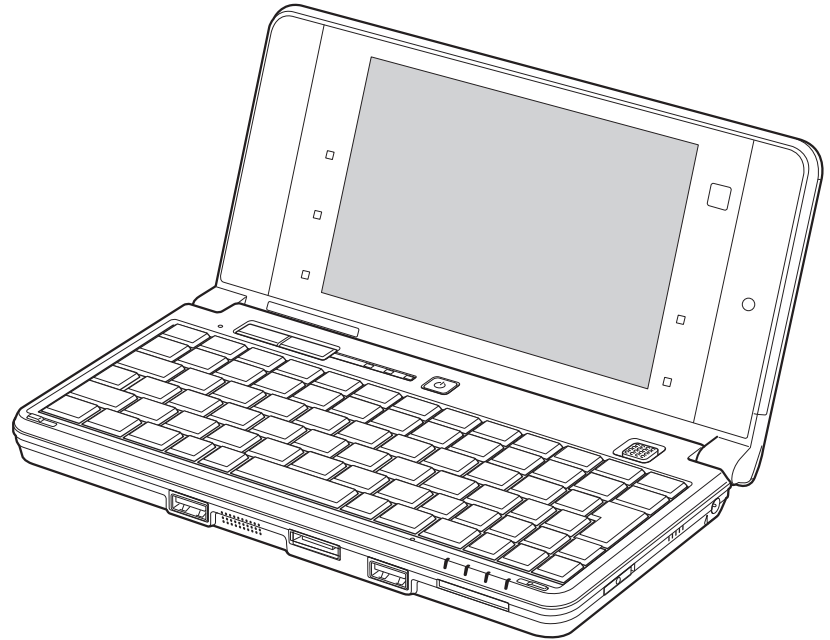# User's Guide

Learn how to use
your Fujitsu LifeBook
UH900 notebook

FUJITSU

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WARNING

HANDLING THE CORD ON THIS PRODUCT WILL EXPOSE YOU TO LEAD, A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

WASH HANDS AFTER HANDLING.

DECLARATION OF CONFORMITY

according to FCC Part 15

Responsible Party Name:	Fujitsu America, Incorporated
Address:	1250 E. Arques Avenue, Sunnyvale, CA 94085
Telephone:	(408) 746-6000
Declares that product:	Base Model Configuration: LifeBook UH900 notebook
	Complies with Part 15 of the FCC Rules.

This device complies with Part 15 of the FCC rules. Operations are subject to the following two conditions: (1) This device may not cause harmful interference, (2) This device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT SAFETY INSTRUCTIONS

This unit requires an AC adapter to operate. Use only UL Listed I.T.E. Class II Adapters with an output rating of 19 VDC, with a minimum current of 2.1 A (40 W).

AC adapter output polarity:

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

- Do not use this product near water for example, near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
- Avoid using a modem during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use a modem to report a gas leak in the vicinity of the leak.
- Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
- To reduce the risk of fire, use only No. 26 AWG or larger UL Listed or CSA Certified Telecommunication Line Cord.
- For TV tuner use: To protect from overvoltages and transients on the Cable Distribution System, make sure that the outer shield of the coaxial cable is connected to earth (grounded) at the building premise as close to the point of cable entrance as practicable, as required per NEC Article 820.93, ANSI/NFPA 70: 2005. If you have questions about your CATV installation, contact your service provider.

SAVE THESE INSTRUCTIONS

For Authorized Repair Technicians Only

DANGER OF EXPLOSION IF LITHIUM (CLOCK) BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTION.

FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE AND RATING FUSE.

Recycling your battery

Over time, the batteries that run your mobile computer will begin to hold a charge for a shorter amount of time; this is a natural occurrence for all batteries. When this occurs, you may want to replace the battery with a fresh one*. If you replace it, it is important that you dispose of the old battery properly because batteries contain materials that could cause environmental damage if disposed of improperly.

Fujitsu is very concerned with environmental protection, and has enlisted the services of the Rechargeable Battery Recycling Corporation (RBRC)**, a non-profit public service organization dedicated to protecting our environment by recycling old batteries at no cost to you.

RBRC has drop-off points at tens of thousands of locations throughout the United States and Canada. To find the location nearest you, go to www.RBRC.org or call 1-800-822-8837.

If there are no convenient RBRC locations near you, you can also go to the EIA Consumer Education Initiative website (http://EIAE.org/) and search for a convenient disposal location.

Remember – protecting the environment is a cooperative effort, and you should make every effort to protect it for current and future generations.

* To order a new battery for your Fujitsu mobile computer, go to the Fujitsu shopping site at www.shopfujitsu.com in the US or www.fujitsu.ca/products/notebooks in Canada.

** RBRC is an independent third party to which Fujitsu provides funding for battery recycling. RBRC is in no way affiliated with Fujitsu.

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Chapter 2   Getting Started with Your LifeBook

Chapter 3   **User-Installable Features**

Chapter 4   **Troubleshooting Your LifeBook**

Chapter 5 Care and Maintenance

Chapter 6 System Specifications

Glossary/Regulatory

Appendix A: Wireless Device User's Guide

Preface

About This Guide

The LifeBook UH900 notebook from Fujitsu America is an ultra-mobile convertible computer. It is powered by an Intel® Atom™ Z530 processor, has a built-in color display with a passive digitizer, and brings the computing power of desktop personal computers (PCs) to a handheld, versatile environment.

This manual explains how to operate your LifeBook UH900 notebook's hardware and pre-installed system software. Your LifeBook UH900 notebook comes with Windows 7 Home Premium pre-installed.

Conventions Used in the Guide

Keyboard and on-screen 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.
For example: ("See Installation Procedure on page 43".) Note that all cross-references are linked to the referenced items, so by clicking the link, you will automatically go to the referenced item or page.

On-screen menu items appear in bold. Example: "Click **Fujitsu Menu**, and select your choice".

THE INFORMATION ICON HIGHLIGHTS INFORMATION THAT WILL ENHANCE YOUR UNDERSTANDING OF THE SUBJECT MATERIAL.

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.

THE WARNING ICON HIGHLIGHTS INFORMATION THAT CAN BE HAZARDOUS TO EITHER YOU, YOUR LIFEBOOK NOTEBOOK, OR YOUR FILES. PLEASE READ ALL WARNING INFORMATION CAREFULLY.

Fujitsu Contact Information

Service and Support

You can contact Fujitsu Service and Support in the following ways:

- Toll free: 1-800-8Fujitsu (1-800-838-5487)
- Website: http://www.computers.us.fujitsu.com/support

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
- Type of device connected, if any

Fujitsu Shopping Online

You can go directly to the online by going to the website at: www.shopfujitsu.com.

YOU MUST HAVE AN ACTIVE INTERNET CONNECTION TO USE THE ONLINE URL LINKS.

Limited Warranty

Your LifeBook UH900 ultra-mobile notebook is backed by a Fujitsu International Limited Warranty. Check the service kit that came with your notebook for the Limited Warranty period and terms and conditions.

Chapter 1

Getting to Know Your LifeBook

Overview

This section describes the components of your Fujitsu LifeBook UH900 notebook. We strongly recommend that you read it before using your notebook – even if you are already familiar with notebook computers.
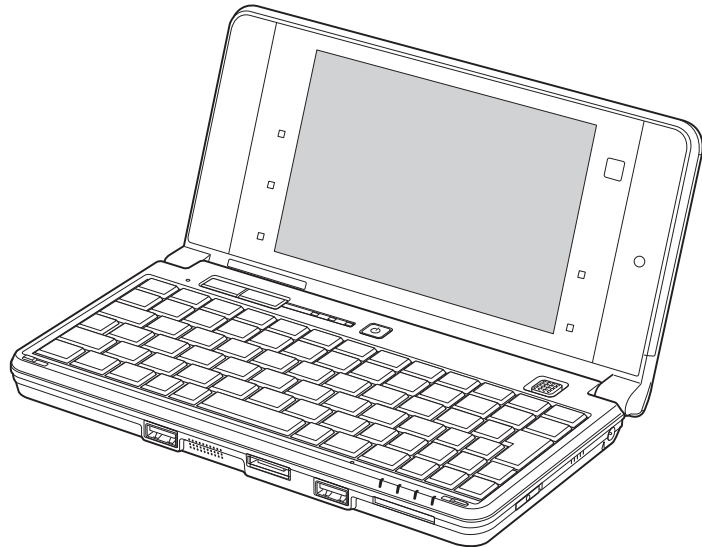
Figure 1. Fujitsu LifeBook UH900 notebook

Locating the Controls and Connectors

Connectors and peripheral interfaces on the LifeBook UH900 notebook and the external monitor/LAN adapter cable allow you to connect and control a variety of devices. Specific locations are illustrated in Figures 2 through 6. The table below provides a short description of each icon on the LifeBook UH900 notebook and/or adapter cable. Each of the icons is either molded into or printed on the notebook or cable.

Connection	Notebook Icon	Purpose
DC in connector		Connect an external power source such as the AC adapter or auto/airline adapter.
Secure Digital (SD) Slot		Insert an SD flash memory card for data storage. Flash memory cards allow you to transfer data to and from a variety of different digital devices.
USB Port		Connect Universal Serial Bus 2.0 or 1.1 compliant devices to the notebook.
Headphone Jack		Connect stereo headphones or powered external speakers. The internal speaker is disabled when you plug in external headphones or powered speakers.
Suspend/ Resume button		The Power/Suspend/Resume button allows you to suspend notebook activity without powering off, resume your notebook from suspend mode, and power on the system when it has been shut down from Windows.
Local Area Network (LAN)		(Available using external monitor/LAN adapter cable only.) The LAN (RJ-45) jack is used to connect the internal 10/100 Base-T/Tx Ethernet to a Local Area Network (LAN) in your office or home, or broadband devices such as a cable modem, DSL, or satellite Internet.

Connection	Notebook Icon	Purpose
Wireless LAN/ Bluetooth On-Off Switch	(icon)	The wireless LAN/Bluetooth switch allows you to turn power to the wireless LAN device and Bluetooth devices on and off.
External Video port	(icon)	(Available using external monitor/LAN adapter cable only.) The external video port allows you to connect an external monitor or LCD projector to your computer.
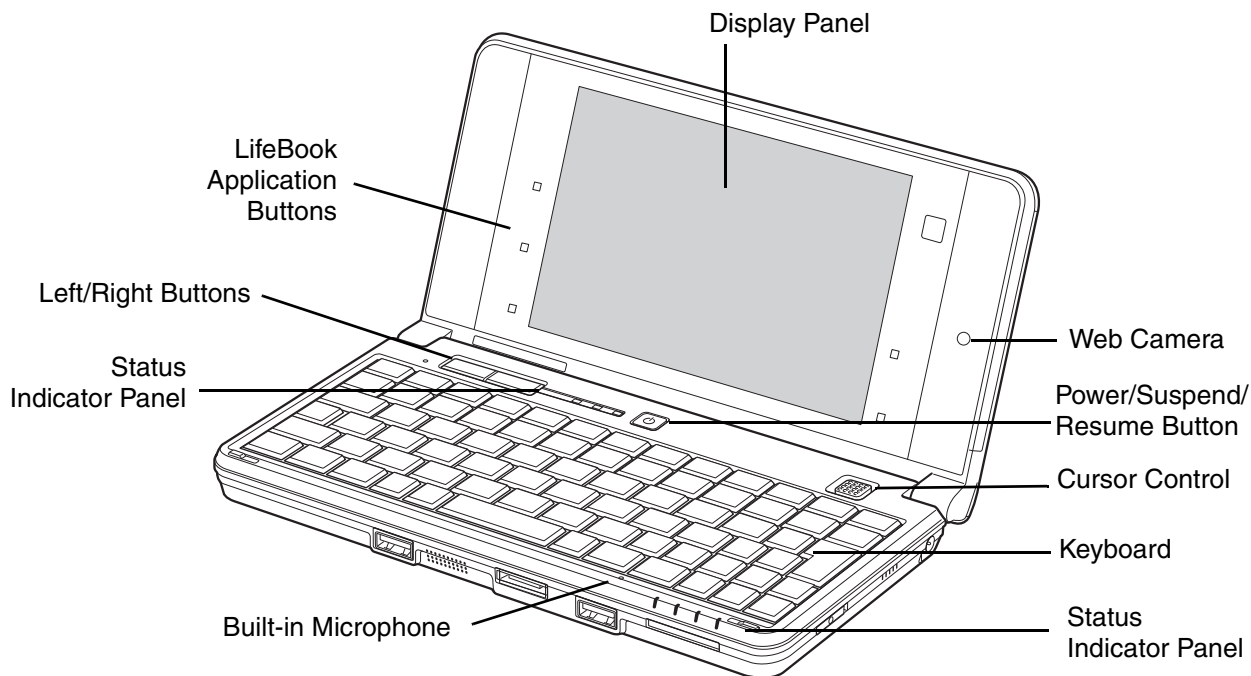
Figure 2. LifeBook UH900 notebook top components

Top Components

The following is a brief description of your LifeBook notebook's top components when it is open. (See Figure 2 on page 16 for location)

Web Camera

The .78 megapixel web camera allows you to take pictures of yourself to send over the internet.

Built-in Microphone

The built-in microphone allows you to input audio.

Display Panel

The display panel is a color LCD panel for text and graphicsdisplay and passive digitizer functionality.

LifeBook Application Buttons

The LifeBook Application buttons provide one-touch application launch capability as well as zoom and power-saving functions. See "LifeBook Application Buttons" on page 38.

Keyboard

A keyboard with dedicated Windows keys. See "Keyboard" on page 29.

Power/Suspend/Resume Button

The Power/Suspend/Resume button allows you to suspend notebook activity without powering off, resume your LifeBook notebook from sleep mode, and power on your notebook when it has been shut down from Windows. See "Power/Suspend/Resume Button" on page 48

Status Indicator Panels

The Status Indicator Panels display symbols that correspond with a specific component of your LifeBook notebook. The indicators above the keyboard relate to the keyboard states, while the indicator panel below the keyboard relates to power and hard drive access. See "Status Indicator Panel" on page 23.

Left and Right Buttons

These buttons act the same as the left and right buttons on a mouse.

Cursor Control

The cursor control is used to move the cursor around the screen.

USB port   Speaker   USB port   SD card slot

External Monitor/LAN
adapter cable connector
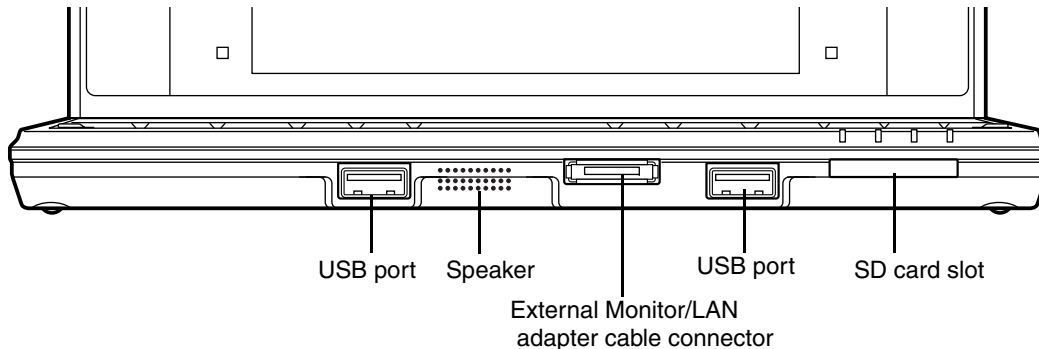
Figure 3. LifeBook UH900 notebook front components

Front Components

The following is a brief description of your LifeBook notebook's front components. (See Figure 3 on page 18 for location)

USB 2.0 Ports

The two USB 2.0 ports allow you to connect Universal Serial Bus devices. USB 2.0 transfers data at up to 480 Mbps and is backward-compatible with USB 1.1 devices, which transfer data at up to 12 Mbps. See "* When used in conjunction with the included external monitor/LAN adapter cable.." on page 60.

Speaker

The built-in speaker allows you to listen to audio files.

External Monitor/LAN Adapter Cable Connector

This connector allows you to connect the adapter cable to your notebook.

Secure Digital (SD) Card Slot

The SD card slot allows you to install an SD card for data storage. This architecture allows you to transfer data from a variety of different digital devices. See "Inserting an SD Card" on page 59.

Headphone Jack

Strap/Pen Tether Attachment Point

Air Vents
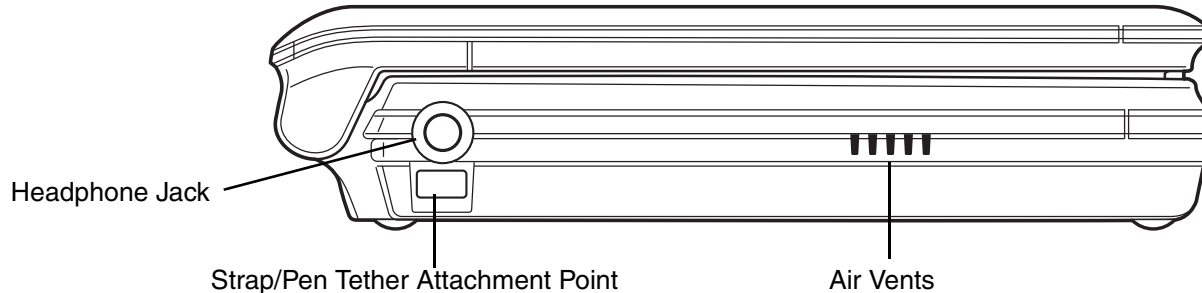
Figure 4. LifeBook notebook left-side panel

Left-Side Panel Components

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

Headphone Jack

The headphone jack allows you to connect headphones. See "External Video Port" on page 61.

Strap/Pen Tether Attachment Point \

The strap/pen tether attachment point can be used for attaching an optional carrying strap or pen tether.

Air Vents

The air vents allow air to circulate through the system to cool down the components.

⚠️ TO PROTECT YOUR NOTEBOOK FROM DAMAGE AND TO OPTIMIZE SYSTEM PERFORMANCE, BE SURE TO **KEEP ALL AIR ALL VENTS UNOBSTRUCTED**, **CLEAN, AND CLEAR OF DEBRIS.** THIS MAY REQUIRE PERIODIC CLEANING, DEPENDING UPON THE ENVIRONMENT IN WHICH THE SYSTEM IS USED.

DO NOT OPERATE THE NOTEBOOK IN AREAS WHERE THE AIR VENTS CAN BE OBSTRUCTED, SUCH AS IN TIGHT ENCLOSURES OR ON SOFT SURFACES LIKE A BED OR CUSHION.

Wireless LAN/Bluetooth Switch   Air Vents   DC Power Jack
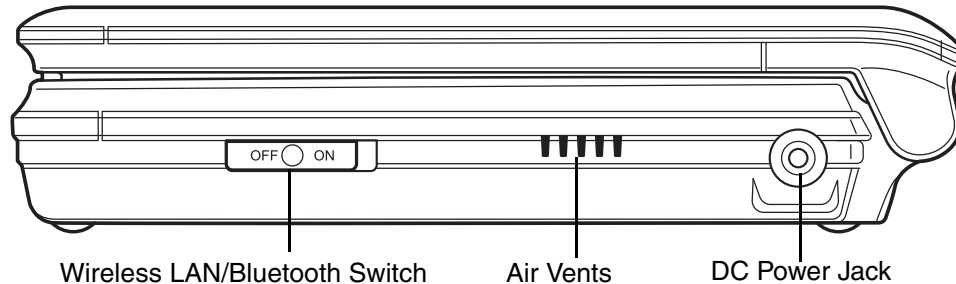
Figure 5.   LifeBook notebook right-side panel

Right-Side Panel Components

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

Wireless LAN/Bluetooth Switch

The wireless LAN/Bluetooth switch is used to turn the WLAN and Bluetooth devices on and off. Switching the device off when not in use will help to extend battery life. See "Activating the WLAN Device" on page 118

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.

Air Vents

Lithium ion Battery

Battery Latches
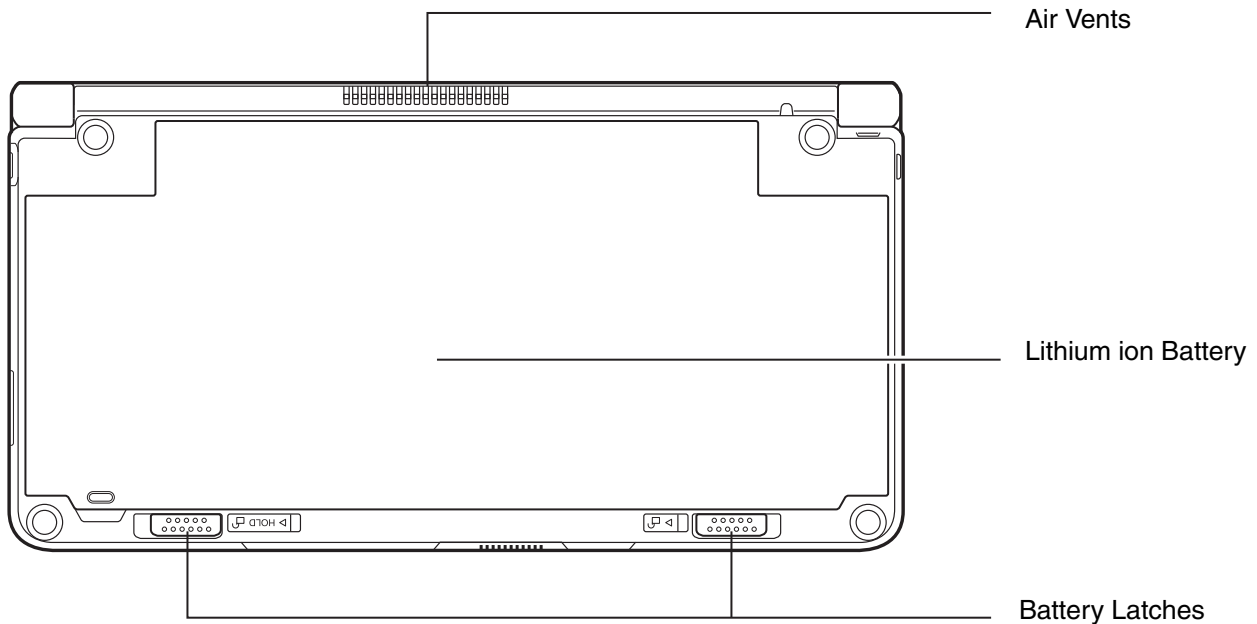
Figure 6. LifeBook notebook bottom panel

Bottom Components

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

Lithium ion Battery

Most of the bottom of the notebook is comprised of the internal Lithium ion battery. It can be unlatched to remove the battery when stored over a long period of time or for swapping a discharged battery with a charged Lithium ion battery. See "Lithium ion Battery" on page 53

Battery Latches

The battery latches are used to secure the Lithium ion battery to the bottom of the system.

Air Vents

The air vents allow air to circulate through the system to cool down the components.

⚠ TO PROTECT YOUR NOTEBOOK FROM DAMAGE AND TO OPTIMIZE SYSTEM PERFORMANCE, BE SURE TO **KEEP ALL AIR ALL VENTS UNOBSTRUCTED**, **CLEAN, AND CLEAR OF DEBRIS**. THIS MAY REQUIRE PERIODIC CLEANING, DEPENDING UPON THE ENVIRONMENT IN WHICH THE SYSTEM IS USED.

DO NOT OPERATE THE NOTEBOOK IN AREAS WHERE THE AIR VENTS CAN BE OBSTRUCTED, SUCH AS IN TIGHT ENCLOSURES OR ON SOFT SURFACES LIKE A BED OR CUSHION.
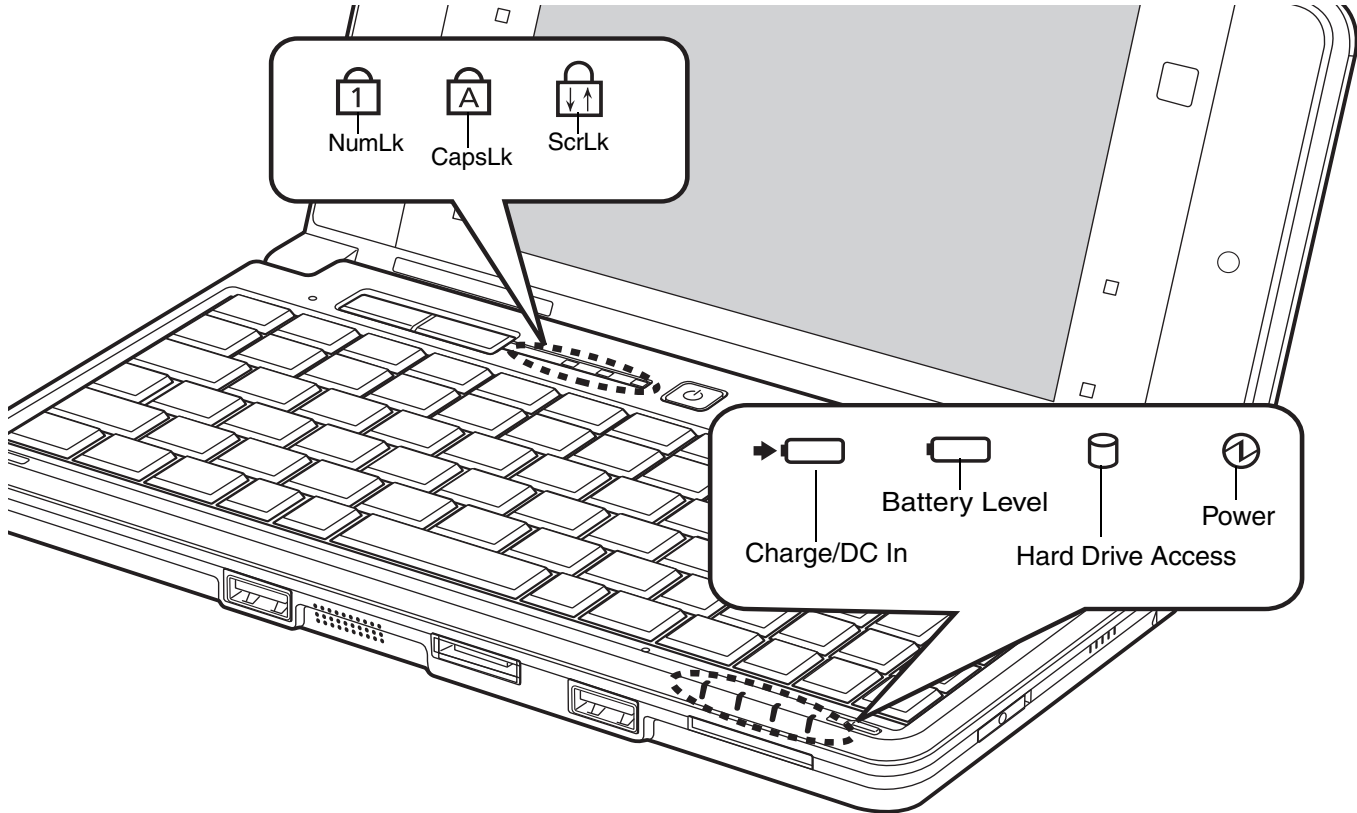
Figure 7. Status Indicator Panel

Status Indicator Panel

The Status Indicators display symbols that correspond to specific components of your Fujitsu LifeBook notebook. The LEDs below each symbol tell you how each of those components is operating. The Status Indicators are located in two different areas (Figure 7). Keyboard-related indicators are above the keyboard towards the leftt, and the remaining indicators are below the keyboard on the front edge.

Battery Charge/DC-In Indicator

- **Orange, solid:** AC adapter and battery are available and system is being charged.
- **Blue, solid:** AC adapter and battery are available and system is fully charged, or AC adapter is plugged in but battery is not installed.
- **Orange, blinking:** AC adapter and battery are available and waiting to charge battery (battery is out of thermal range).
- **Off:** AC adapter is not plugged in.

Battery Level Indicator

The Battery Level indicators display the charge level of the indicated battery pack, as follows:

- **Blue, solid:** Battery is between 51% and 100% charged.
- **Orange, solid:** Battery is between 13% and 50% charged.
- **Red, solid:** Battery is 12% or less charged.
- **Orange, blinking:** Blinks during battery status measurement (Four seconds after the battery is installed).
- **Red, blinking:** There is a problem with the battery.
- **Off**: There is no battery installed or the battery has no charge.

- If the battery pack is installed and the AC adapter is connected while the power is turned off, the battery level indicator will display the charge level for five seconds after it blinks orange.
- If the AC adapter is not connected or the battery pack is not fully charged when the computer is switched to sleep mode, the indicator will blink. The LED blinks at the rate of one second on/six seconds off.

- Batteries subjected to shocks, vibration or extreme temperatures can be permanently damaged.
- A shorted battery is damaged and must be replaced.

Hard Drive Access Indicator

The Hard Drive Access indicator flickers blue when your internal hard drive is being accessed.

Power Indicator

The Power indicator glows blue when your system is turned on.

NumLk Indicator

The NumLk indicator glows blue when an optional external keypad is set in numeric keypad mode.

CapsLock Indicator

The CapsLock indicator glows blue when the keyboard is set to type in all capital letters.

ScrLk Indicator

The ScrLk indicator glows blue when the scroll lock is active.

Display Cover
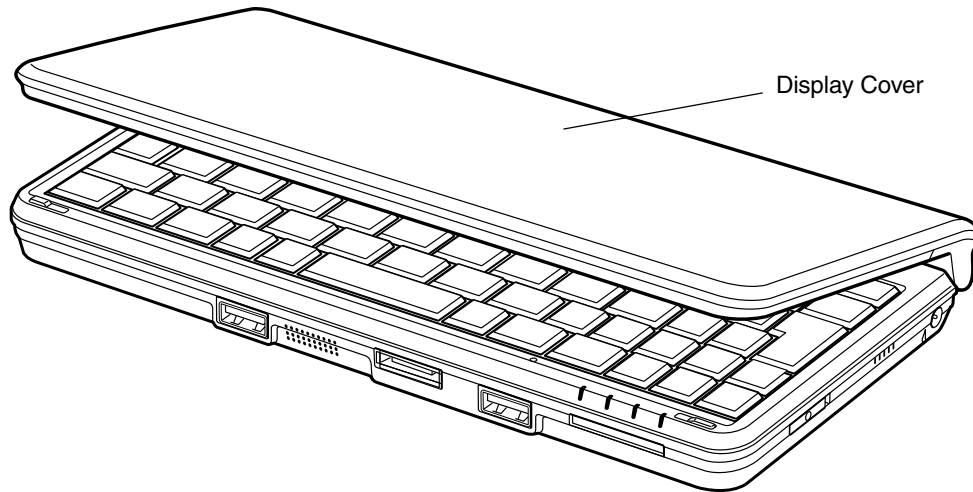
Figure 8. Opening the Display Panel

Display Panel

Your LifeBook UH900 notebook contains an LCD display panel that is backlit for easier viewing in bright environments.

Opening the Display Panel

Lift the display backwards, being careful not to touch the screen with your fingers, until it is at a comfortable viewing angle. (See Figure 8)

Adjusting Display Panel Brightness

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

Using Keyboard to Adjust Brightness

Adjusting the brightness using the keyboard changes the system setting (i.e., the settings you make via the function keys automatically changes the brightness settings in the system's Tablet and Pen Settings).

- [Fn]+[(9]: Pressing repeatedly will lower the brightness of your display.
- [Fn]+[)0]: Pressing repeatedly will increase the brightness of the display.

Using Power Management to Adjust Brightness

To adjust brightness with the power management utility in Windows 7:

Click Start -> Control Panel. In View by:, select one of the icon views. Select Display, then click Adjust brightness in the left pane. Drag the Screen brightness: bar to the left or right, depending upon your preference.

Using the Fujitsu Menu to Adjust Brightness

To adjust brightness using the Fujitsu menu, click on the Fujitsu Menu icon in the system tray in the lower right corner of the screen. (You can also open the Fujitsu menu by clicking the [Fn] button twice in succession.) Double-click Windows Mobility Center, then double-click the icon adjacent to **Display brightness**. Set the screen brightness sliders for **On battery** and **Plugged in** scenarios.

> IF USING AC POWER, YOUR BRIGHTNESS SETTING IS SET TO ITS HIGHEST LEVEL BY DEFAULT. IF USING BATTERY POWER, YOUR BRIGHTNESS SETTINGS IS SET TO APPROXIMATELY MID-LEVEL BY DEFAULT.
>
> THE HIGHER THE BRIGHTNESS LEVEL, THE MORE POWER THE NOTEBOOK WILL CONSUME AND THE FASTER YOUR BATTERIES WILL DISCHARGE. FOR MAXIMUM BATTERY LIFE, MAKE SURE THAT THE BRIGHTNESS IS SET AS LOW AS POSSIBLE.

Using the Fujitsu Zoom Utility - TBD

Your computer has a handy Fujitsu Zoom utility that lets you magnify portions of the screen or all of the screen.

The Fujitsu Zoom utility has a magnifying glass icon in the Windows notification area of the Windows taskbar. You can zoom in (magnify) or zoom out (1280 x 800 resolution) by double-clicking on the icon and selecting the desired action, then using the Window key + "a" (default). You may select another key combination from the dropdown list in 'Keyboard shortcut'. Button II is also assigned to zoom in/out with each press.

Handling the System

Your LifeBook UH900 notebook is designed to be handheld or used on a secure surface. When holding the notebook, use the following methods for optimal results.

DO NOT USE THE NOTEBOOK ON YOUR LAP. USING IT ON YOUR LAP WILL BLOCK THE AIR VENTS, WHICH COULD RESULT IN DAMAGE TO THE SYSTEM AND ALSO CAN REDUCE THE RF EXPOSURE SAFETY DISTANCE DURING RADIO OPERATION.

To use your LifeBook, place it on a flat, secure surface or hold it with both hands. Note that when holding the system, most of the keying will be done with the thumbs, since the fingers are used to hold the device.

If you hold the system with one hand, grasp it securely to prevent it from slipping.

Keyboard
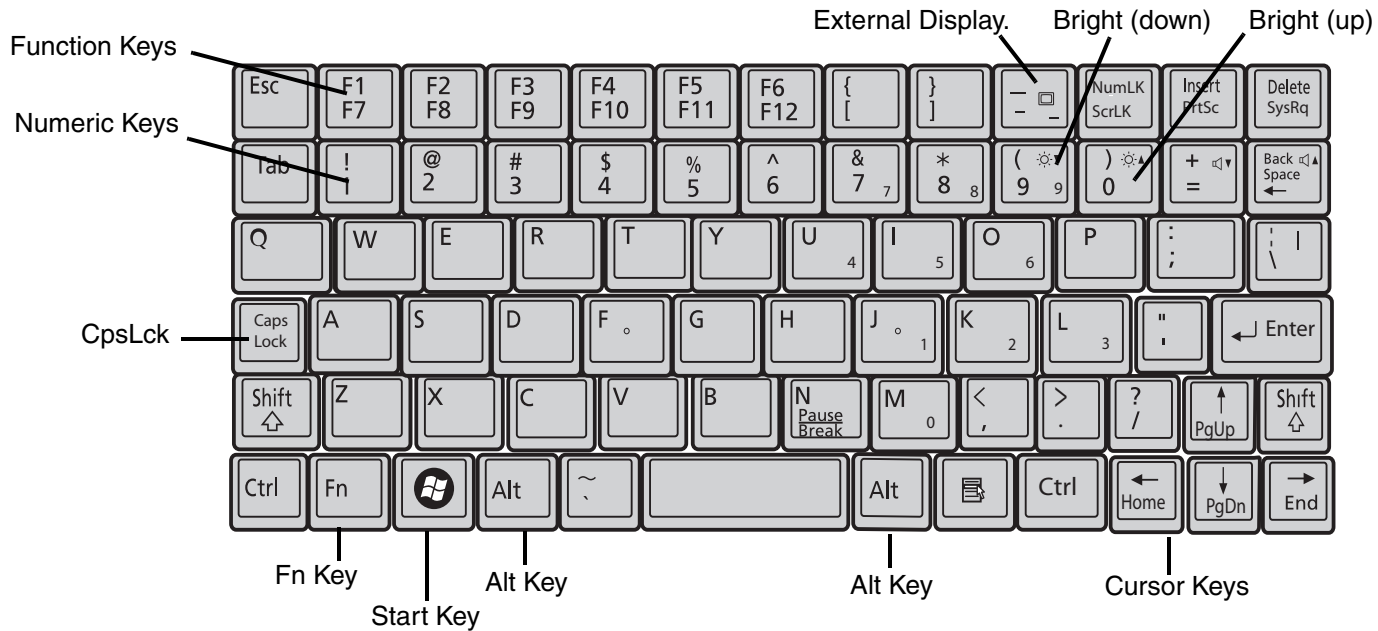
Figure 9. Keyboard

Using the Keyboard

Your Fujitsu LifeBook notebook has an integral 74-key keyboard. The keys perform all the standard functions of a 101-key keyboard, including the special function keys. This section describes the special keys.

Start Key

Your LifeBook notebook Start key displays the Start menu. This button functions the same as your onscreen Start menu button. (Please refer to your Windows documentation for additional information regarding the Windows keys.)

Cursor Keys

The cursor keys are the four arrow keys on the keyboard which are used in conjunction with the [Fn} key to 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 6 function keys, F1/F7, F2/F8, F3/F9, F4/F10, F5/F11, and F6/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. Due to the ultra-mobile design of the system and keyboard, some of the functions that are normally assigned to function keys have been reassigned to other keys, as noted below:

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

Fn + (9) Pressing repeatedly will lower the brightness of your display.

Fn + (0) Pressing repeatedly will increase the brightness of the display.

Fn + Pressing the key 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, external monitor only, and both built-in display panel and external monitor.

Using the Cursor Buttons
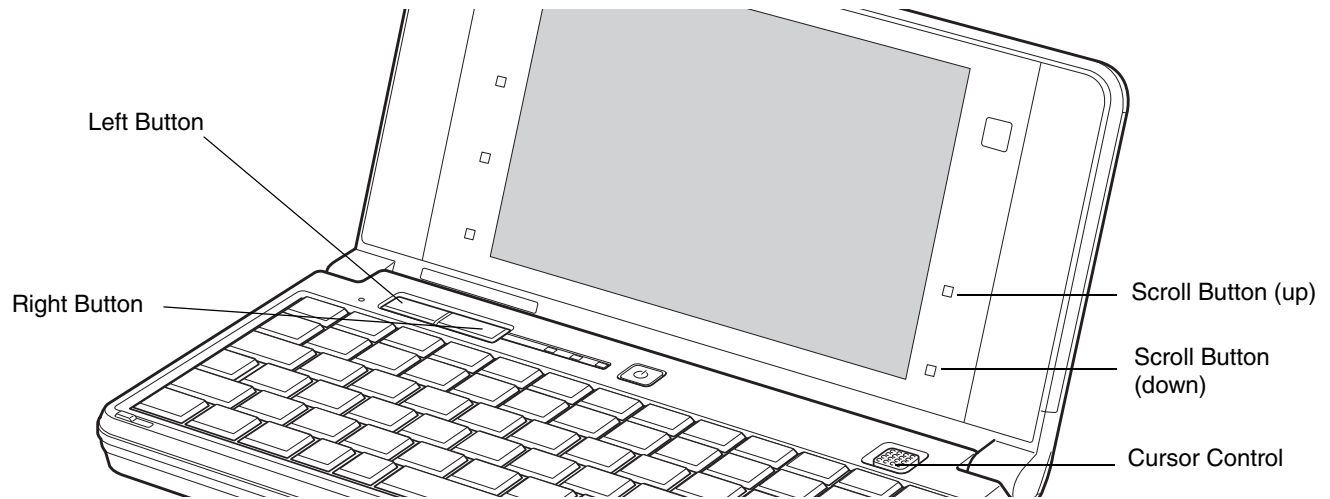
Figure 10. Cursor Buttons

The button array on your LifeBook notebook is used to control the movement of the cursor and to select items on your display panel. The buttons consist of a cursor control at the top right above the keyboard, left and right buttons on the top left, and scroll buttons on the right of the display.

The cursor control works the same way a mouse does by moving 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. Note that the cursor control can be used in the same manner as the left button; first use it to position the cursor, then tap on it to activate your selection.

The left button functions the same as a left mouse button while the right button has the same function as a right mouse button. The scroll buttons allow you to scroll up and down a screen.

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. You can also left-click by moving the cursor to the item you wish to select, then tapping the cursor control once. To right-click, move the cursor to the item you wish to select, press the Right button once, and then immediately release it.
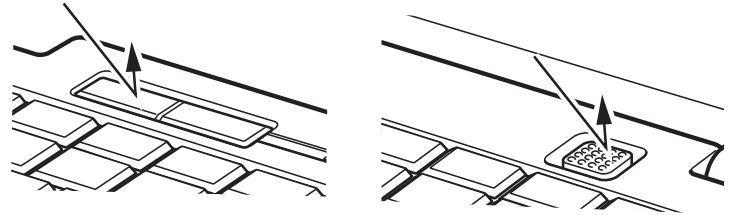
Figure 11. Clicking

Double-Clicking

Double-clicking means quickly pushing and releasing the left button twice. This procedure does not function with the right button. To double-click, move the cursor to the item you wish to select, then press and release the left button twice. You can also double-click by moving the cursor to the item you wish to select, then double-tapping the cursor control.
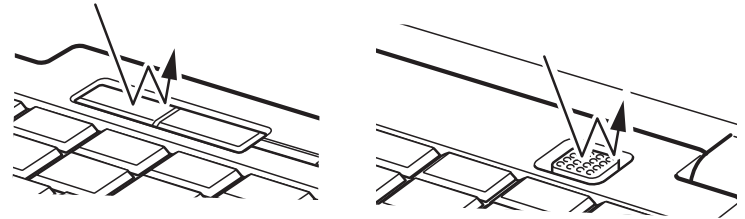
Figure 12. Double-clicking

- IF THE INTERVAL BETWEEN CLICKS IS TOO LONG, THE DOUBLE-CLICK WILL NOT BE EXECUTED.

- PARAMETERS FOR THE BUTTONS CAN BE ADJUSTED FROM THE MOUSE DIALOG BOX LOCATED IN THE WINDOWS CONTROL PANEL.

Dragging

Dragging means pressing and holding the left button, while moving the cursor control. 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.
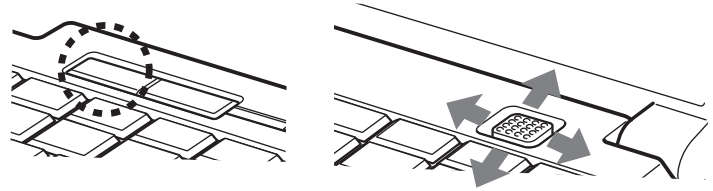
Figure 13. Dragging

Scrolling

Use the Scrolling buttons on the right side of the display to navigate through a document quickly without using the window scroll bars. This is particularly useful when you are navigating through on-line pages. To scroll, press and hold the scroll up or scroll down button, depending upon which direction you want to scroll.

Scroll up

Scroll down
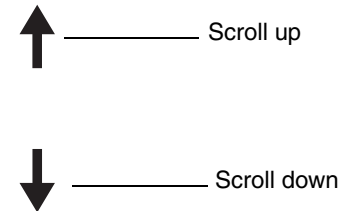
Figure 14. Scrolling

Button Control Adjustment

Going to Control Panel > Mouse allows you to customize your cursor buttons with selections made via the Mouse Properties dialog box. There are four aspects of button operation that you can adjust:

- **Buttons**: This tab lets you set up the buttons for right or left handed operation, in addition to setting up the time interval allowed between clicks in double-clicking.
- **Pointers**: This tab lets you set up the scheme for the cursor depending on its functionality.
- **Pointer Options**: This tab lets you set up a relation between the speed of your finger motion and the speed of the cursor. It also allows you to enable a Pointer Trail for the cursor arrow.
- **Stick**: This tab allows you to change the cursor control speed and functionality.

Using the Touch Screen

The integrated Touch Screen allows you to use your finger or a stylus as a pointing device. You can click, double-click, drag items and icons, or to draw like a pen or pencil in applications that support this behavior, such as drawing or painting programs. See the documentation that came with your application for details.
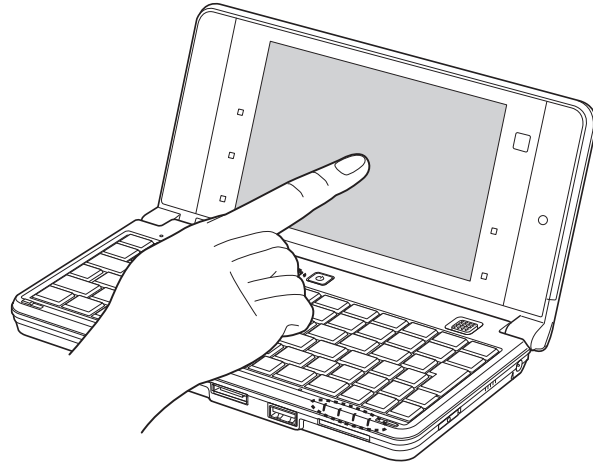
Figure 15. Using the touch screen

- DO **NOT USE EXCESSIVE FORCE** WHEN TAPPING OR WRITING ON THE SCREEN WITH THE STYLUS. EXCESSIVE FORCE COULD RESULT IN DAMAGE TO THE LCD AND/OR TOUCH SCREEN.

- USE ONLY THE STYLUS FOR TOUCHING THE SCREEN. USING A BALLPOINT PEN OR FINGER COULD SCRATCH THE SCREEN.

- TO PURCHASE ADDITIONAL OR REPLACEMENT STYLUSES, VISIT FUJITSU'S ACCESSORIES WEBSITE AT: WWW.SHOPFUJITSU.COM.

Clicking on Touch Screen

To left-click, touch the object you wish to select and then lift your finger or the stylus tip immediately.

Right-Clicking on Touch Screen

Right-click can be accomplished by holding your fingertip or a stylus down until a circular icon appears. To change the settings for the right-click feature, go to Start > **Control Panel** > **Pen and Input Devices**. In the **Pen Options** tab, select **Press and Hold** then click the [Settings] button.
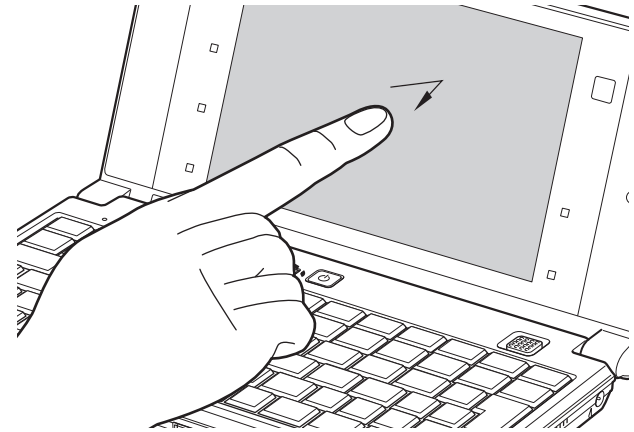
Figure 16. Clicking on the touch screen

Double-Clicking

To double-click, touch the item twice with your fingertip or stylus, and then immediately remove it from the display.

Figure 17. Double-clicking on the touch screen

Dragging

Dragging means moving an item with the stylus by touching the screen, moving and then lifting your fingertip or the stylus. To drag, touch the Touch Screen on the item you wish to move. While continuing to touch the screen with your fingertip or the stylus, drag the item to its new location by moving it across the screen, and then lifting your fingertip or the stylus to release it.
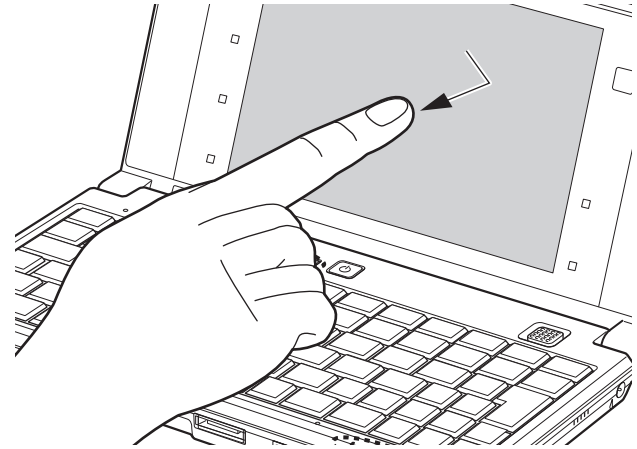
Figure 18. Dragging on the touch screen

Calibrating the Touch Screen

In order to ensure accurate tracking between your fingertip or the stylus and the cursor, you must run the **Tablet Calibration** utility before you use the Touch Screen for the first time, or after you change the display resolution.

To run the calibration utility:

1 Go to Start -> Control Panel.

2 Double-click the Tablet Calibration icon.

3 Adjust the display of your notebook to a comfortable angle.

⚠️ DO NOT USE EXCESSIVE FORCE WHEN TAPPING ON THE SCREEN DURING CALIBRATION. USE OF EXCESSIVE FORCE COULD RESULT IN DAMAGE TO THE LCD AND/OR TOUCH PANEL.

4 Touch your fingertip or the stylus to various points on the screen to verify that the screen is correctly calibrated.

Volume Control

Your Fujitsu LifeBook notebook has multiple volume controls which interact with each other.

> ANY SOFTWARE THAT CONTAINS AUDIO FILES WILL ALSO CONTAIN A VOLUME CONTROL OF ITS OWN. IF YOU INSTALL AN EXTERNAL AUDIO DEVICE THAT HAS AN INDEPENDENT VOLUME CONTROL, THE VOLUME CONTROLS WILL INTERACT WITH EACH OTHER.

Controlling the Volume

The volume can be controlled in several different ways:

- Volume can be changed or muted from within the Volume Control in the system tray.
- Holding down the [Fn] key while pressing the [+/=] key will lower the volume; Holding down the [Fn] key while pressing the [Backspace] key will increase the volume;
- Volume can be controlled by many volume controls that are set within individual applications.
- Certain external audio devices you connect to your system may have hardware volume controls.

Each source discussed above puts an upper limit on the volume level that must then be followed by the other sources. We recommend that you experiment with the various volume controls to discover the optimal sound level.

NOTE: Arrows point to icons. In all cases, the actual button is adjacent to the icon.

Zoom Button

ECO Button

Application A Button

Scroll Up Button

Scroll Down Button
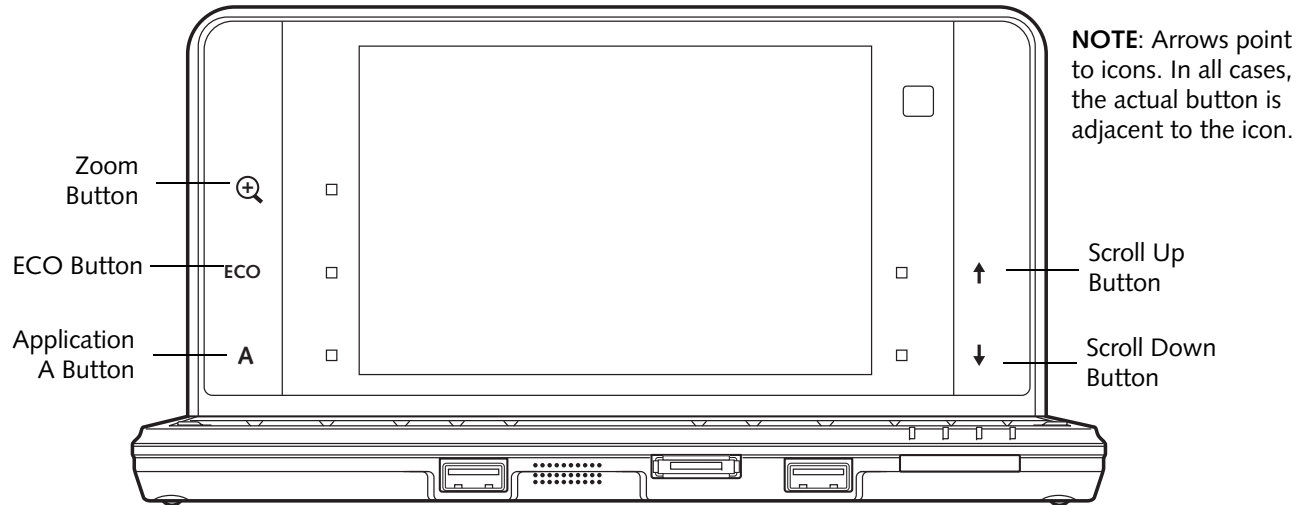
Figure 19.   LifeBook UH900 Notebook Application Buttons

LifeBook Application Buttons

A unique feature of your LifeBook UH900 notebook is the array of Application buttons. These buttons allow you to launch specific applications and functions with the touch of a button. Additionally, each of the five buttons can be programmed top launch whichever application or utility you wish.

Zoom Button (magnifying glass)

By default, the Zoom button is used for zooming in on a page for better clarity. The Zoom button can also be programmed to launch whichever application you wish. See "Changing Button Functions" on page 39 to select a different application for this button.

ECO Button

By default, the ECO Button is used to initiate the Power Saving Utility. To turn off the utility, press the button again. The ECO Button can also be programmed to launch whichever application you wish. See "Changing Button Functions" on page 39 to select a different application for this button.

Application Button A

The Application A Button can be used to automatically open pre-selected applications.

Scroll Up and Scroll Down Buttons

The Scroll Up and Down Buttons can be used to navigate through multiple pages. They can also be used to automatically open pre-selected applications.

Changing Button Functions

Any of the five buttons can be changed to launch a program or perform an action you select.

To launch different applications or cause the buttons to perform a specific action:

1 Double-click on the LifeBook Application Panel Button icon in the Control Panel.

2 Select the button you would like to change (the buttons are arranged in their relative position on the display).

3 Click [Change] and open the drop down list.

4 Select the action you would like the button to perform. If you want to launch a program, click on **Launch an Application** then browse to the location of the program.

5 Click [OK], then click [OK] again. The buttons will now perform the actions you have assigned to them.

Precautions

Opening and Closing the Cover

By default, closing the cover automatically places your system into Sleep mode.

To change the default when the cover is closed:

1 Open the system Control Panel.

2 Click **Change battery settings** under the **Power Options**.

3 Click **Choose what closing the lid does** in the left pane.

4 Select the desired action for **When I close the lid**, then click the [Save changes] button.

Using the Touch Launcher

The Touch Launcher is a handy on-screen method for quickly launching commonly-used applications and performing Internet tasks.

Depending upon your operating environment, the launcher will either be in Launcher Mode (Fig. 20) or Internet Mode (Fig. 21).

In Launcher Mode, certain Windows actions can be performed such as Print and Close Window. Additional buttons can be programmed to launch additional applications that you select.

In Internet Mode, the Touch Launcher can be used to perform common Internet tasks, such as Back, Open Tab, Close Tab, Favorites, and Snipping.

To start the Touch Launcher utility, click on the Touch Launcher icon on the desktop.

Select the button that corresponds to the action you would like to perform. You can change the actions a button takes by clicking on the Settings button at the top left of the Touch Launcher (it looks like a gear). From the Settings window, you can change the button image, name, and the application it will launch.

**Figure 20.
Launcher Mode**

**Figure 21.
Internet Mode**

Chapter 2

Getting Started with Your LifeBook

Power Sources

Your Fujitsu LifeBook notebook has three possible power sources: a primary Lithium ion battery, an AC adapter or an optional Auto/Airline adapter.

Connecting the Power Adapters

The AC adapter or optional Auto/Airline adapter provides power for operating your notebook and charging the batteries.

Connecting the AC Adapter

1 Plug the DC output cable into the DC power jack of your LifeBook notebook (Figure 22).

2 Plug the AC adapter into an AC electrical outlet.

Connecting the Optional Auto/Airline Adapter

1 Plug the DC output cable into the DC power jack on your notebook.

2 Plug the Auto/Airline adapter into the cigarette lighter of an automobile with the ignition key in the On or Accessory position, or,

3 Plug the Auto/Airline adapter into the DC power jack on an airplane seat.

Switching from AC Adapter Power or the Auto/Airline Adapter to Battery Power

1 Be sure that you have at least one charged battery installed.

2 Remove the AC adapter or the Auto/Airline adapter.

THE LITHIUM ION BATTERY IS NOT CHARGED UPON PURCHASE. INITIALLY, YOU WILL NEED TO CONNECT EITHER THE AC ADAPTER OR THE AUTO/AIRLINE ADAPTER TO USE YOUR NOTEBOOK.
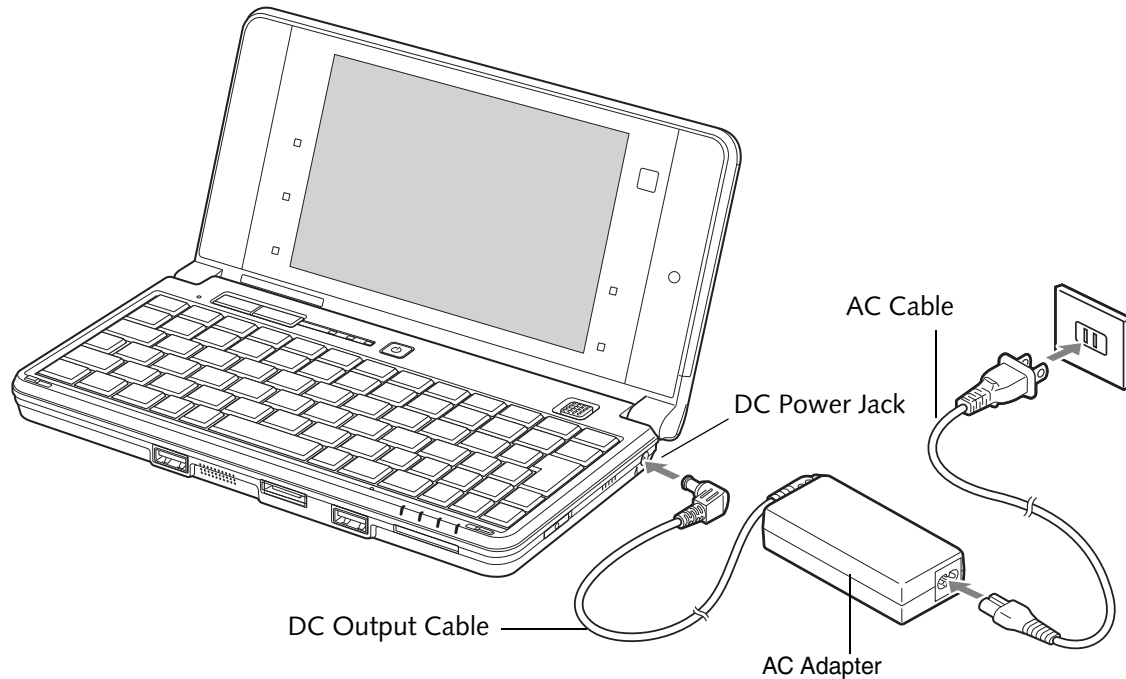
Figure 22. Connecting the AC Adapter

Starting Your LifeBook Notebook

Power On

Power/Suspend/Resume Button

The Power/Suspend/Resume button allows you to suspend notebook activity without powering off, resume your LifeBook notebook from sleep mode, and power on your notebook when it has been shut down from Windows.

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 OR AUTO/AIRLINE ADAPTER IS CONNECTED AND HAS POWER.

To turn on your LifeBook notebook from its off state, press the Power/Suspend/Resume button (located above the keyboard in the middle) . When you are done working you can either leave your notebook in Suspend mode, See "Sleep Mode" on page 48 or you can turn it off. See "Powering Off" on page 50.

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 LifeBook, 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 LifeBook notebook will emit an audio warning and/or an error message will be displayed. See "Power On Self Test Messages" on page 73. 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 POST, your notebook will load your operating system.

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 LIFEBOOK NOTEBOOK ON THE NEXT TIME. *See "Power On Self Test Messages" on page 73.*

Boot Sequence

The procedure for starting-up your notebook is termed the Bootup sequence and involves your notebook's BIOS. When your LifeBook 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 notebook from the Windows Shut Down dialog box.
- You resume operation from Hibernation mode.
- The software initiates a system restart. Example: When you install a new application.

Hard Disk Drive Passwords

To provide additional security for your data, you can assign passwords to your hard disk drive(s). This feature is managed in the system BIOS Setup Utility. See *BIOS Setup Utility* below for information about accessing the utility.

REMEMBER YOUR PASSWORDS. IF YOU SET AND FORGET YOUR USER AND SUPERVISOR HARD DISK PASSWORDS, FUJITSU AMERICA WILL NOT BE ABLE TO RESET IT. YOU MAY LOSE DATA AND HAVE TO REPLACE YOUR SYSTEM BOARD OR HARD DISK DRIVE.

BIOS Setup Utility

The BIOS Setup Utility is a program that sets up the operating environment for your LifeBook notebook. Your BIOS is set at the factory for normal operating conditions, therefore there is no need to set or change the BIOS' environment to operate your notebook.

The BIOS Setup Utility configures:

- Device control feature parameters, such as changing I/O addresses and boot devices.
- System Data Security feature parameters, such as passwords.

Entering the BIOS Setup Utility

To enter the BIOS Setup Utility do the following (or use the TrustedCore Menu, as detailed below):

1 Turn on or restart your LifeBook notebook.

2 To enter the BIOS Setup Utility, press the [F2] key once the Fujitsu logo appears on the screen. This will open the main menu of the BIOS Setup Utility with the current settings displayed.

3 Press the right or left arrow keys to scroll through the other setup menus to review or alter the current settings.

Using the TrustedCore Menu

When the Fujitsu logo appears on the screen. press the [Enter] key or click on the left mouse or touchpad button; the TrustedCore Menu will appear.

The TrustedCore Menu provides shortcuts to the following menus and information screens:

- BIOS Setup
- Diagnostic Screen
- Boot Menu
- Patent Information
- System Information
- Continue Booting

Clicking on any of the fields will invoke the screen, information, or action described.

The Boot Menu can also be invoked by pressing the [F12] key when the Fujitsu logo appears on the screen.

BIOS Guide

A guide to your notebook's BIOS is available online. Please visit our service and support website at **http://www.computers.us.fujitsu.com/support**, then select User's Guides under Online Support. Select your Product, Series, and Model, then click [Go]. Under the Manuals tab, select the BIOS Guide.

Booting the System

We strongly recommend that you not attach any external devices until you have gone through the initial power on sequence.

When you turn on your notebook for the first time, it will display a Fujitsu logo on the screen. If you do nothing the system will load the operating system, and then the Windows Welcome will begin.

Starting Windows the First Time

After you boot up the system the first time and follow the instructions on the screen, you will eventually come to the Welcome window. After the Welcome window appears, the screen will black out for **up to several minutes**. This is normal. **DO NOT ATTEMPT TO POWER DOWN THE SYSTEM AT THIS POINT.** While the screen is blacked out, your system configuration is being set up and necessary files are being installed.

During the course of the first start up, you will need to read and accept the End User License Agreements (EULAs) for Microsoft and Fujitsu.

- IF YOU REJECT THE TERMS OF THE LICENSE AGREEMENT YOU WILL BE ASKED TO REVIEW THE LICENSE AGREEMENT FOR INFORMATION ON RETURNING WINDOWS OR TO SHUT DOWN YOUR NOTEBOOK.
- YOU CANNOT USE YOUR NOTEBOOK UNTIL YOU HAVE ACCEPTED THE LICENSE AGREEMENT. IF YOU STOP THE PROCESS YOUR NOTEBOOK WILL RETURN TO THE BEGINNING OF THE WINDOWS WELCOME PROCESS, EVEN IF YOU SHUT YOUR NOTEBOOK DOWN AND START IT UP AGAIN.

Several additional windows will appear, prompting you to enter a name and description for your computer, Administrator password, and domain name. Read the instructions on the screens and fill in the information as directed. Once you have finished the setup, it is important that you install ClickMe!, as detailed below.

Installing ClickMe!

BEFORE INSTALLING THE CLICKME! UTILITY, BE SURE THE WIRELESS LAN DEVICE IS ENABLED BY PRESSING THE [FN] + [F5] KEY COMBINATION.

The first time you boot up your system, you will see an icon called Click Me! in the Start menu. **It is very important that you run the ClickMe! utility the first time you boot up in order to ensure that the necessary applications, utilities. and drivers are installed.** When you click the Click Me! icon, your system will automatically create the related icons in the system tray in the bottom right of the screen. These icons provide links to utilities that you will frequently access.

When you install the ClickMe! utility, several applications and utilities are installed; this takes time. **While ClickMe! is installing, the system may go into Suspend mode. If this should occur, slide the Power/Suspend/Resume button momentarily to wake the system up.** Alternately, while ClickMe! is installing, slide your finger across the touchpad every few minutes to keep the system awake.

IN ADDITION TO THE UTILITIES AND APPLICATIONS INSTALLED BY CLICKME!, OTHER THIRD-PARTY APPLICATIONS MAY NEED TO BE INSTALLED FROM THE INCLUDED CDS/DVDS.

Fujitsu Driver Update Utility

Your system has a convenient tool called the Fujitsu Driver Update (FDU) utility. With FDU, you can choose to automatically or manually go to the Fujitsu site to check for new updates for your system. For more information about the FDU utility, refer to "Automatically Downloading Driver Updates" on page 79.

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. 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 notebook may be controlled from settings made in your operating system, pre-bundled power management application, or from settings made in 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 Sleep 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/Suspend/Resume Button

When your notebook is active, the Power/Suspend/Resume button can be used to manually put the notebook into Sleep mode. Push the Power/Suspend/Resume button when the notebook is active, but not actively accessing anything, and immediately release the button. Note that if you press the button continuously for four seconds or longer, your notebook will shut down.

If your notebook is suspended, pushing the Power/Suspend/Resume button returns your notebook to active operation. You can tell whether the system is Suspended by looking at the Power indicator on the front edge of the system. If the indicator is visible and not flashing, your notebook is fully operational. If the indicator is visible *and* flashing, your notebook is in Sleep mode. If the indicator is not visible, the power is off or your notebook is in Hibernation mode. *(See Hibernation Feature)*

Sleep Mode

Sleep mode in Windows saves the contents of your system memory during periods of inactivity by maintaining power to critical parts. This mode turns off the CPU, display, hard drive, and all other internal components except those necessary to maintain system memory and for restarting.

Your notebook can be put in Sleep mode by:

- Pressing the Power/Suspend/Resume button when your system is turned on.
- Selecting Sleep ("Standby" in Windows XP) from the Windows Shut Down menu.
- Timing out from lack of activity.
- Allowing the battery to reach the Dead Battery Warning condition.

System memory typically stores the files on which you are working, open application information, and any other data required to support operations in progress. When you resume operation from Sleep, your system will return to where it left off. You must use the Power/Suspend/Resume button to resume operation, and there must be an adequate power source available, or your notebook will not resume.

- IF RUNNING YOUR NOTEBOOK ON BATTERY POWER, BE AWARE THAT THE BATTERY CONTINUES TO DISCHARGE WHILE YOUR NOTEBOOK IS IN SLEEP MODE, THOUGH NOT AS FAST AS WHEN FULLY OPERATIONAL.
- DISABLING THE POWER/SUSPEND/RESUME BUTTON PREVENTS IT FROM BEING USED TO PUT THE NOTEBOOK INTO SLEEP OR HIBERNATION MODE. THE BUTTON RESUME FUNCTION CAN'T BE DISABLED.
- IF YOUR NOTEBOOK IS ACTIVELY ACCESSING INFORMATION WHEN YOU ENTER THE SLEEP OR HIBERNATION MODE, CHANGES TO OPEN FILES ARE NOT LOST. THE FILES ARE LEFT OPEN AND MEMORY IS KEPT ACTIVE DURING SLEEP MODE OR THE MEMORY IS TRANSFERRED TO THE INTERNAL HARD DRIVE DURING HIBERNATION MODE.

THE MAIN ADVANTAGE OF USING HIBERNATION MODE IS THAT POWER IS NOT REQUIRED TO MAINTAIN YOUR DATA. THIS IS PARTICULARLY IMPORTANT IF YOU WILL BE LEAVING YOUR 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.

Hibernation (Save-to-Disk) Feature

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

Enable or Disable the Hibernation Feature

The default settings are not enabled. To enable or disable the Hibernation feature follow these steps:

1 From the Start menu select **Control Panel**.

2 From the Control Panel select **System and Security**, then select **Power Options.**.

3 Select **Choose what the power button does** or **Choose what closing the lid does**, then make your selection (Do Nothing, Sleep, Hibernate, or Shut Down).

You can also go directly into Hibernate mode by going to the Start menu, clicking the small arrow to the right of the [Shut Down] button, then clicking on Hibernate.

Windows Power Management

When you go to the **Control Panel -> System and Security -> Power Options,** you can configure some power management settings. For example, you can use Power Options to set the timeout values for turning off the display and hard disks whether you are running the notebook on battery or one of the adapters.

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 move the mouse over the small arrow the the right of the [Shut Down} button..

2 Select **Restart** from the list.

> 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.

Powering Off

Before turning off the power, check that the hard drive/optical drive access indicator is off. If you turn off the power while accessing a disk there is a risk of data loss. To ensure that your notebook shuts down without error, use the Windows shut down procedure.

> BE SURE TO CLOSE ALL FILES AND EXIT ALL APPLICATIONS PRIOR TO TURNING OFF THE POWER. 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.

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

Click the [Start] button, and then move the mouse over the [Shut Down] button at the bottom right of the right-hand pane. Click the button to shut down the system.

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

ENERGY STAR® Compliance

Your Fujitsu system is an ENERGY STAR® TBD qualified mobile PC. By choosing a computer with the latest energy-saving technology, you're helping to preserve our environment for future generations.

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency, U.S. Department of Energy, Natural Resources Canada, and other governments around the world helping us save money while protecting the environment through energy efficient products and practices. With energy costs and global warming top-of-mind for consumers, Fujitsu is committed to offering solutions that help consumers conserve energy and improve the quality of our environment.

Sleep Mode:
You will notice that your computer is initially set so that the display turns off after 15 minutes of user inactivity, and the computer goes into Sleep mode after 20 minutes of user inactivity. When going into Sleep mode, the computer also reduces the speed of any active Ethernet network links. To "wake" the computer from Sleep mode, press the Suspend/Resume Button.

Energy saving benefits:
Fujitsu ENERGY STAR qualified mobile PCs use about half as much electricity as standard equipment – saving half in utility costs. But more than that, ENERGY STAR also makes a difference for the environment. Did you know that the average house can be responsible for twice the greenhouse gas emissions as the average car? That's because every time you flip on a light switch, run your dishwasher, or turn on your PC, you use energy, which means more greenhouse gas emissions from power plants. So the more energy we can save through energy efficiency, the more we help to reduce greenhouse gases and the risks of global warming.

To learn more about the important ENERGY STAR program, visit: **www.energystar.gov**.

To read about how Fujitsu is supporting Sustainable Management along with several other environmental activities, visit the Fujitsu Corporate Citizenship page at:
http://www.computers.us.fujitsu.com/www/content/aboutus/environmental/environment.php

Chapter 3

User-Installable Features

Lithium ion Battery

Your LifeBook notebook has a Lithium ion battery that provides power for operating your notebook when no external power source is available. The 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 or a high of 35°C. 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 an external optical drive or the hard drive, using the AC adapter will conserve your battery life.

⚠ DO NOT LEAVE A FAULTY BATTERY IN YOUR NOTEBOOK. IT MAY DAMAGE YOUR AC ADAPTER, OPTIONAL AUTO/AIRLINE ADAPTER, ANOTHER BATTERY OR YOUR NOTEBOOK ITSELF. IT MAY ALSO PREVENT OPERATION OF YOUR NOTEBOOK BY DRAINING ALL AVAILABLE CURRENT INTO THE BAD BATTERY.

- BATTERY LIFE WILL VARY BASED ON SCREEN BRIGHTNESS, APPLICATIONS, FEATURES, POWER MANAGEMENT SETTINGS, BATTERY CONDITION AND OTHER CUSTOMER PREFERENCES. OPTICAL 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.

- UNDER FEDERAL, STATE, OR LOCAL LAW IT MAY BE ILLEGAL TO DISPOSE OF BATTERIES BY PUTTING THEM IN THE TRASH. PLEASE TAKE CARE OF OUR ENVIRONMENT AND DISPOSE OF BATTERIES PROPERLY. CHECK WITH YOUR LOCAL GOVERNMENT AUTHORITY FOR DETAILS REGARDING RECYCLING OR DISPOSING OF OLD BATTERIES. IF YOU CANNOT FIND THIS INFORMATION ELSEWHERE, CONTACT YOUR SUPPORT REPRESENTATIVE AT 1-800-8FUJITSU (1-800-838-5487)

Recharging the Batteries

If you want to know the condition of the 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 or Auto/Airline adapter. To recharge the battery make sure the battery that needs to be charged is installed in your LifeBook notebook and connect the AC or Auto/Airline adapter.

MAKE SURE THAT THE PERCENTAGE CHARGE IS INDICATED BY THE BATTERY CHARGING INDICATOR 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 notebook is in use while the battery is charging. If you want to charge the battery more quickly, put your notebook into Sleep mode, or turn it off while the adapter is charging the battery. *(See Power Management on page 48 for more information on Sleep mode and shutdown procedure)*

USING HEAVY CURRENT DEVICES OR FREQUENT EXTERNAL OPTICAL DRIVE ACCESSES MAY PREVENT CHARGING COMPLETELY.

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 notebook will go into Sleep mode. There is no guarantee that your data will be saved once the notebook reaches this point.

- ONCE THE LOW BATTERY NOTIFICATION MESSAGE APPEARS, YOU NEED TO SAVE ALL YOUR ACTIVE DATA AND PUT YOUR LIFEBOOK NOTEBOOK INTO SLEEP MODE UNTIL YOU CAN PROVIDE A NEW POWER SOURCE. YOU SHOULD PROVIDE A CHARGED BATTERY, AN AC POWER ADAPTER, OR AUTO/AIRLINE ADAPTER AS SOON AS POSSIBLE.
- WHEN YOU ARE IN SLEEP MODE THERE MUST ALWAYS BE AT LEAST ONE POWER SOURCE ACTIVE. IF YOU REMOVE ALL POWER SOURCES WHILE YOUR LIFEBOOK NOTEBOOK IS IN SLEEP 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 Sleep mode. Once your 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 Power/Suspend/Resume button to resume operation.

In Dead Battery Suspend mode, your data can be maintained for some time, but if power is not provided promptly, the Power indicator will stop flashing and go out, resulting in loss of the data that was not stored. Once you provide power, you can continue to use your notebook while an adapter is charging the battery.

Shorted Batteries

The Status Indicator panel indicator associated with the Battery Level indicator displays the operating level available in that battery. If this display shows a flashing red LED, it means the battery is damaged and must be replaced so it does not damage 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. There are two ways to swap batteries, cold-swapping and hot-swapping:

Cold-swapping Batteries

To cold-swap batteries, follow these easy steps (Figure 23):

1 Have a charged battery ready to install.

2 Shut down your notebook and disconnect the AC adapter.

3 Turn the system over, and position it so that the battery latches are closest to you.

4 Slide the right latch to the left to unlock it.

5 Slide the left latch to the left and hold it in place while you lift the battery from the bottom of the system (use the thumbnail notch to the left of the left battery latch).

6 Insert a new battery into the bay, and press it in firmly so that the left latch clicks into place, then slide the right latch to the righ to lock it.

7 Plug in the AC adapter and turn the power on.

Hot-swapping Batteries

To hot-swap batteries in your battery bay follow these easy steps:

> ⚠️ **BE SURE TO PLUG IN AN AC ADAPTER PRIOR TO REMOVING THE BATTERY.** THERE IS NO BRIDGE BATTERY PRESENT TO SUPPORT THE SYSTEM WHILE THE BATTERY IS BEING REPLACED. IF YOU DO NOT USE AN AC ADAPTER YOU WILL LOSE ANY UNSAVED FILES.

1 Plug an AC Adapter into the system and connect it to a power outlet.
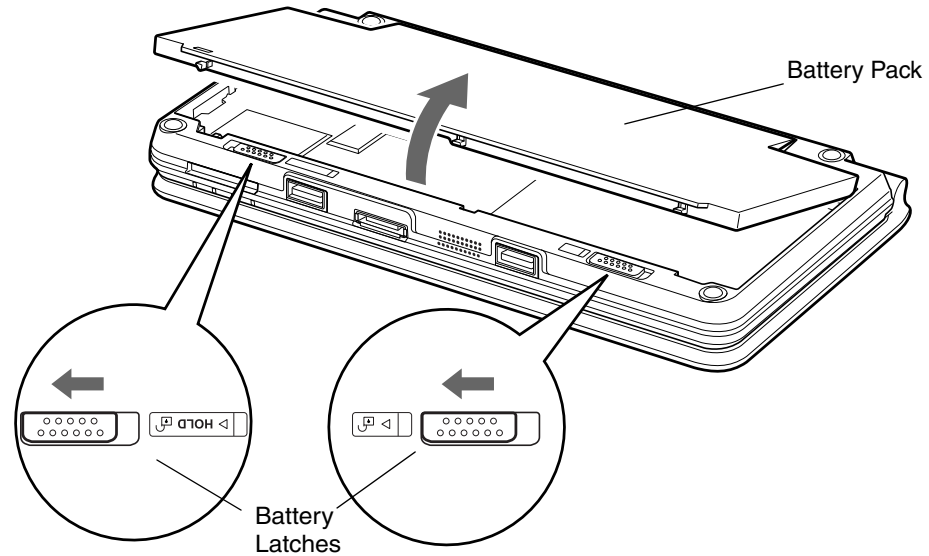
Figure 23. Removing a Battery

2 Follow steps 3 through 6 in "Cold Swapping Batteries".

IF THE LITHIUM ION BATTERY CONNECTOR IS NOT FULLY SEATED, YOU MAY NOT BE ABLE TO USE YOUR NOTEBOOK OR CHARGE YOUR BATTERY.

SD Card Slot
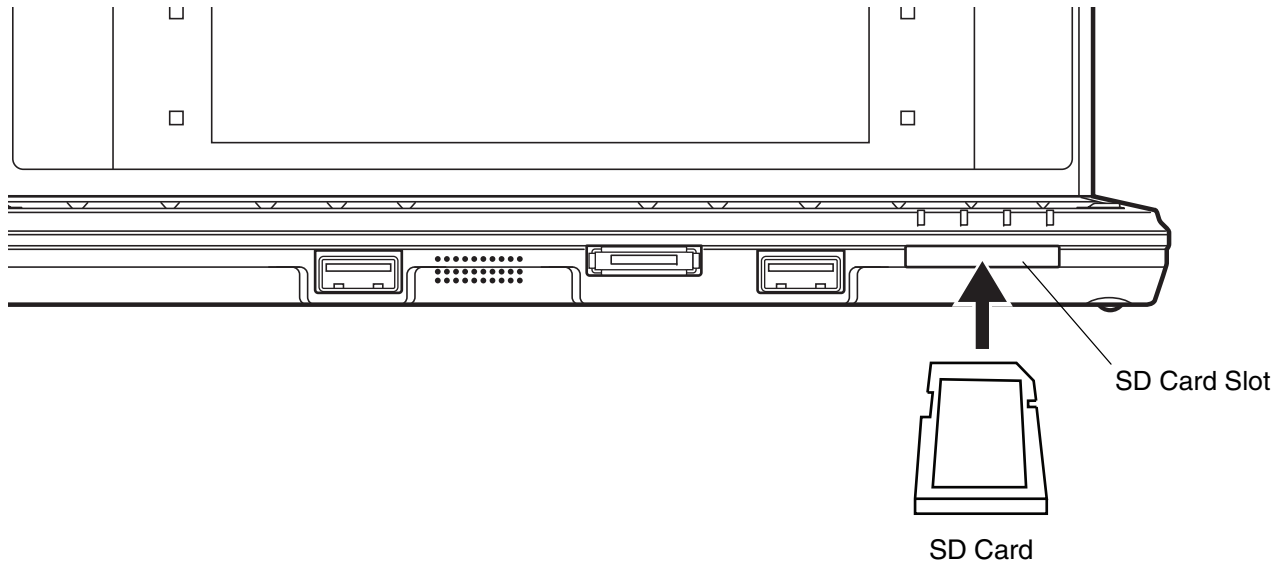
SD Card

Figure 24. Installing a Secure Digital Card

Secure Digital (SD) Cards

Your LifeBook notebook supports Secure Digital (SD) cards, on which you can store and transfer data to and from a variety of digital devices. These cards use flash memory architecture, which means they don't need a power source to retain data.

Secure Digital is a flash memory technology that allows portable storage among a variety of devices, such as cell phones, GPS systems, digital cameras, and PDAs. SD Cards transfer data quickly, with low battery consumption.

Inserting an SD Card

SD Cards are inserted in the SD Card slot. To install an SD Card, follow these steps:

> ⚠ INSTALLING OR REMOVING AN SD CARD DURING YOUR LIFEBOOK NOTEBOOK'S SHUTDOWN OR BOOTUP PROCESS MAY DAMAGE THE CARD AND/OR YOUR LIFEBOOK NOTEBOOK.
>
> DO NOT INSERT A CARD INTO A SLOT IF THERE IS WATER OR ANY OTHER SUBSTANCE ON THE CARD AS YOU MAY PERMANENTLY DAMAGE THE CARD, YOUR LIFEBOOK NOTEBOOK, OR BOTH.

1 See your specific card manual for instructions on the installation of your card. Some cards may require that your notebook is off while installing them.
2 Make sure there is no card currently in the slot. If there is, see Removing an SD Card.
3 Insert your card into the slot with the product label facing up.
4 Push the card firmly into the slot until it is seated in the connector.

Removing an SD Card

To remove an SD Card, follow these easy steps:

> ℹ SEE YOUR CARD MANUAL FOR SPECIFIC INSTRUCTIONS ON THE REMOVAL OF YOUR CARD. SOME CARDS MAY REQUIRE YOUR LIFEBOOK NOTEBOOK TO BE IN SLEEP MODE OR OFF WHILE REMOVING THEM.

1 Left-click **Safely Remove Hardware** from the system tray, then select the device to remove.
2 Push the SD Card in until it unlatches. It will then eject from the slot for removal.

Device Ports

Your Fujitsu LifeBook notebook and the External Monitor/LAN adapter cable come equipped with multiple ports to which you can connect external devices including: disk drives, keyboards, printers, etc.

The following table indicates the ports on the system and/or the adapter cable.

Port Type	Notebook Quantity	Adapter Cable Quantity
USB 2.0	2	0
DC In	1	0
Headphone Jack	1	0
External Video Connector	1*	1
LAN connector (RJ-45)	1*	1

* When used in conjunction with the included external monitor/LAN adapter cable..

Universal Serial Bus Ports

The Universal Serial Bus 2.0 ports (USB) allow you to connect USB devices such as external game pads, pointing devices, keyboards and/or speakers. There are two USB 2.0 port on your notebook, both on the front edge.

In order to connect a USB device, follow these steps:

1 Open the USB cover on the left side of the system.

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

USB connector
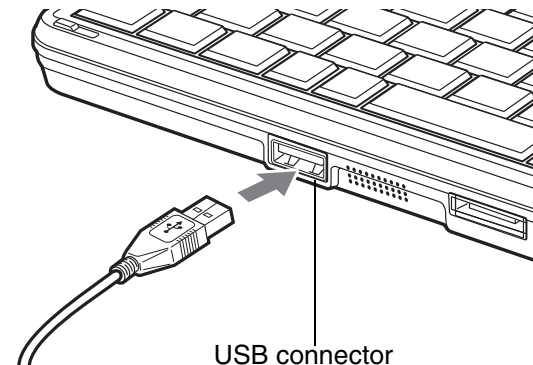
Figure 25. Connecting USB to System

DUE TO ONGOING CHANGES IN USB TECHNOLOGY AND STANDARDS, NOT ALL USB DEVICES AND/OR DRIVERS ARE GUARANTEED TO WORK.

External Video Port

The external video port allows you to connect an external monitor or LCD projector. Note that in order to use a video device directly with the system, you must first attach the included external video/LAN adapter cable. In order to connect an external video device, follow these easy steps:

Connecting external video to the system

1   First connect the external video/LAN adapter cable to the adapter connector at the front of the system (Figure 26). Align the cable connector with the adapter connector and push the connector into the port until it is seated.

2   Align the external video cable to the adapter cable. Tighten the two hold-down screws, located on each side of the connector.

External Monitor/
LAN Adapter

Adapter Connector

External Video Cable
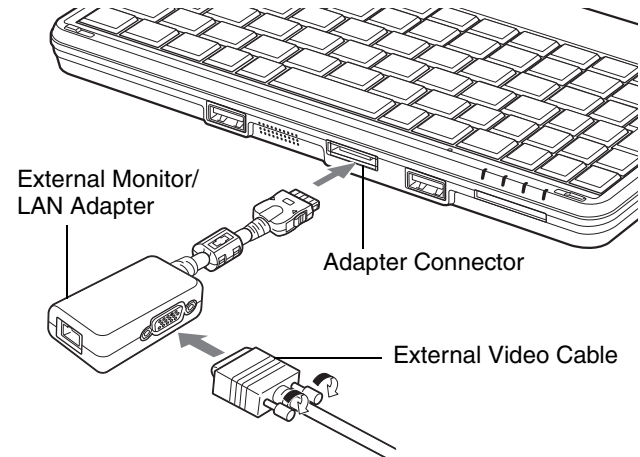
Figure 26. Connecting External Video to System

PRESSING THE [FN] + [A] 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.

Headphone Jack

The headphone jack allows you to connect headphones or powered external speakers to your notebook. Your headphones or speakers 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.

LAN (RJ-45) Jack

Note that in order to use the internal LAN device directly with the system, you must first attach the included external video/LAN adapter cable.

The LAN (RJ-45) jack is used for a 10Base-T/100Base-Tx Ethernet LAN connection. You may need to configure your notebook to work with your particular network. (Please refer to your network administrator for information on your network configuration.) To connect the LAN cable follow these easy steps:

Connecting directly to the internal LAN

1 If connecting directly to the system, first connect the external video/LAN adapter cable to the adapter connector at the front of the system (Figure 27). Align the cable connector with the adapter connector and push the connector into the port until it is seated.

2 Align the LAN connector with the port opening.

3 Push the connector into the port until it is seated.

4 Plug the other end of the cable into a LAN outlet.

External Monitor/ LAN Adapter

Adapter Connector

LAN Cable
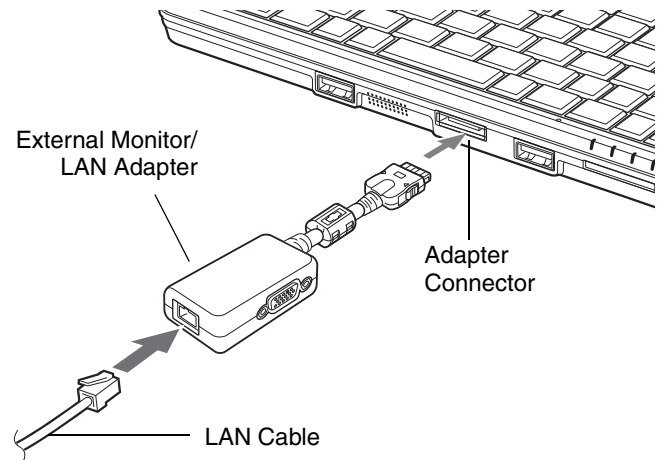
Figure 27. Connecting the LAN and Adapter

Chapter 4

Troubleshooting Your LifeBook

Troubleshooting

There may be occasions when you encounter simple setup or operating problems that you can solve on the spot, or problems with peripheral devices that can be solved by replacing the device. The information in this section helps you isolate and resolve some of these straightforward issues and identify failures that require service.

Identifying the Problem

If you encounter a problem, go through the following procedure before pursuing complex troubleshooting:

1. Turn off your LifeBook notebook.
2. Make sure the AC adapter is plugged into your 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 notebook. Make sure it has been off at least 10 seconds before you turn it back 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.

IF YOU KEEP NOTES ABOUT WHAT YOU HAVE TRIED, YOUR SUPPORT REPRESENTATIVE MAY BE ABLE TO HELP YOU MORE QUICKLY BY GIVING ADDITIONAL SUGGESTIONS OVER THE PHONE.

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

Toll free: 1-800-8Fujitsu (1-800-838-5487)
Web site: http://www.computers.us.fujitsu.com/support.

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
- Type of device connected, if any

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

Specific Problems

Using the Troubleshooting Table

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

Troubleshooting Table

Problem	Possible Cause	Possible Solutions
Audio Problems		
There is no sound coming from the built-in speaker.	The volume is turned too low.	Adjust the volume control on the left side of your notebook
	Headphones are plugged into your notebook.	Plugging in headphones disables the built-in speakers. Remove the headphones.
	Software driver is not configured correctly.	The audio driver may be installed or reinstalled using the Drivers and Applications CD that came with your Fujitsu LifeBook. Refer to your application and operating system documentation for help.

Problem	Possible Cause	Possible Solutions
There is no sound coming from the built-in speaker (continued)	The speakers have been muted using the Volume icon in the system tray.	Click on the Volume icon in the system tray on the bottom right of the screen. (It looks like a speaker). If the Mute box has a red circle on it, click on it to deselect it.
Optical Drive Problems (optional external device)		
LifeBook notebook fails to recognize optical discs.	The disc is not pushed down on raised center circle.	Open optical drive tray and re-install the disc properly.
	Optical drive tray is not latched shut.	Push on the front of the optical drive tray until it latches. If that doesn't work, pull out the modular drive latch to remove the device from the bay, then re-insert the drive until it latched; this ensures that the drive is properly seated.
	Incorrect DVD Player or no DVD Player software is installed.	Install DVD Player software.
	Wrong drive designator was used for the disc in the appli-cation.	Verify the drive designator used by the application is the same as the one used by the operating system. When the operating system is booted from a DVD/CD, drive designa-tions are automatically adjusted. Note that the drive designa-tion can be changed with the Disk Management tool located at Administrative Tools > Computer Management.
	DVD/CD-RW/CD-ROM is dirty or defective.	Wipe the disc with a non-abrasive CD cleaning cloth and reinsert. It if still will not work try another DVD/CD-RW/CD-ROM in the drive.
Hard Drive Problems		
You cannot access your hard drive.	The wrong drive designator was used by an application when a bootable disc 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 operat-ing system cannot be started without a password.	Verify your password and security settings.

Problem	Possible Cause	Possible Solutions
Keyboard or Mouse Problems		
The built-in keyboard does not seem to work.	The notebook has gone into Sleep mode.	Push the **Power/Suspend/Resume** button.
	Your application has locked out your keyboard.	Try to use your integrated pointing device to restart your system.
You have installed an external keyboard or mouse, and it does not seem to work.	Your external device is not properly installed.	Re-install your device. *See "Device Ports" on page 60.*
	Your operating system is not set up with correct software driver for that device.	Check your device and operating system documentation and activate the proper driver.
An external keyboard or a mouse and it seems to be locking up the system.	Your operating system is not set up with 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 notebook. I
Memory Problems		
Your System screen in the Control Panel does not show the correct amount of installed memory.	You have a memory failure.	Check for Power On Self Test (POST) messages. *See "Power On Self Test Messages" on page 73.*
USB Device Problems		
You have installed 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 re-install the device. *See "Device Ports" on page 60.*
	Your device may not have the correct software driver active.	See your software documentation and activate the correct driver.

Problem	Possible Cause	Possible Solutions
You have installed a USB device. Your LifeBook notebook does not recognize the device, or the device does not seem to work properly. (continued)	The device may have been installed while an application was running, so the notebook is not aware of its installation.	Close the application and restart your notebook.
Power Failures		
You turn on your LifeBook notebook and nothing seems to happen.	The installed battery is completely discharged or there is no Power adapter (AC or Auto/Airline) installed.	Check the Status Indicator Panel to determine the presence and condition of the battery. See "Status Indicator Panel" on page 23. Install a charged battery or a Power adapter.
	The battery is installed but is faulty.	Use the Status Indicator panel to verify the presence and condition of the battery. See "Status Indicator Panel" on page 23. If the battery indicates a short, remove it and operate from another power source or replace that battery.
	The battery is low.	Check the Status Indicator Panel to determine the presence and condition of the battery. See "Status Indicator Panel" on page 23. Use a Power adapter to operate until a battery is charged or install a charged battery.
	The power adapter (AC or auto/airline) is not plugged in properly.	Verify that your adapter is connected correctly. *See "Power Sources" on page 41.*
	The power adapter (AC or auto/airline) has no power from the AC outlet, airplane jack, or car cigarette lighter.	Move the AC cord to a different outlet, check for a line switch or tripped circuit breaker for the AC outlet. If you are using an auto/airline adapter in a car make sure the ignition switch is in the On or Accessories position.
	The power adapter (AC or auto/airline) is faulty.	Try a different power adapter.

Problem	Possible Cause	Possible Solutions
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 on the keyboard, or move the mouse to restore operation. If that fails, push the Power/ Suspend/ Resume button. Check your power management settings, or close your applications and go to the Power Options located in the Control Panel to adjust the timeout values to better suit your needs.
	You are operating on battery power and ignored a low battery alarm until the battery was at the dead battery state and the system has entered Dead Battery Suspend mode.	Install a power adapter, then push the Power/Suspend/Resume button. *See "Power Sources" on page 41.*
	You have a battery failure.	Verify the condition of the battery using the Status Indicator panel. If the battery is shorted, replace or remove it. *See "Status Indicator Panel" on page 23.*
	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 battery is dead.	Replace the battery with a charged one or install a power adapter.
	No battery is installed.	Install a charged battery.
	The battery is improperly installed.	Verify that the battery is properly connected by re-installing it.
	Your installed battery is faulty.	Verify the condition of the battery using the Status Indicator panel and replace or remove any batteries that are shorted. *See "Status Indicator Panel" on page 23.*
The battery seems to discharge too quickly.	Battery has been exposed to high temperatures.	Replace the battery.
	The power savings features may be disabled.	Check the Power Options menu settings and adjust according to your operating needs.

Problem	Possible Cause	Possible Solutions
The battery seems to discharge too quickly. (continued)	You are running an application that uses a lot of power due to frequent hard drive access or optical drive access, or use of a Wireless LAN, or Bluetooth device.	Use a power adapter for this application when at all possible.
	The brightness is turned all the way up.	Turn down the brightness adjustment. The higher the brightness the more power your display uses.
	The battery is very old.	Replace the battery.
	The battery has been exposed to high temperatures.	Replace the battery.
	The battery is too hot or too cold.	Restore the notebook to normal operating temperature. Charging icon on the Status Indicator panel will flash when battery is outside of operating range.
Shutdown and Startup Problems		
The Power/Suspend/ Resume button does not work.	Power/Suspend/Resume button is disabled.	Enable the button by going to the Control Panel -> System and Security -> Power Options Properties. Select the **Choose what the power button does** option, then make your selections.
	There may be application software. conflict	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. *See "BIOS Setup Utility" on page 45.*
	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 as accordingly. *See "BIOS Setup Utility" on page 45.*

Problem	Possible Cause	Possible Solutions
An error message is displayed on the screen during the boot sequence.	Power On Self Test (POST) has detected a problem.	See the (POST messages to determine the meaning/severity of the problem. Not all messages are errors; some are status indicators. *See "Power On Self Test Messages" on page 73.*
Your notebook appears to change setup parameters when you start it.	BIOS setup changes were not saved when made and you exited the setup utility.	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 but has a normal life of 3 to 5 years.
Video Problems		
The built-in display is blank when you turn on your LifeBook notebook.	Display angle and brightness settings are not adequate for your lighting conditions.	Move the display and the brightness control until you have adequate visibility.
	The notebook is set for an external monitor only.	Pressing [A] while holding down the [Fn] key allows you to change your selection of where to send your display video. Each time you press the 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.
	Power management timeouts are set for short intervals and you didn't see the display go on and off again.	Press a keyboard button or move the mouse to restore operation. If that fails, push the Power/Suspend/Resume button. (The display may be shut off by Sleep mode, Auto Suspend or Video Timeout)
The notebook turned on with a series of beeps and the built-in display is blank.	POST has detected a failure which does not allow the display to operate.	Contact your support representative.
The display goes blank by itself after you have been using it.	The notebook has gone into Video timeout, Sleep mode, or Save-to-Disk mode because you have not used it for a period of time.	Press any button on the keyboard, or move the mouse to restore operation. If that fails, push the Power/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. *See "BIOS Setup Utility" on page 45.*

Problem	Possible Cause	Possible Solutions
The display goes blank by itself after you have been using it. (continued)	Power management timeouts may be set for short intervals and you failed to notice the display toggle on and off.	Press any button on the keyboard, or move the mouse to restore operation. If that fails, push the Power/Suspend/Resume button. (The display may be shut off by Sleep Mode, Auto Suspend or Video Timeout)
The 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.
The Display is dark when on battery power.	The Power Management utility default is set on low brightness to conserve power.	Press [Fn] + $[\,''\,/\,'\,]$ to increase brightness or double-click on the battery gauge and adjust **Power Control** under battery settings.
You have connected an external monitor and it does not display any information.	Your BIOS setup is not set to enable your external monitor.	Toggle the video destination by pressing [Fn] + [_ / -] together, or check the BIOS setup to enable your external monitor. (See Video Features submenu within the Advanced Menu of the BIOS. *See "BIOS Setup Utility" on page 45.*
	Your external monitor is not properly installed.	Reinstall your device. *See "External Video Port" on page 61.*
	Your operating system is not setup with the correct software driver for that device.	Check your device and operating system documentation and activate the proper driver.
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 and the External Monitor Support portions of the Specifications section. See "Specifications" on page 87.
Miscellaneous Problems		
Error message displayed 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 Phoenix BIOS and/or your operating system can generate and an explanation of each message. Error messages are marked with an *. 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 Memory Cache 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.)

Floppy Disk drive A error or Floppy Disk 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, See "BIOS Setup Utility" on page 45. 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 Memory Failed at address line: xx

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.

*Failure Fixed Disk n (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.

*Incorrect Drive A type – run SETUP

Type of floppy drive A: not correctly identified in Setup. This means that the floppy disk 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 correct the inconsistency.

*Incorrect Drive B type – run SETUP

Type of floppy drive B: not correctly identified in Setup. This means that the floppy disk 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 correct the inconsistency.

*Invalid NVRAM Data

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.

*Stuck Key

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.

*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 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 notebook.

System BIOS shadowed

System BIOS copied to shadow RAM.

*System CMOS checksum bad – Default Configuration Used

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 Memory Passed

Where nnnn is the amount of system memory in kilobytes 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.

Video BIOS shadowed

Video BIOS successfully copied to shadow RAM.

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Restoring Your Pre-installed Software

Packed with your system you will find two discs for recovering your pre-installed software:

- Drivers and Applications Restore Disc
- Recovery and Utility Disc

Drivers and Applications Restore Disc

The Drivers and Applications Restore (DAR) disc included with your system contains sets of device drivers and Fujitsu utilities (in specific directories) that are unique to your computer configuration.

> IF YOU HAVE ACCESS TO THE INTERNET, VISIT THE FUJITSU SUPPORT WEBSITE AT HTTP://WWW.COMPUTERS.US.FUJITSU.COM/SUPPORT TO CHECK FOR THE MOST CURRENT INFORMATION, DRIVERS AND HINTS ON HOW TO PERFORM RECOVERY AND SYSTEM UPDATES.

Re-installing Individual Drivers and Applications

The Drivers and Applications disc can be used to selectively re-install drivers and/or applications that may have been un-installed or corrupted.

> THERE MAY BE CERTAIN FREE THIRD-PARTY APPLICATIONS PRE-INSTALLED ON YOUR SYSTEM THAT ARE NOT ON THE DAR DISC. THE LATEST VERSIONS OF THE APPLICATIONS CAN BE DOWNLOADED FROM THE THIRD-PARTY'S WEBSITE.

To re-install drivers and/or applications:

1. Boot up the system and insert the DAR disc after Windows has started. A Fujitsu Installer screen is displayed after the disc is inserted.
2. After reading the License Agreement, click [I agree].
3. A window will appear containing a list of applications, drivers, and utilities that you can install from the DAR disc.

THE COMPONENTS LISTED ARE COLOR-CODED IN TERMS OF THEIR INSTALL STATUS. BLUE INDICATES THAT THE COMPONENT CAN BE INSTALLED. GREEN INDICATES THAT THE COMPONENT NEEDS TO BE INSTALLED SEPARATELY. GREY INDICATES A COMPONENT THAT IS ALREADY INSTALLED; GREY ITEMS CAN BE REINSTALLED, BUT PRIOR TO INSTALLATION YOU WILL RECEIVE A REMINDER THAT THE COMPONENT IS ALREADY INSTALLED.

4   In the list, check off all the components you want to install. If you want to install all components, click [Select All]. Clicking [Select All] will select all of the blue-coded components; you must select grey and green components separately.

5   Once you have selected the components you wish to install, click [Install Selected Subsystems]; the components will be installed.

6   After the components are installed, click [OK], then click [Yes] when asked if you want to reboot the system.

Recovery and Utility disc

The Recovery and Utility disc contains four utilities:

- The **Recovery** utility allows you to restore the system operating system (OS). The restored OS is the same one that was originally installed on the hard disk drive. After the OS is restored, you will need to reinstall the drivers and applications from the Drivers and Applications Restore disc and from any application discs that were bundled with the system when you purchased it.

- The **Hard Disk Data Delete** utility on this disc is used to delete all data on your hard disk and prevent it from being reused. Do not use the Hard Disk Data Delete utility unless you are absolutely certain that you want to erase your entire hard disk, including all partitions.

- The **Partition Creation** utility allows you to create a new D: partition or resize existing partitions on your hard disk. **NOTE: Creating or resizing partitions with this utility will cause all data on the hard disk to be completely erased.**

- The **Diagnostics** utility allows the IT professional to determine device status/condition by executing diagnostics tests on selected system components.

To use the disc, follow the instructions in the "Using the Recovery and Utility Disc" booklet that is packaged with the disc.

Automatically Downloading Driver Updates

Your system has a convenient tool called the Fujitsu Driver Update (FDU) utility. With FDU, you can choose to automatically or manually go to the Fujitsu site to check for new updates for your system.

> NOTE THAT IF YOU HAVE A 64-BIT OPERATING SYSTEM, IT WILL BE NECESSARY FOR YOU TO FIRST DOWNLOAD AND INSTALL THE FDU UTILITY. TO DO SO, GO TO THE FUJITSU SUPPORT WEB SITE AT HTTP://WWW.FUJITSU.COM/US/SUPPORT AND FOLLOW THE LINKS TO THE DOWNLOADS. FDU WILL BE LISTED WITH THE X64 DOWNLOADS FOR YOUR MODEL.

The FDU icon should appear in the system tray at the bottom right of your screen (roll the cursor over the icons to find the correct one). If the icon does not appear in the system tray, go to [Start] -> All Programs, and click on Fujitsu Driver Update; this will create the icon automatically.

To invoke the FDU menu, right-click on the FDU icon. The menu contains the following items:

Check for updates now

Allows for manual driver update search. The first time it is used, you are prompted to agree to a user agreement. After clicking on the icon, the FDU automatically connects with the Fujitsu site to check for updates and downloads them. While downloading, the icon has a red bar through it, indicating that it cannot be used while the download is in process. When the update is complete, a message appears informing you of the fact.

Enable Automatic Update Notifications

Automatically searches for new updates on a regular basis (approximately every 3 days).

Show update history

Brings up a screen that displays a history of updates that have been made via the FDU.

About Fujitsu Driver Update

Displays the FDU version number and copyright information.

Fujitsu Driver Update Readme

Displays the FDU readme.

Chapter 5

Care and Maintenance

Caring for your LifeBook Notebook

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

- THE SYSTEM CONTAINS COMPONENTS THAT CAN BE SEVERELY DAMAGED BY ELECTROSTATIC DISCHARGE (ESD). TO MINIMIZE RISK TO THE COMPONENTS, OBSERVE THE FOLLOWING PRECAUTIONS:
  - BE SURE TO POWER DOWN YOUR SYSTEM BEFORE ADDING OR REMOVING SYSTEM COMPONENTS. EVEN IF THE SYSTEM IS IN HIBERNATE OR SLEEP STATES, DATA COULD BE LOST OR MEMORY COULD BE DAMAGED IF POWER IS STILL AVAILABLE TO THE SYSTEM.
  - WHEN INSTALLING OR REMOVING A MEMORY MODULE, HOLD IT BY THE EDGE SO AS NOT TO TOUCH ANY CONTACTS OR CHIPS. BE CAREFUL NOT TO TOUCH ANY INTERNAL COMPUTER TERMINALS OR COMPONENTS; THE OIL FROM YOUR FINGERS COULD CAUSE A SHORT TO THE COMPONENTS.
- 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.

- 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.

- To protect your notebook from damage and to optimize system performance, be sure to **keep all air all vents unobstructed**, **clean, and clear of debris**. This may require periodic cleaning, depending upon the environment in which the system is used.

- Do not operate the notebook in areas where the air vents can be obstructed, such as in tight enclosures or on soft surfaces like a bed or cushion.

- If you accidentally spill liquid on your LifeBook notebook:
  1 Turn it off immediately.
  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 notebook.

- Avoid exposure to sand, dust and other environmental hazards.

- Do not expose your 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 notebook in a briefcase, or any other carrying case, make sure that there are no objects in the case pressing on the lid.

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.

- Always shut down the computer, unplug the power adapter, and remove the battery when cleaning or disinfecting the computer exterior, keyboard or LCD display.

Cleaning guidelines using recommended off-the-shelf cleaners

Computer exterior, computer keyboard

To clean the exterior and keyboard, use one of the following off-the-shelf products:

- Office Depot® #154-616 Notebook Cleaning Kit
- Meridrew Enterprises Klear_Screen® Wipes
- 3M CL563 Cleaner Wipes

Note: After cleaning with one of these products, gently polish with a dry, soft, lint-free cloth until the solution is no longer visible.

LCD display

To clean the LCD display or fingerprint sensor, use one of the following off-the-shelf products:

- Office Depot® #154-616 Notebook Cleaning Kit
- Meridrew Enterprises Klear_Screen® Wipes

Wipe the LCD surface gently, allowing it to dry before turning on the computer.

Disinfecting LifeBook computers

Wipe the surface with a soft cloth wipe and a 50% ethanol solution or use another ethanol-based germicide which has been registered as a hospital disinfectant by the EPA.

⚠️

- USE OF INCORRECT CLEANERS CAN RESULT IN OPTICAL IMPAIRMENT OF THE LCD AND/OR DAMAGE TO THE COMPUTER. ALWAYS REFER TO THE CLEANER MANUFACTURER'S GUIDELINES AND MATERIAL SAFETY DATA SHEETS FOR PROPER HANDLING AND USE OF THE PRODUCTS.
- NEVER USE AMMONIA, ACIDIC, OR ALKALINE CLEANERS OR ORGANIC CHEMICALS SUCH AS PAINT THINNER, ACETONE, PROPYL OR ISOPROPYL ALCOHOL, OR KEROSENE. IT MAY DAMAGE SURFACE FINISHES AND THE COATING OF THE LCD SCREEN.
- NEVER USE COMPRESSED AIR FOR CLEANING STYLISTIC AND LIFEBOOK PCS.

Storing your LifeBook notebook

- If storing your notebook for a month or longer, turn your LifeBook notebook off, fully charge the battery(s), then remove and store all Lithium ion batteries.

- Store your notebook and batteries separately. If you store your LifeBook with a battery installed, the battery will discharge, and battery life will be reduced. In addition, a faulty battery might damage your LifeBook.

- Store your Fujitsu LifeBook in a cool, dry location. Temperatures should remain between 13ºF (-25ºC) and 140ºF (60ºC).

Traveling with your LifeBook notebook

- Do not transport your notebook while it is turned on.

- 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.

- 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, Mexico, Japan, Korea, the Philippines, Taiwan		United Kingdom, Ireland, Malaysia, Singapore, parts of Africa
	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		China, Australia, New Zealand

- It is recommended that you carry your notebook with you while traveling, rather than checking it in as baggage.

- Never put your notebook through a metal detector. Have your notebook hand-inspected by security personnel. You can however, put your notebook through a properly tuned X-ray machine. To avoid problems, place your notebook close to the entrance of the machine and remove it as soon as possible or have your notebook hand-inspected by security personnel. Security officials may require you to turn your notebook on, so make sure you have a charged battery on hand.

Batteries

Caring for your Batteries

- Always handle batteries carefully.
- Do not short-circuit the battery terminals (that is, do not touch both terminals with a metal object). Do not carry lose batteries in a pocket or purse where they may mix with coins, keys, or other metal objects. Doing so may cause an explosion or fire.
- Do not drop, puncture, disassemble, mutilate or incinerate the battery.
- Recharge batteries only as described in this manual and only in ventilated areas.
- Do not leave batteries in hot locations for more than a day or two. Intense heat can shorten the life of your battery.
- 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 or optional auto/airline adapter whenever possible.
- If your 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 notebook in Sleep mode when it is turned on and you are not actually using it.
- Disable the Media Player auto insert notification function.
- Always use fully charged batteries.

Media Care

Caring for your Media (DVD/CD/CD-R)

If you have an optional external optical drive connected to your system, be sure to handle the media discs carefully. Media discs are precision devices and will function reliably if given reasonable care.

- Always store your media disc in its case when it is not in use.
- Always handle discs by the edges and avoid touching the surface.
- Avoid storing any media discs in extreme temperatures.
- Do not bend media discs or set heavy objects on them.
- Do not spill liquids on media discs.
- Do not scratch media discs.
- Do not get dust on media discs.
- Never write on the label surface with a ballpoint pen or pencil. Always use a felt pen.
- If a media disc 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 media discs.
- If a disc 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 Optional External Optical Drive

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

- The drive rotates the compact disc 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 optical drive.
- Use of a commercially available lens cleaner is recommended for regular maintenance of your drive.

Chapter 6

System Specifications

Specifications

This section provides the hardware and environmental specifications for your Fujitsu LifeBook notebook. Specifications of particular configurations will vary.

Configuration Label

The configuration label located on the bottom of your notebook contains specific information regarding the options you've chosen for your notebook. Following is an example configuration label.

Part Number   Configuration ID

Configuration P/N: A9601XXXXXXXXX
FPC P/N: FPCXXXXXX
UH900, Z530, 5.6 WXGA, W7HP, 60G, 2GB

Model #   Processor   Screen Size/Type   Operating System   Hard Drive   Memory
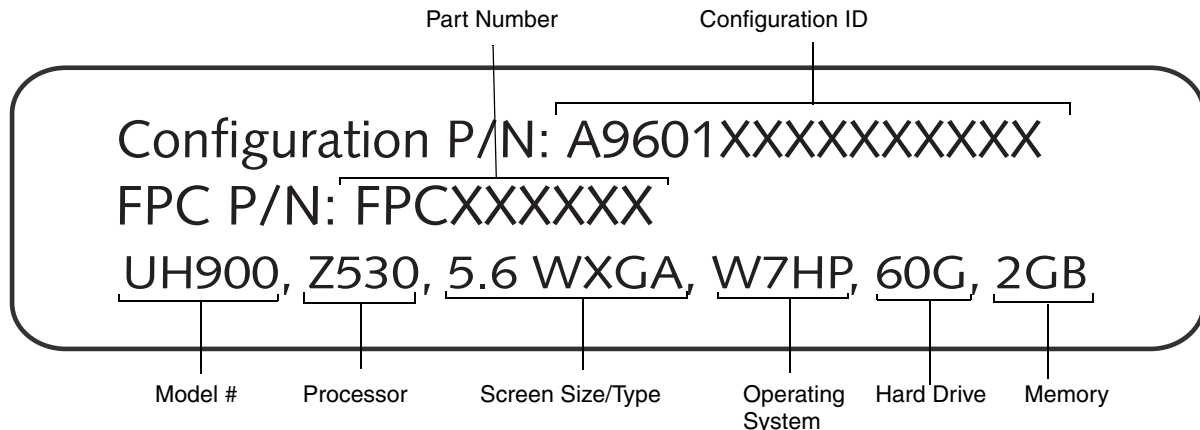
Microprocessor

Intel® Atom™ Processor Z530 (Refer to the system label to determine the speed of your processor).

Chipset

Intel® System Controller Hub US15W

Memory

System Memory

- DDR2-533 MHz SDRAM dual-channel memory module.
- Total of 2 GB pre-installed. No DIMM slots for expansion.

Cache Memory

- 512 KB L2 cache on-die

Video

Built-in color flat-panel TFT active matrix LCD display with simultaneous display capability.

Video Color and Resolution

5.6" Crystal View Wide XGA display

- Internal: 1280 x 800 pixel resolution, 16M colors
- External: 1280 x 1024 pixel resolution, 16M colors
- Simultaneous: TBD

Video RAM

Intel® Graphics Media Accelerator 500. Maximum memory of GMA 500: 253 MB.

Audio

- Audio Realtek Codec ALC269 with High Definition (HD) audio.

- Stereo headphone jack, 3.5 mm, 400mV$_{rms}$ or less, minimum impedance 32 Ohms
- One built-in speaker, 16 mm diameter, mono
- One built-in digital microphone

Mass Storage Device Options

Hard Drive

- 60 GB solid-state hard disk drive

Features

Integrated Pointing Device

- Left and right buttons
- Cursor control button

Communications

- **Internal LAN**: Internal wired 10/100 Ethernet LAN
- **WLAN:** Integrated Atheros® AR5B91 (IEEE 802.11bgn)
- **Bluetooth**: Optional Bluetooth CSR BSMAN3 device for wireless personal area network communication

Device Ports

On the LifeBook notebook:

- Secure Digital (SD) Card slot
- Two USB 2.0 (Universal Serial Bus) connector for input/output devices
- One DC In connector
- Adapter cable connector (accommodates external video/LAN cable adapter)
- One stereo headphone jack

Keyboard

Built-in keyboard

- Total number of keys: 75
- Function keys: [F1/F7] through [F6/F12] when used in conjunction with [Fn] key
- Two Windows keys: one Start key, one application key
- Key pitch: 16 mm; key stroke: 1.2 mm
- Built-in cursor control button with left and right buttons and scroll buttons.
- External USB keyboard/mouse support

Power

Batteries

- Standard Lithium ion battery, rechargeable, 2-cell 7.2V, 1800 mAh, or,
- High-capacity Lithium ion battery, rechargeable, 4-cell 7.2V, 3800 mAh

AC Adapter

Autosensing 100-240V AC, supplying 19V DC, 2.1A, 40W to the LifeBook; includes an AC cable

Power Management

Conforms to ACPI (Advanced Configuration and Power Interface).

Dimensions and Weight

Overall Dimensions

With 2-cell battery: Approximately 6.73"(w) x 5.31"(d) x 1.16"/1.46"(h) (171.0 mm x 135.0 mm x 29.5/37.0 mm)

With 4-cell battery: Approximately 6.73"(w) x 6.14"(d) x 1.16"/1.46"(h) (171.0 mm x 156.0 mm x 29.5/37.0 mm)

Weight

Approximately 1.56 lbs. (707 g) with battery

Environmental Requirements

Temperature

Operating: 41° to 95° F (5° to 35° C). Non-operating: 5° to 140° F (−15° to 60° C)

Humidity

Operating: 20% to 85%, relative, non-condensing. Non-operating: 8% to 85%, relative, non-condensing

Altitude

Operating: 10,000 feet (3,048 m) maximum

Popular Accessories

For ordering or additional information on Fujitsu accessories please visit our Web site at www.shopfujitsu.com or call 1-800-FUJITSU.

Pre-Installed Software

Depending on your operating system, your notebook comes with pre-installed software for playing audio and video files of various formats. In addition there is file transfer software, virus protection software and Power Management software. The following list indicates the pre-installed software on your system.

- Adobe Reader
- Cyberlink YouCam
- Garmin Mobile PC
- Google Picasa

- Google Toolbar
- Norton Internet Security
- Fujitsu Driver Update utility
- Microsoft Office Activation Assistant
- Microsoft Touch Pack
- Microsoft Works with Office 2007 Student and Home Trial Edition
- **Operating System:** Microsoft Windows 7 Home Premium

Learning About Your Software

Tutorials

All operating systems and most application software have tutorials built into them upon installation. We highly recommend that you step through the tutorial before you use an application.

Manuals

Included with your notebook you will find manuals for your installed operating system and other pre-installed software. If any manuals are not included, information about the application is available online or through the help system of the software. We recommend that you review these manuals for general information on the use of these applications.

Adobe Reader

The Adobe Reader allows you to view, navigate, and print PDF files from across all of the major computing platforms.

CyberLink YouCam

CyberLink YouCam allows you to capture photos or movies on the embedded webcam, add special effects to them, and share them in a variety of formats or via social networks.

Norton Internet Security

Your system is preinstalled with a free 90-day trial version of Symantec's Norton Internet Security™ software. Internet Security is a suite of tools designed to protect your LifeBook from viruses, hackers, spam, and spyware. It helps protect data currently on your hard disk from destruction or contamination. The trial version is activated upon your acceptance of software license agreement. After 90 days, you will need to purchase a subscription from Symantec to download latest virus, spyware, and spam definitions.

Google Picasa

Google Picasa lets you to search for, locate, move and label all of the photos on your computer.

Google Toolbar

Google Toolbar lets you to search the Internet quickly, block pop-ups, and perform a variety of other tasks to make your Internet experience easier and more pleasant.

Fujitsu Driver Update Utility

The Fujitsu Driver Update (FDU) utility is pre-installed on your system. With FDU, you can choose to automatically or manually go to the Fujitsu site to check for new updates for your system. See "Automatically Downloading Driver Updates" on page 79.

Garmin Mobile PC

Garmin Mobile PC provides powerful, full-featured navigation from your LifeBook. With pre-loaded maps and millions of points-of-interest, Mobile PC's easy-to-use navigation software, turn-by-turn directions that speak street names, and route planning, you'll never have to stop for directions again..

Microsoft Office Activation Assistant

With Office Ready PCs it's now even easier to take advantage of Microsoft® Office 2007. The full versions of Microsoft® Office Basic, Small Business and Professional 2007 are already preinstalled on your PC, so there's nothing to install, and all Office Ready PCs give you the option to activate a 60 day trial of Microsoft® Office Professional 2007! All you need to do is purchase the appropriate Office 2007 license kit which allows you to "un-lock" the full version of Office that you want.

Fujitsu offers a Media License Kit for Microsoft® Office Small Business 2007. Simply enter your product key and you're ready to go!

Another option is to purchase a Microsoft® Office 2007 media-less license kit (MLK) from either your computer reseller or online from Microsoft within 90 days of the purchase of your computer.

Microsoft Touch Pack

The Microsoft Touch Pack for Windows 7 is a set of three applications and three games that let you enjoy the interactive touch screen with the use of gestures and touches. The three applications include Microsoft Surface Globe, which lets you navigate around the globe via your desktop; Microsoft Surface Collage which lets you arrange, move and resize pictures using your fingertips; and Microsoft Suface Lagoon, which produces an interactive touch screensaver. The games include Microsoft Blackboard, Microsoft Rebound, and Microsoft Garden Pond, all of which use gestures and finger touch controls to play.

Microsoft Works 9.0 with Microsoft Office Home and Student Trial Edition 2007
Microsoft Works 9.0 is a software suite containing the basic tools to write letters and reports, track family and friends with address books, manage home finances, and create a home inventory.

Microsoft Office Home and Student 2007 is the essential software suite for home computer users that enables you to quickly and easily create great-looking documents, spreadsheets, and presentations, and organize your information in one place, making it easier for you to get things done. Microsoft Office Home and Student 2007 SBE includes Microsoft Word, Excel and Power Point

Glossary

AC Adapter

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

Access point

Wireless network device used to bridge wireless and wired network traffic.

ACPI

Advanced Configuration and Power Interface

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.

Ad Hoc Mode

Ad Hoc Mode refers to a wireless network architecture where wireless network connectivity between multiple computers is established without a central wireless network device, typically known as Access Points. Connectivity is accomplished using only client devices in a peer-to-peer fashion.

Auto/Airline Adapter

A device which converts the DC voltage from an automobile cigarette lighter or aircraft DC power outlet to the DC voltage needed to power your LifeBook notebook.

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 micro-processor 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.

CD-ROM

Compact disk read only memory. This is a form of digital data storage which is read optically with a laser rather than a magnetic head. A typical CD-ROM can contain about 600MB of data and is not subject to heads crashing into the surface and destroying the data when there is a failure nor to wear from reading.

Channel

Range of narrow-band frequencies used by the WLAN device to transmit data. IEEE802.11b/g - 11 channels, 22 MHz wide channels.

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.

Default Value

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

DHCP

Dynamic Host Configuration Protocol. A protocol used to automatically acquire parameters required for the communication, such as IP address. The sender of IP address is called a DHCP server, and the receiver is called a DHCP client.

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.

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.

DNS

Domain Name System. A function to control the association between the IP address and the name assigned to the computer. If you do not know the IP address but if you know the computer name, you can still communicate to that computer.

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.

DVMT

Dynamic Video Memory Technology. A video memory architecture that increases the efficiency of the motherboard by using innovative memory utilization and direct AGP.

ECP

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

Encryption Key (Network Key)

Data encryption key used to encrypt message text and for computing message integrity checks. Data encryption protects data from unauthorized viewing.

This device uses the same encryption key to encode and decode the data, and the identical encryption key is required between the sender and receiver.

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.

FCC

Federal Communication Commission.

GB

Gigabyte. One billion bytes.

Hard drive

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

I/O

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

I/O Port

The connector and associated control circuits for data entering and leaving your notebook in electronic form.

IDE

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

IEEE802.11b

Wireless LAN standard that supports a maximum data rate of 11 Mbps. 802.11b devices operate in the 2.4 GHz ISM band.

IEEE802.11g

Wireless LAN standard that supports a maximum data rate of 54 Mbps. 802.11g devices operate in the 2.4 GHz ISM band.

IEEE802.11n

Wireless LAN standard that supports a maximum data rate of 540 Mbps (tentative). 802.11n devices operate in the 2.4 GHz and 5 GHz bands.

Infrared

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

Infrastructure

A name of a wireless LAN configuration. This type of communication uses an access point. Another type of communication is called Ad Hoc.

IP Address

An identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example, 1.160.10.240 could be an IP address.

Within an isolated network, you can assign IP addresses at random as long as each one is unique. However, connecting a private network to the Internet requires using registered IP addresses (called Internet addresses) to avoid duplicates.

The four numbers in an IP address are used in different ways to identify a particular network and a host on that network. Three regional Internet registries -- ARIN, RIPE NCC and APNIC -- assign Internet addresses from the following three classes.

Class A - supports 16 million hosts on each of 126 networks

Class B - supports 65,000 hosts on each of 16,000 networks

Class C - supports 254 hosts on each of 2 million networks

The number of unassigned Internet addresses is running out, so a new classless scheme called CIDR is gradually replacing the system based on classes A, B, and C and is tied to adoption of IPv6.

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. One thousand bytes.

LAN

Local Area Network. An interconnection of computers and peripherals within a single limited geographic location which can pass programs and data amongst themselves.

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.

MAC Address

Media Access Control Address. A unique physical address of a network card. For Ethernet, the first three bytes are used as the vendor code, controlled and assigned by IEEE. The remaining three bytes are controlled by each vendor (preventing overlap), therefore, every Ethernet card is given a unique physical address in the world, being assigned with a different address from other cards. For Ethernet, frames are sent and received based on this address.

MB

Megabyte. One million bytes.

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.

MTU

Maximum Transmission Unit

The maximum data size that can be transferred at a time through the Internet or other networks. You can set a smaller MTU size to obtain successful communication, if you have difficulty transferring data due to the fact that the maximum size is too large.

Network key

Data that is used for encrypting data in data communication. The personal computer uses the same network key both for data encryption and decryption, therefore, it is necessary to set the same network key as the other side of communication.

Network name (SSID: Service Set Identifier)

When a wireless LAN network is configured, grouping is performed to avoid interference or data theft. This grouping is performed with "Network name (SSID)". In order to improve security, the network key is set allowing no communication unless "Network name (SSID)" coincides with the network key.

NTSC

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

Open system authentication

Null authentication method specified in the 802.11 standard that performs no authentication checks on a wireless client before allowing it to associate.

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 microprocessor in order to produce the desired results from that particular equipment.

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.

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 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.

PPPoE

Point to Point Protocol over Ethernet. A protocol for Ethernet, using a Point-to-Point Protocol (PPP), which is used for connection on the phone line.

Program

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

Protocol

Procedures and rules use to send and receive data between computers.

- Method of sending and receiving data

- Process used to handle communication errors

Conditions required for communication are organized in procedures for correct transfer of information.

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 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 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.

Shared key authentication

802.11 network authentication method in which the AP sends the client device a challenge text packet that the client must then encrypt with the correct WEP key and return to the AP. If the client has the wrong key or no key, authentication will fail and the client will not be allowed to associate with the AP. Shared key authentication is not considered secure, because a hacker who detects both the clear-text challenge and the same challenge encrypted with a WEP key can decipher the key.

SSID

Service Set Identifier, a 32-character unique identifier attached to the header of packets sent over a WLAN that acts as a password when a mobile device tries to connect to the BSS. The SSID differentiates one WLAN from another, so all access points and all devices attempting to connect to a specific WLAN must use the same SSID. A device will not be permitted to join the BSS unless it can provide the unique SSID. Because the SSID is broadcast in plain text, it does not supply any security to the network.

Standby

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.

Status Indicator

A display which reports the condition of some portion of your hardware.

Subnet mask

TCP-IP network is controlled by being divided into multiple smaller networks (subnets). IP address consists of the subnet address and the address of each computer. Subnet mask defines how many bits of IP address comprise the subnet address. The same value shall be set among computers communicating with each other.

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.

TCP/IP

Transmission Control Protocol/Internet Protocol. A standard Internet protocol that is most widely used.

UL

Underwriters Laboratories – An independent organization that tests and certifies the electrical safety of devices.

USB

Universal Serial Bus. Standard that allows you to simultaneously connect up to 127 USB devices such as game pads, pointing devices, printers, and keyboards to your computer.

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.

Wi-Fi Compatible

Wi-Fi (Wireless Fidelity) Identifies that the product has passed the interoperability test, supplied by the WECA (Wireless Ethernet Compatibility Alliance), which guarantees the interoperability of wireless IEEE 802.11 LAN products. For more information on the Wi-Fi standard, go to the WECA Web site at: www.wirelessethernet.com.

WLAN

Wireless Local Area Network. A wireless interconnection of computers and peripherals within a single limited geographic location which can pass programs and data amongst themselves.

Regulatory Information

Notice

Changes or modifications not expressly approved by Fujitsu could void this user's authority to operate the equipment.

FCC NOTICES

Notice to Users of Radios and Television

This equipment has been tested and found to comply with the limit for class B digital devices, pursuant to parts 15 of the FCC Rules.

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

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

Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device.

DOC (INDUSTRY CANADA) NOTICES

Notice to Users of Radios and Television

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

CET appareil numérique de la class B respecte toutes les exigence du Réglement sur le matériel brouilleur du Canada.

Appendix A: Wireless Device User's Guide

FCC Regulatory Information

Please note the following regulatory information related to the optional 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 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.

This device must not be co-located or operated in conjunction with any other antenna or transmitter.

For IEEE 802.11a Wireless LAN: For operation within 5.15~5.25 GHz frequency range, it is restricted to indoor environments, and the antenna of this device must be integral.

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

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure to low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposure have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. The wireless LAN radio device has been tested and found to comply with FCC radiation exposure limits set forth for an uncontrolled equipment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65.

⚠ DO NOT USE THE NOTEBOOK ON YOUR LAP. USING IT ON YOUR LAP WILL BLOCK THE AIR VENTS, WHICH COULD RESULT IN DAMAGE TO THE SYSTEM AND ALSO CAN REDUCE THE RF EXPOSURE SAFETY DISTANCE DURING RADIO OPERATION.

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 America, Incorporated may invalidate the user's right to operate this equipment.

Canadian Notice

The device for the 5150 - 5250 MHz band is only for indoor usage to reduce the potential for harmful interference to co-channel mobile satellite systems.

The maximum antenna gain of 6 dBi permitted (for devices in the 5250 - 5350 MHz, 5470 - 5725 MHz and 5725 - 5825 MHz bands) to comply with the e.i.r.p. limit as stated in A9.2 of RSS210.

In addition, users are cautioned to take note that high power radars are allocated as primary users (meaning they have priority) of 5250 - 5350 MHz and 5650 - 5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

Before Using the Wireless LAN

This manual describes the procedures required to properly set up and configure the integrated Wireless LAN Mini-PCI device (referred to as "WLAN device" in the rest of the manual). Before using the WLAN device, read this manual carefully to ensure it's correct operation. Keep this manual in a safe place for future reference.

Wireless LAN Device Covered by this Document

This document is applicable to systems containing Atheros® AR5B91 wireless network card (802.11bgn)

Characteristics of the WLAN Device

- The WLAN device is a Mini-PCI card attached to the main board of the mobile computer.
- The WLAN device operates in license-free RF bands, eliminating the need to procure an FCC operating license. The WLAN operates in the 2.4GHz Industrial, Scientific, and Medical (ISM) RF band and the lower, middle, and upper bands of the 5GHz Unlicensed National Information Infrastructure (UNII) bands.
- The WLAN device is capable of three operating modes,IEEE802.11b, IEEE802.11g, and IEEE802.11n
- The WLAN device is Wi-Fi certified and operate (as applicable) at a the maximum data rate of 540 Mbps (theoretical) in IEEE802.11n mode; 54 Mbps in IEEE802.11g mode; and 11 Mbps in IEEE802.11b mode.
- The WLAN device supports the following encryption methods - WEP, TKIP, CKIP, and AES encryption.
- The Wireless LAN device is compliant with the following standards: WPA, WPA2, CCX1.0, CCX2.0, CCX3.0, and CCX4.0.

Wireless LAN Modes Using this Device

Ad Hoc Mode

"Ad Hoc Mode" refers to a wireless network architecture where wireless network connectivity between multiple computers is established without a central wireless network device, typically known as Access Point(s). Connectivity is accomplished using only client devices in a peer-to-peer fashion. That is why Ad Hoc networks are also known as peer-to-peer networks. Ad Hoc networks are an easy and inexpensive method for establishing network connectivity between multiple computers. Ad Hoc mode requires that the SSID, network authentication, and encryption key settings are identically configured on all computers in the Ad Hoc network.
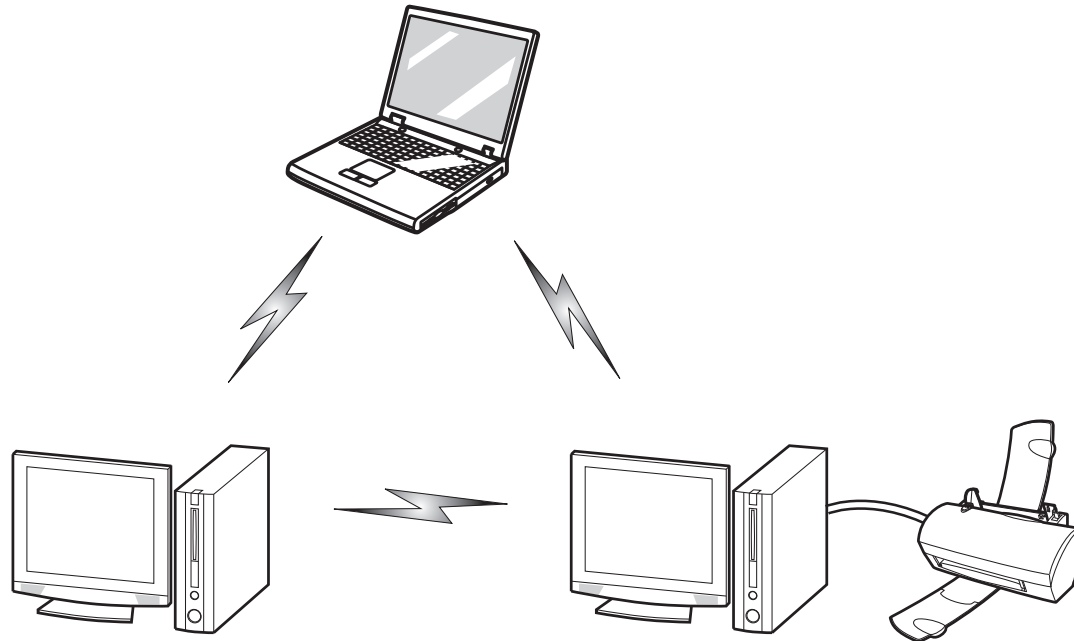
Figure 28. Ad Hoc Mode Network

Access Point (Infrastructure) Mode

Infrastructure mode refers to a wireless network architecture in which devices communicate with wireless or wired network devices by communicating through an Access Point. In infrastructure mode, wireless devices can communicate with each other or with a wired network. Corporate wireless networks operate in infrastructure mode because they require access to the WLAN in order to access services, devices, and computers (e.g., file servers, printers, databases).

Internet

ADSL modem, cable modem, or similar

Wired LAN

Access Point*

Wireless LAN

*An optional hub for a wired LAN may be required depending upon the type of access point used.
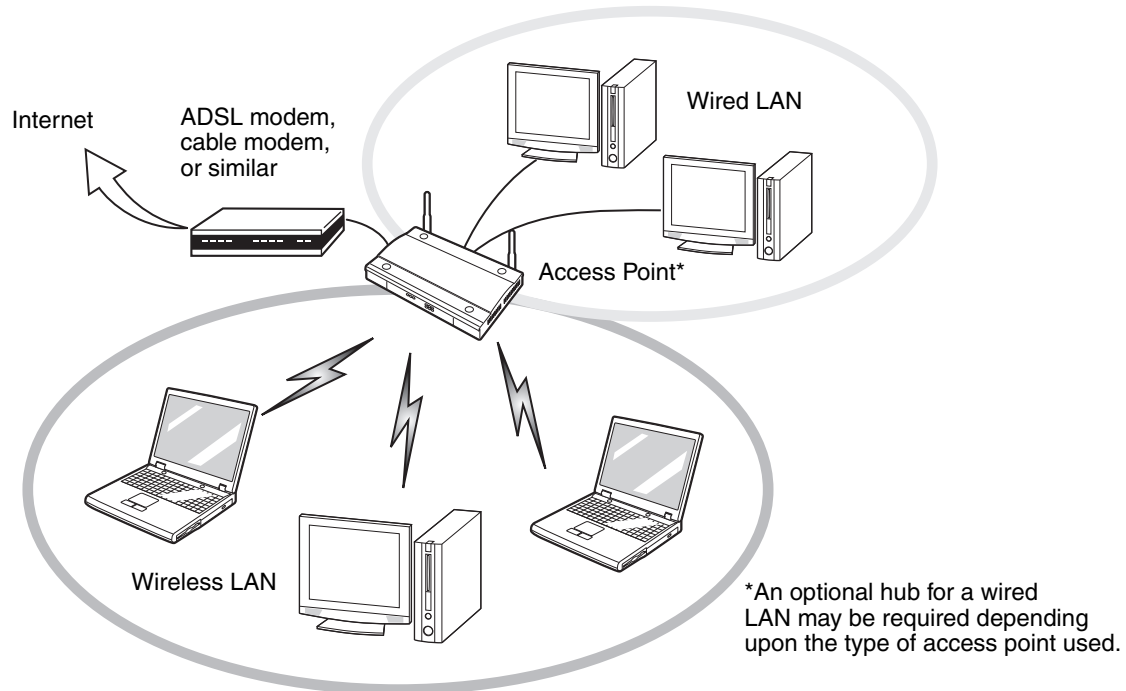
Figure 29. Access Point (Infrastructure) Mode Network

How to Handle This Device

The WLAN device is a device that comes pre-installed in your mobile computer. Under normal circumstances, it should not be necessary for you to remove or re-install it. The operating system that your mobile computer comes with has been pre-configured to support the WLAN device.

- The Atheros WLAN device supports EEE802.11b, IEEE802.11g and IEEE802.11n.
- The WLAN device operates in the 2.4 GHz ISM band and the 5 GHz lower, middle, and upper UNII bands.
- Microwave ovens may interfere with the operation of WLAN devices since they operate in the same 2.4 GHz frequency range as IEEE802.11b/g/n devices.
- Wireless devices that transmit in the 2.4 GHz range may interfere with operation of WLAN devices in IEEE802.11b/g/n modes. Symptoms of interference include reduced throughput, intermittent disconnects, and many frame errors. It is HIGHLY recommended that these interfering devices be powered off to ensure proper operation of the WLAN device.

Deactivating/Disconnecting the WLAN Device

Disconnecting the WLAN device may be desired in certain circumstances (to extend battery life) or where certain environments require it (i.e. hospitals, clinics, airplanes, etc.). The WLAN device can be deactivated by using the Wireless On/Off Switch, and it can be disconnected in Windows using the WLAN icon in the system tray (Note that disconnecting via the icon in the system tray does not turn off the radio; it continues to transmit and receive even though it's not connected.).

> BEFORE USING THE WIRELESS LAN DEVICE, YOU MUST FIRST INSTALL CLICKME! TO ENSURE THAT THE CORRECT SOFTWARE FOR YOUR DEVICE IS INSTALLED. SEE "INSTALLING CLICKME!" ON PAGE 47. IN ORDER TO RUN CLICKME!, THE WLAN SWITCH MUST BE IN THE ON POSITION.

Deactivation Using the Wireless On/Off Switch

The WLAN device can be deactivated quickly and efficiently by toggling the Wireless LAN/Bluetooth On/Off Switch to the Off position. The switch has no effect on non-Wireless LAN models. The switch is located on the left side of the system (Figure 30)

WLAN/Bluetooth Switch
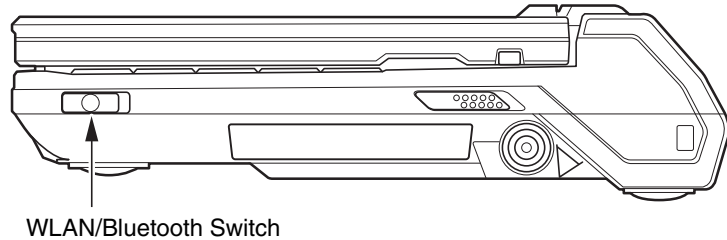
Figure 30. Wireless LAN/Bluetooth On/Off Switch Location

Disconnection Using the Icon in the Taskbar

Note that disconnecting via the icon in the system tray does not turn off the radio; it continues to transmit and receive even though it's not connected.

1   Right-click the WLAN icon in the taskbar at the bottom right of your screen.

2   Choose Disconnect from a network.

Activating the WLAN Device

Activation of the WLAN device can be accomplished using the same methods as the deactivation process

- Using the Wireless On/Off Switch
- Right-clicking the WLAN icon in the system tray, then clicking **Connect to a network**.

Configuring the Wireless LAN

The WLAN device can be configured to establish wireless network connectivity using the software that is built into Windows. Support for most industry standard security solutions is contained in this software.

Pre-defined parameters will be required for this procedure. Please consult with your network administrator for these parameters:

Configuring the WLAN Using Windows

1 Click the Start button, then select Control Panel.

2 If the Control Panel is not in icon view, select select one of the icon views in **View by:**. Click the Network and Sharing Center icon.

3 Select **Connect to a network** in the bottom panel.

4 Select one of the listed networks, then click [Connect].

5 Follow the directions that appear.

In the event you require assistance, go to the Network and Sharing Center window (Start -> Control Panel -> Network and Sharing Center), and type in relevant keywords in the Search box.

Connecting to a Network

After you have configured your computer, you can connect to an active network by performing the following steps:

1 Click on the WLAN icon in the system tray.

2 Select "Connect to a network".

3 Select a network from the list that appears, and click the [Connect] button.

Troubleshooting the WLAN

Troubleshooting

Causes and countermeasures for troubles you may encounter while using your wireless LAN are described in the following table. If you are unfamiliar with the steps required, consult your System Administrator or go to [Start] -> Help and Support -> Networking and the Web

Problem	Possible Cause	Possible Solution
Unavailable network connection	Incorrect network name (SSID) or network key	**Ad hoc connection:** verify that the network names (SSID's) and network keys (WEP) of all computers to be connected have been configured correctly. SSID's and WEP key values must be identical on each machine. **Access Point (Infrastructure) connection:** set network name (SSID) and network key to the same values as those of the access point. Set the Network Authentication value identically to that of the Access Point. Consult your network administrator for this value, if necessary.
	Weak received signal strength and/or link quality	Ad hoc connection: Retry connection after shortening the distance to the destination computer or removing any obstacles for better reception. Access Point (Infrastructure) connection: Retry connection after shortening the distance to the access point or removing any obstacles for better sight.
	The WLAN device has been deactivated or disabled	Check if the wireless switch is turned On. Go to Start -> Control Panel, and double-click on Network and Sharing Center. Click the {Connect or disconnect] button.

Problem	Possible Cause	Possible Solution
Unavailable network connection (continued)	The computer to be connected is turned off	Check if the computer to be connected is turned ON.
	RF interference from Access Points or other wireless networks	The use of identical or overlapping RF channels can cause interference with the operation of the WLAN device. Change the channel of your Access Point to a channel that does not overlap with the interfering device.
	Wireless network authentication has failed	Re-check your Network Authentication, Encryption, and Security settings. Incorrectly configured security settings such as an incorrectly typed WEP key, a mis-configured LEAP username, or an incorrectly chosen authentication method will cause the LAN device to associate but not authenticate to the wireless network.
	Incorrectly configured network settings	Recheck the configuration of your network settings.
	Incorrect IP address configuration	This only applies to networks using static IP addresses. Please contact your network administrator for the correct settings.

WLAN Specifications

Specifications

Item	Specification
Type of network	The Atheros AR5B91 Wireless network card conforms to IEEE802.11b, IEEE802.11g, and IEEE802.11n, Wi-Fi based*
Transfer rate	(Automatic switching) 54 Mbps maximum data rate (IEEE802.11n to be determined
Active frequency	802.11n : 2.4 GHz or 5 GHz 802.11b/g: 2400~2473 MHz
Typical operating distances**	802.11b: 100 ft. (30 m) @ 11 Mbps; 300 ft. (91 m) @ 1 Mbps 802.11g: 100 ft. (30 m) @ 54 Mbps; 300 ft. (91 m) @ 1 Mbps 802.11n: Operating distance to be determined upon release of standard.
Number of channels	802.11b/g: 11 channels, 3 non-overlapping channels 802.11n: 2.4 GHz - 3 non-overlapping channels when Channel Bonding is not used; 2 non-overlapping channels when Channel Bonding is used. 5 GHz - 12 non-overlapping UNII channels with or without Channel Bonding
Security	Encryption Types - WEP, TKIP, AES***, WPA, WPA 1.0, WPA 2,CCX compliant Encryption Key lengths Supported: 64 bits and 128 bits 802.1x/EAP
Maximum recommended number of computers to be connected over wireless LAN (during ad hoc connection)	10 units or less ****

* "Wi-Fi based" indicates that the interconnectivity test of the organization which guarantees the interconnectivity of wireless LAN (Wi-Fi Alliance) has been passed.

** The communication ranges shown above will increase or decrease depending on factors such as number of walls, reflective material, or interference from external RF sources.

*** Encryption with network key (WEP) is performed using the above number of bits, however, users can set 40 bits/ 104 bits after subtracting the fixed length of 24 bits.

**** Depending on practical environments, the allowable number of computers to be connected may be decreased.

Using the Bluetooth Device

The Integrated Bluetooth module (CSR BSMAN3) is an optional device available for Fujitsu mobile computers.

What is Bluetooth

Bluetooth technology is designed as a short-range wireless link between mobile devices, such as laptop computers, phones, printers, and cameras. Bluetooth technology is used to create Personal Area Networks (PANs) between devices in short-range of each other.

THE WIRELESS LAN/BLUETOOTH ON/OFF SWITCH WILL POWER OFF BOTH THE OPTIONAL WIRELESS LAN AND BLUETOOTH DEVICES AT THE SAME TIME. TO ENABLE OR DISABLE EITHER ONE OF THE DEVICES INDIVIDUALLY, PERFORM THE FOLLOWING STEPS:

1 Slide the Wireless LAN/Bluetooth on/off switch to On position.

2 In the Start > **All Programs** > **Bluetooth** > **Bluetooth Settings**.

3 Click on **Options** under the Bluetooth menu, then click on the [Bluetooth Radio Power] button.

4 Click [OK].

Where to Find Information About Bluetooth

The Bluetooth module contains a robust Help user's guide to assist you in learning about operation of the Bluetooth device.

To access the Help file, click [Start] -> **All Programs**, and click on **Bluetooth**, then select **User's Guide**.

For additional information about Bluetooth Technology, visit the Bluetooth Web site at: www.bluetooth.com.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The Bluetooth antenna is located above the [Backspace/Delete] key and is exempt from minimum distance criteria due to its low power.

The transmitters in this device must not be co-located or operated in conjunction with any other antenna or transmitter.

Canadian Notice

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Warranty

Users are not authorized to modify this product. Any modifications invalidate the warranty.

This equipment may not be modified, altered, or changed in any way without signed written permission from Fujitsu. Unauthorized modification will void the equipment authorization from the FCC and Industry Canada and the warranty.

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