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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 recommended 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 reaction core 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.

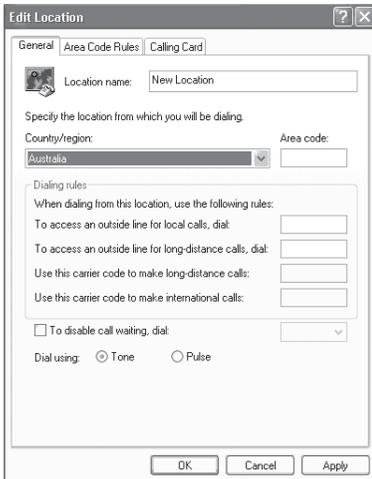
WARNING

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

Note: Modem setting in Windows XP

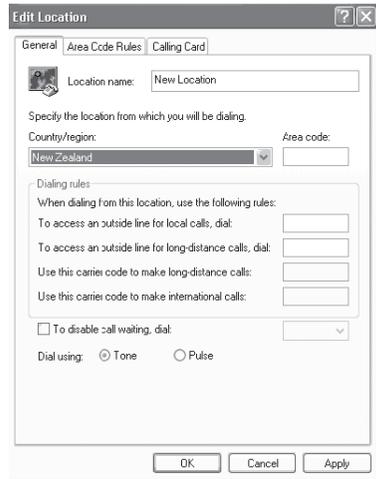
A. If you are located in Australia

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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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

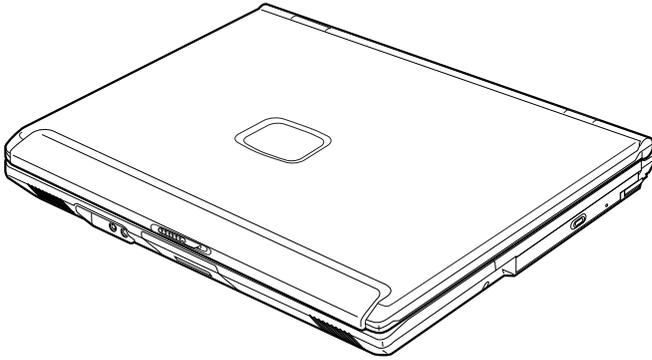


Figure 2-1. LifeBook E Series

Overview

This section describes the components of your Fujitsu LifeBook notebook. We strongly recommend that you read it before using your LifeBook notebook – even if you are already familiar with notebook computers.

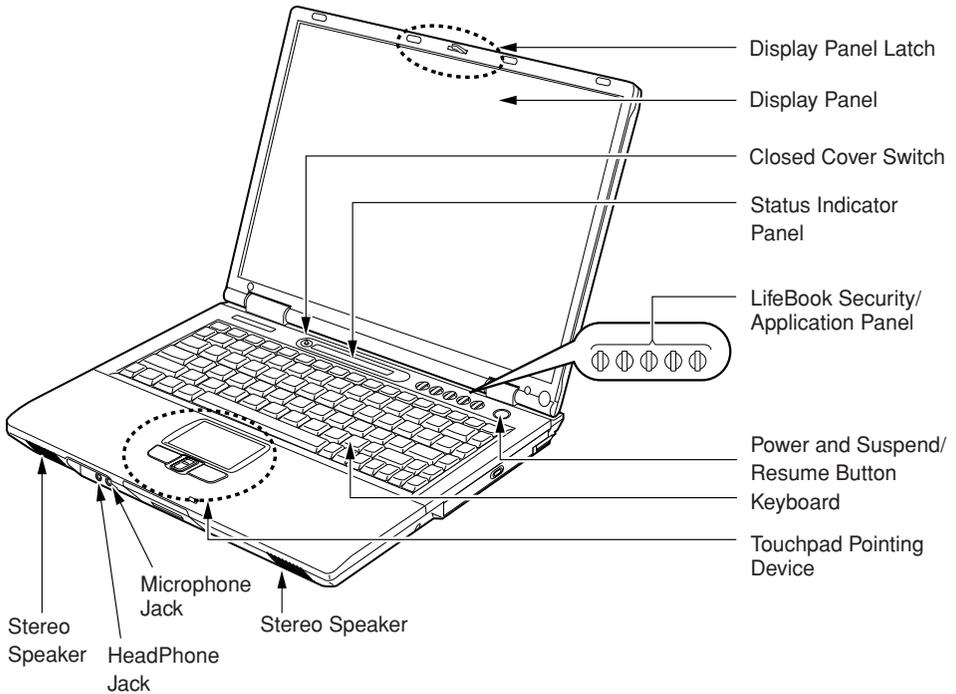


Figure 2-4. LifeBook notebook with display open

Locating the Controls and Connectors

TOP AND FRONT COMPONENTS

The following is a brief description of your LifeBook notebook's top and front components.

Display Panel Latch

The display panel latch locks and releases the display panel.

Display Panel

The display panel is a color LCD panel with back lighting for the display of text and graphics.

Status Indicator Panel

The Status Indicator Panel displays symbols that correspond with specific components of your LifeBook notebook.

Power and Suspend/Resume Button

The Power and Suspend/Resume button is always used to Power On your LifeBook notebook from its Off state. It is also used as the Suspend/Resume button. This allows you to suspend notebook activity without powering off, resume your notebook from suspend mode, and power on your LifeBook notebook when it has been shut down.

Stereo Speakers

The built-in dual speakers allow for stereo sound.

Closed Cover Switch

The closed cover switch turns off the LCD backlighting when the display panel is closed.

Keyboard

A full-size keyboard with dedicated Windows keys.

Touchpad Pointing Device

The pointing device is a Touchpad that allows you simple cursor control.

LifeBook Security/Application Panel

The LifeBook Security/Application Panel provides hardware security and one-touch application launch capability.

Microphone Jack

The microphone jack allows you to connect an external mono microphone.

Headphone Jack

The headphone jack allows you to connect head-phones or powered external speakers.

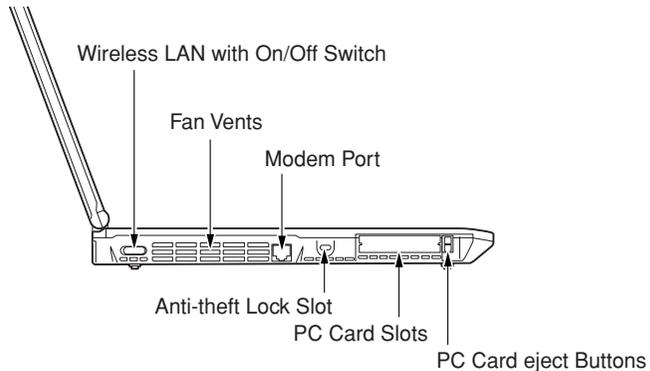


Figure 2-5. LifeBook notebook left-side panel

LEFT-SIDE PANEL COMPONENTS

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

Modem Port

The modem port is designed to accept a Modem (RJ-11) telephone jack for the multi-national internal 56K modem.

CAUTION

The internal modem is not intended for use with Digital PBX systems. Do not connect the internal modem to a digital PBX as it may cause serious damage to the internal modem or your entire LifeBook notebook. Consult your PBX manufacturer's documentation for details. Some hotels have Digital PBX systems. Be sure to find out BEFORE you connect your modem. Third-party hardware is available to allow modem-to-PBX interface.

PC Card Slots

The PC Card Slots allow you to install two Type I or Type II PC Cards or one Type III PC Card.

Anti-theft Lock Slot

The anti-theft lock slot allows you to attach an optional physical lock down device.

Fan Vents

The fan vents assist in the proper cooling of the system.

Wireless LAN On/Off Switch

For Wireless LAN model, this wireless LAN On/Off Switch turns the wireless LAN device on and off.

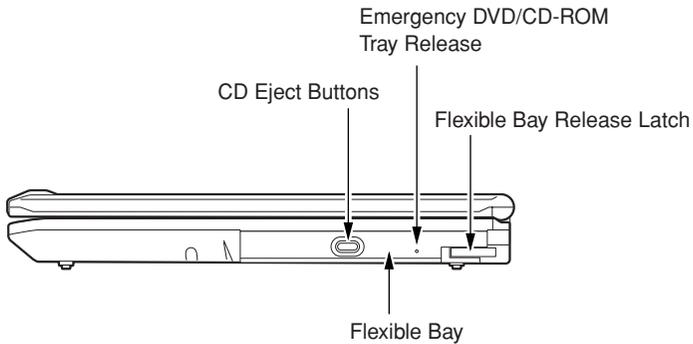


Figure 2-6. LifeBook notebook right-side panel

RIGHT-SIDE PANEL COMPONENTS

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

Flexible Bay

The Flexible Bay can accommodate one of the following devices.

- Modular DVD/CD-RW combo drive
- Modular DVD drive
- Modular CD-ROM drive
- Second Bay Hard Disk Drive

Flexible Bay Release Latch

The Flexible Bay release latch releases the Flexible Bay device.

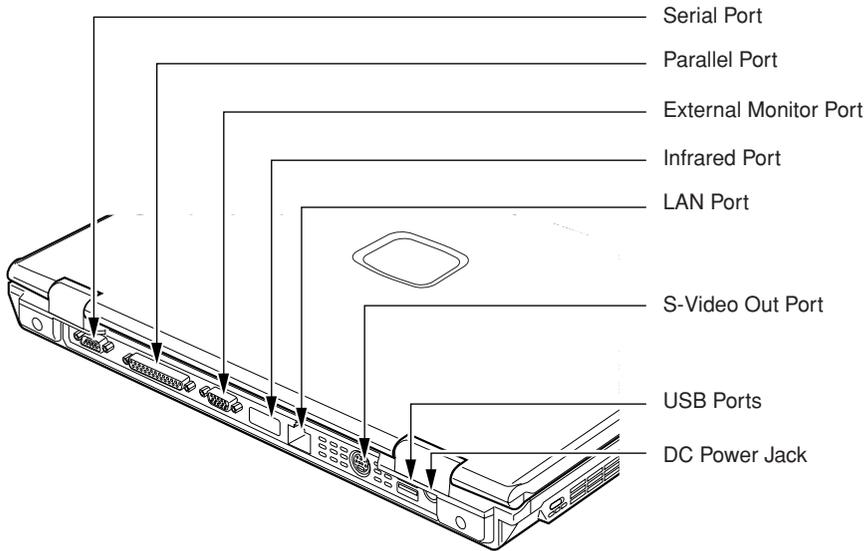


Figure 2-7. LifeBook notebook back panel

BACK PANEL COMPONENTS

Following is a brief description of your LifeBook notebook's rear panel components.

Serial Port

The serial port allows you to connect serial (RS-232C) devices. (This is also sometimes referred to as a COMM port.)

Parallel Port

The parallel port allows you to connect parallel devices. (This is also sometimes referred to as an LPT port.)

External Monitor Port

The external monitor port allows you to connect an external monitor.

Infrared Port

The fast IrDA compatible port allows you to communicate with another IrDA compatible infrared device without a cable.

LAN Port

The LAN port is designed to accept a Local Area Network (LAN) RJ-45 jack.

S-Video Out Port

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

USB Ports

The USB ports allow you to connect Universal Serial Bus devices.

DC Power Jack

The DC power jack allows you to plug in the AC adapter to power your LifeBook notebook and charge the internal Lithium ion battery.

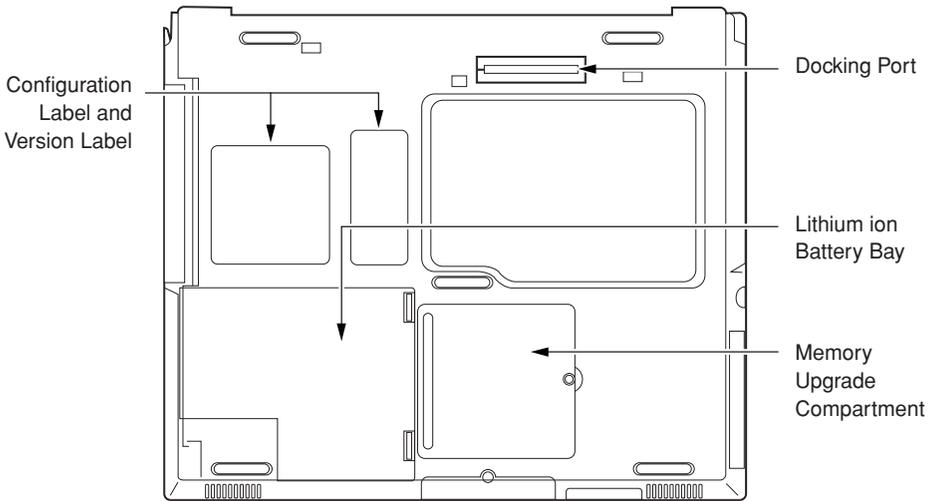


Figure 2-8. LifeBook notebook bottom panel

BOTTOM COMPONENTS

Following is a brief description of your LifeBook notebook's bottom panel components.

Configuration Label and Version Label

The configuration label shows the configuration part number, the Fujitsu part number, and the various components that make up your LifeBook notebook. The version label contains the system part number and serial number. These labels provide manufacturer information that you will need to give your support representative in the event you find it necessary to contact Fujitsu.

Lithium ion Battery Bay

The battery bay contains the internal Lithium ion battery. It can be opened for the removal of the battery when stored over a long period of time or for swapping a discharged battery with a charged Lithium ion battery.

Docking Port

The docking port allows you to connect an optional port replicator or docking station.

Memory Upgrade Compartment

Your LifeBook notebook comes with high speed memory. The memory upgrade compartment allows you to expand the system memory capacity of your LifeBook notebook, hence improving overall performance.

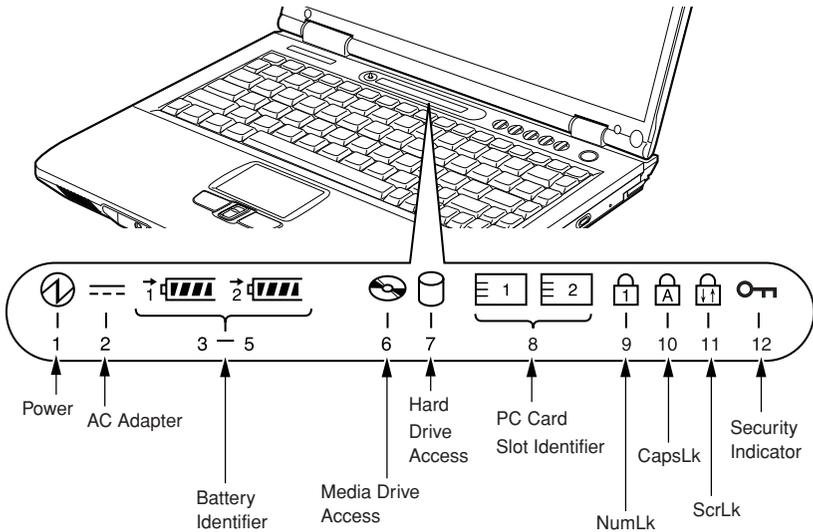


Figure 2-9 Status Indicator Panel

Status Indicator Panel

The Status Indicator panel is located in the recess just above your keyboard. Within this panel are symbols that correspond with a specific component of your LifeBook notebook. These symbols tell you how each of those components are operating. (Figure 2-9)

POWER INDICATOR

The Power indicator symbol states whether your system is operational. It has several different states, each of which tells you what mode your LifeBook notebook is in at that time.

- **Steady On:** This means that there is power to your LifeBook notebook and that it is ready for use.
- **Flashing:** This means that your LifeBook notebook is in Suspend mode.
- **Steady Off:** This means that your system is either in Save-to-Disk mode, or that your LifeBook notebook has been turned off with the power switch.

If you are charging your battery, the Power indicator symbol remains on even if your notebook is shut off. The Power indicator symbol will also remain on if you have either adapter connected and are shut down from Windows, but have not turned off the power switch.

AC ADAPTER INDICATOR

The AC Adapter indicator states whether your LifeBook notebook is operating from the AC adapter or the batteries. This icon has two different states that can tell you what power source your LifeBook notebook is using.

- **On:** This means that either of the adapters are currently in use.
- **Off:** Power is only coming from the batteries, and you do not have an adapter connected.

BATTERY LEVEL INDICATORS

The two Battery Level indicators state whether or not the primary Lithium ion battery and/or the optional second Lithium ion battery are installed (Battery 1 refers to the primary Lithium ion battery, while Battery 2 refers to the Flexible Bay optional second battery). Optional second lithium battery is only offered in some countries. Please check with your respective Fujitsu sales representatives for more detail. In addition, this symbol states how much charge is available within each installed battery. The symbol will only be displayed for a battery that is currently installed in your LifeBook notebook. (Figure 2-10)

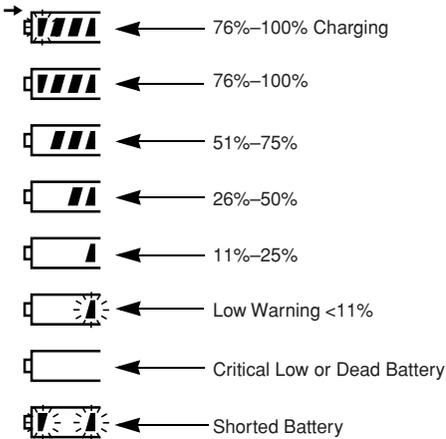


Figure 2-10 Battery Level Indicator

CAUTION

A shorted battery is damaged and must be replaced immediately.

POINT

If there is no battery activity, the power adapters are not connected, and the power switch is Off, the Battery Level indicators will also be off.

→ BATTERY CHARGING INDICATORS

Located to the left of each of the Battery Level indicators is a small arrow symbol. This symbol states whether that specific battery is charging. This indicator operates whether the power switch is in the On or Off position, and will flash if the battery is too hot or cold to charge.

CAUTION

Batteries subjected to shocks, vibration or extreme temperatures can be permanently damaged.

HARD DRIVE OR REMOVABLE MEDIA DRIVE ACCESS INDICATOR

The Hard Drive Access indicator states whether your internal hard drive or optional second hard drive is being accessed.

POINT

The Hard Drive Access indicator does not show which hard drive is being accessed.

PC CARD ACCESS INDICATORS

The PC Card Access indicator(s) state whether or not your LifeBook notebook is accessing a PC Card(s). The indicator will flash if your software tries to access a PC Card even if there is no card installed. The number inside the indicator refers to which PC Card slot is being accessed.

NUMLK INDICATOR

The NumLk indicator states that the internal keyboard is set in ten-key numeric keypad mode.

CAPSLock INDICATOR

The CapsLock indicator states that your keyboard is set to type in all capital letters.

SCRCLK INDICATOR

The ScrLk indicator states that your scroll lock is active.

SECURITY INDICATOR

The Security Indicator will show on the LCD panel (if a password was set) when the system resumes from Off or Suspend modes. You must enter the password that was set in the Security Panel before your system will resume operation.

POINT

If you are using the optional external numerical keypad, pressing the [NumLk] key will activate the external keypad. The indicator will come on, however it will not change any of the functionality of your keyboard keys.

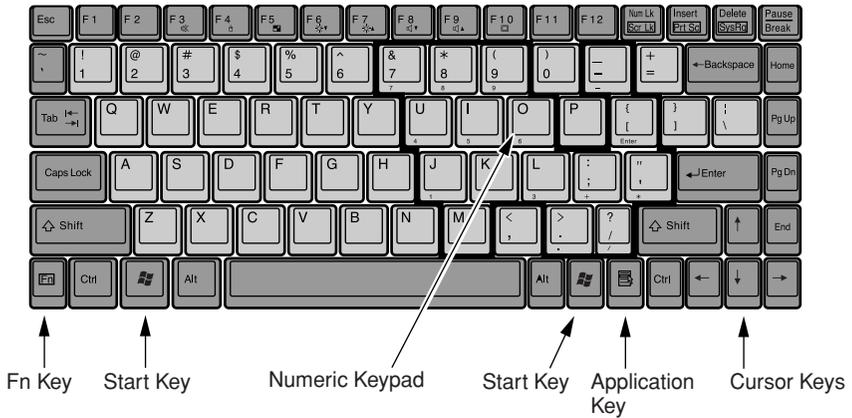


Figure 2-11 Keyboard

Keyboard

USING THE KEYBOARD

Your Fujitsu LifeBook notebook has an integral 87-key keyboard. The keys perform all the standard functions of a 101-key keyboard, including the Windows keys and other special function keys. This section describes the following keys.

- **Numeric keypad:** Your LifeBook notebook allows certain keys to serve dual purposes, both as standard characters and as numeric and mathematical keys. The ability to toggle between the standard character and numerical keys is controlled through the [NumLk] key.
- **Cursor keys:** Your keyboard contains four arrow keys for moving the cursor or insertion point to the right, left, up, or down within windows, applications and documents.
- **Function keys:** The keys labeled [F1] through [F12] are used in conjunction with the [Fn] key to produce special actions that vary depending on what program is running.
- **Windows keys:** These keys work with your Windows operating system and function the same as the onscreen Start menu button, or the right button on your pointing device.

NUMERIC KEYPAD

Certain keys on the keyboard perform dual functions as both standard character keys and numeric keypad keys. NumLk can be activated by pressing the [NumLk] keys. Turning off the NumLk feature is done the same way. Once this feature is activated you can enter numerals 0 through 9, perform addition (+), subtraction (-), multiplication (*), or division (/), and enter decimal points (.) using the keys designated as ten-key function keys. The keys in the numeric keypad are marked on the front edge of the key to indicate their secondary functions.

POINT

If you are using the optional external numerical keypad, pressing the [NumLk] key will activate the external keypad. The indicator will come on, however it will not change any of the functionality of your keyboard keys.

WINDOWS KEYS

Your LifeBook notebook has three Windows keys: two Start keys and an Application key. The two Start keys display the Start menu. This button functions the same as your onscreen Start menu button. The Application key functions the same as your right mouse button and displays shortcut menus for the selected item.

CURSOR KEYS

The cursor keys are the four arrow keys on the keyboard which allow you to move the cursor up, down, left and right in applications. In programs such as Windows Explorer, it moves the "focus" (selects the next item up, down, left, or right).

FUNCTION KEYS

Your LifeBook notebook has 12 function keys, F1 through F12. The functions assigned to these keys differ for each application. You should refer to your software documentation to find out how these keys are used.

The [Fn] key provides extended functions for the notebook and is always used in conjunction with another key.

- [Fn+F7]: Pressing [F7] repeatedly while holding [Fn] will increase the brightness of the display.
- [Fn+F8]: Pressing [F8] repeatedly while holding [Fn] will decrease the volume of your LifeBook notebook.
- [Fn+F9]: Pressing [F9] repeatedly while holding [Fn] will increase the volume of your LifeBook notebook.
- [Fn+F10]: Pressing [F10] while holding [Fn] 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 panel only, both built-in display panel and external monitor or external monitor only.
- [Fn+F3]: Pressing [F3] while holding [Fn] will toggle the Audio Mute on and off.
- [Fn+F4]: Pressing [F4] while holding [Fn] will toggle the touchpad on and off. (This function key combination only works if the BIOS setting for Advanced>Keyboard/Mouse Features>Internal Pointing Device is set to Manual Setting.)
- [Fn+F5]: Pressing [F5] while holding [Fn] allows you to toggle between video compensation and no compensation. (Video compensation controls spacing on the display. When it is enabled, displays with less than 1024 x 768 or 800 x 600 pixel resolution will still cover the entire screen.)
- [Fn+F6]: Pressing [F6] repeatedly while holding [Fn] will lower the brightness of your display.

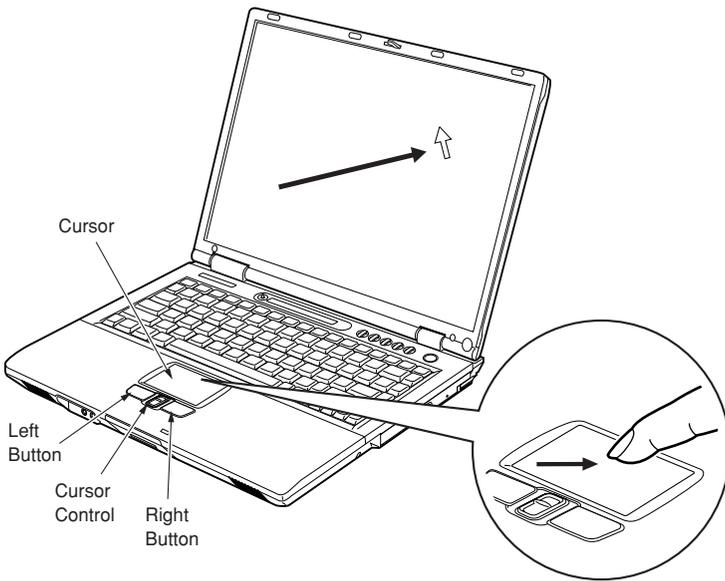


Figure 2-16. TouchPad pointing device

TouchPad Pointing Device

The TouchPad pointing device may come built into your Fujitsu LifeBook notebook. It is used to control the movement of the pointer to select items on your display panel. The TouchPad is composed of a cursor control and a left and right button. The cursor control works the same way a mouse does, and moves the cursor around the display. It only requires light pressure with the tip of your finger, and the more pressure you use, the faster the cursor will move. The left and right buttons function the same as mouse buttons. The actual functionality of the buttons may vary depending on the application that is being used. (Figure 2-16)

POINT

An external mouse can be connected to either the USB or PS/2 port (on port replicator only) on your LifeBook notebook, and be used simultaneously with the TouchPad. However, if you boot the system with an external mouse connected the TouchPad will be disabled or enabled depending on your BIOS settings. Also, if the Infrared Mouse is enabled, your PS/2 external device will be disabled.

CLICKING

Clicking means pushing and releasing a button. To left-click, move the cursor to the item you wish to select, press the left button once, and then immediately release it. To right-click, move the mouse cursor to the item you wish to select, press the right button once, and then immediately release it. You also have the option to perform the clicking operation by tapping lightly on the TouchPad once. (Figure 2-17)



Figure 2-17. Clicking

DOUBLE-CLICKING

Double-clicking means pushing and releasing the left button twice in rapid succession. This procedure does not function with the right button. To double-click, move the cursor to the item you wish to select, press the left button twice, and then immediately release it. You also have the option to perform the double-click operation by tapping lightly on the TouchPad twice. (Figure 2-18)



Figure 2-18. Double-clicking

POINT

If the interval between clicks is too long, the double-click will not be executed.

DRAGGING

Dragging means pressing and holding the left button, while moving the cursor. To drag, move the cursor to the item you wish to move. Press and hold the left button while moving the item to its new location and then release it. Dragging can also be done using the TouchPad. First, tap the TouchPad twice over the item you wish to move making sure to leave your finger on the pad after the final tap. Next, move the object to its new location by moving your finger across the TouchPad, and then release your finger. (Figure 2-19)



Figure 2-19. Dragging

TOUCHPAD CONTROL ADJUSTMENT

The Windows Control Panel allows you to customize your TouchPad with selections made from within the Mouse Properties dialog box.

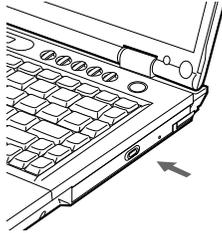


Figure 2-20 Flexible Bay

Flexible Bay Devices

Your LifeBook notebook contains a Flexible Bay. The Flexible Bay can accommodate a modular CD-ROM drive, DVD drive, DVD/CD-RW drive or weight saver. (Figure 2-20)

You Flexible Bay will have one of the following devices installed. All devices listed here are also options which can be purchased separately. (Figure 2-21)

- **Modular CD-ROM drive:** This allows you to access software and audio CDs.
- **Modular DVD drive:** This allows you to access movies, software, and audio DVD/CDs.
- **Modular DVD-CD-RW combo drive:** This allows you to access movies, software, and audio DVD/CDs as well as to write to CDs.
- **Weight Saver:** This is used to fill the bay when no device is needed.

REMOVING AND INSTALLING MODULAR DEVICES

There are two ways to remove and install modular devices in the Flexible Bay:

- **Cold-swapping:** Swapping devices while your LifeBook notebook is powered off. (Reference the following section.)
- **Hot-swapping:** Swapping devices while your system is active software. (Reference the sections of this chapter entitled "Hot-swapping under Windows 2000 Professional and Windows XP".)

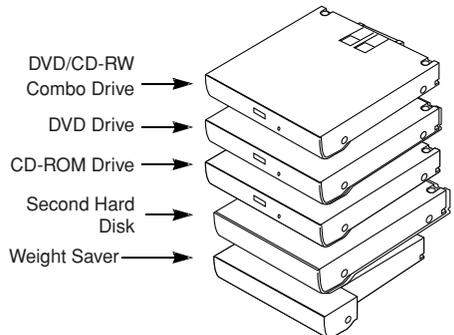


Figure 2-21. Flexible Bay Devices



POINT

You should never leave your Flexible Bay empty when the LifeBook notebook is in operation.

Cold-swapping

To cold-swap modular devices in your Flexible Bay follow these easy steps: (Figure 2-22)

1. Close any open files.
2. Shut down your LifeBook notebook.
3. Pull out the Flexible Bay release latch, then press the latch in to release the modular device. This will push your device out slightly, allowing you to remove the device.
4. Slide your device out until it is clear of the bay. This will require light force.

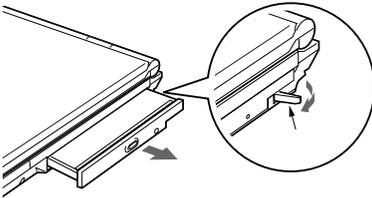


Figure 2-22 Removing a device from the Flexible Bay

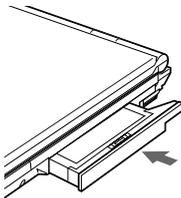


Figure 2-23 Installing a device in the Flexible Bay

5. Slide the device you are installing into your LifeBook notebook until it clicks into place.
6. It is now safe to turn your notebook back on.
7. You can now access and use the device.

Your LifeBook notebook will automatically detect the new device and activate it within your system. The drive letters associated with the device will be created and listed under My Computer and Windows Explorer.

CAUTION

If you are swapping out a bay battery module, make sure that a charged main battery is installed or an AC Adapter is connected to the system. Failure to do so could result in data loss.

Hot-swapping under Windows 2000 Professional, XP Home, and XP Professional

Under Windows 2000 and XP, hot-swapping is provided through the Unplug or Eject Hardware utility. The icon for the utility appears on the taskbar. Refer to your Windows manual on using this feature.

CAUTION

Be careful when aligning and seating devices in the bay. If the fit is incorrect, you may damage the bay or the device. If the device does not move easily in the bay, remove it, and check for dirt or foreign objects. It will require a firm push to latch the device in place.

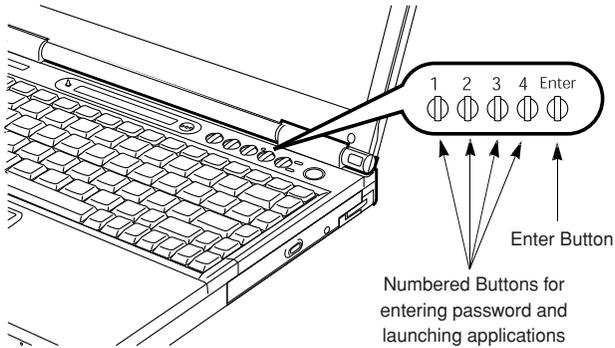


Figure 2-24 LifeBook Security/Application Panel

LifeBook Security/ Application Panel

A unique feature of your LifeBook notebook is the Security/Application Panel that allows you to secure your notebook from unauthorized use. The Security/Application Panel also allows you to launch applications with the touch of a button when your system is on.

If the security system is activated, upon starting your LifeBook notebook or resuming from suspend mode the security system requires you to enter a password code using the buttons on the Security/Application Panel. After entering a correct password, your LifeBook notebook resumes system operation. (Figure 2-24)

SETTING UP YOUR LIFEBOOK SECURITY PANEL

When you receive your LifeBook notebook, the security panel application is pre-installed without any passwords.

The following sections provide detailed information on your security panel, and how to set, change or remove passwords.

Numbered Buttons

Use these buttons to enter your password. (Figure 2-24)

Enter Button

After entering the button strokes, push this button to enter the password into the notebook. (Figure 2-24)

PASSWORDS

The user and supervisor password may be set on this LifeBook notebook. A supervisor password is typically the same for all notebooks in a working group, office, or company to allow for system management. Individual notebooks in a group environment should not use a common password. A password consists of one to five button strokes plus the enter button. A valid stroke consists of pushing one or up to four buttons simultaneously. The following are valid button strokes:

- Pushing [4] by itself
- Pushing [2] and [3] at the same time
- Pushing [1], [2], and [4] at the same time
- Pushing [1], [2], [3], and [4] at the same time

The following are valid passwords. The numbers within braces { } are button strokes using more than one button.

- {[2]+[3]}, [1], [enter]
- [4], [enter]
- {[1]+[3]}, {[2]+[3]+[4]}, [1], [4], [2], [enter]

Setting Passwords

When shipped from the factory, no passwords are set. You have a choice of having no password or setting a supervisor and user password. You must set the supervisor password before the user password.

POINT

- The purpose of supervisor password is to be able to bypass the user password in case the user password is forgotten. The supervisor password alone will not lock the system.
- You have to set both the supervisor and user passwords for the security panel to work.

Setting Supervisor Password

You must have set a supervisor password before setting any user passwords. The supervisor password can bypass the user password.

1. Go to the Start menu.
2. Click on Run.
3. Type in
"C:\Program Files\Fujitsu\
Security Panel Application\
Supervisor\FJSECS.EXE" (be sure to
use the quotation marks), then press
[Enter]
4. Follow the on-screen instructions to set the Supervisor password.

Setting User Password

1. Go to the Start menu.
2. Click on Programs.
3. Click on Security Panel Application > Security Panel Application.
4. Follow the on-screen instructions to set the user password.

POINT

You may change or remove the supervisor or user password by repeating the steps defined above.

OPERATING YOUR LIFEBOOK SECURITY APPLICATION PANEL

The security lock feature is in effect both when the system resumes from OFF or suspend state. You always need to push the Suspend / Resume button to input the user password. Your system will not begin the boot sequence without entering your supervisor/user password.

From Off State

1. Turn on your system.
2. When the Security Indicator flashes, enter the password and press Enter button. For example, if the password is 22222, Press Button Number 2 five times and press Enter button.
The LifeBook notebook will boot to normal operation.

From Suspend State

1. Press your Suspend/Resume button.
2. When the Security Indicator flashes, enter the password and press Enter button.
The notebook should resume normal operation.

Incorrect Password Entry

If an invalid supervisor or user password is entered three times in succession, the system will "beep" for about one minute. If a valid password is entered within a minute

(while system beeps), the beeping will stop and the LifeBook notebook will resume normal operation. If no password or an invalid password is entered while the system beeps, the system will return to its previous locked state (suspend or off) and the Security Indicator will go off. To reactivate the LifeBook notebook after a password failure, you must press the Suspend/Resume button, then enter a correct password.

POINT

Remember the user password you specified on the Security Panel Application. If you forget the password you will not be able to use your computer. The supervisor password can override the user password.

PRECAUTIONS

Opening and Closing the Cover

Closing the cover may place the notebook into suspend mode. Opening the cover does not automatically place the notebook into normal operation. Instead, you must enter the proper security password after pushing the Suspend/Resume button.

Low Battery Operations

If your LifeBook notebook has a low battery, pushing the suspend/resume button only turns on the Security Indicator. Your notebook does not unlock, and the Security Indicator LED turns off after one minute. To resume normal operation, first attach a power supply to the LifeBook notebook. Then you may unlock the notebook.

UNINSTALLING THE SECURITY PANEL APPLICATION

You have two options when uninstalling the security panel application:

- Uninstall the security panel application software. This will disable all security feature.
- Uninstall the security panel application with password still active. This will not allow any changes to the password.

Uninstalling the Security Panel Application Software

Remove passwords when User wants no password protection whatsoever and doesn't want to give anybody the utility to set a password on their computer. In this case, if passwords (supervisor, user, or both) are set, the passwords must first be cleared BEFORE removing the application. To clear passwords, follow same procedure in SETTING PASSWORD CODES except this time, select REMOVE, enter current password then click Next. When asked to confirm select Yes.

Removing Security Panel Application with Passwords Still Active

Using this feature will not allow any changes to the password.



POINT

Removing the applications does not remove the password. It simply removes the utility to change/add/remove passwords. To change your password you must reinstall the application.

User:

1. Go to Start Menu, Click on Control Panel.
2. Open Add/Remove Programs Properties in the Control Panel.
3. Select the Security Panel Application in the list, and click Add/Remove.
4. When the Confirm File Deletion box appears, click Yes .

Supervisor:

1. Go to Start Menu, Click on Control Panel.
2. Open Add/Remove Programs Properties in the Control Panel.
3. Select the Security Panel Application for Supervisor in the list, and click Add/Remove.
4. When the Confirm File Deletion box appears, click Yes .

Reinstalling the Security Application Panel

To reinstall the supervisor and user security application, you will need the Software Driver cd provided.

Supervisor and user passwords can be set by the Windows Software which are FJSECS.EXE and FJSECU.EXE respectively. FJSECU.EXE for user password cannot run without supervisor password. First you need to run FJSECS.EXE to set supervisor password before setting user password.

If you forget both passwords, contact Fujitsu Service and Support. Fujitsu service centre charges a service fee for unlocking a password restricted LifeBook notebook. When calling please provide proof of ownership. You will then be given instructions on where to ship your LifeBook notebook.

LAUNCHING APPLICATIONS WITH THE SECURITY/APPLICATION PANEL

The security panel also enables you to launch applications with the touch of a button when your system is on. Pressing any of the buttons will launch a user defined application. Your LifeBook notebook is preinstalled with software utilities that let you operate and configure your LifeBook Security/Application Panel.

Configuring your LifeBook Application Panel

As an application launcher, the LifeBook Application Panel is very flexible, giving you a variety of options. To set up the Panel to best suit your needs, we have provided the Application Panel Setup utility that quickly and easily helps you make the most of this valuable feature.

To configure your LifeBook Application Panel with Application Panel Setup:

1. Click on Start
2. Click on Control Panel
3. Click on Application Panel

The Application Panel Setup utility will appear. There are tabs that correspond to the application buttons on the LifeBook Application Panel. When you receive your LifeBook notebook, these buttons are pre-configured to launch the associated programs.



POINT

The tabs in Application Panel Setup may not be in the same order as the buttons on your LifeBook notebook, please select the tab you wish to change carefully.

To change an application associated with the Application buttons, click on the tab for the button you would like to reconfigure – for example, Application A. Click on Browse from Start Menu, scroll down the list of applications, click on the application you wish to launch with this button, and then click OK. The button will now launch the new application.

The Internet tab is different. It comes set to launch your Windows default Internet browser (Internet Explorer), unless you have changed this in Windows. In order to reconfigure it to launch another program follow these easy steps:

1. Click on Other from the Internet browser box.
2. Click on Browse from Start Menu.
3. Scroll down the list of applications, and then click on the application you wish to launch with this button.
4. Click OK.

The button will now launch the new application. If you want to return to launching your Windows default Internet browser with this button, you need only click on "Default Internet Browser" from the Internet browser box. Be aware that you will erase the settings for the "other application". If you wish to go back to launching the "other application" from this button, you will need to reconfigure it as described above.

**POINT**

The Internet or E-mail buttons can be configured to launch any application you wish, not just an Internet browser or e-mail program.

When you have finished with Application Panel Setup click OK, and the new settings will take effect. You can reconfigure your LifeBook Application Panel as often as you like.

Deactivating and Activating the LifeBook Application Panel

To deactivate the LifeBook Application Panel, follow these easy steps:

1. Click on Start.
2. Click on Programs.
3. Click on LifeBook Application Panel.
4. Click on Deactivate Panel.

To reactivate, follow the same procedure, except for step 4. Click on Activate Panel instead.

**POINT**

Every time you start Windows the LifeBook Application Panel is activated, even if you deactivated it before you shut down.



3

Getting Started

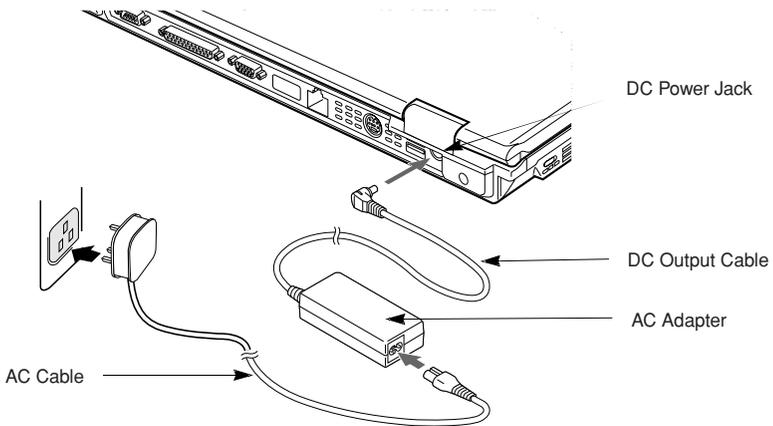


Figure 3-1 Connecting the AC Adapter

Power Sources

Your Fujitsu LifeBook notebook has a few possible power sources: a primary Lithium ion battery and AC adapter.

CONNECTING THE POWER ADAPTERS

The AC adapter provides power for operating your LifeBook notebook and charging the batteries.

Connecting the AC Adapter

1. Plug the DC output cable into the DC power jack of your LifeBook notebook.
2. Plug the AC adapter into an AC electrical outlet. (Figure 3-1)

Switching from AC Adapter Power Adapter to Battery Power

1. Be sure that you have at least one charged battery installed.
2. Remove the AC adapter

POINT

The Lithium ion battery is not charged upon purchase. Initially, you will need to connect the AC adapter to use your LifeBook notebook.

When operated under Battery mode, it is recommended to use battery optimized. Do note that any external devices will have a significant impact on Battery life.

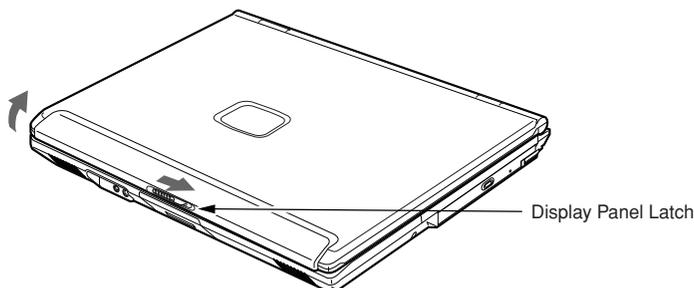


Figure 3-2 Opening the Display Panel

Display Panel

Your Fujitsu LifeBook notebook contains a display panel that is backlit for easier viewing in bright environments and maintains top resolution through the use of active-matrix technology.

OPENING THE DISPLAY PANEL

1. Slide the display panel latch to the right to release the locking mechanism.
2. Lift the display panel backwards, being careful not to touch the screen, until it is at a comfortable viewing angle.

ADJUSTING DISPLAY PANEL BRIGHTNESS

Once you have turned on your LifeBook notebook, you may want to adjust the brightness level of the screen to a more comfortable viewing level. There are two ways to adjust the brightness keyboard and power management utility

Keyboard

- [Fn+F6]: Pressing repeatedly will lower the brightness of your display.
- [Fn+F7]: Pressing repeatedly will increase the brightness of the display.

POINT

If using AC power, your LifeBook notebook's brightness setting is set to its highest level by default. If using battery power, the brightness setting is set to its middle level by default.

POINT

The higher the brightness level, the more power the LifeBook notebook will consume and the faster your batteries will discharge. For maximum battery life, set the brightness level as low as possible.

You may need to readjust the brightness level periodically depending on your operating environment.

CLOSING THE DISPLAY PANEL

Once you have turned on your LifeBook notebook, you may want to adjust the brightness level of the screen to a more comfortable viewing level. There are two ways to adjust the brightness keyboard and power management utility

1. Holding the edge of your display panel, pull it forward until it is flush with the body of your LifeBook notebook.
2. Push down until you hear a click. This will engage the locking mechanism and prevent your display panel from opening unexpectedly.

Starting Your LifeBook Notebook

POWER ON

Power and Suspend/Resume Button

The Power and Suspend/Resume button is used to power on your LifeBook notebook, to resume from Standby or Save-to-Disk mode, to place your notebook in Standby or Save-to-Disk mode or to power off. You can also turn off your notebook by choosing Shut Down from the Windows Start menu.

Once you have connected your AC adapter or charged the internal Lithium ion Battery, you can press this button to Power On your LifeBook notebook.

POINT

When you turn on your LifeBook notebook be sure you have a power source. This means that at least one battery is installed and charged, or that the AC adapter is connected and has power.

CAUTION

Do not carry your LifeBook notebook around with the power on or subject it to shocks or vibration, as you risk damaging your notebook.

When you Power On your notebook, it will perform a Power On Self Test (POST) to check the internal parts and configuration for correct functionality. If a fault is found, your notebook will emit an audio warning and/ or an error message will be displayed. Depending on the nature of the problem, you may be able to continue by starting the operating system or by entering the BIOS setup utility and revising the settings.

After satisfactory completion of the Power On Self Test (POST), your LifeBook notebook will load your operating system.

POINT

Never turn off your LifeBook notebook during the Power On Self Test (POST) or it will cause an error message to be displayed when you turn your notebook on the next time.

BOOT SEQUENCE

The procedure for starting-up your Fujitsu LifeBook notebook is termed the Bootup sequence and involves your notebook's BIOS. When your notebook is first turned on, the main system memory is empty, and it needs to find instructions to start up your notebook. This information is in the BIOS program. Each time you power up or restart your notebook, it goes through a boot sequence which displays a Fujitsu logo until your operating system is loaded. During booting, your notebook is performing a standard boot sequence including a Power On Self Test (POST). When the boot sequence is completed without a failure and without a request for the BIOS Setup Utility, the system displays the operating system's opening screen.

The boot sequence is executed when:

- You turn on the power to your LifeBook notebook.
- You restart your LifeBook notebook from the Windows Shut Down dialog box.
- The software initiates a system restart. Example: When you install a new application.
- You reset the system by pressing the three keys [CTRL+ALT+DEL].

Power Management

Your LifeBook notebook has many options and features for conserving battery power. Some of these features are automatic and need no user intervention, such as those for the internal modem. However, others depend on the parameters you set to best suit your operating conditions, such as those for the display brightness. Internal power management for your LifeBook notebook may be controlled from settings made in your operating system or from settings made in the BIOS setup utility.

Besides the options available for conserving battery power, there are also some things that you can do to prevent your battery from running down as quickly. For example, you can create an appropriate power saving profile, put your notebook into Suspend mode when it is not performing an operation, and you can limit the use of high power devices. As with all mobile, battery powered computers, there is a trade-off between performance and power savings.

POWER AND SUSPEND/RESUME BUTTON

When your LifeBook notebook is active, the Power and Suspend/Resume button can be used to manually put your notebook into Suspend mode. Push the Power and

Suspend/Resume button when your notebook is active, but not actively accessing anything, and immediately release the button. You will hear two short beeps and your system will enter Suspend mode.

If your notebook is suspended, pushing the Power and Suspend/Resume button will return your notebook to active operation. You can tell whether or not your system is in Suspend mode by looking at the Power indicator. If the indicator is visible and not flashing, your LifeBook notebook is fully operational. If the indicator is both visible and flashing, your notebook is in Suspend mode. If the indicator is not visible at all, the power is off or your notebook is in Save-to-Disk mode. (See *Save-to-Disk Mode*)

SUSPEND MODE

Suspend or Standby mode in Windows XP or Windows 2000 Professional saves the contents of your LifeBook notebook's system memory during periods of inactivity by maintaining power to critical parts. This mode will turn off the CPU, the display, the hard drive, and all of the other internal components

except those necessary to maintain system memory and allow for restarting. Your LifeBook notebook can be put in Suspend mode by:

- Pressing the Power/Suspend/Resume button when your system is turned on.
- Selecting Standby from the Windows Shut Down menu.
- Allowing the battery to reach the Dead Battery Warning condition.

Your LifeBook notebook's system memory typically stores the file(s) on which you are working, open application(s) information, and any other data required to support the operation(s) in progress. When you resume

operation from Suspend mode, your LifeBook notebook will return to the point where it left off. You must use the Power and Suspend/Resume button to resume operation, and there must be an adequate power source available, or your LifeBook notebook will not resume.



POINT

- If you are running your LifeBook notebook on battery power, be aware that the battery continues to discharge while your LifeBook notebook is in Suspend mode, though not as fast as when fully operational.
- Disabling the Suspend/Resume button prevents it from being used to put your LifeBook notebook in Suspend or Save-to-Disk mode. The resume function of the button cannot be disabled.

**POINT**

- The Suspend or Hibernation (Save-to-Disk) mode should not be used with certain PC Cards. Check your PC Card documentation for more information.
- When PC Cards or external devices are in use, Hibernation (Save-to-Disk) mode cannot return to the exact state prior to suspension because all of the peripheral devices will be reinitialized when the system restarts.
- If your LifeBook notebook is actively accessing information when you enter the Suspend or Hibernation (Save-to-Disk) mode, changes to open files are not lost. The files are left open and memory is kept active during Suspend mode, or the memory is transferred to the internal hard drive during Hibernation mode.
- The main advantage of using the Hibernation (Save-to-Disk) function is that power is not required to maintain your data. This is particularly important if you will be leaving your LifeBook notebook in a suspended state for a prolonged period of time. The drawback of using Hibernation mode is that it lengthens the power down and power up sequences and resets peripheral devices.

**POINT**

Save-to-Disk mode requires allocating a significant amount of hard drive capacity for saving all system memory, which reduces your usable disk space. When you purchase your LifeBook notebook it will have space allocated for the memory installed. If you upgrade the original system by adding a memory upgrade module without changing the size of your Save-to-Disk allocation you will get an error message when you try to activate Save-to-Disk mode and it will not work.

HIBERNATION (SAVE-TO-DISK) FEATURE

The Hibernation feature saves the contents of your LifeBook notebook's system memory to the hard drive as a part of the Suspend/Resume mode. You can enable or disable this feature.

Enabling or Disabling the Hibernation Feature

The default setting is not enabled. To enable or disable the Hibernation feature follow these easy steps:

1. From the Start menu, select Settings, and then select Control Panel.
2. From the Control Panel, select Power Management.
3. Select Hibernation tab. Select the box to enable or disable this feature.

Using the Hibernation Feature

The default setting is not enabled. To enable or disable the Hibernation feature follow these easy steps:

1. From the Start menu, select Settings, and then select Control Panel.
2. From the Control Panel, select Power Management -> Power Options.
3. Select Advanced tab, then select Hibernate from the pull-down menu for Power buttons.

DISPLAY TIMEOUT

The Video Timeout is one of the power management parameters. This feature saves power by turning off the display if there is no keyboard or pointer activity for the user selected timeout period. Any keyboard or pointer activity will cause the display to restart automatically. This feature is independent of the Power and Suspend/Resume button and can be enabled and disabled in Windows and BIOS setup utility.

HARD DISK TIMEOUT

The Hard Disk Timeout is another one of the power management parameters. This feature saves power by activity for the user selected timeout period. Any attempt to access the hard drive will cause it to restart automatically. This feature is independent of the Power and Suspend/Resume button and can be enabled and disabled in Windows and BIOS setup utility.

RESTARTING THE SYSTEM

If your system is on and you need to restart it, be sure that you use the following procedure.

1. Click the Start button, and then click Shut Down.
2. Select the Restart option from within the Windows Shut Down dialog box.
3. Click OK to restart your LifeBook notebook. Your notebook will shut down and then reboot.

POINT

Turning off your LifeBook notebook without exiting Windows or turning on your notebook within 10 seconds of the notebook being shut off may cause an error when you start the next time.

CAUTION

Never turn your LifeBook notebook off while an application is running. Be sure to close all files, exit all applications, and shut down your operating system prior to turning off the power with the power switch. If files are open when you turn the power off, you will lose any changes that have not been saved, and may cause disk errors.

POWER OFF

Before turning off the power by choosing Shut Down from the check that the Hard Drive, DVD, CD-ROM, CD-RW, PC Card and the Floppy Disk Drive Access indicators are all Off. If you turn off the power while accessing a disk or PC Card there is a risk of data loss. To assure that your LifeBook notebook shuts down without error, use the Windows shut down procedure.

Using the correct procedure to shut down from Windows allows your LifeBook notebook to complete its operations and turn off power in the proper sequence to avoid errors. The proper sequence is:

1. Click the Start button, and then click Shut Down.
2. Select the Shut Down option from within the Windows Shut Down dialog box.
3. Click OK to shutdown your LifeBook notebook.

If you are going to store your notebook for a month or more see Care and Maintenance Section.



4

User-Installable Features

Lithium ion Battery

Your Fujitsu LifeBook notebook has a Lithium ion battery that provides power for operating your notebook when no external power source is available. The rechargeable battery is durable and long lasting, but should not be exposed to extreme temperatures, high voltages, chemicals or other hazards.

The Lithium ion battery operating time may become shorter if it is used under the following conditions:

- When used at temperatures that exceed a low of 5°C (40°F) or a high of 35°C (95°F). Extreme temperatures not only reduce charging efficiency, but can also cause battery deterioration. The charging icon on the Status Indicator panel will flash when you try to charge a battery that is outside its operating temperature range.
- When using a high current device such as a modem, DVD drive, CD-RW drive, or the hard drive, using the AC adapter will conserve your battery life.



CAUTION

- Do not leave a faulty battery in your LifeBook notebook. It may damage your AC adapter, another battery or your notebook itself. It may also prevent operation of your notebook by draining all available current into the bad battery.



POINT

Actual battery life will vary based on screen brightness, applications, features, power management settings, battery condition and other customer preferences. DVD, CD-RW drive, or hard drive usage may also have a significant impact on battery life. The battery charging capacity is reduced as the battery ages. If your battery is running low quickly, you should replace it with a new one.

The unit will not work full CPU speed during Battery mode, this is because using speedstep during battery use.

RECHARGING THE BATTERIES

If you want to know the condition of the primary Lithium ion battery, check the Battery Level indicator located on the Status Indicator panel. The indicator changes as the battery level changes.

The Lithium ion battery is recharged internally using the AC adapter. To recharge the battery make sure the battery that needs to be charged is installed in your LifeBook notebook and connect the AC adapter.



POINT

Make sure that the Battery Charging indicator and the percentage charge is shown inside the Battery Level icon on the Status Indicator Panel.

There is no memory effect on the Lithium ion battery therefore you do not need to discharge the battery completely before recharging. The charge times will be significantly longer if your LifeBook notebook is in use while the battery is charging. If you want to charge the battery more quickly, put your LifeBook into Suspend mode, or turn it off while the adapter is charging the battery.



POINT

Using heavy current devices such as a Modem or frequent DVD or CD-RW accesses may prevent complete charging.

Low Battery State

When the battery is running low, a low battery notification message will appear. If you do not respond to the low battery message, the batteries will continue to discharge until they are too low to operate. When this happens, your LifeBook notebook will go into Suspend mode. There is no guarantee that your data will not be lost once the notebook reaches this point.



CAUTION

To prevent loss of data, you should save all your active data and put your LifeBook notebook into Suspend mode when the low battery message first appears, until you can provide a new power source. You should provide power to your notebook from a charged battery, an AC power adapter, as soon as possible.



CAUTION

When you are in Suspend mode there must always be at least one power source active. If you turn off the power with the power switch, or remove all power sources while your LifeBook notebook is in Suspend mode, any data that has not been saved to the hard drive will be lost.

Dead Battery Suspend mode shows on the Status indicator just like the normal Suspend mode. Once your LifeBook notebook goes into Dead Battery Suspend mode you will be unable to resume operation until you provide a source of power either from an adapter, or a charged battery. Once you have provided power, you will need to press the Suspend/Resume button to resume operation. In the Dead Battery Suspend mode, your data can be maintained for some time, but if a power source is not provided promptly, the Power indicator will stop flashing and go out, meaning that you have lost the data that was not stored. Once you provide power, you can continue to use your LifeBook notebook while an adapter is charging the battery.

Shorted Batteries

The Status Indicator panel uses a symbol inside the battery outline of the Battery Level indicator to display the operating level available in that battery. If this display shows a Shorted Battery, it means that the battery is damaged and must be replaced so it does not damage any other parts of your LifeBook notebook.

REPLACING THE BATTERY

With the purchase of an additional battery, you can have a fully charged spare to swap with one that is not charged.

Follow the steps below to replace a battery (Figure 4-1):

1. Have a charged battery ready to install.
2. Shut down your notebook and disconnect the AC adapter.
3. Press the battery release latches toward the battery.
4. Lift the battery by the latch end and remove it from the bay.
5. Slide a charged battery into the bay and press it down until the latches click into place.
6. Plug in the AC adapter and turn the power on.

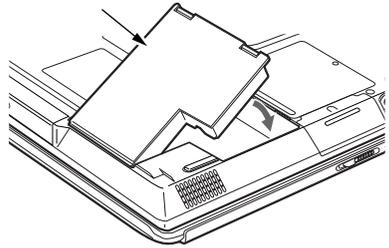
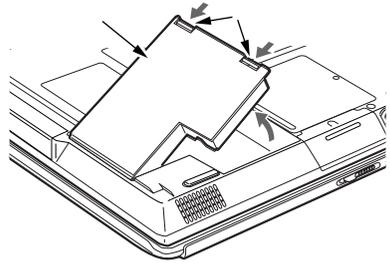


Figure 4-1 Replacing the Battery

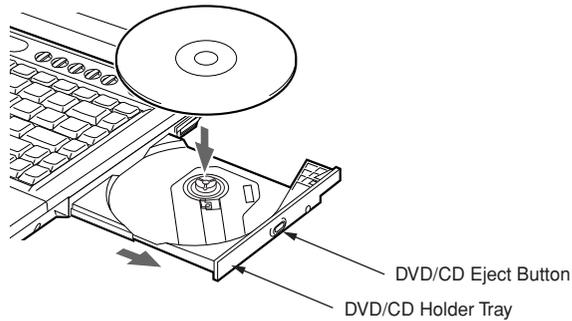


Figure 4-4. Media Player Drive

Media Drive

Your Fujitsu LifeBook notebook contains a media player drive which is either a CD, DVD, or DVD/CD-RW combo. A DVD gives you access to movie, software, and audio DVD/CDs. A DVD/CD-RW allows you to write data onto recordable CDs in addition to all of the standard DVD drive functions.

CAUTION

Do not operate your media player drive unless your LifeBook notebook is sitting on a flat surface. Using a drive when the system is not level may damage the drive or prevent proper operation.

POINT

Prolonged use of the media player drive, such as watching a DVD movie, will substantially reduce your battery life.

LOADING A DVD, CD, CD-R, CD-RW, OR COMBO

To load a disc into your media player drive, follow these steps:

1. Push and release the eject button on the front of the media player drive to open the holder tray. The tray will come out of the notebook a short distance.
2. Gently pull the tray out until a media disc can easily be placed in the tray.

CAUTION

There may be a protective sheet in the tray from when it was shipped; please make sure it is removed before operating the drive, otherwise your drive may be damaged.

3. Place the media into the tray, label side up, with the hole in the center of the disc. Snap the disc onto the raised circle in the center of the tray.
4. Gently push the holder tray back in until you hear a click. (Figure 4-5)

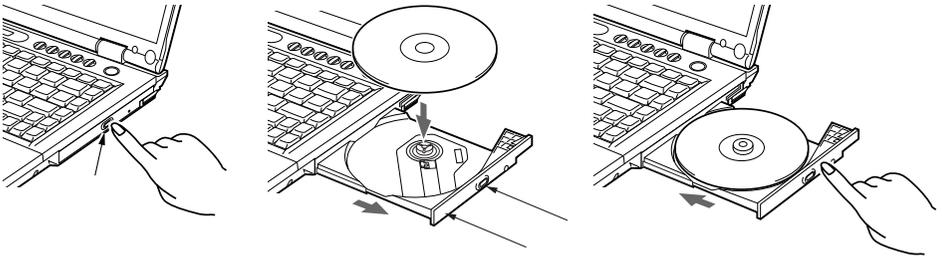


Figure 4-5 Loading/Ejecting Media

REMOVING MEDIA

1. Push and release the eject button on the front of the media player drive. This will stop the drive and the holder tray will come out of the notebook a short distance.
2. Gently pull the tray out until the disc can easily be removed from the tray.
3. Carefully remove the media disc from the holder tray.
4. Gently push the holder tray back in until you hear a click.

EMERGENCY DVD/CD-ROM TRAY RELEASE

If for some reason the eject button fails, you can open the DVD/CD-ROM tray with a paper clip or your pen inserted into the eject hole in the far right side of the front of the tray. Straighten one side of a paper clip and push it gently into the hole. The tray will pop out a short distance.

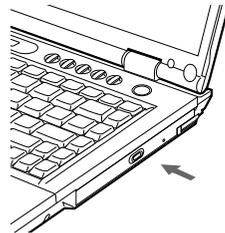


Figure 4-6 Emergency Removal of a CD/DVD

Hard Disk Drive

Your Fujitsu LifeBook notebook hard disk drive capacity is dependent on which model you are using. Some LifeBook notebooks may also contain a removable hard disk drive in addition to the internal hard disk drive.

FORMATTING THE HARD DISK DRIVE

The internal hard disk drive is formatted, or initialized, at the factory. You do not need to format it under normal circumstances. If you decide to reformat due to corruption or upgrade, please refer to your operating system documentation for the correct procedure.

CAUTION

Reformatting the hard disk drive will erase all of the data currently stored on it, including the operating system and installed programs.

Before you reformat your hard disk drive, please note:

- Any data that currently resides on your hard disk drive must be backed-up to floppy disks or other data storage media, or it will be permanently lost. These back-up disks can then be used to reinstall and restore your data.

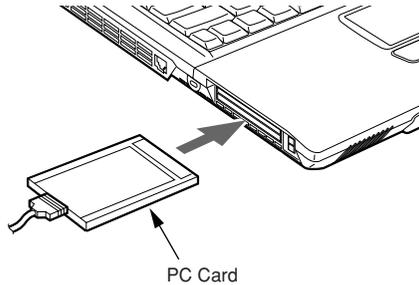


Figure 4-7 Installing/Removing PC Cards

PC Cards

Your LifeBook notebook supports two Type I and II and one Type III PC Cards, which can perform a variety of functions depending on which type of PC Card you install.

Some types of PC Cards available on the market include:

- Fax/data modem
- Local area network (LAN)
- Wireless LAN PC card
- IDE solid-state disk
- SCSI
- Other PC Cards that conform to PCMCIA™ 2.1 or CardBus standards.

For further information, refer to the instructions supplied with your PC Card.

INSTALLING PC CARDS

PC Cards are installed in the PC Card slots. To install a PC Card, follow these easy steps:

1. See your PC Card manual for specific instructions on the installation of your card. Some PC Cards may require your LifeBook notebook to be Off while installing them.
2. Make sure there is no PC Card currently occupying the slot. If there is, see Removing PC Cards.
3. If either of the eject buttons is extended, press it in until it clicks.
4. Insert your PC Card into the slot with the product label facing up.
5. Push the card into the slot firmly until it is seated in the opening.

REMOVING PC CARDS

To remove a PC Card, perform the following steps:

1. See your PC Card manual for specific instructions on removing your card. Some PC Cards may require your notebook to be Off while removing them.

CAUTION

- Installing or removing a PC Card during your LifeBook notebook's shutdown or bootup process may damage the card and/or your notebook.
- Do not insert a PC Card if it not clean and dry. Inserting a dirty or wet card could damage your notebook.

CAUTION

Loss of data could occur if proper shutdown procedures are not observed.

 **CAUTION**

Windows 2000 Professional PC Cards should be stopped using the Unplug or Eject Hardware utility on the taskbar. Refer to your operating system manual for the correct procedure.

Windows XP has a Safe Removal of Hardware utility on the taskbar. Refer to your operating system manual for the correct procedure.

 **CAUTION**

If the PC Card has an external connector and cable, do not pull the cable when removing the card.

 **POINT**

If the dialog box states that the device cannot be removed, you must save all of your open files, close any open applications and shut down your LifeBook notebook. Once your notebook has been shut down, you must turn Off the power using the power switch.

2. Unlock the PC Card from the slot by first pressing the eject button associated with the slot the card is in. When pressed, the button will pop up.
3. Firmly press the button again until it is flush with the notebook. This will push the PC Card slightly out of the slot allowing you to remove the card.

Memory Upgrade Module

Your LifeBook notebook comes with 128MB or 256MB of memory factory installed. To increase your LifeBook notebook's memory capacity, you may install an additional memory upgrade module. You can also replace the original memory module with a higher capacity module. The memory upgrade must be a PC2100 DDR266 SO-DIMM module, but it can be any capacity up to 1024MB (total). To ensure 100% compatibility, we recommend that you only purchase additional memory from the Fujitsu.



CAUTION

Do not remove any screws from the memory upgrade module compartment, except the ones specifically shown in the directions for installing and removing the memory upgrade module.

INSTALLING A MEMORY UPGRADE MODULE

1. Turn off power to your LifeBook notebook using the power switch, and remove any power adapter.
2. Make sure that all the connector covers are closed.
3. Turn the LifeBook notebook bottom side up, with the front panel toward you.
4. Remove the screw at the front of the memory upgrade module compartment. (Figure 4-8)

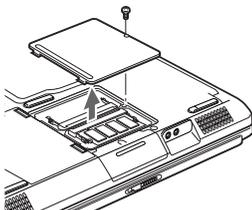


Figure 4-8. Opening the Memory Upgrade Compartment



CAUTION

The memory upgrade module can be severely damaged by electro-static discharge (ESD). Be sure you are properly grounded when handling and installing the module.

5. Remove the cover by tilting the front edge up and then pulling forward until the tabs on the cover are free.
6. Remove the memory upgrade module from the static guarded sleeve.
7. Align the memory upgrade module with the part side up. Align the connector edge of the memory upgrade module with the connector slot in the compartment. The connector will be pointing toward the rear of the LifeBook notebook.
8. Insert the memory upgrade module at a 45° angle. Press the connector edge of the module firmly down and into the connector until it lodges under the retaining clip. You will hear a click when it is properly in place. (Figure 4-9)

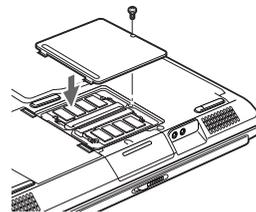


Figure 4-9. Installing a Memory Upgrade Module

9. Replace the cover by hooking the tabs under the rear edge of the compartment opening and tilting down until flush with the bottom of your LifeBook notebook.
10. Replace the screw.

POINT

The memory upgrade module is not something you should routinely remove from your notebook. Once it is installed, you should leave it in place unless you want to increase system memory capacity.

REMOVING A MEMORY UPGRADE MODULE

1. Perform steps 1 through 5 of Installing a Memory Upgrade Module.
2. Pull the clips sideways away from each side of the memory upgrade module at the same time.
3. While holding the clips out, remove the module from the slot by lifting it up and pulling towards the rear of your LifeBook notebook. (Figure 4-10)

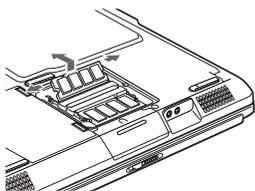


Figure 4-10. Removing a Memory Upgrade Module

4. Store the memory upgrade module in a static guarded sleeve.
5. Replace the cover by following steps 9 and 10 of Installing a Memory Upgrade Module.

POINT

After installing your added memory module, you must complete the Resetting the Save-to-Disk Parameters procedure in order for the Save-to-Disk mode to operate properly on your LifeBook notebook.

CHECKING THE COMPUTER RECOGNITION OF NEW MEMORY CAPACITY

Once you have changed the system memory capacity by either adding or removing a memory upgrade module, be sure to check that your notebook has recognized the change.

You can check the memory capacity by looking at the main menu of the BIOS setup:

1. Turn on the power to your LifeBook notebook using the power switch.
2. Allow the system to start booting and press the F2 key once the Fujitsu logo appears on the screen. This will open the main menu of the BIOS setup with the current settings displayed.

The System Memory and the Extended Memory capacity, as detected by your LifeBook notebook during the Power On Self Test (POST), are displayed at the bottom of the main menu screen. Slot 1 is the original memory compartment while Slot 2 is the upgrade compartment located in the center of your LifeBook notebook.

POINT

If the total memory displayed is incorrect, check that your memory upgrade module is properly installed.

Device Ports

Your LifeBook notebook comes equipped with multiple ports to which you can connect an external device including: disk drives, keyboards, modems, printers, etc.

COMMUNICATIONS PORTS

Your LifeBook has a Modem jack (RJ-11) and a LAN jack (RJ-45) to accommodate external communications.

Modem (RJ-11) Telephone Jack

The modem (RJ-11) telephone jack is used for your internal modem. To connect the telephone cable follow these easy steps:

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.
3. Plug the other end of the telephone cable into a telephone outlet.



CAUTION

Do not connect the internal modem to a Digital PBX as it may cause serious damage to the modem or your LifeBook notebook. It should be noted that some hotels use the Digital PBX systems, please be sure to find out BEFORE you connect your modem. Consult your PBX manufacturer's documentation for more information.

LAN PORT

This port allows you to connect a LAN (RJ-45) cable for high-speed network or broadband connections (e.g., DSL, cable modem). When your LifeBook notebook is connected to the Port Replicator, the LAN port on the system is not accessible; the Port Replicator LAN port is the only one that should be used when it is attached to the system.

WIRELESS LAN PORT

The optional Wireless LAN port allows you to connect with another device wirelessly.

PARALLEL PORT

The parallel port, or LPT port, allows you to connect parallel devices, such as a printer to your LifeBook notebook. In order to connect a parallel interface device follow these easy steps:

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.
3. Tighten the two hold-down screws, located on each end of the connector.

SERIAL PORT

The serial port, or COMM port, allows you to connect serial devices, such as printers or scanners. In order to connect a serial interface device follow these steps:

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.
3. Tighten the two hold-down screws, located on each end of the connector.

PS/2 PORT (Only available in optional Port Replicator)

The PS/2 port allows you to connect an external keyboard, numeric keypad, or mouse. In order to connect a PS/2 interface device follow these steps:

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

POINT

- A mouse, keyboard, or keypad may be installed and automatically recognized by your notebook without restarting or changing setups.
- The use of two PS/2 devices simultaneously from the port requires a PS/2 splitter.

UNIVERSAL SERIAL BUS PORTS

The Universal Serial Bus ports (USB) allow you to connect USB devices such as external game pads, pointing devices, keyboards and/or speakers. In order to connect a USB device follow these steps:

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

INFRARED PORT

The Infrared IrDA 1.1 (4Mbps) port allows for wireless data transfer between your LifeBook notebook and other IrDA-compatible devices, such as another computer or a printer, without the use of a cable.

It is important to keep in mind that while carrying out this form of communication, both devices must be placed so their infrared ports are directly facing each other without obstruction. The devices must also be separated by at least 6" but no more than 36" for maximum performance.

The following conditions may interfere with infrared communications:

- A television, radio remote control unit, or a wireless headphone is being used nearby.
- Direct sunlight, fluorescent light, or incandescent light shines directly on the port.

CAUTION

- Do not move either device while communication is active as it may interrupt data transmission.
- Be careful not to scratch the infrared port lens. Scratches, dirt, or other surface marks can degrade operation.

POINT

With Windows 2000 Professional, file transfer is provided through Wireless Link in the Control Panel.

MICROPHONE JACK

The microphone jack allows you to connect an external mono microphone. Your microphone must be equipped with a 1/8" (3.5 mm) mono mini-plug in order to fit into the microphone jack of your LifeBook notebook. In order to connect a microphone follow these easy steps:

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

S-VIDEO OUT PORT

The S-Video port allows you to connect and use directly any S-Video device, such as a VCR or television. The S-Video standard provides for a higher quality picture than NTSC or PAL. In order to connect an S-Video device, follow these easy steps:

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

HEADPHONE JACK

The headphone jack allows you to connect head-phones, powered external speakers. Your device must be equipped with a 1/8" (3.5 mm) stereo mini-plug. In order to connect headphones or speakers follow these easy steps:

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

POINT

If you plug headphones into the headphone jack, you will disable the built-in stereo speakers.

DOCKING PORT

The docking port is used for the connection of your notebook to an optional port replicator or docking station. In order to connect your notebook to one of these devices follow the instructions that came with your port replicator or docking station.

CAUTION

The system must be undocked within 30 secs from the optional port replicator after the "Eject" is clicked, else the system will automatically return to "Docked" status. If this happens, the "Eject" has to be clicked again before undocking the system.

Some LifeBook notebooks have a sliding panel that encloses the ports. The sliding panel can be damaged if it is left open while the notebook is moved.

EXTERNAL MONITOR PORT

The external monitor port allows you to connect an external monitor. In order to connect an external monitor follow these easy steps:

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.
3. Tighten the two hold-down screws, located on each end of the connector.

POINT

Pressing the [Fn] + [F10] keys allows you to change your selection of where to send your display video. Each time you press the key combination, you will step to the next choice, starting with the built-in display panel only, moving to the external monitor only, finally moving to both the built-in display panel and an external monitor.



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.
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.



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.

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 built-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 using the DVD Application.
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
Docking Problems		
Notebook does not turn on when installed in Docking Station.	LAN Dock AC adapter is not plugged in.	Provide power to the LAN Docking Station.
	Notebook is not properly seated in the LAN Dock.	Remove and re-dock your notebook and verify that the Docked LED illuminates.
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 software may not have the correct driver active.	See your software documentation and activate the correct driver.
	You may have the wrong 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 Standby 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 software 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.



**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 13°F (-25°C) and 140°F (60°C).

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 loose 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.

FLOPPY DISKS AND DRIVES

Caring for your Floppy Disks

- Avoid using the floppy disks in damp and dusty locations.
- Never store a floppy disk near a magnet or magnetic field.
- Do not use a pencil or an eraser on a disk or disk label.
- Avoid storing the floppy disks in extremely hot or cold locations, or in locations subject to severe temperature changes. Store at temperatures between 50° F (10°C) and 125°F (52°C).
- Do not touch the exposed part of the disk behind the metal shutter.

Caring for your Floppy Disk Drive

- To clean, wipe the floppy disk drive clean with a dry soft cloth, or with a soft cloth dampened with water or a solution of neutral detergent. Never use benzene, paint thinner or other volatile material.
- Avoid storing the floppy disk drive in extremely hot or cold locations, or in locations subject to severe temperature changes. Store at temperatures between 50° F (10°C) and 125°F (52°C).
- Keep the floppy disk drive out of direct sunlight and away from heating equipment.
- Avoid storing the floppy disk drive in locations subject to shock and vibration.
- Never use the floppy disk drive with any liquid, metal, or other foreign matter inside the floppy disk drive or disk.
- Never disassemble or dismantle your floppy disk drive.

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.

A large, light gray stylized number 7 logo. The number 7 is centered within the upper loop of the 7. Below the logo, the word "Glossary" is written in a bold, black, sans-serif font.

7 Glossary

Glossary

AC Adapter

A device which converts the AC voltage from a wall outlet to the DC voltage needed to power your LifeBook notebook.

ACPI

Advanced Configuration & Power Interface. A power management tool, which is part of the Windows 98 Second Edition operating system, that enables the operating system to control the amount of power given to each device attached to the computer. With ACPI, the operating system can turn off peripheral devices, such as the CD-ROM player, when it is not in use.

Active-Matrix Display

A type of technology for making flat-panel displays which has a transistor or similar device for every pixel on the screen.

BatteryAid

Utility that allows the user to change the display brightness in order to optimize battery life.

BIOS

Basic Input-Output System. A program and set of default parameters stored in ROM which tests and operates your LifeBook notebook when you turn it on until it loads your installed operating system from disk. Information from the BIOS is transferred to the installed operating system to provide it with information on the configuration and status of the hardware.

Bit

An abbreviation for binary digit. A single piece of information which is either a one (1) or a zero (0).

bps

An abbreviation for bits per second. Used to describe data transfer rates.

Boot

To start-up a computer and load its operating system from disk, ROM or other storage media into RAM.

Bus

An electrical circuit which passes data between the CPU and the sub-assemblies inside your LifeBook notebook.

Byte

8 bits of parallel binary information.

Cache Memory

A block of memory built into the microprocessor which is much faster to access than your system RAM and used in specially structured ways to make your overall data handling time faster.

CardBus

A faster, 32-bit version of the PC Card interface which offers performance similar to the 32-bit PCI architecture.

CMOS RAM

Complementary metal oxide semiconductor random access memory. This is a technology for manufacturing random access memory which requires very low levels of power to operate.

COMM Port

Abbreviation for communication port. This is your serial interface connection.

Command

An instruction which you give your operating system. Example: run a particular application or format a floppy disk.

Configuration

The combination of hardware and software that makes up your system and how it is allocated for use.

CRT

Cathode Ray Tube. A display device which uses a beam of electronic particles striking a luminescent screen. It produces a visual image by varying the position and intensity of the beam.

Data

The information a system stores and processes.

DC

Direct current. A voltage or current that does not fluctuate periodically with time.

DDR

Double Data Rate

Fast version of SDRAM that provides twice the band-width of standard SDRAMs.

Default Value

A pre-programmed value to be used if you fail to set your own.

DIMM

Dual-in-line memory module.

Disk

A spinning platter of magnetic data storage media. If the platter is very stiff it is a hard drive, if it is highly flexible it is a floppy disk, if it is a floppy disk in a hard housing with a shutter it is commonly called a diskette.

Disk Drive

The hardware which spins the disk and has the heads and control circuitry for reading and writing the data on the disk.

Diskette

A floppy disk in a hard housing with a shutter.

DMA

Direct Memory Access. Special circuitry for memory to memory transfers of data which do not require CPU action.

DMI

Desktop Management Interface. A standard that provides PC management applications with a common method of locally or remotely querying and configuring PC computer systems, hardware and software components, and peripherals.

DOS

Disk Operating System (MS-DOS is a Microsoft Disk Operating System).

Driver

A computer program which converts application and operating system commands to external devices into the exact form required by a specific brand and model of device in order to produce the desired results from that particular equipment.

DVD

Digital Video Disc. This is a form of optical disc storage for video, audio and computer data, envisioned to replace current digital storage formats (CD-ROM, laser and audio CD) because of its capability for storing greater amounts of data. A typical single layer, single-sided DVD, for example, can contain 4.7GB of data and a maximum of 17GB for the double-sided discs.

ECP

Extended Capability Port. A set of standards for high speed data communication and interconnection between electronic devices.

ESD

Electrostatic Discharge. The sudden discharge of electricity from a static charge which has built-up slowly. Example: the shock you get from a doorknob on a dry day or the sparks you get from brushing hair on a dry day.

Extended Memory

All memory more than the 640KB recognized by MS-DOS as system memory.

FCC

Federal Communication Commission

Floppy Disk

A spinning platter of magnetic data storage media which is highly flexible.

GB

Gigabyte.

Hard drive

A spinning platter of magnetic data storage media where the platter is very stiff.

Hexadecimal

A decimal notation for the value of a 4 bit binary number. (0-9, A, B, C, D, E, F) Example: 2F in hexa-decimal = 00101111 in binary = 47 in decimal.

I/O

Input/Output. Data entering and leaving your LifeBook notebook in electronic form.

I/O Port

The connector and associated control circuits for data entering and leaving your LifeBook notebook in elec-tronic form.

IDE

Intelligent Drive Electronics. A type of control interface for a hard drive which is inside the hard drive unit.

Infrared

Light just beyond the red portion of the visible light spectrum which is invisible to humans.

IR

An abbreviation for infrared.

IrDA

Infrared Data Association. An organization which produces standards for communication using infrared as the carrier.

IRQ

Interrupt Request. An acronym for the hardware signal to the CPU that an external event has occurred which needs to be processed.

KB

Kilobyte.

LAN

Kilobyte.

LCD

Liquid Crystal Display. A type of display which makes images by controlling the orientation of crystals in a crystalline liquid.

Lithium ion Battery

A type of rechargeable battery which has a high power-time life for its size and is not subject to the memory effect as Nickel Cadmium batteries.

LPT Port

Line Printer Port. A way of referring to parallel interface ports because historically line printers were the first and latter the most common device connected to parallel ports.

MB

Megabyte.

Megahertz

1,000,000 cycles per second.

Memory

A repository for data and applications which is readily accessible to your LifeBook notebook's CPU.

MHz

Megahertz.

MIDI

Musical Instrument Digital Interface. A standard communication protocol for exchange of information between computers and sound producers such as synthesizers.

Modem

A contraction for MOdulator-DEModulator. The equipment which connects a computer or other data terminal to a communication line.

Monaural

A system using one channel to process sound from all sources.

NTSC

National TV Standards Commission. The standard for TV broadcast and reception for the USA.

Operating System

A group of control programs that convert application commands, including driver programs, into the exact form required by a specific brand and model of micro-processor in order to produce the desired results from that particular equipment.

Parallel Port

A connection to another device through which data is transferred as a block of bits simultaneously with a wire for each bit in the block and with other wires only for control of the device not for transfer of data.

Partition

A block of space on a hard drive which is set aside and made to appear to the operating system as if it were a separate disk, and addressed by the operating system accordingly.

PCMCIA

PCMCIA is a trademark of the Personal Computer Memory Card International Association. The Personal Computer Memory Card International Association is an organization that sets standards for add-in cards for personal computers.

Peripheral Device

A piece of equipment which performs a specific function associated with but not integral to a computer. Examples: a printer, a modem, a CD-ROM.

Pitch (keyboard)

The distance between the centers of the letter keys of a keyboard.

Pixel

The smallest element of a display, a dot of color on your display screen. The more pixels per area the clearer your image will appear.

POST

Power On Self Test. A program which is part of the BIOS which checks the configuration and operating condition of your hardware whenever power is applied to your LifeBook notebook. Status and error messages may be displayed before the operating system is loaded. If the self test detects failures that are so serious that operation can not continue, the operating system will not be loaded.

Program

An integrated set of coded commands to your computers telling your hardware what to do and how and when to do it.

PS/2

An IBM series of personal computers which established a number of standards for connecting external devices such as keyboards and monitors.

RAM

Random Access Memory. A hardware component of your LifeBook notebook that holds binary information (both program and data) as long as it has the proper power applied to it.

RAM Module

A printed circuit card with memory and associated circuitry which allows the user to add additional memory to the computer without special tools.

Reset

The act of reloading the operating system. A reset erases all information stored in RAM.

Restart

See Reset.

Resume

To proceed after interruption. In your LifeBook notebook this refers to returning to active operation after having been in one of the suspension states.

ROM

Read Only Memory. A form of memory in which information is stored by physically altering the material. Data stored in this way can not be changed by your LifeBook notebook and does not require power to maintain it.

SDRAM

Synchronous Dynamic Random Access Memory.

Serial Port

A connection to another device through which data is transferred one bit at a time on a single wire with any other wires only for control of the device not for transfer of data.

Shadow RAM

A technique of copying data or applications stored in ROM (Read Only Memory) into RAM (Random Access Memory) for access during actual operation. RAM is much faster to access than ROM, however ROM contents are not lost when power is removed. Shadowing allows permanently stored information to be rapidly accessed.

Smart Card

Smart Cards are the same size and shape as credit cards, but they contain an integrated microprocessor chip. The chip can hold a variety of different information, and provides the user with many possible options, such as allowing them to make secure purchases, pay for phone calls, store security information, and provide personal identification and information.

SRAM

Static Random Access Memory. A specific technology of making RAM which does not require periodic data refreshing.

Status Indicator

A display which reports the condition of some portion of your hardware. On your LifeBook notebook this is an LCD screen just above the keyboard.

Stereo (audio)

A system using two channels to process sound from two different sources.

Stroke (keyboard)

The amount of travel of a key when it is pressed from resting to fully depressed.

Suspend

To make inoperative for a period of time. Your LifeBook notebook uses various suspension states to reduce power consumption and prolong the charge of your battery.

SVGA

Super VGA.

S-Video

Super Video. A component video system for driving a TV or computer monitor.

System Clock

An oscillator of fixed precise frequency which synchronizes the operation of the system and is counted to provide time of day and date.

TFT

Thin Film Transistor – A technology for flat display panels which uses a thin film matrix of transistors to control each pixel of the display screen individually.

VGA

Video Graphics Array. A video display standard originally introduced by IBM with the PS/2 series of personal computers.

VRAM

Video Random Access Memory. A memory dedicated to video display data and control.

WFM

Wired for Management is Intel's broad-based initiative to reduce the total cost of ownership (TCO) of business computing without sacrificing power and flexibility.

Write Protect

Prevent alteration of the binary state of all bits in a storage media. Example: all information on a device such as a floppy diskette; a block of space in a storage media such as a partition of a hard drive; a file or directory of floppy diskette or hard drive.

XGA

Extended VGA.



Axppendix

Integrated Wireless LAN User's Guide

(For selected Model)

FC FCC REGULATORY INFORMATION

Please note the following regulatory information related to your wireless LAN device.

Regulatory Notes and Statements

Wireless LAN, Health and Authorization for use

Radio frequency electromagnetic energy is emitted from Wireless LAN devices. The energy levels of these emissions, however, are far much less than the electromagnetic energy emissions from wireless devices such as mobile phones. Wireless LAN devices are safe for use by consumers because they operate within the guidelines found in radio frequency safety standards and recommendations. The use of Wireless LAN devices may be restricted in some situations or environments, such as:

- On board an airplane, or
- In an explosive environment, or
- In situations where the interference risk to other devices or services is perceived or identified as harmful.

In cases in which the policy regarding use of Wireless LAN devices in specific environments is not clear (e.g., airports, hospitals, chemical/oil/gas industrial plants, private buildings), obtain authorization to use these devices prior to operating the equipment.

Regulatory Information/Disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The Manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution or attachment of connecting cables and equipment other than those specified by the manufacturer. It is the responsibility of the user to correct any interference caused

by such unauthorized modification, substitution or attachment. The Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failure to comply with these guidelines.

Federal Communications Commission statement

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause interference, and, (2) This device must accept any interference, including interference that may cause undesired operation of this device.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the distance between the equipment and the receiver.
3. Connect the equipment to an outlet on a circuit different from the one the receiver is connected to.
4. Consult the dealer or an experienced radio/TV technician for help.

FCC Radio Frequency Exposure statement

This Wireless LAN radio device has been evaluated under FCC Bulletin OET 65C and found compliant with the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247 (b) (4) addressing RF Exposure from radio frequency devices. The radiated output power of this Wireless LAN device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation is minimized. When using this device, a certain separation distance between antenna and nearby persons must be maintained to ensure RF exposure compliance. In order to comply with RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than 20 cm (8 inches).

Export restrictions

This product or software contains encryption code which may not be exported or transferred from the US or Canada without an approved US Department of Commerce export license. This device complies with Part 15 of FCC Rules., as well as ICES 003 B / NMB 003 B. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation. Modifications not expressly authorized by Fujitsu PC Corporation may invalidate the user's right to operate this equipment.

BEFORE USING THIS DEVICE

Thank you for purchasing a Fujitsu LifeBook with an Integrated Wireless LAN. This manual describes the basic operating procedures for the Wireless LAN (referred to as the "device" in this manual) and how to set up a wireless LAN network. Before using this device, read this manual carefully to ensure correct operation of the device. Keep this manual in a safe place for reference while using the device.

Characteristics of the Device

This device consists of a wireless LAN card that is attached to the computer via a mini-PCI slot.

The main characteristics are as follows:

- It uses the power saving communications system in the 2.4 GHz band, and does not require any license for radio communication.
- It uses Direct Sequence Spread Spectrum (DS-SS), which is resistant to noise.
- This device complies with Wi-Fi, and is able to communicate at the maximum transfer rate of 11 Mbps.
- The maximum communication range is approximately 80 feet (25 meters) inside a building. The range may be shorter depending upon the installation factors, such as walls and columns.
- Unauthorized access can be prevented with the use of SSID and encryption key.

Wireless LAN Modes Using this Device

AdHoc Mode

The "AdHoc Mode" refers to the network connecting two computers using wireless LAN cards. This connection is called an "AdHoc network."

Using an AdHoc network, you can obtain a network connection easily and at a low cost.

In the AdHoc mode, you can use the function supported by Microsoft Network, such as File and Print Sharing to exchange files and share a printer or other peripheral devices.

To use the AdHoc Mode, you must set the same SSID and the same encryption key for all the computers that are connected. All connected computers can communicate with each other within the communication range.

Infrastructure Mode

If a number of computers are connected simultaneously in the AdHoc mode, the transfer rate may be reduced, communications may become unstable, or the network connection could fail. This is because all wireless LAN cards are using the same radio frequency in the network.

To improve this situation, you can use a wireless LAN access point, which is sold separately. The wireless LAN network is in the "Infrastructure mode" when it uses an access point, and such a connection is called the "Infrastructure Network."

By using an access point, you can set and use a different communication channel for each network group. Each channel is given a different radio frequency, and it eliminates the collision of communications and provides a more stable communications environment. Infrastructure mode is most suitable when you are configuring multiple wireless LAN networks on the same floor.

To connect a wireless LAN network to a wired LAN, you need an access point.

How to Handle This Device

The Integrated Wireless LAN device is already installed in your LifeBook computer. Under normal circumstances, it should not be necessary for you to remove or re-install it. The LAN has been configured to support the operating system with which your system shipped.

CONNECTING WINDOWS 2000 SYSTEMS

This chapter describes how to set the wireless LAN connection for computers running Windows 2000.

POINT

When you receive your LifeBook, the integrated wireless LAN device and drivers have already been installed. This procedure outlines the steps for setting the device parameters.

Workflow

The proper setup of the wireless LAN connection requires that several steps be performed in the proper order. Following is a general outline of the steps to be performed. Each step is detailed later in this procedure.

1. Setting parameters
 - Setting the profile
 - Setting the encryption
2. Network settings
 - Setting the protocol and checking the network
 - Setting file and printer sharing
 - Checking the connection

Setting Parameters

1. Click [Start]-> [Settings] -> [Control Panel].
2. Double-click the [PRISM Settings] icon. The [PRISM Wireless Settings] appears.
3. Set the profile as specified in Table 1. Ask your network administrators to check the setting.
4. When you finish your entry, click [Apply].
Table 1: Profile Parameters

Item	Description
Profile	Enter the system file name in which the parameter information is to be saved.
Mode	<i>Ad Hoc Network:</i> Click the down arrow and select "802.11 AdHoc". <i>Infrastructure Network:</i> Click the down arrow and select "Infrastructure".
SSID	Enter the network name to which you want to connect
Transmit Rate	Obtain the information from your network administrator. If you do not have a network administrator, select "Fully Automatic".
Power Save Enabled	Not supported.
AdHoc Channel	<i>AdHoc Network:</i> Select the same channel, 1-11, for all connected computers. If there is more than one wireless LAN nearby (such as on the same floor), we recommend that the channels for each LAN be 5 numbers apart (e.g., if there are two other LANs nearby, the channels used should be 1, 6, and 11). <i>Infrastructure Network:</i> Not an option.

Table 1: Profile Parameters

5. Click the [Encryption] tab.
6. Set the encryption items in accordance with Table 2.
 - AdHoc Network: Specify the same value for all the computers for which the encryption key is used for connection.
 - Infrastructure Network: Specify the identical encryption keys to the encryption keys set for the access point. For instructions on how to check the encryption keys set for the access point, refer to the access point manual.


POINT

Make sure that you specify the encryption keys. If you do not specify the keys, any computer with a wireless LAN card can be connected. This presents a risk that your data may be stolen or destroyed.

Item	Description
Encryption (WEP)	<p>Click the down arrow and select an encryption option.</p> <ul style="list-style-type: none"> • <i>Disable</i>: Disables the encryption. In this case, "Create keys with Passphrase" and subsequent items are greyed out, and you cannot enter anything. • <i>40 bit*</i>: The encryption is set. Select either "Create keys with Passphrase", "Create keys manually", or "ASCII Input", and enter the encryption keys. • <i>104 bit*</i>: The encryption is set. Select either "Create keys with Passphrase", "Create keys manually", or "ASCII Input", and enter the encryption keys.
Create Keys with Passphrase	Not supported
Passphrase	Not supported
Create Keys Manually (Hexadecimal Input)	<p>Select this to use hexadecimal character codes to set the encryption keys (Keys 1 - 4). Enter a 10-digit value when you have selected [40 bit]* for the encryption.</p> <p>Enter a 26-digit value when you have selected [104 bit]* for encryption.</p> <p>Select if the network contains a card that is set with the encryption key using the character code. Specify the encryption keys with the same value used for other wireless LAN cards that are already set.</p>

Item	Description
ASCII Input	<p>Select to use the ASCII codes to set encryption keys (Keys 1 - 4). Select this if network does not contain other wireless LAN cards that are set with encryption key using character codes.</p> <p>Enter a 5-digit value when you have selected [40 bit]* for the encryption. Enter a 13-digit value when you have selected [104 bit]* for encryption.</p> <p>You can use the following characters: 0 - 9, A - Z, a - z, _ (underscore).</p> <p>For example, to set "ABC12" for the encryption key, enter "ABC12."</p>
Default Key	Click the down arrow, and select a key from Keys 1 - 4.

Table 2: Encryption Key Setup

7. When you finish your entry, click [Apply].
8. Click [OK]. [PRISM Wireless Settings] closes.

You have completed the parameter settings.

 **POINT**

When using ADSL (PPPoE) with the infrastructure network to connect to the Internet, you must change the computer's MTU size set. To change MTU size, refer to the manual that comes with the access point.

* 40 bit and 104 bit encryption is the wireless LAN equivalent of 64 bit and 128 bit encryption, as set by Microsoft and wireless LAN manufacturers. This is the same encryption rate that is used by the Windows XP operating system, and was selected in order to align it closer to the wireless LAN standard. For consistency, the Windows 2000 utilities reflect the same modes.

Outside of wireless LAN environments, encryption is generally set at either 64 bit or 128 bit. However, the wireless LAN standard requires that 24 bits be reserved for fixed data. As a result, the user can only use 40 bits (64 minus 24) or 104 bits (128 minus 24) for encryption. This requirement also fixes the number of characters used for 128 bit encryption to 13 which is calculated as (13 x 8 bits = 104).

NETWORK CONNECTION: WINDOWS 2000

The section describes how to set the network connection for a computer with Windows 2000.

Network Settings

In this section, you set "TCP/IP Settings," and complete "Checking Computer Name and Workgroup," required for the network connection.

TCP/IP Settings

1. Click [Start] -> [Settings] -> [Control Panel].
2. Double-click the [Network and Dial-up Connections] icon. The [Network and Dial-up Connections] window appears.
3. Right click the [Local Area Connection], then click [Properties] from the menu that appears. The [Local Area Connection Properties] window appears.



POINT

More than one network adapter is installed in your system if more than one [Local Area Connection] entry is displayed. In this case, select the [Local Area Connection] entry with [Intersil PRISM Wireless LAN PCI Card] displayed under [Device Name].

4. Perform the following steps.
 - Click [Internet Protocol (TCP/IP)].
 - Click [Properties]. The [Internet Protocol (TCP/IP) Properties] window appears.
5. Set an IP address as indicated in Table 7. Ask your network administrator to check the setting.

Item	Description
For AdHoc Network	Set the IP address and subnet mask: Click [Use the following IP address], and enter a value for [IP address] and [Subnet mask].
For Infrastructure Network	Select [Obtain an IP address automatically]: For the DNS server, select [Obtain DNS server address automatically]. For the IP address, DNS server, and default gateway, follow the network administrator's instructions, if any.

Table 7: Setting an IP Address

6. Click [OK]. The [Local Area Connection Properties] window appears again.
7. Click [OK]. When a message appears prompting you to restart the computer, click [Yes].

Checking the full computer name and workgroup

1. Click [Start] -> [Settings] -> [Control Panel].
2. Double-click the [System] icon. [System Properties] appears.
3. Click the [Network Identification] tab.
4. Check [Full computer name] and [Workgroup]. Ask your network administrator and check the setting.

Item	Description
Full Computer Name	A name to identify the computer on the network. You can specify any name to each computer. For easier identification, use the model name or user name.
Workgroup	<p>A name for the network group:</p> <ul style="list-style-type: none"> • <i>AdHoc Network</i>: Specify the same name to all computers within the same network. • <i>Infrastructure Network</i>: Specify a workgroup name to connect to. <p>To change the setting, click [Properties], and follow the instructions on the screen. [System Properties] appears again.</p>

Table 8: Checking computer name and workgroup

5. Click [OK]. When a message appears prompting you to restart the computer, click [Yes].

Sharing

In this section, you set sharing of the drive, folder, and printer.

You only need to set this when you are sharing files or a printer with other computers on the network.

When you share a drive, folder, or printer, you can use them from any computer on the network.

Setting [File and Printer Sharing for Microsoft Networks]

1. Click [Start] -> [Settings] -> [Control Panel].
2. Double-click the [Network and Dial-up Connections] icon. The [Network and Dial-up Connections] windows appears.
3. Right click the [Local Area Connection], then click [Properties] from the menu that appears. [Local Area Connection Properties] appears.

 **POINT**

More than one network adapter is installed in your system if more than one [Local Area Connection] entry is displayed. In this case, select the [Local Area Connection] entry with [Intersil PRISM Wireless LAN PCI Card] displayed under [Device Name].

4. If [File and Printer Sharing for Microsoft Networks] is displayed in the list, make sure that it is checked. If it is not checked, check it and click [OK]. You do not have to perform the following steps. Go to the next section, entitled "Sharing Files." If [File and Printer Sharing for Microsoft Networks] is not found in the list, click [Install], and perform Step 5 and subsequent steps. When you click [Install], the [Select Network Component Type] window appears.
5. Perform the following steps.
 - Click [Service].
 - Click [Add]. The [Select Network Service] window appears.
6. Perform the following steps.
 - Click [File and Printer Sharing for Microsoft Networks].
 - Click [OK]. You will go back to [Local Area Connection Properties], and [File and Printer Sharing for Microsoft Networks] is added to the list.
7. Click [OK].

 **POINT**

If you have changed the setting, [Close] is shown instead. Click [Close].

Sharing Files

The following example shows how to set sharing the "Work" folder on the c: drive.

1. On the desktop, double-click [My Computer]-> C: drive.
2. Right-click the "Work" folder, then click [Sharing] from the menu. The [Work Properties] window appears.
3. Click [Share this folder] and set necessary items, as indicated in the following table.

Item	Description
Share name	You can specify a share name for the drive or folder that you want to share.
Comment	You can enter the description for the drive or folder that you want to share.
User limit	Specifies the limit for the number of sharing users.
Permissions	Specifies the folder access privileges.
Caching	Specifies the caching for the folder.

Table 9: Sharing files

4. Click [OK]. The folder is set shared, and the "Work" folder icon changes.

Printer Sharing

The following example shows how to set sharing the "Work" folder on the c: drive.

1. Click [Start] -> [Settings] -> [Printers]. The Printers window appears, showing the printers that are connected.
2. Right click the printer that you want to share, then click [Sharing] from the menu that appears.
3. Click [Sharing], and select necessary items.

Item	Description
Not Shared	Disables printer sharing.
Shared As	Enables printer sharing.
Share Name	Specifies a share name of the printer to be shared.
Comment	Enter the description of the printer to be shared.
Passwords	If you specify a password, you need to enter it when using the printer.

Table 10: Printer Sharing

- Click [OK]. The printer sharing is set, and the icon changes.

Checking the Connection

After the network setting is completed, access the shared drive on another computer to check the connectivity of the wireless LAN network.

Accessing Another Computer

The following example shows how to set sharing the "Work" folder on the c: drive.

- Double-click the [My Network Places] icon on the desktop. [My Network Places] appears.
- Double-click [Computers near me]. The computers that are connected to the network are displayed.
- Double-click the computer that you want to access. The drive that you set with "Sharing" are displayed.
- Double-click the drive that you want to access. The drive is displayed showing its contents and made available to you.

Checking the Connectivity

- Click [Start] -> [Settings] -> [Control Panel].
- Double-click the [PRISM Settings] icon. [PRISM Wireless Settings] appears.
- Check the connectivity on the [Link] tab. The current condition of connection is displayed.

Item	Description
State	Shows the current condition of connection. The MAC address of the other computer to which you are connected is displayed when the connection is successful. If you are connected to more than one computer, the computer that has the best connectivity is displayed.
Current Channel	Shows the current channel used for the connection.
Current Tx Rate	Shows the current transfer rate in Mbits/sec.
[Radio Off]/ [Radio On]	Click [Radio Off] to disconnect. Click [Radio On] to connect to the network.
[Rescan] button	Click this button to search for others to connect to.
Throughput (Bytes/sec)	Shows the actual transfer rate of the data transfer for send (Tx) and receive (Rx).
Link Quality	Shows either [Excellent], [Good], [Fair], [Poor], or [Not Connected], depending on the link quality. Not shown for AdHoc connection.
Signal Strength	Shows either [Excellent], [Good], [Fair], [Poor], or [Not Connected], depending on the signal strength. Not shown for AdHoc connection.

Table 11: Checking connectivity

CONNECTING WINDOWS XP SYSTEMS

This chapter describes how to set up the wireless LAN connection for computers that are running Windows XP.

POINT

When you receive your LifeBook, the integrated wireless LAN device and drivers have already been installed. This procedure outlines the steps for setting the device parameters.

Updated drivers and/or utilities may become available after this manual is printed; see any addenda or fliers that may be included in the system packaging.

Workflow

The proper setup of the wireless LAN connection requires that several steps be performed in the proper order. Following is a general outline of the steps to be performed. Each step is detailed later in this procedure.

1. Setting parameters
 - Setting the profile
 - Setting the encryption
2. Network settings
 - Setting the protocol and checking the network
 - Setting file and printer sharing
 - Checking the connection

Setting Parameters

1. Click [Start] -> [Control Panel].
2. Click [Network and Internet connection].
3. Click [Network connection]. A list of networks that are currently installed is displayed.
4. Right click [Intersil PRISM Wireless LAN PCI Card] in the list, and click [Properties] from the menu that is displayed. [Wireless Network Connection 2 Properties] appears.
5. Click the [Wireless Networks] tab. The [Wireless Networks] tab appears.
6. Perform the following steps.
 - Make sure that [Use Windows to configure my wire-less network settings] is checked.
 - Click [Add] under [Preferred networks]. [Wireless Network Properties] appears.
7. Set parameters.
 - For the AdHoc network, specify the same value to all the computers, for which the encryption key is used for connection.
 - For the infrastructure network, specify the encryption key (network key) with the same value to the encryption key of the access point. For how to check the encryption keys set for the access point, refer to the manual supplied with the access point.

POINT

Be sure to specify the encryption keys. If you do not specify the keys, any computer with a wireless LAN card can be connected. This presents a risk that other users may steal or destroy your data.

Item	Description	
Network Name SSID	<p>Enter the network name to which you want to connect. This is a required item. For the network name, ask your LAN administrator.</p> <p><i>AdHoc network:</i> Set the same name for all of the computers that are to be connected.</p> <p><i>Infrastructure network:</i> Specify the same name as that specified on the access point that is to be connected. For access point instructions, refer to the manual that comes with the access point.</p>	
Key Format	Click the down arrow and select the input for the Network key.	
	ASCII characters	<p>Select this when using ASCII characters for the Network Key. Characters that can be used follow: 0-9, A-Z, a-z, and _ (underscore)</p> <p><i>Example:</i> To set the key to "ABC12", input "ABC12".</p>
	Hexa-decimal characters	<p>Select this when using hexadecimal characters for the Network Key.</p> <p>Use this if there is a wireless LAN card in the network that has the Network Key set to a character code. In 'Network Key', input the same value as the other wireless LAN card.</p>

Table 12: Setting parameters

- When you finish your entry, click [OK]. [Wireless Network Connection 2 Properties] appears again.
- Make sure the network name you specified for the SSID in Step 7 is added under [Preferred networks].

Network Connection

The section describes how to set the network connection for a computer running Windows XP.

Network Settings

In this section, you set "TCP/IP Settings," and complete "Checking Computer Name and Workgroup" required for the network connection.

TCP/IP Settings

- On [Wireless Network Connection Properties], click [General].

POINT

If [Wireless Network Connection 2 Properties] is not displayed, click [Start] -> [Settings] -> [Control Panel], and double-click the [Network Connection] icon.

Right click the [Wireless Network Connection], and then click [Properties] from the menu that appears.

- Perform the following steps.
 - Click [Internet Protocol (TCP/IP)].
 - Click [Properties]. [Internet Protocol (TCP/IP) Properties] appears.
- Set an IP address. Ask your network administrator and check the setting.

Item	Description
AdHoc Network	Set the IP address and subnet mask. Click [Use the following IP address]. Enter a value for [IP address] and
For Infrastructure Network	Select [Obtain an IP address automatically]. For the DNS server, select [Obtain DNS server address automatically]. For the IP address, DNS server, and default gateway, follow the network administrator's instructions, if any.

Table 13: Setting an IP address

- Click [OK].

POINT

If you have changed the setting, [Close] is shown instead. Click [Close].

- Close [Network Connection].

Checking the Full Computer Name and Workgroup

- Click [Start] -> [Control Panel]. Make sure the Classic View is selected.
- Double-click the [System] icon. [System Properties] appears.
- Click the [Computer Name] tab.
- Check [Full computer name] and [Workgroup]. Ask your network administrator and check the setting.

Item	Description
Computer Name	A name to identify the computer on the network. You can specify any name to each computer. Use up to 15 single-byte characters. For easier identification, use the model name or user name.
Workgroup	A name of the network group. Use up to 15 single-byte characters. <i>AdHoc Network:</i> Specify the same name to all computers within the same network. <i>Infrastructure Network:</i> Specify the workgroup name to connect to.

Table 14: Setting computer name and workgroup

To change the setting, click [Change], and follow the instructions on the screen. [System Properties] appears.

- Click [OK]. When a message appears prompting you to restart the computer, click [Yes].

Sharing

In this section, you set sharing of the drive, folder, and printer.

You need to set this only when you are sharing files or a printer with other computers on the network.

When you share a drive, folder, or printer, you can use these from any computer on the network.

Setting [File and Printer Sharing for Microsoft Networks]

- Click [Start] -> [Control Panel]. Make sure the Classic View is selected.
- Double-click the [Network Connection] icon.
- Right click the [Wireless Network Connection], and then click [Properties] from the menu that appears. [Wireless Network Connection Properties] appears.

4. If [File and Printer Sharing for Microsoft Networks] is displayed in the list: Make sure that it is checked. If it is not checked, check it, and click [OK]. You do not have to perform the following steps. Go to "Sharing Files" section. If [File and Printer Sharing for Microsoft Networks] is not found in the list, click [Install], and perform Step 5 and the subsequent steps. When you click [Install], [Select Network Component Type] appears.
5. Perform the following steps.
 - Click [Service].
 - Click [Add]. [Select Network Service] appears.
6. Perform the following steps.
 - Click [File and Printer Sharing for Microsoft Networks].
 - Click [OK]. You will go back to [Wireless Network Connection 2 Properties], and [File and Printer Sharing for Microsoft Networks] is added to the list.
7. Click [Close].

Sharing Files

The following example shows how to set sharing the "Work" folder on the c: drive.

1. Click [Start] -> [My Computer].
2. Double-click the [Local Disk (c:)] icon.
3. Right click the "Work" folder, and then click [Sharing and Security] from the menu that appears. [Work Properties] appears.
4. Click [If you understand the security risks but want to share files without running the wizard, click here].



POINT

If you have already clicked [If you understand the security risks but want to share files without running the wizard, click here], this window does not appear.

In the [Work Properties] window, the description under [Network Sharing and security] changes.

5. Check [Share this folder on the network]. Uncheck [Allow network users to change my files], if the shared folder is for read only.

6. Click [OK]. The folder is set shared, and the "Work" folder icon changes.

Printer Sharing

The following example shows how to set sharing the "Work" folder on the c: drive.

1. Press [Start]->[Control Panel] (or [Settings], if viewing in Classic mode)-> [Printers and Faxes]. The Printers and Faxes display will appear and the connected printers will be displayed.
2. Right-click the printer to be shared, and click [Sharing] from the menu that appears. The properties of the printer to be shared will be displayed. Set printer sharing.

On the display, the printer sharing setting is recommended by the Network Setup Wizard, but for the wire-less LAN network, security is maintained by network name (SSID) or network key. The following steps allow you to set up printer sharing without using the Network Setup Wizard.

3. Click 'If you understand the security risks but want to share printers without running the wizard, click here.' 'Enable Printer Sharing' will be displayed.
4. Select 'Just enable printer sharing'.
5. Click 'OK'. The printer properties will be indicated.
6. Select 'Share this printer'.
7. Enter the sharing printer name in 'Share name'.
8. Click OK. The printer will be shared, and the printer icon will become a sharing icon.

Checking the Connection

After the network setting is completed, access the shared drive on another computer to check the connectivity of the wireless LAN network.

Accessing Another Computer

1. Click [Start] -> [My Computer].
2. From the left menu in [Other Places], click [My Network Places].

3. From the left menu in [Network Tasks], click [View workgroup computers]. The workgroup in which you are participating will appear.
4. Double click the computer to which you want to connect. The drive that you set in [Computer Sharing] appears.
5. Double click the drive to which you want to connect. The contents of the drive will appear, and is available for use..

Checking the Connectivity

1. Click [Start] -> [Control Panel].
2. Double-click the [PRISM Settings] icon. [PRISM Wireless Setting] appears.
3. Check the connectivity on the [Link] tab. The current condition of connection is displayed.

Item	Description
State	Shows the current condition of connection. The MAC address of the other computer that you are connected to is displayed, when the connection is successfully made. If you are connected to more than one computer, the computer that has the best connectivity is displayed.
Current Channel	Shows the current channel used for the connection.
Current Tx Rate	Shows the current transfer rate in Mbits/sec.
Radio Off/ Radio On	Click [Radio OFF] to disconnect. Click [Radio On] to connect to the network.
Rescan	Click this button to search for others to connect to.
Throughput (Bytes/ sec)	Shows the actual transfer rate of the transfer data for send (Tx) and receive (Rx).
Link Quality	Shows the link quality. This is not shown for the AdHoc connection.
Signal Strength	Shows the signal strength. This is not shown for the AdHoc connection.

Table 15: Checking connectivity

TROUBLESHOOTING

This section contains troubleshooting information, including causes and actions, for problems you may find while using this device.

Troubleshooting Table

Problem	Possible Cause	Possible Solution
Exclamation mark (!) or cross (x) is attached to [Intersil PRISM Wireless LAN PCI Card].	Failure to recognize the device.	Restart the computer.
	Failure in installing the driver.	Restart the computer.
Other computers are not displayed when the [Network Computer] icon is double-clicked.	You didn't enter the password when Windows started. You clicked [Cancel] or [ESC] when User Name/Password window was shown.	Make sure that you enter user name and password and click [OK] when starting Windows. If you forget your password, enter another user name. A new user name and password is registered in the computer.
	The network has not been set up correctly.	Check the setting for the protocol, workgroup, and sharing. To check this, you need a different procedure, depending upon the operating system that you use. Refer to the appropriate section of this chapter.
	It takes time before the network is searched and the computer connected is displayed.	Perform the following steps to search for the computer. <ul style="list-style-type: none"> • Click [Start] -> [Search] -> [Other Computers]. • Enter the computer name that you are connecting to in [Name], and click [Search]. • Double-click icon of the computer that has been searched.
	Failure in installing the driver.	Make sure that the driver is correctly installed.
	The TCP/IP protocol is not installed, or, the IP address is not set correctly.	Make sure the TCP/IP protocol is installed. To check this, you need a different procedure, depending on the operating system that you use. Refer to the appropriate section of this manual.

Problem	Possible Cause	Possible Solution
Other computers are not displayed when the [Network Computer] icon is double-clicked.	The TCP/IP protocol is not installed, or, the IP address is not set correctly.	<p>If the TCP/IP protocol is installed, do the following to check the IP address:</p> <ol style="list-style-type: none"> Windows 2000: Click [Start] -> [Programs] -> [Accessories] -> [Command Prompt]. Windows XP: Click [Start] -> [All Programs] -> [Accessories] -> [Command Prompt]. Enter "IPCONFIG" command, and press [Enter]. (If your hard disk is C drive, enter C:\>ipconfig) <p>Check that the IP address is correctly displayed under the IP Address. Example: IP address: 10.0.1.3 Subnet Mask: 255.255.255.0 Default Gateway: 10.0.1.1</p>
Other computers are not displayed when the [Network Computer] icon is double clicked. (continued)	No communication due to poor radio signal.	Shorten the distance between computers or remove visible obstacles between them, and retry the connection.
IP packet isn't reaching its destination	Run the PING command to check the connection	<p>Perform the following steps to run the PING command to check if the IP packet is correctly delivered to the destination.</p> <p>To run the PING command, the TCP/IP protocol must be installed. First you will determine your IP address, then you will make sure your IP address can respond, and then you will make sure other computers can be addressed.</p> <ol style="list-style-type: none"> Windows 2000: Click [Start] -> [Programs] -> [Accessories] -> [Command Prompt]. Windows XP: Click [Start] -> [All Programs] -> [Accessories] -> [Command Prompt].

Problem	Possible Cause	Possible Solution
		<p>2. Type: ipconfig > directory\filename where directory and filename represent the location at which you want to find the IP address.</p> <p>3. Click [Enter], then go to the location you specified above. The IP address for your system will be contained in the file.</p> <p>4. To check that your IP address is functioning properly, go back to the DOS prompt and type: ping <IP address>, then press [Enter]. You will receive several replies, followed by the PING statistics (similar to below).</p> <p>5. To check that your system is communicating with other systems, go to the DOS prompt and type: \>ping XXX.XXX.XXX.XXX. (With the destination IP address in place of XXX.XXX.XXX.XXX).</p> <p>Example: if the destination IP address is 10.0.1.3:</p> <p>C:\>ping 10.0.1.3</p> <p>A message similar to the following appears if the connection is successful.</p> <p>Pinging 10.0.1.3 with 32 bytes of data:</p> <p>Reply from 10.0.1.3: bytes=32 time=1ms TTL=32</p> <p>Reply from 10.0.1.3: bytes=32 time<10ms TTL=32</p> <p>Reply from 10.0.1.3: bytes=32 time=4ms TTL=32</p> <p>Reply from 10.0.1.3: bytes=32 time<10ms TTL=32</p> <p>If the connection fails, [Request timed out], [Destination host unreachable], or a similar message appears. In this case, refer to the "Other computers are not displayed" portion of this chapter.</p>

Problem	Possible Cause	Possible Solution
Cannot connect to the network	There are several possible causes, as listed to the right. Refer to the specific section of this manual or your user's manual.	The following causes are possible. Check each one of them. <ul style="list-style-type: none">• The network name or encryption key is not right.• The driver has not correctly started.• The destination computer is not turned on.• You do not have the access privilege to the destination computer.• The card has failed.• Hardware conflict.

Problem	Possible Cause	Possible Solution
<p>I want to remove the driver</p> <p>(Windows 2000)</p>		<p>Windows 2000:</p> <p>When removing the driver, make sure that the device is attached to the computer. If you try to remove the driver while the device is detached from the computer, the driver is not removed.</p> <ol style="list-style-type: none"> 1. Right click the [My Computer] icon on the desktop, and then click [Properties] from the menu that appears. [System Properties] appears. 2. Click the [Hardware] tab. 3. Click [Device Manager...]. The [Device Manager] window appears. 4. Click [+] beside [Network adapters]. 5. Right click [Intersil PRISM Wireless LAN PCI Card], and click [Uninstall] from the menu that is displayed. [Confirm Device Removal] appears. 6. Click [OK]. 7. Close [System Properties]. 8. Make sure that the icon has disappeared from the task tray in the lower right corner of the screen. 9. Click [Start] -> [Settings] -> [Control Panel]. 10. Double-click [Add/Remove Programs]. [Add/Remove Programs] appears. 11. Perform the following steps. <ul style="list-style-type: none"> • Click [PRISM 11Mbps Wireless LAN for Windows]. • Click [Change/Remove]. A window appears asking you if you really want to remove the driver. 12. Click [Yes]. <p>When the driver is removed, a window appears showing that the driver has been removed.</p> <ol style="list-style-type: none"> 13. Click [OK]. 14. Close [Add/Remove Programs] and [Control Panel]. 15. Shut down Windows, and turn off the computer.

Problem	Possible Cause	Possible Solution
<p>I want to remove the driver (Windows XP)</p>		<p>Windows XP:</p> <p>When removing the driver, make sure that the device is attached to the computer. If you try to remove the driver while the device is detached from the computer, the driver is not removed.</p> <ol style="list-style-type: none"> 1. Click [Start], right click [My Computer], and then click [Properties] from the menu that appears. [System Properties] appears. 2. Click the [Hardware] tab. 3. Click [Device Manager]. 4. Click [+] beside [Network adapters]. 5. Right click [Intersil PRISM Wireless LAN PCI Card], and click [Uninstall] from the menu that is displayed. [Confirm Device Removal] appears. 6. Click [OK]. 7. Close [System Properties]. 8. Make sure that the icon has disappeared from the task tray in the lower right corner of the screen. 9. Click [Start] -> [Control Panel]. [Control Panel] appears. 10. Double-click [Add/Remove Programs]. [Add/Remove Programs] appears. 11. Perform the following steps. <ul style="list-style-type: none"> • Click [PRISM 11Mbps Wireless LAN for Windows]. • Click [Change/Remove]. <p>A window appears asking you if you really want to remove the driver.</p> <ol style="list-style-type: none"> 12. Click [Yes]. <p>When the driver is removed, a window appears showing that the driver has been removed.</p> <ol style="list-style-type: none"> 13. Click [OK]. 14. Close [Add/Remove Programs] and [Control Panel]. 15. Shut down Windows, and turn off the computer.

ABOUT IP ADDRESSES

Setting IP Addresses

If you are not sure how to set the IP address, refer to the following procedure.

If you have an access point (DHCP server) on the network, set the IP address as follows:

Windows 2000: [Obtain an IP address automatically]

Windows XP: [Obtain an IP address automatically]



POINT

A DHCP server is a server that automatically assigns IP addresses to computers or other devices in the network. There is no DHCP server for the AdHoc network.

If the IP address is already assigned to the computer in the network, ask the network administrator to check the IP address to be set for the computer.

If no access point is found in the network:

An IP address is expressed with four values in the range between 1 and 255.

Set the each computer as follows: The value in parentheses is a subnet mask.

<Example>

Computer A: 192.168.100.2 (255.255.255.0)

Computer B: 192.168.100.3 (255.255.255.0)

Computer C: 192.168.100.4 (255.255.255.0)

:

:

Computer X: 192.168.100.254 (255.255.255.0)

SPECIFICATIONS

Technical Specifications for Integrated Wireless LAN Device

Item	Description
Network Type	IEEE 802.11b
Transfer Rate	11/5.5/2/1Mbps (auto change)
Frequency Range	2,400 - 2,483 MHz
Channels	One of 13 channel is used
Card Type	Non-intelligent
VCC	Class B
Security	Network name, encryption key
Supported Operating Systems	Windows 2000, Windows XP
Power Current	Max: 350mA
Maximum number of units recommended for wireless LAN (AdHoc network)	10 or less