten-key mode
The ten-key mode refers to the mode in which you can use part of the keyboard as a ten-key numerical pad (that allows you to type in figures more efficiently). Press the [Num Lk] key to place your keyboard into ten-key mode. (The Num Lock indicator on the status indicating LCD is lit when the keyboard is in ten-key mode.) The keys surrounded with heavy lines in the above figure are ten-keys. The figure assigned to each of these keys is marked on the front face of the key.

POINT

When an optional ten-key numerical pad is connected to your computer, pressing the [Num Lk] key enables the ten-key numerical pad connected and disables the ten-keys on the keyboard of your computer.

About the battery

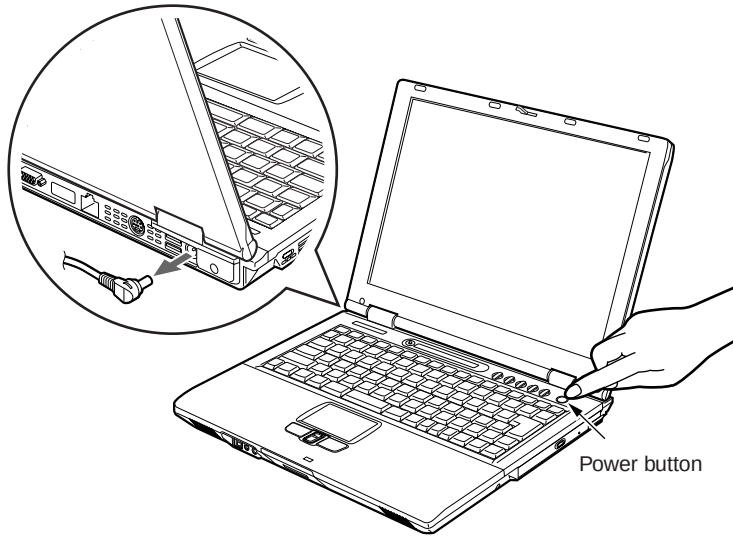
Charging the battery

1. **Connect the AC adapter to your computer.** As soon as you connect the AC adopter to your computer, the computer begins to charge the battery pack, and the charging status indicator (➔) on the status indicating LCD goes on and shows the power level (state of charge) of the internal battery pack at that time.

2. **After the charging indicator has gone off, disconnect the AC adopter.**

POINT

- Charge the supplied battery pack before using it for the first time after purchase or if it is not recharged for more than one month.
- When the battery gets fully charged, the charging status indicator goes off and the power level indicator at the left end stops blinking ( ) and lights up ( ). Give yourself enough time to charge the battery to ensure that the battery is fully charged.
- When the battery pack is 90% or more charged, it cannot be recharged even when the AC adapter is connected. The battery pack can be recharged when its power level (or remaining battery life) is 89% or less.
- When the computer is turned off, the charging status indicator on the status indicating LCD go off soon after the completion of charging.
- The chargeability of the battery pack decreases when it is charged in an very hot or cold place.



Running the computer on its battery

This section explains how to run your computer on its battery pack.

1. **Disconnect the AC adapter from your computer, and press the power button.**
   The SUS/RES indicator lights up.

POINT

- The operating time of the battery shortens when the ambient temperature is low.
- The chargeability of the battery pack decreases after it has been used for a long period of time, and its operating time shortens accordingly. If the battery runs down soon, replace it with a new battery.
- A rise in the battery temperature might slow down your computer. If this happens, connect the AC adapter to your computer.

Checking the power level of the battery

When the computer is turned on or the battery is being charged, the power level indicator lights up or blinks to let you know the state of charge of the internal battery pack.

The way the power level indicator shows the power level

Between about 76% and 100% charged

Between about 51% and 75% charged

Between about 26% and 50% charged

Between about 13% and 25% charged (or between about 0% and 25% charged during charging)

Low battery condition (12% or less charged)
▮ blinks.

Low battery condition
Dead battery condition (0% charged)

POINT

- For reasons of the characteristics of lithium-ion batteries, the power level indictor may not correctly indicate the state of charge of the battery under certain conditions (temperature conditions, number of times the battery has been discharged and recharged, and so on).
- When the battery is 90% or more charged, it cannot be recharged even when the AC adapter is connected to your computer. The battery can be recharged when its power level is 89% or less.

Battery failure alarm

Indicates that the battery cannot be charged normally.

POINT

If  is indicated, turn off the computer and remove and reinstall the battery pack correctly. If the power level indicator blinks red even though the battery pack is installed correctly, it is in a defective condition. So replace it with a new one.

Low battery condition

When the battery is discharged to a very low level, the power level indicator blinks ().

Action to take when the battery starts to run low

Connect the AC adapter to your computer to recharge the battery.

POINT

- The use of a weak battery may result in the lost of the data you are currently creating or saving. When the battery starts to run low, connect the AC adapter to your computer as soon as possible, or if no AC adapter is available, immediately save the data you are creating, exit all programs and turn off your computer.
- Reading or writing data on the hard disk requires a large amount of electric power. Therefore, when the battery is weak, connect the AC adapter to your computer before reading or writing data on the hard disk.
- Your computer is configured by default so that it will go into standby mode when the power level reaches about 3%.
  Note that changing this setting causes your computer to shut down when the battery runs low, and could result in the lost of the data you are currently created or saving or could cause your computer to malfunction.

Precautions in using the battery pack

WARNING

ELECTRIC SHOCK

- The battery pack is shock-sensitive. To avoid damage due to shock, be careful not to drop the battery pack when installing or removing it. For safety's sake, do not use any battery that has been given a strong impact. The use of a damaged battery could results in an electric shock or explosion.

- **Do not take the battery apart.**

  Taking the battery apart or touching its internal components could result in an electric shock or fire.

- **About electrical discharge**
  - It is good practice to always recharge the battery before use since it is discharged spontaneously.
  - When you know you will not use the computer for an extended period of time (for one month or more), remove the battery pack from your computer and store it in a cool place. Leaving the battery in the computer without recharging for a long period of time exhausts it and shortens its useful life.

- **About the battery life**
  - Batteries are consumable and gradually deteriorate with the passage of time even when they are not used. Therefore, to check the condition of your battery pack, you should run your computer on the battery pack at least once a month.
  - Leaving the battery pack in a hot place for a long time accelerates the deterioration of the battery.
  - The battery pack is consumable and its chargeability decreases gradually as it is used. When the battery reaches the end of its useful life, replace it with a new one.
  - The battery becomes exhausted in a very short time when its useful life is ending.
  - When the battery reaches the end of its useful life, remove it from the computer. Leaving a dead battery in the computer could cause shock hazards or fire.

- **About the disposal of the battery pack**
  - Before disposing of the battery pack, take necessary measures to prevent it from shorting, for example, sealing its connector with an insulating tape.

- **About the operating time**
  - The energy saving features of your computer helps you conserve battery power.
  - Battery life greatly varies depending on the ambient temperature. The life of a battery may shorten when it is used in a cold place.

- **You should power your computer from the AC adapter when:**
  - Using the hard disk or DVD/CD drive frequently
  - Connecting to a LAN
  - Resetting the computer to the factory defaults
  - Connecting two or more external devices, such as PC cards and USB devices, to your computer at the same time.

- **Keep an eye on the power level of the battery when:**
  - Using a wireless device, such as a wireless LAN device
  - Changing settings, using BIOS Setup.

Changing the internal battery pack

Before changing the internal battery pack, be sure to exit all running programs and save all data on the hard disk. This section explains how to change the internal battery pack.

WARNING

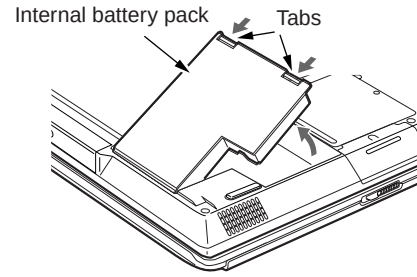
ELECTRIC SHOCK

- Before changing the internal battery pack, be sure to turn off your computer and disconnect the AC adapter from it. To avoid shock hazards and damage to your computer, be careful not to touch the connectors of the computer and battery pack.

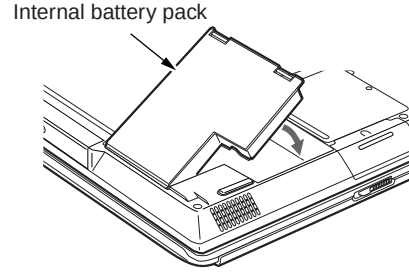
1. **Turn off your computer and disconnect the AC adapter from it.**

2. **Close the LCD panel, and turn and place your computer upside down.**

3. **Remove the internal battery pack.**
   Remove the battery pack while pushing in the tabs (x 2) on the battery.



4. **Install a new battery pack.**
   Insert the new battery pack diagonally into the battery bay, as shown in the figure below, align the slit in the battery pack with the projection on the computer, and push down the battery pack until it clicks into place.



IMPORTANT

After removing the internal battery pack, take necessary measures to prevent it from shorting, for example, sealing its connector with an insulating tape. After removing the battery pack, do not mix it with other types of battery.
The internal battery pack (lithium-ion battery) contains precious resources. Therefore, you should dispose of the disused battery pack as a recyclable material if possible.

3

User-Installable Features

About memory

Installing/removing memory

This section explains how to install and remove memory on/from your computer.

WARNING

ELECTRIC SHOCK

- When installing or removing memory, be sure to turn off your computer and disconnect the AC adapter to avoid shock hazards.

SUFFOCATION

- Keep small objects, such as covers, caps and screws, out of the reach of babies and children to avoid the danger of suffocation.

  In the event a baby or child has swallowed such an object, consult the doctor immediately.

CAUTION

FAILURE

- When installing or removing a memory module, hold it by the edge so as not to touch any contacts or IC. Also, be careful not to touch internal components or terminals of the computer. Touching these parts with oily fingers could result in a poor connection.

FAILURE

- Memory is composed of static-sensitive parts and it is easily broken by static electricity built up in a human body. Before handling memory, always touch an appropriate metal object to discharge static electricity from your body.

FAILURE

- When installing or removing memory, be sure to turn off your computer in advance. If you install or remove memory with the computer placed in standby or hibernation mode, data could become lost or the computer or memory could be damaged.

IMPORTANT

- When removing screws from your computer, use a Phillips screwdriver of an appropriate size to avoid damage to their heads. (Screw size: M2.5). The use of a screwdriver of any other size could damage the heads of screws.
- Install only memory modules supported by your computer.

POINT

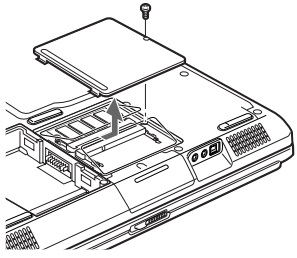
- You can check if memory is installed correctly and how much memory is installed on you computer. The memory capacity of your computer is displayed in the Memory slot area of the Information window of BIOS Setup. This windows shows the size and type of memory installed, for example, like this: “512MB DDR SDRAM.” If the memory you installed makes it impossible for your computer to start up, the memory may be faulty or defective. If this happens, contact or your reseller.
- To avoid damage, do not touch internal components unnecessarily.
- To avoid damage, be careful not to drop a screw or any other part removed into the computer.
- If you want to increase the memory capacity of your computer to a maximum (1GB), you might need to remove and replace the memory module with another.

Installing memory

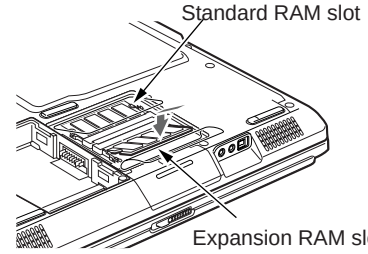
1. **Turn off your computer and disconnect the AC adapter from it.**

2. **Remove the internal battery pack.**
   Perform steps 1 to 3 in the “Changing the internal battery pack” section.

3. **Remove the screw shown in the figure below, and detach the expansion RAM module slot cover.**
   Remove the expansion RAM module slot cover on the bottom of the computer.



4. **Install the memory.**
   Open the slot cover, align the notch in the memory module with the projection on the connector, insert the memory diagonally into the slot, and push down the memory until it clicks into place.



5. **Attach the expansion RAM slot cover and secure it with the screw.**
   Attach the cover you removed in step 3, with the tabs on the cover fitted in the locating holes in the computer.

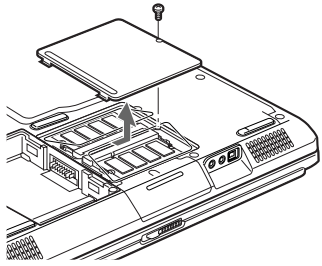
6. **Install the internal battery pack.**
   Perform step 4 in the “Changing the internal battery pack” section.

IMPORTANT

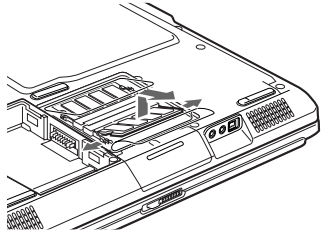
If the memory is not installed correctly, the error message “Expansion memory error” or another message will be displayed in English when you turn on the computer for the first time after installing the memory. If such a message appears, turn off the computer, and remove and install the memory again.

Removing memory

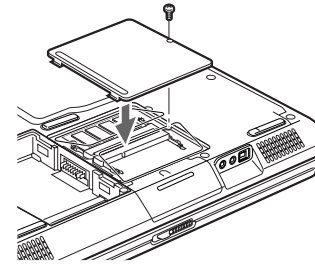
1. **Turn off your computer and disconnect the AC adapter from it.**
2. **Remove the internal battery pack.**
   Perform steps 1 to 3 in the “Changing the internal battery pack” section.
3. **Remove the screw shown in the figure below, and detach the expansion RAM module slot cover.**
   Remove the expansion RAM module slot cover on the bottom of the computer.



4. **Remove the memory.**
   Open the slot cover, undo the hooks on both sides securing the memory module by pulling them sideways, and remove the memory from the slot.



5. **Attach the expansion RAM slot cover and secure it with the screw.**
   Attach the cover you removed in step 2, with the tabs on the cover fitted in the locating holes in the computer.



6. **Install the internal battery pack.**
   Perform step 4 in the “Changing the internal battery pack” section.

POINT

When replacing memory, install the new memory after removing the memory in step 4.
To install new memory, perform step 4 in the “Installing memory” section.

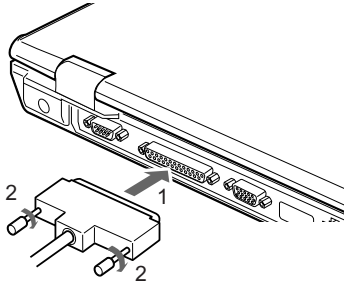
About printers

IMPORTANT

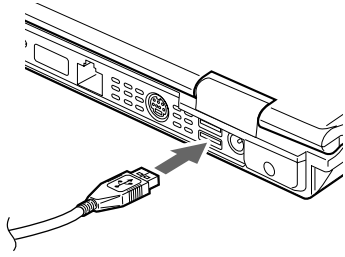
- Although a printer cable is needed to connect a printer, not all printers come with a printer cable. It is also possible that the cable included with your printer is incompatible with your computer. In such a case, buy an appropriate printer cable.
- Ways to connect printers vary from printer to printer. So refer to your printer's user manual and connect your printer correctly.

Connecting a printer

❑ Parallel port



❑ USB port



About external displays

Connecting an external display

You can connect an external display, such as a projector or a CRT display, to your computer. This section explains how to plug a CRT display in the external display port on the back of your computer.

WARNING

ELECTRIC SHOCK

- Before connecting or disconnecting an external display, always turn off your computer and disconnect the AC adapter from it to avoid shock hazards.

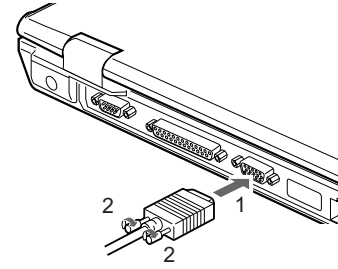
CAUTION

FAiLURE

- Connect cables correctly according to the instructions in this manual.
  Connecting the cable incorrectly could result in damage to your computer and/or display.

1. **Turn off the computer and disconnect the AC adapter from it.**

2. **Plug the display cable in the external display port on the back of the computer.**
   The external display port has a trapezoidal cross-section.
   First, insert the connector straight into the external display port with the right side up, and then secure the connector with the screws on both sides of it.



3. **Connect the display cable to the CRT display.**
   For the way to connect the cable to your display, refer to its manual.

4. **Plug the power cable of the CRT display in a wall outlet, and then turn on the display.**

5. **Connect the AC adapter to your computer and turn on the computer.**

POINT

Either of the following may occur when you connect an external display to your computer.

- Images are displayed on both the LCD of your computer and the external display connected.
- The Add New Hardware Wizard appears. If this wizard appears, install the driver for the external display connected, following the on-screen instructions.

6. **Switch from one display to another.**
   Each time your press the [Fn] and [F10] keys simultaneously, display modes switch in the following sequence: LCD panel – external display – LCD panel + external display – LCD panel. You can also switch from one display to another, using the Windows Display Properties dialog box. (“Features” – “Switching from one display to another”)

4

Wireless LAN Function

(For selected model)

Preface

Thank you for purchasing the Fujitsu LifeBook.
This document describes the setup of this personal computer for using the Wireless LAN compliant with IEEE802.11b.
Before starting up this personal computer, read this document and operate the computer properly.

Notice to the User

Wireless interoperability

This personal computer is designed so that it achieves the collaboration of an intercommunications system with Wireless LAN products based on the wireless LAN technology of the Direct Sequence Spread Spectrum (DD-SS) scheme. This personal computer also complies with the Wireless LAN Standard “Wi-Fi” defined by the “Wi-Fi Alliance” which verifies interconnectability between Wireless LAN products.

Effects of radio-wave radiation on environments

- As with other high-frequency units, this personal computer emits high-frequency energy. The level of the energy emitted from this personal computer is controlled well below the electromagnetic energy emitted from, for example, a cellular phone or other wireless devices or units.
- Since it operates within high-frequency safety standards and officially recommended guidelines, this personal computer ensures safety for the user. These standards and recommendations incorporate the unified view of the scientific world and are based on the deliberations of research teams and on the rules and conventions established at the commissions consisting of scientists who scan and interpret the contents of extensive research bibliography on a continual basis.
- Under specific circumstances and environments, the use of this personal computer may be limited by the owners of buildings and the responsible representative persons of organizations. An example of the specific circumstances and environments referred to here is shown below.
  - Use under the environment where there is the danger of interference with other units, devices, or services.
- If you are not sure about the guidelines applied to the use of wireless units or devices in a specific organization or environment (such as an airport), before turning on the power of this personal computer, please contact the corresponding organization or building owner and confirm whether it is necessary to obtain permission for the use of the computer.

Effects of radio-wave radiation on the human body

The output power radiated from this personal computer is suppressed well below the radio-wave radiation limit specified by FCC. Nevertheless, this personal computer must be used so that the voltage applied will be minimized with respect to human contact under normal operating conditions. During the use of the computer, touching its antenna must be avoided as far as possible. For the antenna, refer to the “NAMES OF COMPONENTS” section of the relevant manual accompanying the main unit of the personal computer.

■ Precautions on interference

- This personal computer generates, uses, and radiates high-frequency energy.
- If this personal computer is not set up or used in accordance with this document, harmful interference may be caused to wireless communications.
- If this personal computer causes harmful interference to radio or television receivers (whether this is actually happening can be identified by powering on and off the computer), use either of the following methods to remove the cause of the interference:
  - Extend the distance between the main unit of the computer and the radio or television receiver.
  - Connect the main unit of the computer to either outlet of a power circuit separate from that of the outlet to which the receiver is connected.
  - Consult with a qualified and experienced radio/television electrical engineer.
- Do not modify this personal computer improperly.
- The manufacturer does not bear responsibility for interference with the radio or the television due to improper modification of this personal computer.
- Other wireless equipment may be using the same frequency as that of this personal computer. Strictly observe the following precautions as well in order to avoid electromagnetic interference with other wireless equipment:

Precautions on interference

- The wireless equipment bearing the label shown above operates at 2.4 GHz. This type of equipment employs the modulation scheme called “DS-SS”, and its interference distance is 40 meters.
- Not only microwave ovens and other industrial, scientific, and/or medical equipment, but also the local wireless stations used in plants, manufacturing lines, etc. to identify mobile bodies (the use of these wireless stations requires a license) and specified low-power wireless stations (the use of these wireless stations does not require a license) are placed in operation in the operating frequency band of this product.
  1. Before using this product, make sure that local wireless stations for the identification of mobile bodies or specified low-power wireless stations are not in operation nearby.
  2. If electromagnetic interference with any local wireless stations for the identification of mobile bodies is caused by the use of this product, immediately stop the emission of the radio waves.

Representation of Symbols and Others in this Document

■ About examples of display and illustrations

The screen display modes and illustrations shown in this document are examples. The screen modes, illustrations, file names, and others that will be actually displayed may differ according to the particular model of your personal computer.

■ Symbols and others used in text

The meanings of the symbols used in text are listed below.

Symbol with/without word	Meaning
 POINT	Denotes operating precautions or the acts that must not be performed. Be absolutely certain to read this section.
	Denotes items related to operations. Read this section as required.
→	Reference page

■ Product names

The product names appearing in this document are represented in abbreviated form as follows:

Product name	Representation in text	
Microsoft Windows XP Home Edition	Windows XP	Windows
Microsoft Windows XP Professional		
Microsoft Windows 2000 Professional	Windows 2000	Windows

Outline

This section explains features of the wireless LAN function and what you can do using this LAN function.

Features of the wireless LAN function

Some of major features are listed below.

- Since the Wireless LAN function uses a 2.4-GHz low-power communications system, the user does not need to acquire a license related to wireless communications.
- The Direct Sequence Spread Spectrum (DDSS) scheme is employed that is highly resistant to noise.
- This LAN function complies with “Wi-Fi” and allows wireless communications at a maximum communications speed of 11 Mbps.
- The use of the required network name (SSID) and network key allows accessing by unauthorized persons to be prevented.

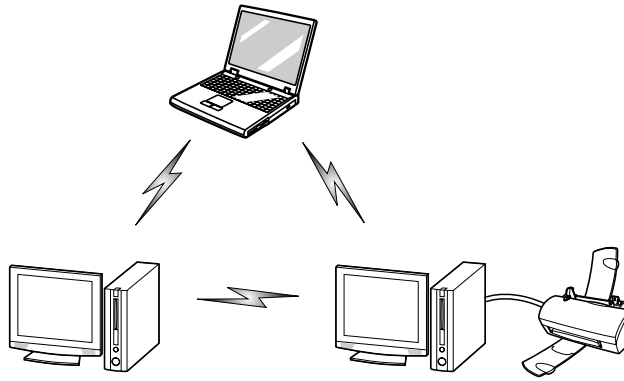
Network configuration of the wireless LAN

The use of the wireless LAN function allows connection to any of the following two types of networks:

Ad hoc connection

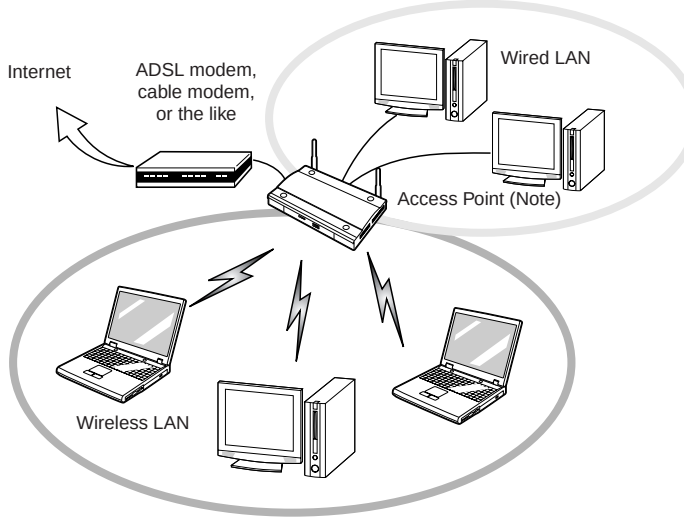
The network constructed by the personal computers containing the wireless LAN function is referred to as the “ad hoc wireless LAN”, and the connection method used in this case is referred as “ad hoc connection.”
The use of this function allows you to exchange files and share a printer, by selecting the functions, such as “Network Connection”, that the Microsoft network supports.
To use ad hoc connection, it is necessary to enter the same network name (SSID) and the same network key for all the personal computers that are to be connected. If there are any channels to be used for wireless LAN connection, it is also necessary to assign the same data to the channels. Communication is possible, provided that the personal computers to communicate with each other are located within the respective intercommunication service areas. Network connection can be implemented easily and at low costs by using ad hoc connection.

The following illustration shows an example of ad hoc connection:



Infrastructure connection

The network that uses one type of hub called the Access Point, such as an optional wireless broadband router, is referred to as the “infrastructure wireless LAN”, and the connection method used in this case is referred as “infrastructure connection.”
The use of this function allows connection to a wired LAN via a station, and connection to the Broadband Internet.
For details of the Access Point, refer to the manuals accompanying the Access Point.
The following illustration shows an example of infrastructure connection:



Note:
An optional hub for a wired LAN may be required according to the type of Access Point to be used.

For better communications

Some of major features are listed below.

This personal computer may not operate properly according to the particular operating environment. Strictly observe the following precautions when installing the main unit of the computer:

- Since this personal computer and equipment compliant with IEEE802.11a differ in operation frequency, it is not possible to communicate between both. Be careful of this.
- The recommended wireless communications distance is within a line-of-sight radius of 25 meters. For reasons related to the characteristics of the wireless LAN, however, the actual communications distance depends on the structure or materials type of building in which the wireless LAN function is to be used, the presence/absence of obstructions, the types of software to be used, installation status, radio-wave status, or other operating conditions. Decreases in communications speed or a communications failure may also occur.
- Distance the main unit of this personal computer from other electric appliances. If the main unit of the person computer is installed near a powered-on electric appliance, the computer may not be able to communicate properly or trouble may occur in the electric appliance.

  If the computer is unable to communicate properly, change the channel to be used or the installation location. During the use of a microwave oven or other equipment generating strong high-frequency energy, in particular, the personal computer may be highly susceptible to the energy and unable to communicate properly.
- If a broadcasting station or wireless communications equipment is present nearby and this prevents the computer from communicating properly, moving the main unit of the computer is suggested. Radio interference may also occur if the intensity of ambient radio waves is too high.
- About radio interference with the Bluetooth™

  Since the Bluetooth™ and the wireless LAN operate at the same frequency (2.4 GHz), if the BluetoothTM is used near the main unit of this personal computer, radio interference may occur, leading to decreases in communications speed or to a connection failure. If these events actually occur, undertake the following countermeasures:
  - Space the Bluetooth™ and the main unit of the personal computer by a distance of at least 10 meters.
  - Within a distance of 10 meters, turn off the power of either the Bluetooth™ or the main unit of the personal computer.

Stopping the transmission of radio waves

To use this product in hospitals, clinics, or airplanes, or in other places where the use of electronic equipment is regulated, stop the transmission of radio waves from the wireless LAN.

Deactivation using the wireless switch

The transmission of radio waves from the wireless LAN can be stopped by setting the wireless switch to the OFF position.
For the wireless switch, refer to the Names of components" section of the relevant manual accompanying the main unit of the personal computer.

Deactivation using your Windows

1. **Click the [Start] button, [All Programs], [Intel Network Adapters], and [Intel(R) PROSet].**
   The Intel(R) PROSet window will be displayed.
2. **Click the [Genaral] tab.**
3. **Select [OFF] for the wireless communications on/off switching function, and then click the [OK] button.**
   Wireless communications on/off switching will be deactivated and the transmission of radio waves from the wireless LAN will be stopped.

POINT

- Select [ON] under the deactivated status of the wireless LAN to restart the transmission of radio waves.

Starting the transmission of radio waves

To communicate using the wireless LAN function, set the personal computer to a status in which it can transmit radio waves. Here is the procedure:

1. **Set the wireless switch to the ON position.**
   For the wireless switch, refer to the "NAMES OF COMPONENTS" section of the relevant manual accompanying the main unit of the personal computer.
2. **Click the [Start] button, [All Programs], [Intel Network Adapters], and [Intel(R) PROSet], in that order.**
   The Intel(R) PROSet window will be displayed.
3. **Click the [General] tab.**
4. **Select [ON] for the wireless communications on/off switching function, and then click the [OK] button.**
   Wireless communications on/off switching will be activated and the transmission of radio waves will be restarted.

Connection Using Windows XP

Flow of Operations

The wireless LAN connection procedure is outlined below.

1. **Make sure that the personal computer is ready for the transmission of radio waves from the wireless LAN.**
2. **Assign the parameters required for wireless LAN connection.**
   1. Enter the network name (SSID) and other data.
   2. Enter the network key (the key to be used to encode communications data).
3. **Perform setting operations relating to network connection.**
   1. Specify TCP/IP as the protocol, and confirm the name of the workgroup and other settings.
   2. Enter the data required for file/printer sharing on the network. Perform this operation as required.
   3. For infrastructure connection, enter data for the station.
   4. Verify that you have been able to connect your computer to the network.

Preparation for Wireless LAN Connection

This section explains the preparation (parameter assignment) required for the use of the wireless LAN.

Assigning parameters

Enter the network name (SSID), the network key, and other data required for wireless LAN connection. If there is the administrator of the network, contact the network administrator for data settings.

IMPORTANT

Wireless channels 1 to 14 are used for the IEEE802.11b-compliant wireless LAN adopted by this personal computer.

POINT

- To use infrastructure connection, refer to the manual of the Access Point for the Access Point-setting procedure.
- You do not need to set the channel (frequency band). The channel being used for the intended wireless LAN network is detected automatically and your personal computer communicates through that channel. When a new ad hoc wireless LAN network is constructed between the main units of personal computers, channel 11 is preassigned as the default.
- If it is necessary to change the channel, change the setting of the Access Point. For the setting procedure, refer to the manual of the Access Point. In the case of infrastructure connection, to use ADSL (PPPoE) for accessing the Internet, the MTU size of this personal computer needs to be changed.

For further details, refer to the manual of the Access Point.

1. **Click the [Start] button first and then [Control Panel].**
2. **Click [Network and Internet Connections].**

POINT

- [Network and Internet Connections] may not be displayed according to the particular environmental conditions or data settings.

3. **Click [Network Connections].**
   A list of currently installed networks will be displayed.
4. **Right-click [Wireless Network Connection] in the list, and then click [Properties] in the menu displayed.**
   The [Wireless Network Connection Properties] window will be displayed.
5. **Click the [Wireless Network] tab.**
6. **Make sure that the [Use Windows to configure my wireless network settings] check box is ticked, and click the [Add] button.**
   The [Wireless Network Properties] window will be displayed.
7. **Enter the information required for connection to the wireless LAN.**
   1. Enter the network name (SSID).
      Enter the name of the desired network in less than 32 ASCII characters.
      - For ad hoc connection
        Assign the same network name to all the personal computers to be connected.
      - For infrastructure connection
        Assign the appropriate data according to the type of Access Point to be accessed. For Access Point setting, refer to the manual of the Access Point.
   2. For ad hoc connection, tick the next item. For infrastructure connection, clear the tick mark.
      - This is a computer-to-computer (ad hoc) network; wireless access points are not used.
8. **Enter the data for encoding communications data.**

IMPORTANT

- It is strongly recommended that you enter the network key for encoding communications data. If the network key is not entered, since the network can be accessed from all personal computers containing the wireless LAN function, there is a danger of your data being stolen or damaged by other users.

   1. Tick the [Data encryption (WEP enabled)] check box.
      For ad hoc connection, clear the tick mark from the [Network Authentication (Shared mode)] check box.
      For infrastructure connection, if the Access Point to be accessed has acquired shared-key authentication, tick the [Network Authentication (Shared mode)] check box.
      For open-system authentication, clear the tick mark. For Access Point setting, refer to the manual of the Access Point.
   2. Clear the tick mark from the [The key is provided for me automatically] check box.

3. Enter data in [Network Key].
   Depending on the number of entered characters or digits, whether the key is an ASCII character code or a hexadecimal code will be identified automatically.

POINT

- Use five or thirteen characters to enter the key in the ASCII character code format. The characters that can be used as the "network key" are as follows:
  0 - 9, A - Z, _ (underscore)
- Use 10 or 26 characters to enter the key in the hexadecimal character code format. The characters that can be used as the "network key" in this case are as follows:
  0 - 9, A - Z, a - f
- For ad hoc connection
  Assign the same network name to all the personal computers to be connected.
- For infrastructure connection
  Assign the appropriate data according to the type of Access Point to be accessed. For Access Point setting, refer to the manual of the Access Point.

4. In [Confirm network key], enter the same data as that of [Network key].
5. Make sure that [Key index (advanced)] is set to "1".

POINT

- Any value from "1" to "4" can be assigned to [Key index (advanced)]. Usually, however, assign "1".

9. Click the [Authentication] tab and then verify the settings of [Enable network access control using IEEE 802.1X].

For internal use at an organization such as a company, when access by wireless LAN clients is to be limited using IEEE 802.1x authentication, tick the [Enable authentication for this network IEEE 802.1X] check box.

For home use, clear the tick mark from the [Enable authentication for this network IEEE 802.1X] check box.

For the setting method relating to IEEE 802.1x authentication, refer to the manual of the Access Point which you are using.

10. After the setting operations have been completed, click the [OK] button.

Processing will return to the [Wireless Network Connection Properties] window.

11. Verify that the network name entered in step 7 above is added in [Preferred Networks], and then click the [OK] button.

POINT

- In [Preferred Networks], register only the desired connection settisngs.

12. Close the [Network Connection] window.

Connection to the network

This section explains connection to the network. If there is the administrator of the network, contact the network administrator for data settings.

Setting the network

This section explains connection to the network. If there is the administrator of the network, contact the network administrator for data settings.

Setting TCP/IP

POINT

- To change the setting of the IP address, you need to be logging in from Windows as a user having administrator's authority.

1. **Click the [Start] button first and then [Control Panel].**
2. **Click [Network and Internet Connections].**
3. **Click [Network Connections].**
   A list of currently installed networks will be displayed.
4. **Right-click [Wireless Network Connections] in the list, and then click [Properties] in the menu displayed.**
   The [Wireless Network Connection Properties] window will be displayed.
5. **Click the [General] tab.**
6. **Click [Internet Protocol (TCP/IP] and then click [Properties].**
   The [Internet Protocol (TCP/IP) Properties] window will be displayed.
7. **Set the IP address.**
   - For ad hoc connection
     Select [Use the following IP address] and then enter data in [IP address] and [Subnet mask].
   - For infrastructure connection
     Select [Obtain an IP address automatically] and [Obtain DNS server address automatically].
     Follow the directions if you are directed from the network administrator about IP address setting, DNS server setting, and the default gateway.
8. **Click the [OK] button.**
   Processing will return to the [Wireless Network Connection Properties] window.
9. **Click the [OK] or [Close] button.**
10. **Click the [Close] button in the [Network Connection] window.**

Confirming the Computer Name and the Workgroup Name

POINT

- To modify the computer name and/or the workgroup name, you need to log in from Windows as an administrator.

1. **Click the [Start] button first and then [Control Panel].**
2. **Click [Performance and Maintenance].**
3. **Double-click the [System] icon.**
   The [System Properties] window will be displayed.
4. **Click the [Computer Name] tab.**
5. **Confirm the settings of [Computer Name] and [Workgroup name].**
   - The setting of [computer name] denotes the name for identifying the computer. Any name can be assigned to each personal computer. Enter the desired name in less than 15 ASCII character code format.
     Identifiability can be enhanced by entering the model number, the user name, and other factors.

- [Workgroup name] is the group name of the network. Enter the desired name in less than 15 ASCII character code format.
  - For ad hoc connection
    Assign the same network name to all personal computers existing on the network.
  - For infrastructure connection
    Assign the name of the workgroup to be accessed.

POINT

- To change the name, click [Change] and then proceed in accordance with the instruction messages displayed on the screen.
  Processing will return to the [System Properties] window.

6. **Click the [OK] button.**
   If a message is displayed that requests you to restart the personal computer, click [Yes] and then restart the computer.

Setting the sharing function

Set the sharing function to make file and/or printer sharing with other network-connected personal computers valid.

The setting operation is not required unless the sharing function is to be used.

The folder and printer for which the sharing function has been set will be usable from any personal computer present on the network.

POINT

- To share a file and/or the connected printer, you need to be logging in from Windows as a user having administrator's authority.

Setting the Microsoft network-sharing service

1. **Click the [Start] button first and then [Control Panel].**
2. **Click [Network and Internet Connection].**
3. **Click [Network Connection].**
   A list of currently installed networks will be displayed.
4. **Right-click [Wireless Network Connection] in the list, and then click [Properties] in the menu displayed.**
   The [Wireless Network Connection Properties] window will be displayed.
5. **If [File and Printer Sharing for Microsoft Networks] is displayed, proceed to step 6.**
   If [File and Printer Sharing for Microsoft Networks] is not displayed, skip to step 7.
6. **Make sure that the [File and Printer Sharing for Microsoft Networks] check box is ticked, and then click the [OK] button.**
7. **Click [Install].**
   The [Select Network Component Type] window will be displayed.
8. **Click [Service], and then click the [Add] button.**
   The [Select Network Service] window will be displayed.
9. **Click [File and Printer Sharing for Microsoft Networks] and then click the [OK] button.**
   Processing will return to the [Wireless Network Connection Properties] window, and [File and Printer Sharing for Microsoft Networks] will be added to the list.
10. **Click the [Close] button.**

Setting the file sharing function

The procedure for setting the file sharing function is laid down below taking the "work" folder within drive C as an example.

1. **Click the [Start] button first and then [My Computer].**
2. **Double-click [Local disk (C:)].**
3. **Right-click the "work" folder, and then click [Sharing and Security] in the menu displayed.**

   The [work Properties] window will be displayed.

POINT

- Setting the file sharing function for the file which has been used to execute Network Setup Wizard is suggested on the screen. For the wireless LAN, however, since security is guaranteed by entry of the network name (SSID) and the network key, the steps to be taken to set the file sharing function easily without using Network Setup Wizard are shown below.

4. **Click [If you understand the security risks but want to share files without running the wizard, click here].**

POINT

- If [If you understand the security risks but want to share files without running the wizard, click here] has already been clicked, this window is not displayed. Skip to step 5.

Details of the [work Properties] display in the [Network sharing and security] window will change.

5. **Tick the [Share this folder on the network] check box.**

POINT

- To specify the corresponding folder as a read-only folder, clear the tick mark from the [Allow network users to change my files] check box.

6. **Click the [OK] button.**

   The folder will be set as a sharable folder, and the display of the icon for the "work." folder will change.

Setting the printer sharing function

1. **Click the [Start] button , [Control Panel] select [Printers and Other Hardware], select [Printrers and Faxes].**

   A list of connected printers will be displayed.

2. **Right-click the printer for which the sharing function is to be set, and then click [Sharing] in the menu displayed.**

   The Properties window corresponding to the selected printer will be displayed.

POINT

- Setting the printer-sharing function where Network Setup Wizard has been executed is suggested on the screen. For the wireless LAN, however, since security is guaranteed by entry of the network name (SSID) and the network key, the steps to be taken to set the printer-sharing function easily without using Network Setup Wizard are shown below.

3. **Click [If you understand the security risks but want to share files without running the wizard, click here].**

   The [Printers properties] window will be displayed.

4. **Click [Share this printer] and then click the [OK] button.**

   Control will be returned to the property window corresponding to the selected printer.

5. **Click [Share this printer] and after confirming the name displayed in [Share Name], click the [OK] button.**

   Printer sharing will be set and the display of the icon for the printer will change.

Confirming connection

After you have finished the network setup operations, access the folder whose sharing has been set for other personal computers. Also, confirm the status of the radio waves in case of trouble such as a network connection failure.

POINT

- In the case of infrastructure connection, enter the necessary data for the Access Point before confirming connection. Refer to the manual of the Access Point for the Access Point setup procedure.

Connecting your personal computer to another personal computer

1. **Click [Start] first and then [My Computer].**
   The window [My Computer] will be displayed.
2. **Click [My Network] in the "Others" list.**
   The window [My Network] will be displayed.
3. **Click [Workgroup Computer name] in the list of network tasks.**
   The computers in your work group will be listed.
4. **Double-click the personal computer to which your personal computer is to be connected.**
5. **Double-click the folder to be accessed.**

Confirming the status of the radio waves

The procedure for setting the file-sharing function is laid down below taking the "work" folder within drive C as an example.

1. **Click the [Start] button, [All Programs], [Intel Network Adapter], and [Intel(R) PROSet], in that order.**
   The [Intel(R) PROSet] window will be displayed.
2. **Click the [General] tab and confirm radio-wave status in the window displayed.**
   The current connection status will be displayed.
   - Quality of the signals
     The quality of the signals is displayed on a graph.
   - Network name (SSID)
     The connected network name (SSID) is displayed.
   - Profile name
     "<No profile>" is displayed.
   - Mode
     If infrastructure connection is in use, "Infrastructure (Access point)" will be displayed.
     If ad hoc connection is in use, "Ad hoc" will be displayed.
   - Security
     The setting status of WEP is displayed.
   - Speed
     The communications speed is displayed.
   - Band (Frequency)
     The current operating frequency band is displayed.
     When communication is possible, "802.11b (2.4 GHz)" is displayed.
   - Channel
     The channel number currently being used for the communications is displayed.

Connection Using Windows 2000

Setting TCP/IP

The wireless LAN connection procedure is outlined below.

1. **Make sure that the personal computer is ready for the transmission of radio waves from the wireless LAN.**
2. **Assign the parameters required for wireless LAN connection.**
   1. Enter the network name (SSID) and other data.
   2. Enter the network key (the key to be used to encode communications data).
3. **Perform setting operations relating to network connection.**
   1. Specify TCP/IP as the protocol, and confirm the name of the workgroup and other settings.
   2. Enter the data required for file/printer sharing on the network. Perform this operation as required.
   3. For infrastructure connection, enter data for the Access Point.
      Refer to the manual of the Access Point for further details.
   4. Verify that you have been able to connect your computer to the network.

Preparation for Wireless LAN Connection

This section explains the preparation (parameter assignment) required for the use of the wireless LAN.

Assigning parameters

Enter the network name (SSID), the network key, and other data required for wireless LAN connection. If there is the administrator of the network, contact the network administrator for data settings.

IMPORTANT

Wireless channels 1 to 14 are used for the IEEE802.11b-compliant wireless LAN adopted by this personal computer.

POINT

- To use infrastructure connection, refer to the manual of the Access Point for the Access Point-setting procedure.
- In the case of infrastructure connection, to use ADSL (PPPoE) for accessing the Internet, the MTU size (see page 50) of this personal computer needs to be changed.
  For further details, refer to the manual of the Access Point.

1. **Click the [Start] button, [Programs], [Intel Network Adapter], and [Intel(R) PROSet].**
   The [Intel(R) PROSet] window will be displayed.
2. **Click the [Network] tab.**
3. **Click the [Add] button.**
   The [Profile Wizard] window will be displayed.
4. **Enter the information required for connection to the wireless LAN.**
   1. Enter data in [Profile name].
      Enter the name of the system file for saving the parameter information that you are going to enter. Enter the desired character string consisting of less than 40 ASCII characters.
      Also, multiple [Profile] items can be created covering both ad hoc connection and infrastructure connection. When there are multiple wireless LANs to which your computer is to be connected, each LAN can be accessed by selective use of the profiles.

2. Enter the network name (SSID).
   Enter the appropriate network name according to the “Operation mode” to be used.
   Enter the desired network name in less than 32 ASCII characters.
   - For infrastructure connection
     Select [Infrastructure-Connect to an Access Point] of the selected “Operation mode”, and assign the appropriate data according to the ID code of the Access Point to be accessed. For Access Point setting, refer to the manual of the Access Point.
   - For ad hoc connection
     Select [Ad hoc-Connect directly to other computers] of the selected “Operation mode”, and assign the same network name to all the personal computers to be connected.

POINT

- No data needs to be entered in [Mandatory access point].

5. Click the [Next] button.

6. Set security.

1. Select [Network Authentication].
   Depending on the ID code of the Access Point to be accessed, select whether you desire network authentication.
   - [No]
     Select [No] if you desire open-system authentication or open-key authentication.
   - [Yes]
     Select [Yes] if you desire shared-key authentication.

POINT

- Network authentication cannot be selected for ad hoc connection.

2. Select [Data encryption (WEP)].
   Specify the method of encoding communications data.
   - “None”
     Encoding is not assigned.

POINT

- If [Use pass phrase] has been selected above, enter an ASCII character string consisting of five or thirteen characters.
  The characters that can be used for [Path phrase] are as follows:
  0 - 9, A - Z, a - z
- If [Use WEP Keys] has been selected, enter a hexadecimal number consisting of 10 or 26 characters.
  The characters that can be used for [Key] are as follows:
  0 - 9, A - F

POINT

- For ad hoc connection
  The same key index number must be set for all the personal computers to be connected to the wireless LAN.
  The index number may range from 0 to 3 or from 1 to 4, depending on factors such as the type of equipment and the version number of the operating system (OS).
  Be careful since the index number has the following relationship with respect to this personal computer:
  - If the index number of the key is from 0 to 3
    The index number corresponding to this personal computer is “0”.
  - If the index number of the key is from 1 to 4
    The index number corresponding to this personal computer is “1”.

7. **Click the [Finish] button.**
   [Profile Wizard] will be terminated and the created profile added to [Profile List] of the [Network] tab.

POINT

- About [Advanced Security Settings]
  The currently valid profile can be protected with the password.
  To make the password protection valid, tick the [Password protect this profile] check box and then click the [Next] button. The password entry window will be displayed.

Connection to the network

This section explains connection to the network. If there is the administrator of the network, contact the network administrator for data settings.

Setting the network

Perform the [Setting TCP/IP] and [Computer Name and Workgroup] operations required for network connection.

Setting TCP/IP

POINT

- To change the setting of the IP address, you need to be log in from Windows as an administrator.

1. **Click the [Start] button first and then [Control Panel].**
2. **Double-click the [Network and DIAL-UP Connection] icon.**
   The [Network and DIAL-UP Connection] window will be displayed.
3. **Right-click [Local Area Connection], and click [Properties] in the menu displayed.**
   The [Local Area Connection Properties] window will be displayed.
4. **Click [Internet Protocol (TCP/IP] and then click [Properties].**
   The [Internet Protocol (TCP/IP) Properties] window will be displayed.

5. **Set the IP address.**
   - For ad hoc connection

     Select [Use the following IP Address] and then enter data in [IP address] and [Subnet mask].
   - For infrastructure connection

     Select [Obtain an IP address automatically] and [Obtain DNS server address automatically].

     Follow the directions if you are directed from the network administrator about IP address setting, DNS server setting, and the default gateway.
6. **Click the [OK] button.**

   Processing will return to the [Local Area Connection Properties] window.
7. **Click the [OK] button.**
   If a message is displayed that requests you to restart the personal computer, click [Yes] and then restart the computer.

Confirming the Computer Name and the Workgroup Name

POINT

- To modify the computer name and/or the work group name, you need to be logging in from Windows as a user having administrator's authority.

1. **Click the [Start] button, [Setting], and [Control Panel], in that order.**
2. **Double-click the [System] icon.**

   The [System properties] window will be displayed.
3. **Click the [Network ID] tab.**
4. **Confirm the settings of [Computer Name] and [Workgroup].**
   - The setting of [computer name] denotes the name for identifying the computers on the network. Any name can be assigned.

     The computer name will be identified more easily if the model number, the user name, and other factors are already set.
   - [Workgroup] denotes the group name of the network.
   - For ad hoc connection

     Assign the same network name to all personal computers existing on the network.
   - For infrastructure connection

     Assign the name of the work group to be accessed.

Setting the sharing function

Set the sharing function to make file and/or printer sharing with other network-connected personal computers valid.
The setting operation is not required unless the sharing function is to be used.
The folder and printer for which the sharing function has been set will be usable from any personal computer present on the network.

POINT

- To share a file and/or the connected printer, you need to be logging in from Windows as a user having administrator's authority.

Setting the Microsoft network-sharing service

1. **Click the [Start] button, [Set], and [Control Panel], in that order.**
2. **Double-click the [Network and DIAL-UP Connection] icon.**
   The [Network and DIAL-UP Connection] window will be displayed.
3. **Right-click [Local Area Connection], and click [Properties] in the menu displayed.**
   The [Local Area Connection Properties] window will be displayed.

POINT

- If multiple [Local Area Connection] items are displayed, select the [Local Area Connection] item where the setting of [Device name] is [Intel(R) PRO/Wireless LAN 2100 3B Mini PCI Adapter].

4. **If [File and Printer sharing for Microsoft Networks] is displayed, proceed to step 5.**
   If [File and Printer sharing for Microsoft Networks] is not displayed, skip to step 6.
5. **Make sure that the [File and Printer sharing for Microsoft Networks] check if box is ticked, and then click the [OK] button.**
6. **Click [Install].**
   The [Select Network Component Type] window will be displayed.
7. **Click [Service], and then click the [Add] button.**
   The [Select Netwotk Service] window will be displayed.
8. **Click [File and Printer sharing for Microsoft Networks] and then click the [OK] button.**
   Processing will return to the [Local Area Connection Properties] window, and [File and Printer sharing for Microsoft Networks] will be added to the list.
9. **Click the [OK] or [Close] button.**

Setting the file sharing function

The procedure for setting the file-sharing function is shown below taking the “work.” folder within drive C as an example.

1. **Double-click [My Computer] on the Desktop, and then double-click [Local disk (C:)].**
2. **Right-click the “work.” folder, and then click [Sharing] in the menu displayed.**
   The [work properties] window will be displayed.
3. **Select [Share this folder] and then enter data in necessary items.**
   - “Share Name”
     Enter the name of the folder to be shared.
   - “Comment”
     Enter explanatory statements on the folder to be shared.
   - “User limit”
     Enter the number of users who share the folder.
   - “Access permission”
     Enter the access level with respect to the folder.
   - “Cache”
     Set the cache for the folder.
4. **Click the [OK] button.**
   The folder will be set as a sharable folder, and the display of the icon for the “work.” folder will change.

Setting the printer-sharing function

1. **Click the [Start] button, [Setting], and [Printers].**
   A list of connected printers will be displayed.
2. **Right-click the printer for which the sharing function is to be set, and then click**

Confirming connection

After you have finished the network setup operations, access the folder whose sharing has been set for other personal computers. Also, confirm the status of the radio waves in case of trouble such as a network connection failure.

POINT

- In the case of infrastructure connection, enter the necessary data for the Access Point before confirming connection. Refer to the manual of the Access Point for the Access Point setup procedure.

Connecting your personal computer to another personal computer

1. **Double-click [My Network] on the Desktop.**
   The window [My Network] will be displayed.
2. **Double-click the [Computers near me] icon.**
   The personal computers connected to the network will be listed.
3. **Double-click the name of the personal computer to which you wish to connect your own personal computer.**
   The folder that has been set in [Shared folder] will be displayed.
4. **Double-click the folder to be accessed.**
   The contents of the folder will be displayed to indicate that the folder has become usable.

Confirming the status of the radio waves

1. **Click the [Start] button, [Programs], [Intel Network Adapter], and [Intel(R) PROSet], in that order.**
   The [Intel(R) PROSet] window will be displayed.
2. **Click the [General] tab and confirm radio-wave status in the window displayed.**
   The current connection status will be displayed.
   - Quality of the signals
     The quality of the signals is displayed on a graph.
   - Network name (SSID)
     The connected network name (SSID) is displayed.
   - Profile name
     "<No profile>" is displayed.
   - Mode
     If infrastructure connection is in use, "Infrastructure (Access point)" will be displayed.
     If ad hoc connection is in use, "Ad hoc" will be displayed.
   - Security
     The setting status of WEP is displayed.
   - Speed
     The communications speed is displayed.
   - Band (Frequency)
     The current operating frequency band is displayed.
   - Channel
     The channel number currently being used for the communications is displayed.

Appendix

Other Settings

Other wireless LAN settings are described.

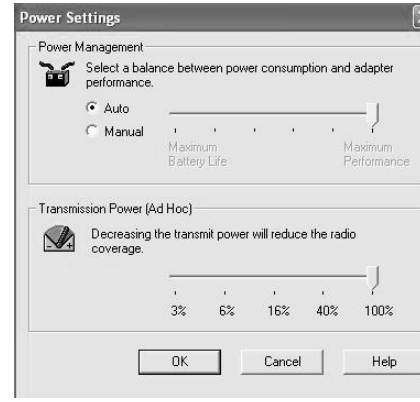
Setting of power-saving function

After you have finished the network setup operations, access the folder whose sharing has been set for other personal computers. Also, confirm the status of the radio waves in case of trouble such as a network connection failure.

IMPORTANT

- You can set the power-saving function of wireless LAN. Default setting is auto-setting. In case of using the power-saving function, manually control the communication performance.

1. **Click the [Start] button, [All Programs], [Intel Network Adapter], and [Intel(R) PROSet], in that order.**
   The Intel(R) PROSet window will be displayed.
2. **Click [Adapter] tab.**
3. **Click [Configure] in [Power setting].**
   [Power setting] window will be displayed.
4. **After selecting [Manual], control the bar to set the power-saving function.**

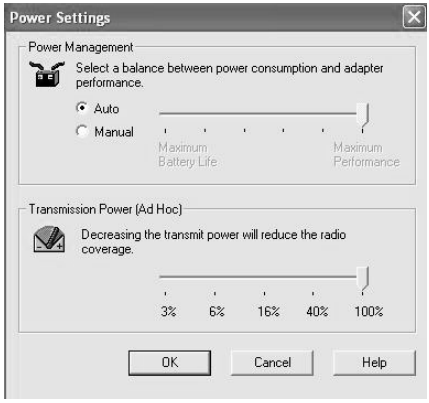


Setting of transmission power during ad hoc connection

IMPORTANT

- By controlling the transmission power during ad hoc connection, you can increased or decreased the communication range.This setting is only effective during ad hoc connection. It will be ineffective during infrastructure connection.

1. **Click the [Start] button, [All Programs], [Intel Network Adapter], and [Intel(R) PROSet], in that order.**
   The Intel(R) PROSet window will be displayed.
2. **Click [Adapter] tab.**
3. **Click [Configure] in [Power setting].**
   [Power setting] window will be displayed.
4. **Control the "Transmission power (ad hoc)" bar to set the transmission power.**



Setting of channels during ad hoc connection

IMPORTANT

- You can set channels during ad hoc connection.
- Channel 11 is set by default.
- In case of connecting to the existing ad hoc network, no channel setting will be effective.
- This setting is only effective during ad hoc connection. It will be ineffective during infrastructure connection.

1. **Click the [Start] button, [All Programs], [Intel Network Adapter], and [Intel(R) PROSet], in that order.**
   The Intel(R) PROSet window will be displayed.
2. **Click [Adapter] tab.**
3. **Click [Setting] in [Ad hoc setting].**
   [Ad hoc setting] window will be displayed.
4. **Change channels during ad hoc connection.**

Troubleshooting

Causes and countermeasures for troubles you may encounter while using wireless LAN are described. Refer to the relevant item.

Unavailable connection to the network

After you have finished the network setup operations, access the folder whose sharing has been set for other personal computers. Also, confirm the status of the radio waves in case of trouble such as a network connection failure.

Causes

- "Incorrect network name (SSID) or network key"
- "Unreachable electric wave due to poor condition of electric wave"
- "Under the condition of stopped electric wave transmission"
- "The computer to be connected with is turned OFF."
- "Active channel duplication due to multiple wireless LAN networks on the same floor, etc."
- "No right of access to the network to be connected with"
- "The set channel for the Access Point is different from those which can be used by this computer."
- "It takes too long to retrieve the network and display the connected computers."
- "Incorrectly-performed network setting"

- ➔ “Incorrect setting of IP address”
- ➔ “Unmatched “Network authentication (shared mode)” settings in case of Windows XP”

❑ Incorrect network name (SSID) or network key

❍ Countermeasure

In case of ad hoc connection, set the network names (SSIDs) and network keys of all computers to be connected to the same values.In case of infrastructure connection, set the network name (SSID) and network key to the same values as those of Access Point. Also, set the network authentication according to the Access Point.

❑ Unreachable radio wave due to poor condition of radio wave

❍ Countermeasure

In case of ad hoc connection, retry connection after shortening the distance to the destination computer or removing any obstacle for better sight.In case of infrastructure connection, retry connection after shortening the distance to the Access Point or removing any obstacle for better sight.

- **Windows XP**
- **Windows 2000**

❑ Under the condition of stopped radio wave transmission

❍ Countermeasure

Check if the wireless switch is turned ON.Also make sure of “Disable Radio” (condition of sending radio wave) in “Network setting” window.

❑ The computer to be connected with is turned OFF.

❍ Countermeasure

Check if the computer to be connected is turned ON.

❑ Active channel duplication due to multiple wireless LAN networks on the same floor, etc.

❍ Countermeasure

If there is any other wireless LAN network nearby, change channels to avoid active channel duplication.

❑ No right of access to the network to be connected with

❍ Countermeasure

Check if you have a right of access to the network to be connected with.

❑ Unreachable radio wave due to poor condition of radio wave

❍ Countermeasure

In case of ad hoc connection, retry connection after shortening the distance to the destination computer or removing any obstacle for better sight.In case of infrastructure connection, retry connection after shortening the distance to the Access Point or removing any obstacle for better sight.

- **Windows XP**
- **Windows 2000**

❑ Under the condition of stopped radio wave transmission

❍ Countermeasure

Check if the wireless switch is turned ON.Also make sure of “Disable Radio” (condition of sending radio wave) in “Network setting” window.

❑ The computer to be connected with is turned OFF.

❍ Countermeasure

Check if the computer to be connected is turned ON.

❑ Active channel duplication due to multiple wireless LAN networks on the same floor, etc.

❍ Countermeasure

If there is any other wireless LAN network nearby, change channels to avoid active channel duplication.

❑ No right of access to the network to be connected with

❍ Countermeasure

Check if you have a right of access to the network to be connected with.

❑ Incorrect setting of IP address

❍ Countermeasure

Check the network setting.

In case of using TCP/IP protocol, you can check IP address in the following procedure:

1. Perform checking as follows:
   - In case of Windows XP
     Click [Start] button -> [All programs] -> [Accessories] -> [Command prompt].
   - In case of Windows 2000
     Click [Start] button -> [Program] -> [Accessories] -> [Command prompt].
2. In [Command prompt] or [MS-DOS prompt] window, input [IPCONFIG] command as follows to press [Enter] key.

```
IP Address.....: 10.0.1.3
Subnet Mask.....: 255.255.255.0
Default Gateway.....: 10.0.1.1
```

POINT

- When IP address is displayed as [169.254.XXX.YYY] or [0.0.0.0], IP address is not correctly fetched from the Access Point. In that case, restart the computer itself. If the display is still unchanged, check the setting of TCP/IP.
- If [Cable Disconnected] or [Media Disconnected] is displayed without showing IP address, check the setting of network name (SSID) and network key. Also, set the network authentication according to the Access Point.

Unmatched [Network authentication (shared mode)] settings in case of Windows XP

❍ Countermeasure

If the setting of [Network authentication (shared mode)] is not matched with that of Access Point or computer to be connected with, no communication can be established.

Connection check with executed PING command

Check if IP packet has correctly reached the destination by executing PING command in the following procedure:

POINT

- In order to execute PING command, it is necessary to install TCP/IP protocol in advance.

1. Perform the following procedure:·
   In case of Windows XP
   Click [Start] button -> [All programs] -> [Accessories] -> [Command prompt].
   In case of Windows 2000
   Click [Start] button -> [Program] -> [Accessories] -> [Command prompt].
2. At command prompt, input ping command as follows:
   Example: If IP address set as 10.0.1.3
   If properly connected, the following screen will be displayed:

```
Pinging 10.0.1.3 with 32 bytes of data:
Reply from 10.0.1.3: bytes =32 time =1ms
= 32
Reply from 10.0.1.3: bytes =32 time <10ms
TTL = 32
Reply from 10.0.1.3: bytes =32 time =4ms
TTL = 32
Reply from 10.0.1.3: bytes =32 time =10ms
TTL = 32
```

In case of no connection, “Request timed out” or “Destination host unreachable” will be displayed.

Disconnected communication a few minutes after every connection to the station

In case of Windows XP, check the setting of “Enable network access control using IEEE 802.1X.

POINT

- In case of restricting the access of wireless LAN clients using IEEE802.1X authentication, put a check mark on “ Enable network access control using IEEE 802.1X “.In case of home use, remove a check mark on “Enable network access control using IEEE802.1X”.For the method of setting related with IEEE802.1X authentication, refer to the Access Point manual.

5

Troubleshooting

Troubleshooting

Your LifeBook notebook is sturdy and subject to few problems in the field. However, you may encounter simple setup or operating problems that you can solve on the spot, or problems with peripheral devices, that you can solve by replacing the device. The information in this section helps you isolate and resolve some of these straightforward problems and identify failures that require service.

IDENTIFYING THE PROBLEM

Go through the following procedure before pursuing further troubleshooting:

1. Turn off your LifeBook notebook.
2. Make sure the AC adapter is plugged into your LifeBook notebook and to an active AC power source.
3. Make sure that any card installed in the PC Card slot is seated properly. You can also remove the card from the slot, thus eliminating it as a possible cause of failure.
4. Make sure that any devices connected to the external connectors are plugged in properly. You can also disconnect such devices, thus eliminating them as possible causes of failure.
5. Turn on your LifeBook notebook. Make sure it has been off at least 10 seconds before you turn it on.
6. Go through the boot sequence.
7. If the problem has not been resolved, refer to the Troubleshooting Table, that follows, for more detailed troubleshooting information.

POINT

If you keep notes about what you have tried, your support representative may be able to help you more quickly by giving additional suggestions over the phone.

8. If you have tried the solutions suggested in the Troubleshooting Table without success, contact your support representative:

Before you place the call, you should have the following information ready so that the customer support representative can provide you with the fastest possible solution:

- Product name
- Product configuration number
- Product serial number
- Purchase date
- Conditions under which the problem occurred
- Any error messages that have occurred
- Hardware configuration
- Type of device connected, if any

See the Configuration Label on the bottom of your LifeBook notebook for configuration and serial numbers.

SPECIFIC PROBLEMS

Using the Troubleshooting Table

When you have problems with your LifeBook notebook, try to find the symptoms under the Problem column of the troubleshooting table for the feature giving you difficulty.

TROUBLESHOOTING TABLE

You will find a description of common causes for that symptom under the column Possible Cause and what, if anything, you can do to correct the condition under Possible Solutions. All possible causes or solutions may not apply to your LifeBook notebook.

Problem	Possible Cause	Possible Solution
Audio Problem		
There is no sound coming from the bulit-in speakers	The volume turned too low.	Adjust the volume control on your notebook.
	The Software volume control is set too low.	Adjust the sound volume control settings in your software, operating system and applications.
	Headphones are plugged into your notebook.	Plugging in headphones disables the built-in speakers, remove the headphones.
	BIOS audio settings are incorrect.	Set the BIOS setup utility to the default values within the Multimedia Device Configuration menu.
	Software driver is not configured correctly.	Refer to your application and operating system documentation for help.

Problem	Possible Cause	Possible Solution
DVD/CD-ROM Drive Problems		
Notebook fails to recognize DVD/ CDs.	DVD/CD is not pushed down onto raised center circle of the drive.	Open DVD/CD-ROM tray and re-install DVD/ CD properly.
	DVD/CD-ROM tray is not latched shut.	Push on the front of the DVD/CD-ROM tray until it latches.
	Setup utility is set to something other than DVD/CD-ROM or Auto for the Secondary Master Controller.	Revise BIOS settings for the Secondary Master Controller.
	Wrong drive designator was used for DVD/CD in the application.	Verify that the drive designator used by the application is the same as that used by the operating system. When the operating system is booted from a DVD/ CD, drive designations are automatically adjusted.
	DVD/CD is dirty or defective.	Wipe DVD/CD with a non-abrasive CD cleaning cloth and reinsert. If it still will not work try another DVD/CD in the drive.
	DVD Player Software is not installed.	Install DVD Player Software.
LifeBook notebook fails to auto-play DVD movie.	The Windows DVD/CD Auto Insert Notification function is active and is checking to see if a DVD/ CD is ready to run.	This is normal.
The DVD/CD-ROM Access indicator on the Status Indicator Panel blinks at regular intervals when no disk is in the tray or the DVD drive is not installed.		

Problem	Possible Cause	Possible Solution
Hard Drive Problems		
You cannot access your hard drive.	The setup utility is incorrectly set for your internal hard drive.	Set Primary Master correctly in the BIOS.
	The wrong drive designator was used by an application when a bootable CD-ROM was used to start the notebook.	Verify drive designator used by application is in use by the operating system. When the operating system is booted from a CD, drive designations are automatically adjusted.
	Security is set so your operating system cannot be started without a password.	Verify your password and security settings.

Problem	Possible Cause	Possible Solution
Keyboard or Mouse Problems		
The built-in keyboard does not seem to work.	The notebook has gone into Suspend mode.	Push the Power and Suspend/Resume button.
	Your application has locked out your keyboard.	Try to use your intergrated pointing device to restart your system. If this fails, turn your LifeBook notebook off using the power switch, wait 10 seconds or more, and then turn it back on.
	The NumLock key is set.	Press the NumLock key to reset it.
You have installed an external keyboard or mouse, and it does not seem to work.	Your external device is notproperly installed.	Reinstall your device.
	Your operating system software is not set up with the correct driver for that device.	Check your device and operating system documentation and activate the proper driver.
	Your mouse or keyboard is connected to the wrong PS/2 port on the LAN Dock.	Plug the mouse into the PS/2 Mouse port and the external keyboard or numeric key pad into the PS/2 Keyboard port.
You have connected an external keyboard or a mouse and it seems to be locking up the system.	Your operating system software is not setup with the correct software driver for that device.	Check your device and operating system documentation and activate the proper driver.
	Your system has crashed.	Try to restart your LifeBook notebook. If that fails, turn off the power using the power switch, wait at least 10 seconds, and then power on.
Memory Problems		
Your Power On screen, or Main menu of the BIOS setup utility information, does not show the correct amount of installed memory.	Your memory upgrade module is not properly installed.	Remove and reinstall your memory upgrade module.
	You have a memory failure.	Check for Power On Self Test (POST) messages.

Problem	Possible Cause	Possible Solution
Modem Problems		
Messages about modem operation.	Messages about modem operation are generated by whichever modem application is in use.	See your application software documentation for additional information.
Parallel, Serial, and USB Device Problems		
You have installed a parallel port device, a serial port device or a USB device. Your LifeBook notebook does not recognize the device, or the device does not seem to work properly.	The device is not properly installed.	Remove and reinstall the device.
	The device may have been installed while an application was running, so your notebook is not aware of its installation.	Close the application and restart your LifeBook notebook.
	Your software may not have correct software driver active.	See your software documentation and activate the correct driver.
	You may have the wrong I/O address selected for your device.	See your device documentation and software documentation to determine the required I/O address. Change the settings in the BIOS setup utility.
	Your device and another device are assigned the same I/O address.	Check all I/O addresses located within the BIOS setup utility and any other installed hardware or software to make sure there are no duplications.
	Parallel port is set to output only.	Check parallel port setting in the BIOS and set to bi-directional or ECP.

Problem	Possible Cause	Possible Solution
PC Card Problems		
A card inserted in the PC Card slot does not work or is locking up the system.	The card is not properly installed.	Remove and reinstall the card.
	The card may have been installed while an application was running, so your notebook is not aware of its installation.	Close the application and restart your LifeBook notebook.
	Your sof tware may not have the correct driver active.	See your software documentation and activate the correct driver.
	You may have the w rong I/O address selected for your PC Card device.	See your PC Card documentation to determine the required I/O address. Change the settings in the BIOS.
	Your PC Card device and another device are assigned the same I/O address.	Check all I/O addresses located within the BIOS setup utility and any other installed hardware or software to make sure there are no duplications.
Power Failures		
You turn on your LifeBook notebook and nothing seems to happen.	The installed primary battery is completely discharged, there is no optional second battery installed or there is no Power adapter installed.	Check the Status Indicator Panel to determine the presence and condition of the batteries. Install a charged battery or a Power adapter.
	The primary battery is installed but is faulty.	Use the Status Indicator panel to verify the presence and condition of the batteries. If a battery is indicating a short, remove that battery and operate from another power source or replace that battery.
	The battery or batteries are low.	Check the Status Indicator Panel to determine the presence and condition of the batteries. Use a Power adapter to operate until a battery is charged or install a charged battery.

Problem	Possible Cause	Possible Solution
Power Failures		
	The power adapter is not plugged in properly.	Verify that your adapter is connected correctly.
	The Power adapter has no power from the AC outlet.	Move the AC cord to a different outlet, check for a line switch or tripped circuit breaker for the AC outlet.
	The Power adapter is faulty.	Try a different Power adapter or install a charged optional second battery.
Your LifeBook notebook turns off all by itself.	The power management parameters are set for auto timeouts which are too short for your operating needs.	Press any button or key on the keyboard, or move the mouse to restore operation. If that fails, push the Power and Suspend/Resume button. Check your power management settings, or close your applications and go to the Power Savings menu of the setup utility to adjust the timeout values to better suit your operation needs.
	You are operating on battery power only and have ignored a low battery alarm until the batteries are all at the dead battery state and your machine has gone into Dead Battery Suspend mode.	Install a power adapter and then push the Power and Suspend/Resume button.
	You have a battery failure.	Verify the condition of the batteries using the Status Indicator panel, and replace or remove any batteries that are shorted.
	Your power adapter has failed or lost its power source.	Make sure the adapter is plugged in and the outlet has power.
Your LifeBook notebook will not work on battery alone.	The installed batteries are dead.	Replace the battery with a charged one or install a Power adapter.
	No batteries are installed.	Install a charged battery.

Problem	Possible Cause	Possible Solution
Power Failures		
	The batteries are improperly installed.	Verify that the batteries are properly connected by re-installing them.
	Your installed batteries are faulty.	Verify the condition of the batteries using the Status Indicator panel and replace or remove any batteries that are shorted.
The batteries seem to discharge too quickly.	You are running an application that uses a great deal of power due to frequent hard drive access or DVD/CD-ROM access, use of a modem card or a LAN PC card.	Use both the primary battery and an optional second battery and/or use a power adapter for this application when at all possible.
	The power savings features may be disabled.	Check the power management and/or setup utility settings in the Power Savings menu and adjust according to your operating needs.
	The brightness is turned all the way up.	Turn down the brightness adjustment. The higher the brightness the more power your display uses.
	The batteries are very old.	Replace the batteries.
	The batteries have been exposed to high temperatures.	Replace the batteries.
	The batteries are too hot or too cold.	Restore the LifeBook notebook to normal operating temperature. The Charging icon on the Status Indicator panel will flash when the battery is outside its operating range.

Problem	Possible Cause	Possible Solution
Shutdown and Startup Problems		
The Power and Suspend/ Resume button does not work.	The Power and Suspend/ Resume button is disabled from the Power -> Advanced submenu of the setup utility.	Enable the button from the setup utility.
	You did not hold the button in long enough.	Hold the button longer. This may need to be a few seconds if your application is preventing the CPU from checking for button pushes.
	There may be a conflict with the application software.	Close all applications and try the button again.
The system powers up, and displays power on information, but fails to load the operating system.	The boot sequence settings of the setup utility are not compatible with your configuration.	Set the operating source by pressing the [ESC] key while the Fujitsu logo is on screen or use the [F2] key and enter the setup utility and adjust the source settings from the Boot menu.
	You have a secured system requiring a password to load your operating system.	Make sure you have the right password. Enter the setup utility and verify the Security settings and modify them accordingly.
	Internal hard drive was not detected.	Use the BIOS setup utility or Primary Master submenu, located within the Main menu, to try to auto detect the internal hard drive.
Your system display won't turn on when the system is turned on or when the system has resumed.	The system may be password-protected.	Check the status indicator panel to verify that the Security icon is blinking. If it is blinking, enter your password.
An error message is displayed on the screen during the notebook (boot) sequence.	Power On Self Test (POST) has detected a problem.	See the POST messages to determine the meaning and severity of the problem. Not all messages are errors; some are status indicators.

Problem	Possible Cause	Possible Solution
Shutdown and Startup Problems		
Your LifeBook notebook appears to change setup parameters when you start it.	BIOS setup changes were not saved when you exited the BIOS setup utility, returning it to previous settings.	Make sure you select Save Changes And Exit when exiting the BIOS setup utility.
	The BIOS CMOS hold-up battery has failed.	Contact your support representative for repairs. This is not a user serviceable part
Video Problems		
The built-in display is blank when you turn on your LifeBook notebook.	Something is pushing on the Closed Cover switch.	Clear the Closed Cover switch.
	The angle of the display and the brightness settings are not adequate for your lighting conditions.	Move the display and the brightness control until you have adequate visibility.
The built-in display is blank when you turn on your LifeBook notebook. (continued)	The LifeBook notebook is set for an external monitor only.	Pressing [F10] while holding down the [Fn] key allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order are: built-in display only, external monitor only, both built-in display and external monitor.
	The power management time-outs may be set for very short intervals and you failed to notice the display come on and go off again.	Press any button or key on the keyboard, or move the mouse to restore operation. If that fails, push the Power and Suspend/Resume button. (The display may be shut off by Standy mode, Auto Suspend or Video Timeout.)
The LifeBook notebook turned on with a series of beeps and your built-in display is blank.	Power On Self Test (POST) has detected a failure which does not allow the display to operate.	Contact your support representative.

Problem	Possible Cause	Possible Solution
Shutdown and Startup Problems		
Your system display won't turn on when the system is turned on or when the system has resumed.	The system may be password-protected.	Check the status indicator panel to verify that the Security icon is light up. If it is light up enter your password.
The display goes blank by itself after you have been using it.	The notebook has gone into Video timeout, Standby mode, Suspend mode or Save-to-Disk mode because you have not used it for a period of time.	Press any button or key on the keyboard, or move the mouse to restore operation. If that fails, push the Power and Suspend/Resume button. Check your power management settings, or close your applications and go to the Power Savings menu of the setup utility to adjust the timeout values to better suit your operation needs.
	Something is pushing on the Closed Cover switch.	Check the Closed Cover switch.
	The power management time- outs may be set for very short intervals and you failed to notice the display come on and go off again.	Press any button or key on the keyboard, or move the mouse to restore operation. If that fails, push the Power and Suspend/Resume button. (The display may be shut off by Standby Mode, Auto Suspend or Video Timeout.)
The Built-in Display does not close.	A foreign object, such as a paper clip, is stuck between the display and the keyboard.	Remove all foreign objects from the keyboard.
The Built-in Display has bright or dark spots.	If the spots are very tiny and few in number, this is normal for a large LCD display.	This is normal; do nothing.
	If the spots are numerous or large enough to interfere with your operation needs.	Display is faulty; contact your support representative.

Problem	Possible Cause	Possible Solution
Shutdown and Startup Problems		
You have connected an external monitor and it does not come on.	Your external monitor is not compatible with your LifeBook notebook.	See your monitor documentation
The application display uses only a portion of your screen and is surrounded by a dark frame.	You are running an application that does not support 800 x 600 pixel resolution display and display compression is enabled.	Display compression gives a clearer but smaller display for applications that do not support 800 x 600 pixel resolution. You can fill the screen but have less resolution by changing your display compression setting, (See the Video Features submenu, located within the Advanced menu of the BIOS.)
You have connected an external monitor and it does not display any information.	Your BIOS setup is not set to enable your external monitor.	Try toggling the video destination by pressing [Fn] and [F10] together, or check your BIOS setup and enable your external monitor. (See the Video Features submenu, located within the Advanced Menu of the BIOS.)
	Your external monitor is not properly installed.	Reinstall your device.
	Your operating system soft- ware is not setup with the correct software driver for that device.	Check your device and operating system documentation and activate the proper driver.
Miscellaneous Problems		
An error message is displayed on the screen during the operation of an application.	Application software often has its own set of error message displays.	See your application manual and help displays screens for more information. Not all messages are errors some may simply be status.

POWER ON SELF TEST MESSAGES

The following is an alphabetic list of error-and-status messages that BIOS and/or your operating system can generate and an explanation of each message. Error messages are marked with an *. The most common errors are marked with a #. If an error message is displayed that is not in this list, write it down and check your operating system documentation both on screen and in the manual. If you can find no reference to the message and its meaning is not clear, contact your support representative for assistance.

nnnn Cache SRAM Passed

Where nnnn is the amount of system cache in kilobytes successfully tested by the Power On Self Test. (This can only appear if you have an SRAM PC Card installed.)

***Diskette drive A error or Diskette drive B error**

Drive A: or B: is present but fails the BIOS Power On Self Test diskette tests. Check to see that the drive is defined with the proper diskette type in the Setup Utility, and that the diskette drive is installed correctly. If the disk drive is properly defined and installed, avoid using it and contact your support representative.

***Extended RAM Failed at offset: nnnn**

Extended memory not working or not configured properly. If you have an installed memory upgrade module, verify that the module is properly installed. If it is properly installed, you may want to check your Windows Setup to be sure it is not using unavailable memory until you can contact your support representative.

nnnn Extended RAM Passed

Where nnnn is the amount of memory in kilobytes successfully tested.

***Failing Bits: nnnn The hex number nnnn**

This is a map of the bits at the memory address (in System, Extended, or Shadow memory) which failed the memory test. Each 1 (one) in the map indicates a failed bit. This is a serious fault that may cause you to lose data if you continue. Contact your support representative.

***Fixed Disk x Failure or Fixed Disk Controller Failure (where x = 1-4)**

The fixed disk is not working or not configured properly. This may mean that the hard drive type identified in your setup utility does not agree with the type detected by the Power On Self Test. Run the setup utility to check for the hard drive type settings and correct them if necessary. If the settings are OK and the message appears when you restart the system, there may be a serious fault which might cause you to lose data if you continue. Contact your support representative.

***Invalid NVRAM media type**

Problem with NVRAM access. In the unlikely case that you see this message you may have some display problems. You can continue operating but should contact your support representative for more information.

***Keyboard controller error**

The keyboard controller test failed. You may have to replace your keyboard or keyboard controller but may be able to use an external keyboard until then. Contact your support representative.

***Keyboard error**

Keyboard not working. You may have to replace your keyboard or keyboard controller but may be able to use an external keyboard until then. Contact your support representative.

***Keyboard error nn**

BIOS discovered a stuck key and displays the scan code for the stuck key. You may have to replace your keyboard but may be able to use an external keyboard until then. Contact your support representative.

***Monitor type does not match CMOS – Run SETUP**

Monitor type not correctly identified in Setup. This error probably means your BIOS is corrupted, run the setup utility and set all settings to the default conditions. If you still get this error, contact your support representative.

#*Operating system not found

Operating system cannot be located on either drive A: or drive C:. Enter the setup utility and see if both the fixed disk, and drive A: are properly identified and that the boot sequence is set correctly. Unless you have changed your installation greatly, the operating system should be on drive C:. If the setup utility is correctly set, your hard drive may be corrupted and your system may have to be reinstalled from your back up media.

***Parity Check 1 nnnn**

Parity error found in the system bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????. This is a potentially data-destroying failure. Contact your support representative.

***Parity Check 2 nnnn**

Parity error found in the I/O bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????. This is a potentially data destroying failure. Contact your support representative.

#*Press <F1> to resume, <F2> to SETUP

Displayed after any recoverable error message. Press the [F1] key to continue the boot process or the [F2] key to enter Setup and change any settings.

#*Previous boot incomplete – Default configuration used

Previous Power On Self Test did not complete successfully. The Power On Self Test will load default values and offer to run Setup. If the previous failure was caused by incorrect values and they are not corrected, the next boot will likely fail also. If using the default settings does not allow you to complete a successful boot sequence, you should turn off the power with the Power Switch and contact your support representative.

***Real time clock error**

Real-time clock fails BIOS test. May require board repair. Contact your support representative.

***Shadow RAM Failed at offset: nnnn**

Shadow RAM failed at offset nnnn of the 64k block at which the error was detected. You are risking data corruption if you continue. Contact your support representative.

nnnn Shadow RAM Passed

Where nnnn is the amount of shadow RAM in kilobytes successfully tested.

***System battery is dead – Replace and run SETUP**

The BIOS CMOS RAM memory hold up battery is dead. This is part of your BIOS and is a board mounted battery which requires a support representative to change. You can continue operating but you will have to use setup utility default values or reconfigure your setup utility every time you turn off your LifeBook notebook.

System BIOS shadowed

System BIOS copied to shadow RAM.

***System CMOS checksum bad – run SETUP**

BIOS CMOS RAM has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in BIOS memory. Run Setup and reconfigure the system.

***System RAM Failed at offset: nnnn**

System memory failed at offset nnnn of in the 64k block at which the error was detected. This means that there is a fault in your built-in memory. If you continue to operate, you risk corrupting your data. Contact your support representative for repairs.

nnnn System RAM Passed

Where nnnn is the amount of system memory in kilo-bytes successfully tested.

***System timer error**

The timer test failed. The main clock that operates the computer is faulty. Requires repair of system board. Contact your support representative for repairs.

UMB upper limit segment address: nnnn

Displays the address of the upper limit of Upper Memory Blocks, indicating released segments of the BIOS memory which may be reclaimed by a virtual memory manager.

Video BIOS shadowed

Video BIOS successfully copied to shadow RAM.

6

Care and Maintenance

Care and Maintenance

If you use your LifeBook notebook carefully, you will increase its life and reliability. This section provides some tips for looking after the notebook and its devices.

WARNING

Electrical equipment may be hazardous if misused. Operations of this product or similar products, must always be supervised by an adult. Do not allow children access to the interior of any electrical products and do not permit them to handle any cables.

Caring for your Notebook

- Your LifeBook notebook is a durable but sensitive electronic device. Treat it with respect and care.
- Make a habit of transporting it in a suitable carrying case.
- Do not attempt to service the computer yourself. Always follow installation instructions closely.
- Keep it away from food and beverages.
- If you accidentally spill liquid on your notebook:
  1. Turn it off.
  2. Position it so that the liquid can run out.
  3. Let it dry out for 24 hours, or longer if needed.
  4. If your notebook will not boot after it has dried out, call your support representative.
- Do not use your LifeBook notebook in a wet environment (near a bathtub, swimming pool).
- Always use the AC adapter and batteries that are approved for your LifeBook notebook.
- Avoid exposure to sand, dust and other environmental hazards.
- Do not expose your LifeBook notebook to direct sunlight for long periods of time as temperatures above 140° F (60° C) may damage your notebook.
- Keep the covers closed on the connectors and slots when they are not in use.
- Do not put heavy or sharp objects on the computer.
- If you are carrying your LifeBook notebook in a briefcase, or any other carrying case, make sure that there are no objects in the case pressing on the lid.
- Do not drop your LifeBook notebook.
- Do not touch the screen with any sharp objects.

Cleaning your LifeBook notebook

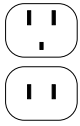
- Always disconnect the power plug. (Pull the plug, not the cord.)
- Clean your LifeBook notebook with a damp, lint-free cloth. Do not use abrasives or solvents.
- Use a soft cloth to remove dust from the screen. Never use glass cleaners.

Storing your LifeBook notebook

- If storing your LifeBook notebook for a month or longer, turn your LifeBook off and remove all Lithium ion batteries.
- Store your LifeBook notebook and batteries separately. If you store your notebook with a battery installed, the battery will discharge, and battery life will be reduced. In addition, a faulty battery might damage your notebook.
- Store your notebook in a cool, dry location. Temperatures should remain between 13ºF (-25ºC) and 140ºF (60ºC).

Traveling with your LifeBook notebook

- Do not transport your LifeBook notebook while it is turned on.
- Do not check your LifeBook notebook as baggage. Carry it with you.
- Always bring your System Recovery CD that came with your notebook when you travel. If you experience system software problems while traveling, you may need it to correct any problems.
- When traveling with the hard drive removed, wrap the drive in a non-conducting materials (cloth or paper). If you have the drive checked by hand, be ready to install the drive if needed. Never put your hard drive through a metal detector. Have your hard drive hand-inspected by security personnel. You can however, put your hard drive through a properly tuned X-ray machine.
- Take the necessary plug adapters if you're traveling overseas. Check the following diagram to determine which plug adapter you'll need or ask your travel agent.

Outlet Type	Location
	Outlet Type Location United States, Canada, parts of Latin America, Japan, Korea, the Philippines, Taiwan
	Russia and the Commonwealth of Independent States (CIS), most of Europe, parts of Latin America, the Middle East, parts of Africa, Hong Kong, India, most of South Asia
	Mexico, United Kingdom, Ireland, Malaysia, Singapore, parts of Africa
	China, Australia, New Zealand

BATTERIES

Caring for your Batteries

- Always handle batteries carefully.
- Do not short-circuit the battery terminals (that is, do not touch both terminals with a metal object). Do not carry lose batteries in a pocket or purse where they may mix with coins, keys, or other metal objects. Doing so may cause an explosion or fire.
- Do not drop, puncture, disassemble, mutilate or incinerate the battery.
- Recharge batteries only as described in this manual and only in ventilated areas.
- Do not leave batteries in hot locations for more than a day or two. Intense heat can shorten battery life.
- Do not leave a battery in storage for longer than 6 months without recharging it.

Increasing Battery Life

- Power your LifeBook notebook through the AC adapter whenever possible.
- If your LifeBook notebook is running on battery power all day, connect it to the AC adapter overnight to recharge the battery.
- Keep brightness to the lowest level comfortable.
- Set the power management for maximum battery life.
- Put your LifeBook notebook in Suspend mode when it is turned on and you are not actually using it.
- Limit your DVD/CD-RW/CD-ROM access.
- Disable the Windows CD Auto Insert function.
- Always use fully charged batteries.
- Eject PCMCIA cards when not in use.

DVDs AND CDs

Caring for your DVDs and CDs

DVDs and CDs are precision devices and will function reliably if given reasonable care.

- Always store your DVD/CDs in its case when it is not in use.
- Always handle DVD/CDs by the edges and avoid touching the surface.
- Avoid storing any DVD/CDs in extreme temperatures.
- Do not bend DVD/CDs or set heavy objects on them.
- Do not spill liquids on DVD/CDs.
- Do not scratch DVD/CDs.
- Do not put a label on DVD/CDs.
- Do not get dust on DVD/CDs.
- Never write on the label surface with a ballpoint pen or pencil. Always use a felt pen.
- If a DVD/CD is subjected to a sudden change in temperature, cold to warm, condensation may form on the surface. Wipe the moisture off with a clean, soft, lint free cloth and let it dry at room temperature. DO NOT use a hair dryer or heater to dry DVD/CDs.
- If a DVD/CD is dirty, use only a DVD/CD cleaner or wipe it with a clean, soft, lint free cloth starting from the inner edge and wiping to the outer edge.

Caring for your Media Drive

Your media drive is durable but you must treat it with care. Please pay attention to the following points:

- The drive rotates the compact disk at a very high speed. Do not carry it around or subject it to shock or vibration with the power on.
- Avoid using or storing the drive where it will be exposed to extreme temperatures.
- Avoid using or storing the drive where it is damp or dusty.
- Avoid using or storing the drive near magnets or devices that generate strong magnetic fields.
- Avoid using or storing the drive where it will be subjected to shock or vibration.
- Do not disassemble or dismantle the DVD drive or CD-RW drive.

PC CARDS

Caring for your PC Cards

PC Cards are durable, but you must treat them with care. The documentation supplied with your PC Card will provide specific information, but you should pay attention to the following points:

- To keep out dust and dirt, store PC Cards in their protective sleeves when they are not installed in your LifeBook notebook.
- Avoid prolonged exposure to direct sunlight or excessive heat.
- Keep the cards dry.
- Do not flex or bend the cards, and do not place heavy objects on top of them.
- Do not force cards into the slot.
- Avoid dropping cards, or subjecting them to excessive vibration.

Care and cleaning of hardware

Cleaning the computer

WARNING

ELECTRIC SHOCK

- To avoid injury and shock hazards, be sure to do the following before cleaning the computer.
  - Turn off the computer and disconnect the AC adapter from it.
  - Turn off all peripheral devices and disconnect them from the computer.

When the computer becomes dirty, wipe its surface gently with a dry, soft cloth.
If dirt persists, wipe it off with a cloth slightly dampened with water or dilute neutral detergent. After cleaning with neutral detergent, be sure to wipe the remaining detergent away with a cloth slightly dampened with water. When cleaning the computer, be careful that no water gets in it. Never use any volatile liquid, such as thinner or benzene, or a duster containing chemicals.

Cleaning the LCD

When the LCD panel becomes dirty, wipe its surface gently with a dry, soft cloth or a glass cleaning cloth.

IMPORTANT

To avoid damage to the LCD panel, do not rub its surface with a hard cloth or the like nor apply excessive force when cleaning it.

Cleaning the keyboard

When the keyboard becomes dirty, wipe its surface gently with a dry, soft cloth.
If dirt persists, wipe it off with a cloth slightly dampened with water or dilute neutral detergent. After cleaning with neutral detergent, be sure to wipe the remaining detergent away with a cloth slightly dampened with water. When cleaning the keyboard, be careful that no water gets in it. Never use any volatile liquid, such as thinner or benzene, or a duster containing chemicals.
To remove dust from between keys, blow it away using compressed air. Do not apply tensile force to keys, using a vacuum cleaner and so on.