


# User's Guide

Learn how to use  
your Fujitsu LifeBook  
P770 notebook



  
FUJITSU



# Copyright and Trademark Information

Fujitsu America, Inc. has made every effort to ensure the accuracy and completeness of this document; however, as ongoing development efforts are continually improving the capabilities of our products, we cannot guarantee the accuracy of the contents of this document. We disclaim liability for errors, omissions, or future changes.

Fujitsu, the Fujitsu logo, and LifeBook are registered trademarks of Fujitsu Limited.

Intel and Intel Core are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

PowerDVD is a trademark of CyberLink Corp.

Bluetooth is a trademark of Bluetooth SIG, Inc., USA.

MakeDisc, PowerDirector, PowerDVD, and YouCam are trademarks of CyberLink Corp.

Google and Picasa are trademarks or registered trademarks of Google Incorporated.

OmniPass is a trademark of Softex, Inc.

Adobe, Acrobat, and Acrobat Reader are either a registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Norton and Norton Internet Security are trademarks or registered trademarks of Symantec Corporation in the United States and other countries.

Atheros and XSPAN are trademarks of Atheros Communications

All other trademarks mentioned herein are the property of their respective owners.

© Copyright 2010 Fujitsu America, Incorporated. All rights reserved.

No part of this publication may be copied, reproduced, or translated, without prior written consent of Fujitsu. No part of this publication may be stored or transmitted in any electronic form without the written consent of Fujitsu.

FPC58-2816-01



## **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 P770 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 current of 3.16 A, 60 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](http://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](http://www.shopfujitsu.com) in the US or [www.fujitsu.ca/products/notebooks](http://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.



# Contents

---

## Preface

<b>About This Guide</b> .....	<b>13</b>
Conventions Used in the Guide .....	13
Fujitsu Contact Information .....	14

## Chapter 1 Getting to Know Your LifeBook

<b>Overview</b> .....	<b>16</b>
<b>Locating the Controls and Connectors</b> .....	<b>17</b>
Front and Display Components .....	18
Left-Side Panel Components .....	20
Right-Side Panel Components .....	22
Bottom Components .....	24
<b>Status Indicator Panel</b> .....	<b>26</b>
Power Saving Utility Indicator .....	27
Hard Disk/Optical Drive Access Indicator .....	27
NumLk Indicator .....	27
CapsLock Indicator .....	27
ScrLk Indicator .....	27
Power Indicator .....	28
Battery Charging Indicators .....	28

<b>Keyboard</b> .....	<b>30</b>
Using the Keyboard .....	30
<b>Touchpad Pointing Device</b> .....	<b>33</b>
Touchpad Control Adjustment .....	36
Navigating Using Gestures .....	36
<b>Volume Control</b> .....	<b>38</b>
Controlling the Volume .....	38
<b>LifeBook Application Panel/Support Button</b> .....	<b>39</b>
Launching Applications with LifeBook Application Panel .....	40
Opening the Fujitsu Support Center with Support Button .....	41
<b>Chapter 2 Getting Started with Your LifeBook</b>	
<b>Power Sources</b> .....	<b>44</b>
Connecting the Power Adapters .....	44
<b>Display Panel</b> .....	<b>45</b>
Opening the Display Panel .....	45
Adjusting Display Panel Brightness .....	46
<b>Starting Your LifeBook Notebook</b> .....	<b>48</b>
Power On .....	48
Boot Sequence .....	49
Hard Disk Drive Passwords .....	50
BIOS Setup Utility .....	50
Bootting the System .....	51
Starting Windows the First Time .....	52
Installing ClickMe! .....	52
Fujitsu Driver Update Utility .....	53

<b>Power Management</b> .....	<b>54</b>
Power/Suspend/Resume Button .....	54
Sleep Mode .....	54
Hibernation (Save-to-Disk) Feature .....	55
Windows Power Management .....	56
Restarting the System .....	56
Powering Off .....	57
ENERGY STAR® Compliance .....	59

### **Chapter 3 User-Installable Features**

<b>Lithium ion Battery</b> .....	<b>60</b>
Recharging the Batteries .....	61
Replacing the Battery .....	62
<b>Memory Upgrade Module</b> .....	<b>65</b>
Accessing the Memory Compartment .....	66
Removing a Memory Module .....	66
Installing a Memory Module .....	68
Checking the Memory Capacity .....	69
<b>Optical Drive</b> .....	<b>70</b>
Media Player Software .....	71
Loading Media on Your Drive .....	71
Removing Media .....	73
Using the Optical Drive Software .....	73
Using the Optical Drive on Battery Power .....	74
Auto Insert Notification Function .....	75
Emergency Tray Release .....	76
<b>Secure Digital (SD)/Secure Digital High Capacity (SDHC) Cards</b> .....	<b>77</b>
Inserting SD/SDHC Cards .....	78
Removing an SD/SDHC Card .....	78



<b>ExpressCards</b> .....	<b>79</b>
Installing ExpressCards .....	79
Removing ExpressCards.....	80
<b>Device Ports</b> .....	<b>81</b>
Internal LAN (RJ-45) Jack .....	81
Docking Port.....	81
Universal Serial Bus Ports .....	82
HDMI Port .....	82
Microphone Jack.....	83
Headphone Jack .....	83
External Video Port .....	84
<b>Port Replicator</b> .....	<b>85</b>
Port Replicator Components.....	85
Attaching Port Replicator .....	87
Detaching Port Replicator.....	87

## **Chapter 4 Troubleshooting Your LifeBook**

<b>Troubleshooting</b> .....	<b>88</b>
Identifying the Problem .....	88
Specific Problems .....	90
Power On Self Test Messages .....	99
<b>Restoring Your Pre-installed Software</b> .....	<b>104</b>
Re-installing Individual Drivers and Applications.....	104
Restoring the Operating System for Windows.....	105
Automatically Downloading Driver Updates .....	108

## Chapter 5 Care and Maintenance

### Caring for your LifeBook Notebook ..... 110

Cleaning your LifeBook notebook .....	112
Storing your LifeBook notebook .....	113
Traveling with your LifeBook notebook .....	114
Batteries .....	115
Media Care .....	116

## Chapter 6 System Specifications

### Specifications ..... 117

Configuration Label .....	117
Microprocessor .....	118
Chipset .....	118
Memory .....	118
Video .....	118
Audio .....	119
Mass Storage Device Options .....	119
Media Player .....	119
Features .....	119
Device Ports .....	120
Keyboard .....	121
Power .....	121
Dimensions and Weight .....	121
Environmental Requirements .....	121
Popular Accessories .....	122
Included Software .....	122
Learning About Your Software .....	123

## **Glossary/Regulatory**

<b>Glossary</b> .....	<b>126</b>
<b>Regulatory Information</b> .....	<b>141</b>

## **Appendix A: WLAN User's Guide**

<b>Before Using the Optional Wireless LAN</b> .....	<b>147</b>
Wireless LAN Device Covered by this Document .....	147
Characteristics of the WLAN Device .....	147
Wireless LAN Modes Using this Device .....	148
Wireless Network Considerations .....	150
Deactivating the WLAN Device .....	150
Activating the WLAN Device .....	152
<b>Configuring the Wireless LAN</b> .....	<b>153</b>
Configuring the WLAN Using Windows 7 .....	153
Configuring the WLAN Using Windows XP .....	154
Connection to the network .....	154
<b>Troubleshooting the WLAN</b> .....	<b>155</b>
Troubleshooting .....	155
<b>WLAN Specifications</b> .....	<b>157</b>
Specifications .....	157
<b>Using the Bluetooth Device</b> .....	<b>159</b>
What is Bluetooth .....	159
Where to Find Information About Bluetooth .....	159

## Appendix B: Fingerprint Sensor Device

<b>Introducing the Fingerprint Sensor Device</b> .....	<b>161</b>
Getting Started .....	162
Installing OmniPass .....	162
User Enrollment .....	164
Using OmniPass .....	167
Configuring OmniPass .....	172
OmniPass Control Center .....	174
Troubleshooting .....	176
<b>Index</b> .....	<b>178</b>



# Preface

---

## About This Guide

The LifeBook® P770 Series notebook from Fujitsu America, Incorporated, is a small yet powerful computer. It is powered by an all new 2010 Intel® Core™ Processor and integrated Intel HD Graphics. The notebook has a built-in 12.1” wide XGA color display.

This manual explains how to operate your LifeBook P770 Series notebook’s hardware and built-in system software. Your notebook comes with Windows 7 Professional or Windows XP Professional edition pre-installed.

### Conventions Used in the Guide

Keyboard keys appear in brackets. Example: [Fn], [F1], [ESC], [ENTER] and [CTRL].

Pages with additional information about a specific topic are cross-referenced within the text. 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](http://www.shopfujitsu.com).



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

### **Limited Warranty**

Your LifeBook P770 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 P770 notebook. We strongly recommend that you read it before using your notebook – even if you are already familiar with notebook computers.

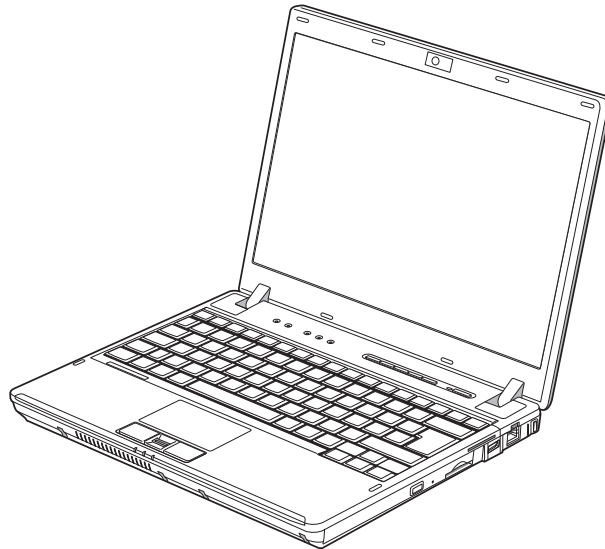
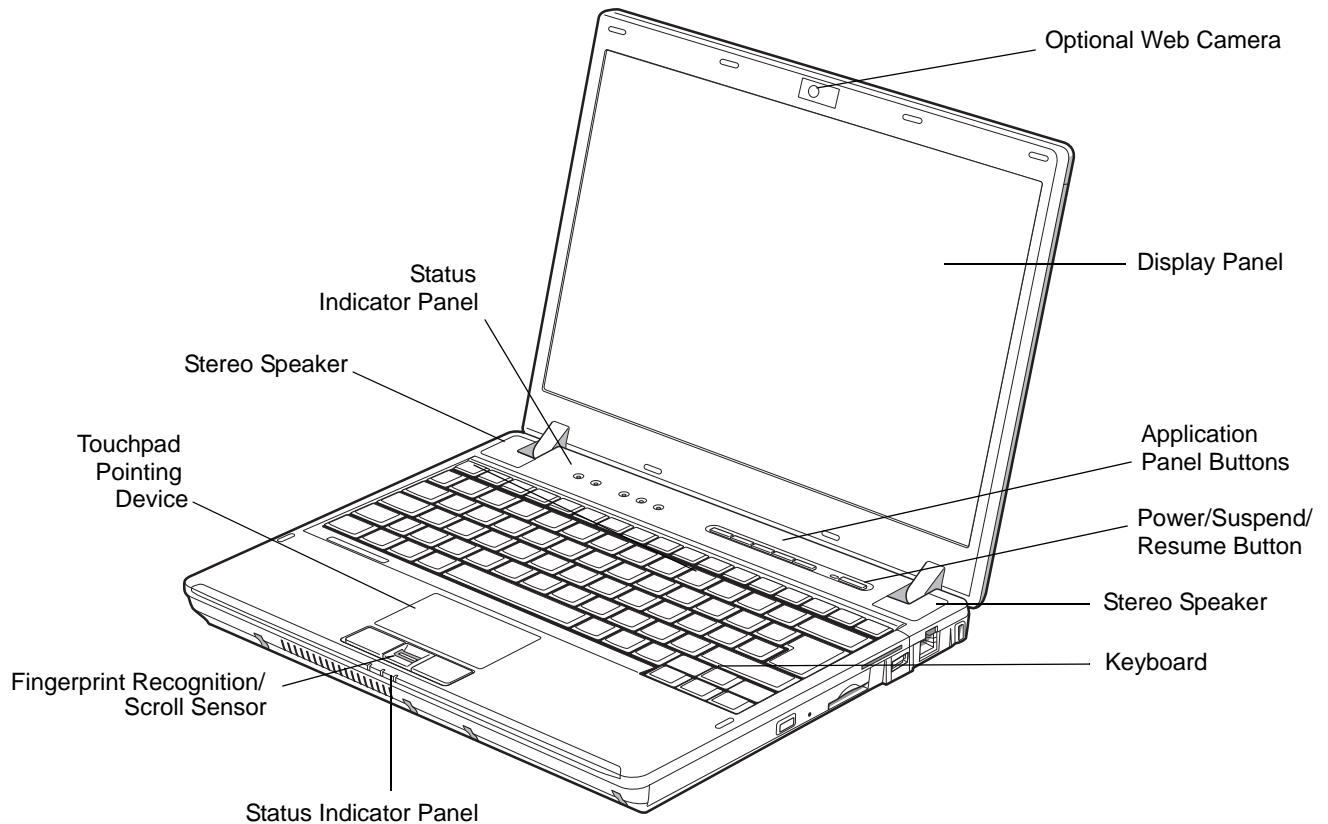


Figure 1. Fujitsu LifeBook P770 notebook



# Locating the Controls and Connectors



**Figure 2. LifeBook notebook with display open**

## Front and Display Components

The following is a brief description of your LifeBook notebook's front and display features.

### Web Camera

The optional 2.0 MP web camera allows you to capture and share pictures of yourself over the internet.

### Display Panel

The display panel is a color LCD panel with LED backlighting for the display of text and graphics.

### LifeBook Application Panel Buttons

The LifeBook P770 Series notebook application panel buttons provide application launch capabilities. *See "LifeBook Application Panel/Support Button" on page 39.*

### Power/Suspend/Resume Button

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

### Stereo Speakers

The built-in dual stereo speakers allow you to listen to sound from your system.

### Keyboard

A full-function keyboard with dedicated Windows keys. *See "Keyboard" on page 30.*

### Status Indicator Panel

The Status Indicator Panel displays symbols that correspond to specific components of your LifeBook P770 Series notebook. *See "Status Indicator Panel" on page 26.*

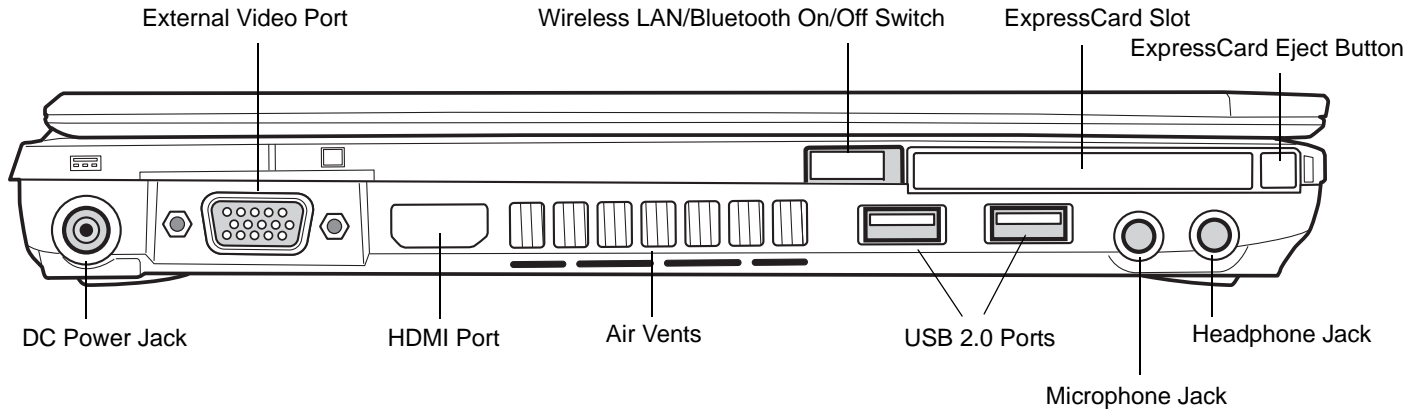
## **Fingerprint Recognition/Scroll Sensor**

The fingerprint recognition sensor allows you to increase the security of your system by having it "recognize" your unique fingerprint. See *“Introducing the Fingerprint Sensor Device” on page 161.*

The fingerprint recognition sensor can also be used as a scroll sensor that lets you navigate quickly through a document without having to use the window scroll bars. See *“Scrolling” on page 35.*

## **Touchpad Pointing Device**

The Touchpad pointing device is a mouse-like cursor control with two buttons (left and right), and fingerprint/scroll sensor). The touchpad is gesture-enabled. This allows you to zoom in or out and scroll continually using simple gestures. See *“Touchpad Pointing Device” on page 33.*



**Figure 3. LifeBook notebook left-side panel**

### **Left-Side Panel Components**

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

#### **External Video Port**

The external video port allows you to connect your LifeBook notebook to an external video device such as a monitor. See “*External Video Port*” on page 84.

#### **Wireless LAN/Bluetooth On/Off Switch**

The wireless LAN/Bluetooth on/off switch is used to turn on and off the optional WLAN and Bluetooth devices. Switching the device off when not in use will help to extend battery life. See “*Activating the WLAN Device*” on page 152.

#### **ExpressCard Slot**

The ExpressCard slot allows you to insert a flash memory card for data storage. Flash memory cards allow you to transfer data to and from a variety of different digital devices. See “*Secure Digital (SD)/Secure Digital High Capacity (SDHC) Cards*” on page 77.

## DC Power Jack

The DC power jack allows you to plug in the AC adapter or the optional Auto/Airline adapter to power your system and charge the internal Lithium ion Battery.

## HDMI Port

The HDMI port is used to connect compatible digital devices with your computer (such as a high-definition television or AV receiver). See “Connecting an HDMI Device” on page 82.

## Air Vents

The air vents allow proper air circulation to ensure that the system does not overheat.



TO PROTECT YOUR NOTEBOOK FROM DAMAGE AND TO OPTIMIZE SYSTEM PERFORMANCE, BE SURE TO **KEEP ALL AIR 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.

## USB 2.0 Ports

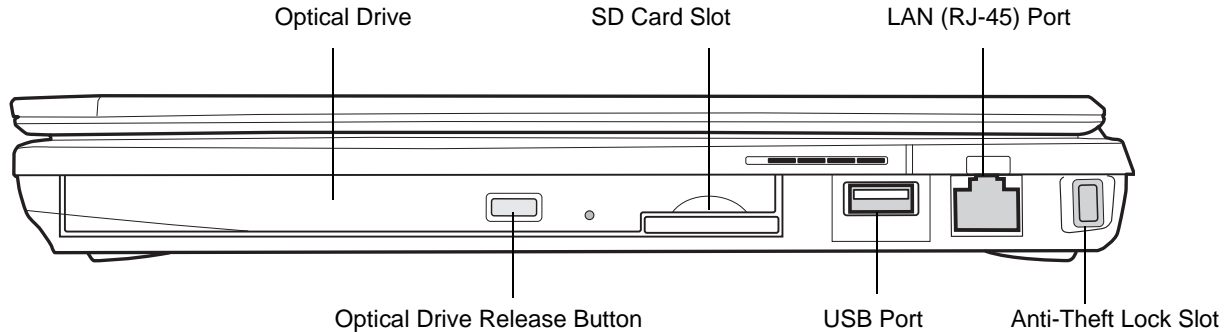
The USB 2.0 ports allow you to connect Universal Serial Bus devices. USB 2.0 transfers data at up to 480 Mbps and is backward-compatible with USB 1.1 devices, which transfer data at up to 12 Mbps. There are two USB 2.0 ports on the left side and one on the right. See “Universal Serial Bus Ports” on page 82.

## Microphone Jack

The microphone jack allows you to connect an external mono microphone. See “Microphone Jack” on page 83.

## Headphone Jack

The headphone jack allows you to connect stereo headphones or powered external speakers. See “Headphone Jack” on page 83.



**Figure 4. LifeBook notebook right-side panel**

### **Right-Side Panel Components**

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

#### **Optical Drive**

The optical drive bay contains a Dual-Layer Multi-Format DVD Writer. *See “Optical Drive” on page 70.*

#### **Optical Drive Release Button**

The optical drive release button opens the optical drive.

#### **SD Card Slot**

The Secure Digital (SD) card slot allows you to insert a flash memory card for data storage. Flash memory cards allow you to transfer data to and from a variety of different digital devices. *See “Secure Digital (SD)/Secure Digital High Capacity (SDHC) Cards” on page 77.*

#### **LAN (RJ-45) Port**

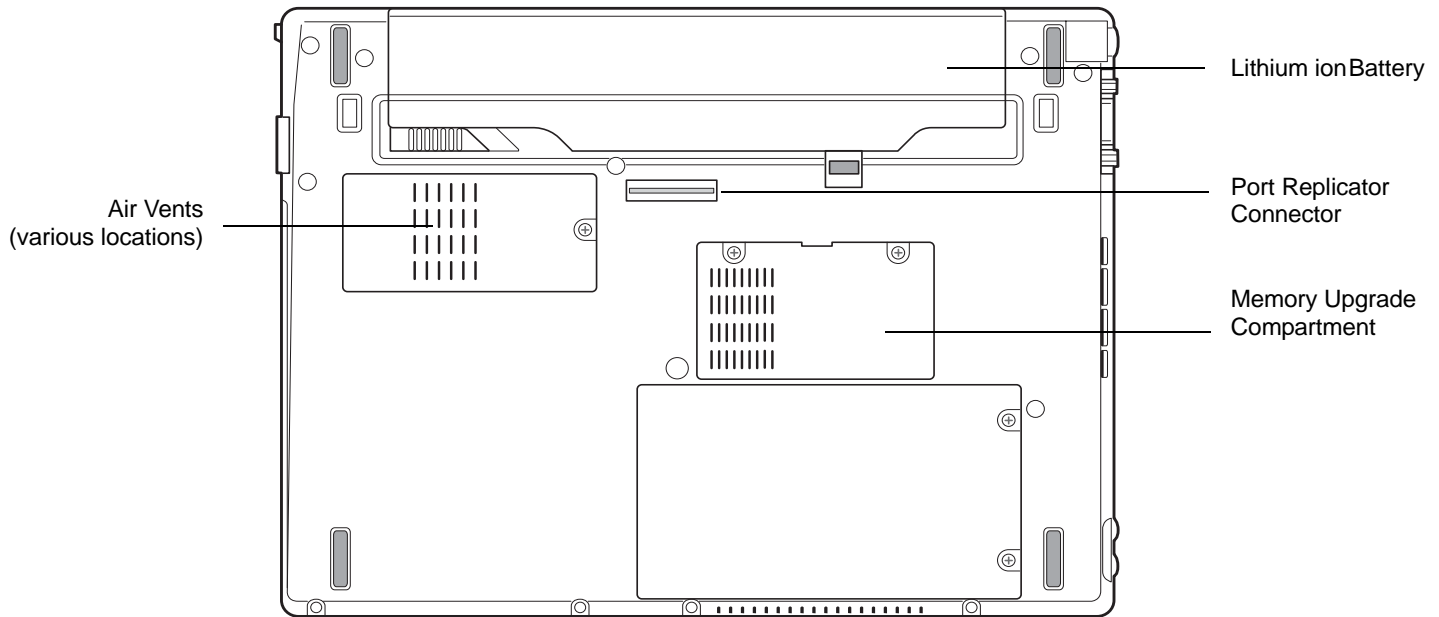
The internal LAN (RJ-45) port is used for an internal 10/100/1000 Base-Tx Ethernet. *See “Internal LAN (RJ-45) Jack” on page 81.*

## **USB 2.0 Ports**

The 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. There are two USB 2.0 ports on the left side of the system and one on the right. See “*Universal Serial Bus Ports*” on page 82.

## **Anti-theft Lock Slot**

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



**Figure 5. LifeBook notebook bottom panel**

## **Bottom Components**

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

### **Lithium ion Battery Bay**

The battery compartment contains the Lithium ion battery. The battery should be removed when the computer is 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 60.

### **Port Replicator Connector**

This connector allows you to connect the optional port replicator.



## Memory Upgrade Compartment

Your notebook comes with high speed Double Data Rate 3 Synchronous Dynamic RAM (DDR3 SDRAM). The memory upgrade compartment allows you to expand the system memory capacity of your notebook, thus improving overall performance. See “*Memory Upgrade Module*” on page 65. Under normal circumstances, it should not be necessary to open this compartment.

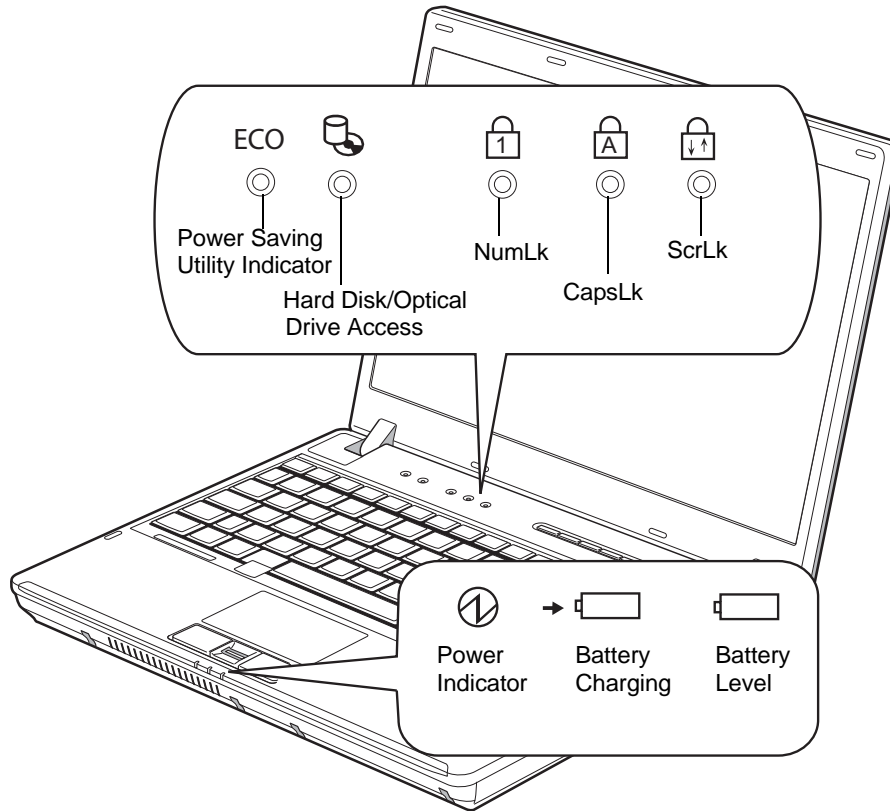
## Air Vents

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 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 6. Status Indicator Panel**

## Status Indicator Panel

The Status Indicator displays LEDs adjacent to symbols that correspond with specific components of your LifeBook notebook. These lights tell you how each of those components is operating. When you turn off the system, all indicators will go off, except when the AC adapter is connected (Charging LED will be lit).

## ECO

### Power Saving Utility Indicator

The Power Saving Utility indicator glows when the power saving utility is running. The power saving utility is a special power-saving mode that is initiated with the ECO button on the application panel.



### Hard Disk/Optical Drive Access Indicator

The Hard Disk/Optical Drive access indicator lights when the hard disk or optical drive is being accessed. To prevent corruption of data, do not press the power button when the Hard Disk/Optical Drive access indicator is lit.



### NumLk Indicator

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



### CapsLock Indicator

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



### ScrLk Indicator

The ScrLk indicator shows that your scroll lock is active.



## Power Indicator

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

- **Steady On:** This means that there is power to your notebook and that it is ready for use.
- **Flashing:** This means that your notebook is in Sleep mode.
- **Steady Off:** This means that your system is either in Hibernate mode, or that your notebook has been turned off. Even if you are charging your battery, the Power indicator symbol will be off if your LifeBook is shut off.



## Battery Charging Indicators

When the AC adapter is connected to your system, this indicator shows the status of the battery charging, as follows:

- **Green, solid:** The AC adapter is connected and there is no battery pack installed.
- **Orange, solid:** The battery pack is charging.
- **Orange, blinking:** Charging is suspended due to excessively high or low battery temperature.
- **Off:** No AC adapter is connected.



## Battery Level Indicator

The Battery Level indicator displays the charge level of the battery pack, as follows:

- **Green, solid:** Battery is between 50% and 100% charged.
- **Orange, solid:** Battery is between 13% and 49% charged.
- **Red, solid:** Battery is between 0% and 12% charged.
- **Green, blinking:** Battery is installed with system in Sleep mode.
- **Orange, blinking:** Blinks during battery status measurement (Four seconds after the battery is installed).
- **Red, blinking:** There is a problem with the battery.
- **Off:** This indicator will be off if there is no battery installed. It will also be off during Shutdown or Sleep modes if the battery is installed but there is no AC Adapter connected.



- IF THE BATTERY PACK IS INSTALLED 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/FIVE SECONDS OFF.



- BATTERIES SUBJECTED TO SHOCKS, VIBRATION OR EXTREME TEMPERATURES CAN BE PERMANENTLY DAMAGED.
- A SHORTED BATTERY IS DAMAGED AND MUST BE REPLACED.

# Keyboard

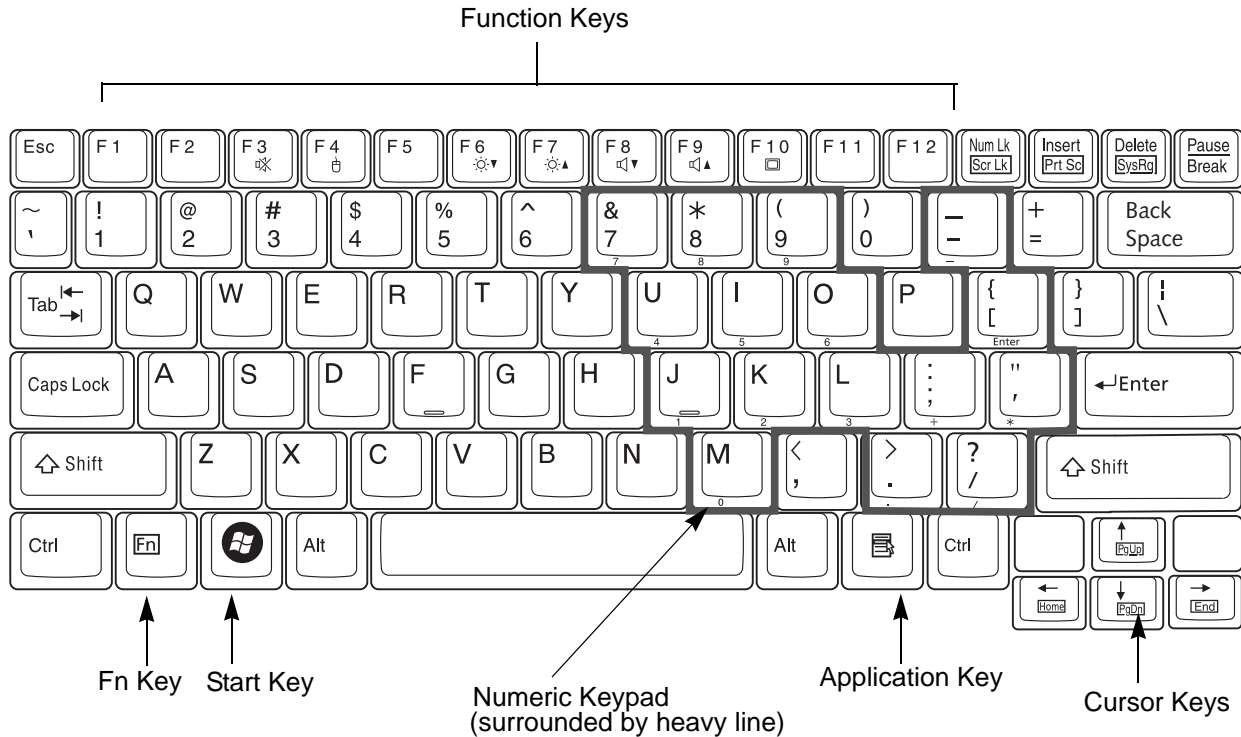


Figure 7. Keyboard

## Using the Keyboard

Your LifeBook P770 Series notebook has an integral 82-key keyboard. The keys perform all the standard functions of a 101-key keyboard, including the Windows keys and other special function keys. This section describes the following keys. (Figure 7)

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

### **Numeric Keypad**

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

### **Windows Keys**

Your LifeBook P770 Series notebook has two Windows keys: a Start key and an Application key. The Start key displays the **Start** menu. This button functions the same as your onscreen **Start** menu button. The Application key functions the same as your right mouse button and displays shortcut menus for the selected item. (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 allow you to move the cursor up, down, left and right in applications. In programs such as Windows Explorer, it moves the “focus” (selects the next item up, down, left, or right).

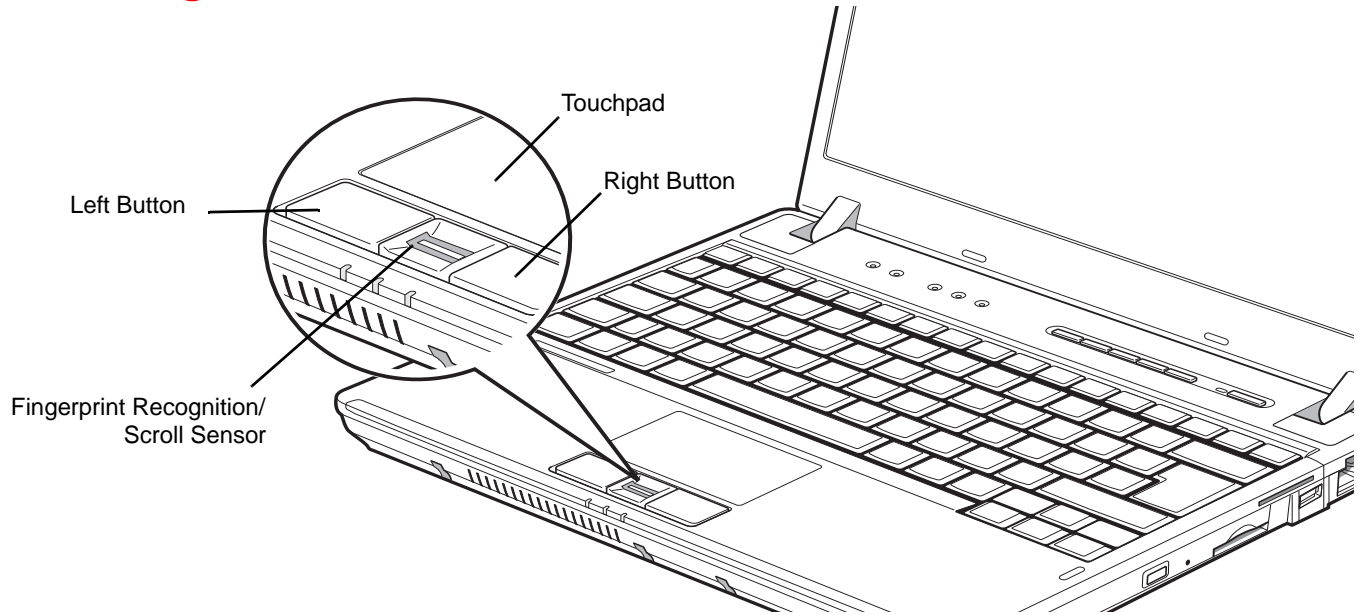
## Function Keys

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

- [Fn+F3]: Pressing [F3] while holding [Fn] will toggle the Audio Mute on and off.
- [Fn+F4]: Pressing [F4] while holding [Fn] will toggle the built-in pointing device on and off. Note that the [Fn+F4] combination only works if Manual Setting is selected in the BIOS. (See “*Entering the BIOS Setup Utility*” on page 50)
- [Fn+F6]: Pressing [F6] repeatedly while holding [Fn] will lower the brightness of your display. Note that adjusting the brightness using the keyboard changes the system setting.
- [Fn+F7]: Pressing [F7] repeatedly while holding [Fn] will increase the brightness of the display.
- [Fn+F8]: Pressing [F8] repeatedly while holding [Fn] will decrease the volume of your system.
- [Fn+F9]: Pressing [F9] repeatedly while holding [Fn] will increase the volume of your system.
- [Fn+F10]: Pressing [F10] while holding [Fn] allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are: built-in display panel only, external monitor only, both built-in display panel and external monitor, HDMI display, both LCD and HDMI, DVI device, and both LCD and DVI. Note that depending upon system configuration, all of these steps may not be available.



# Touchpad Pointing Device



**Figure 8. Touchpad pointing device**

The Touchpad pointing device comes built into your LifeBook notebook. It is used to control the movement of the pointer to select items on your display panel. The Touchpad is composed of a cursor control, a left and right button, and a scrolling sensor.

The cursor control works the same way a mouse does, and moves the cursor around the display. It only requires light pressure with the tip of your finger. Additionally, the touchpad allows you to zoom in or out and scroll through large documents using simple gestures.

The left and right buttons function the same as mouse buttons. The actual functionality of the buttons may vary depending on the application that is being used. The scrolling sensor allows you to navigate quickly through pages, without having to use the scroll bars. Note that the scrolling sensor also acts as a fingerprint sensor. See “*Appendix B: Fingerprint Sensor Device*” on page 161..

## Clicking

Clicking means pushing and releasing a button. To left-click, move the cursor to the item you wish to select, press the left button once, and then immediately release it. To right-click, move the mouse cursor to the item you wish to select, press the right button once, and then immediately release it. You also have the option to perform the clicking operation by tapping lightly on the Touchpad once. (Figure 9)

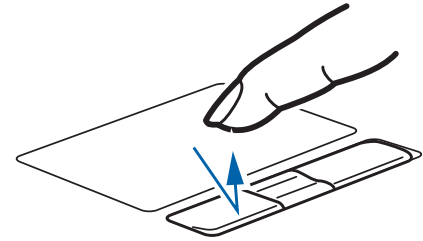


Figure 9. Clicking

## Double-Clicking

Double-clicking means pushing and releasing the left button twice in rapid succession. This procedure does not function with the right button. To double-click, move the cursor to the item you wish to select, press the left button twice, and then immediately release it. You also have the option to perform the double-click operation by tapping lightly on the Touchpad twice. (Figure 10)

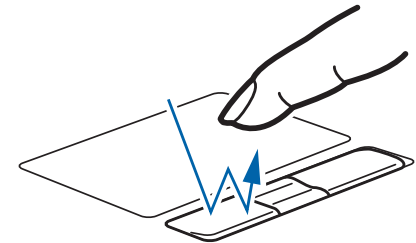


Figure 10. Double-clicking



- IF THE INTERVAL BETWEEN CLICKS IS TOO LONG, THE DOUBLE-CLICK WILL NOT BE EXECUTED.
- PARAMETERS FOR THE QUICK POINT 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. To drag, move the cursor to the item you wish to move. Press and hold the left button while moving the item to its new location and then release it. Dragging can also be done using the Touchpad. First, tap the Touchpad twice over the item you wish to move making sure to leave your finger on the pad after the final tap. Next, move the object to its new location by moving your finger across the Touchpad, and then release your finger. (Figure 11)

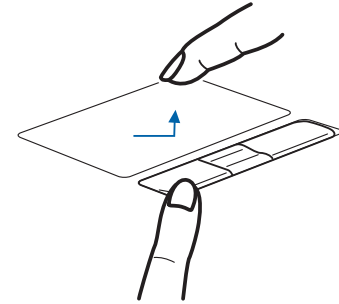


Figure 11. Dragging

## Scrolling

Using the Scrolling sensor allows you to navigate through a document quickly without using the window's scroll bars. This is particularly useful when you are navigating through on-line pages. To use the Scrolling sensor, move your finger forward or backward across it to scroll up or down a page. When you have reached the desired section of the page, raise your finger.

The scrolling sensor is also used as a fingerprint sensor. To use the fingerprint sensor device, refer to the appendix of this document. See “*Introducing the Fingerprint Sensor Device*” on page 161.

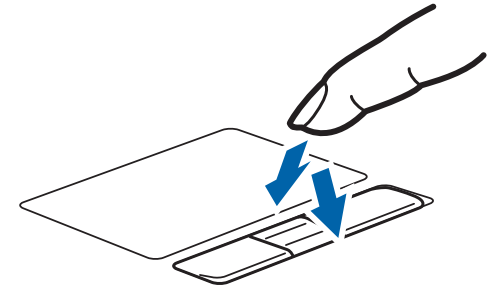


Figure 12. Scrolling

## Touchpad Control Adjustment

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

## Navigating Using Gestures

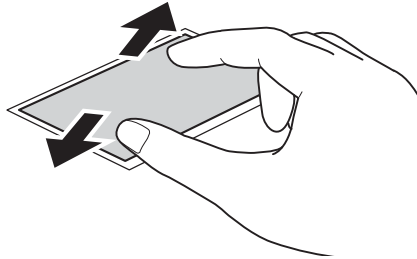
The touchpad lets you use gestures to zoom, flick, rotate, and scroll on a page or scroll quickly through large documents.

### Setting Up the touchpad

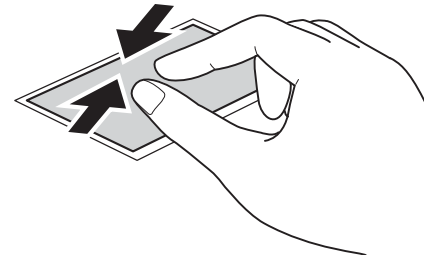
You can enable and disable the touchpad by pressing the [Fn] and [F4] keys simultaneously. The touchpad setting is not included in the BIOS setting. You can also enable and disable the touchpad using the Mouse utility in the Control Panel.

You can set up the following gesture functions in the Mouse properties in the Control Panel.

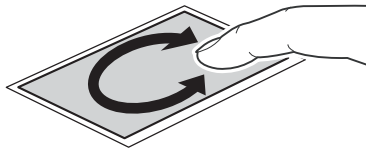
- 1 Circle Scroll:** After scrolling a window, you can keep scrolling it by moving your fingers clockwise or counter clockwise on the touchpad (Figure 15).
- 2 Inertia Motion:** After sliding your finger very quickly on the touchpad, the pointer will continue moving for a short distance, as if by inertia (Figure 16).
- 3 Pinch zoom:** Zoom in and out on windows and images by pinching (Figure 13) or opening (Figure 14) two fingers on the touchpad.
- 4 Flick Navigation:** On the touchpad, flicking two fingers to the right or left has the same effect as pressing the [Forward] or [Back] buttons on applications such as Internet Explorer.
- 5 Pivot Rotation:** After placing one finger on the touchpad, you can rotate files (such as PDFs) or images by circling a second finger on the touchpad.
- 6 Hand Scroll:** You can scroll through PDF files or images in a window by moving two fingers right/left or up/down on the touchpad.



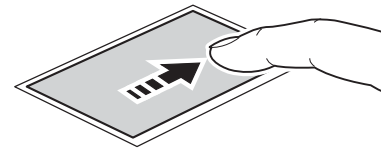
**Figure 13. Zooming in with Touchpad**



**Figure 14. Zooming out with Touchpad**



**Figure 15. Continuous scrolling**



**Figure 16. Using inertia**

# 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 HARDWARE VOLUME CONTROL AND THE SOFTWARE VOLUME CONTROL WILL INTERACT WITH EACH OTHER. IT SHOULD BE NOTED THAT IF YOU SET YOUR SOFTWARE VOLUME TO OFF, YOU WILL OVERRIDE THE EXTERNAL VOLUME CONTROL SETTING.

## Controlling the Volume

The volume can be controlled in several different ways:

- Volume can be set from within the Volume Control in the system tray at the bottom right of your screen.
- Volume can be controlled with the [F8] and [F9] functions keys. Pressing [F8] repeatedly while holding [Fn] will decrease the volume of your notebook. Pressing [F9] repeatedly while holding [Fn] will increase the volume of your notebook.
- Volume can be controlled by many volume controls that are set within individual applications.
- Certain external audio devices you might 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.

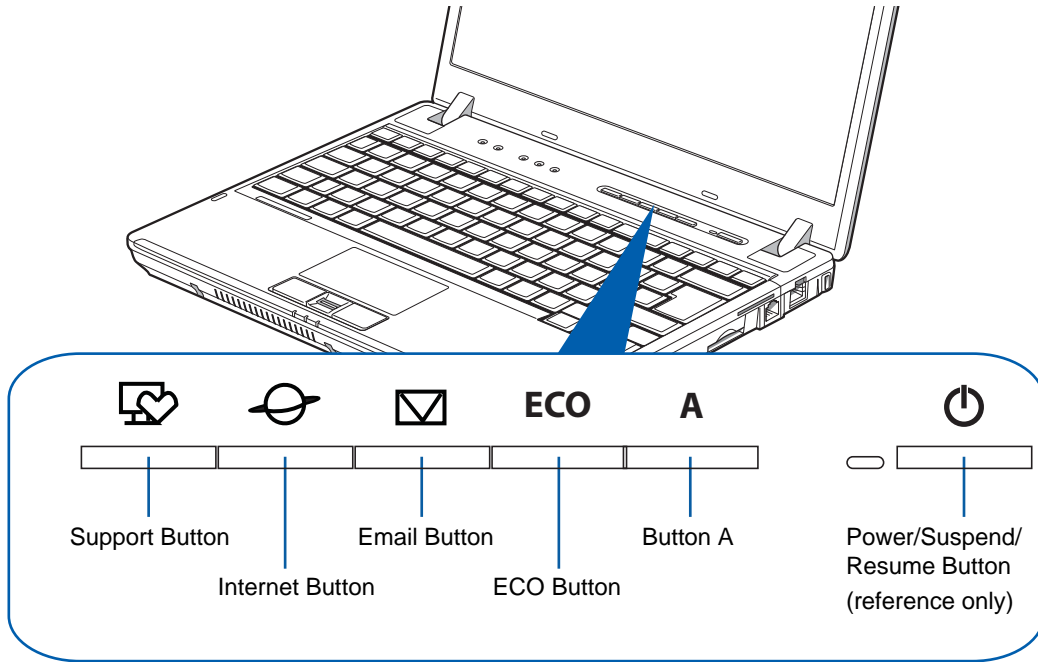


Figure 17. LifeBook Application Panel

## LifeBook Application Panel/Support Button

The Application Panel consists of buttons that allow you to launch user-defined applications with the touch of a button when your system is on. Also included in the panel is a Support button that allows you to either launch the Fujitsu Support Center utility or to launch a user-defined application.

The default settings for the buttons are as follows:

- **Support Button** - Starts the Fujitsu Support Center (*See “Opening the Fujitsu Support Center with the Support Button” on page 41*)
- **Internet Button** - Automatically launches Internet Explorer.

- **Email Button** - Automatically launches Microsoft Outlook Express, from which you can read, create, and send email.
- **ECO Button** - Automatically starts the Power Saving Utility
- **Application Button A** - Launches whatever application is mapped to the button.

## Launching Applications with the LifeBook Application Panel

Your notebook is pre-installed with software utilities that let you operate and configure your LifeBook Application Panel. These utilities are found in the **Start** menu, under **Settings > Control Panel > Application Panel** (or “**Buttons**” in some configurations). The utility includes an **Application Panel Setup** tab.

### Configuring your LifeBook Application Panel

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

#### To configure your LifeBook Application Panel with Application Panel Setup:

- 1 Click on [Start].
- 2 Click on **Programs**, then click on **LifeBook Application Panel**.
- 3 Click on **Application Panel Setup**. The Application Panel Setup utility will appear. There are tabs that correspond to the application buttons on the LifeBook Application Panel. When you receive your notebook, these buttons are pre-configured to launch specific programs, as referenced above.



THE TABS IN APPLICATION PANEL SETUP MAY NOT BE IN THE SAME ORDER AS THE BUTTONS ON YOUR LIFEBOOK NOTEBOOK, PLEASE SELECT THE TAB YOU WISH TO CHANGE CAREFULLY.



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

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

- 1 Click on **Other** from the Internet browser box.
- 2 Click on **Browse** from **Start** menu.
- 3 Scroll down the list of applications, and then click on the application you wish to launch with this button.
- 4 Click [OK]. The button will now launch the new application. If you want to return to launching your Windows default Internet browser with this button, you need only click on “Default Internet Browser” from the Internet browser box. Be aware that you will erase the settings for the “other application”. If you wish to go back to launching the “other application” from this button, you will need to reconfigure it as described above.



IF YOUR SYSTEM HAS DEDICATED ONE OF THE APPLICATION LAUNCHER BUTTONS TO BE AN INTERNET LAUNCHER, THE BUTTON CAN STILL BE CONFIGURED TO LAUNCH ANY APPLICATION YOU WISH, NOT JUST AN INTERNET BROWSER.

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

### Opening the Fujitsu Support Center with the Support Button

The Support button performs different actions when the system is off or when it is on.

When the system is booting, pressing the Support button will open the Fujitsu Start Boot Menu which allows you to select either **Diagnostic Program** (Windows XP systems) to test your system or **Recovery and Utility** (Windows 7) to perform a number of other functions, including recovery of your system.

After the operating system has been started, pressing the [Support] button invokes the Fujitsu Support Center utility which offers three tabs: **Manual**, **Diagnostic Program**, and **Support**.

### **Manual tab**

The **Manual** tab lets you automatically go to the Fujitsu Support website to download the system User's Guide. (You must be connected to the Internet in order to use this function).

### **Diagnostic Program tab**

**Windows 7 systems:** The **Diagnostic Program** tab allows you to automatically reboot the system, then open the boot menu, from which you can choose **Diagnostic Program** or **Recovery and Utility** (same as pressing the button when the system is shut down). From the **Diagnostic** tab you can also view your System Information.

**Windows XP systems:** The **Diagnostic Program** tab allows you to view your System Information.

### **Support tab**

The **Support** tab lets you automatically go to the Support Website. (You must be connected to the Internet in order to access the Support website).

## Chapter 2

# Getting Started with Your LifeBook

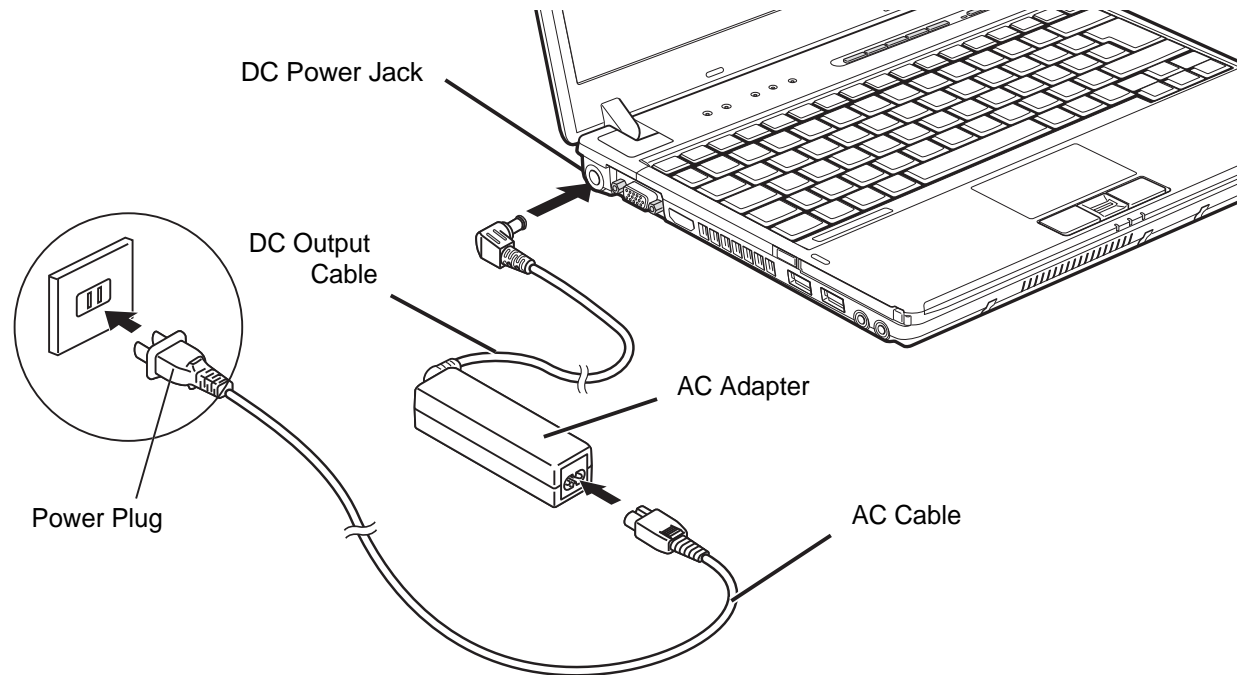


Figure 18. Connecting the AC Adapter

# 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.
- 2 Plug the AC adapter into an AC electrical outlet.

### Connecting the Optional Auto/Airline Adapter

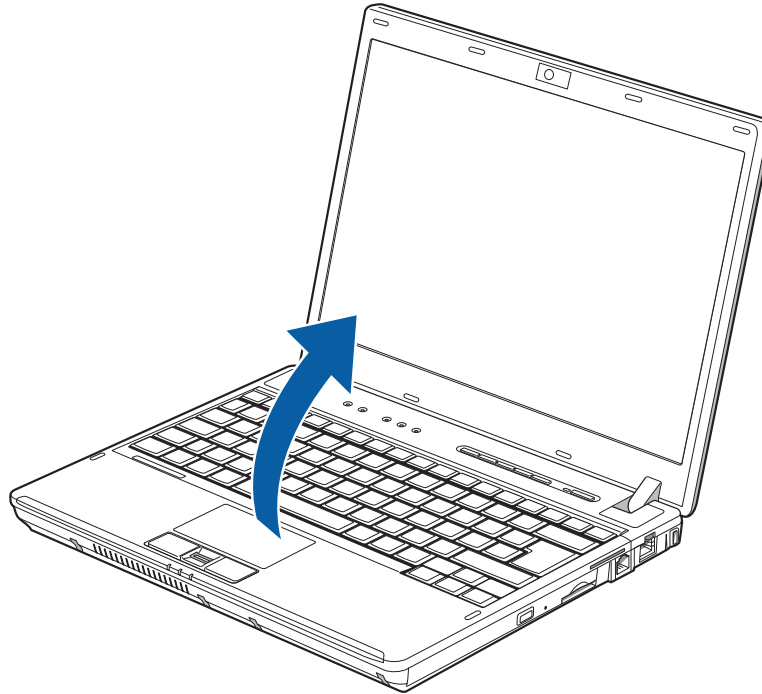
- 1 Plug the DC output cable into the DC power jack on your notebook.
- 2 Plug the Auto/Airline adapter into the cigarette lighter of an automobile with the ignition key in the On or Access OR
- 3 Plug the Auto/Airline adapter into the DC power jack on an airplane seat.

### 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 19. Opening the Display Panel**

## **Display Panel**

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

### **Opening the Display Panel**

Lift the display backwards, being careful not to touch the screen, until it is at a comfortable viewing angle. *(Figure 19)*

## Adjusting Display Panel Brightness

Once you have turned on your system, 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. Additionally, in Windows 7 systems, you can change the brightness using the Power Options in the Control Panel.



NOTE THAT WHEN YOU CHANGE THE DISPLAY SETTINGS IN WINDOWS XP SYSTEMS, THE CHANGES WILL BE RETAINED AFTER SLEEP AND RESTART. IN WINDOWS 7 SYSTEMS, THE CHANGED SETTINGS ARE TEMPORARY BY DEFAULT, BUT THEY CAN BE MADE PERMANENT BY USING THE POWER OPTIONS UTILITY IN THE CONTROL PANEL.

### Using the Keyboard to Adjust Brightness

Use the following key combinations to adjust the screen brightness:

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

### Using Power Management to Adjust Brightness

To adjust brightness with the power management utility:

#### Windows 7:

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 left pane. Drag the **Screen brightness:** slider left or right, depending upon your preference.

### Using Power Options to Adjust the Brightness

To change the brightness using the Power Options utility, open the Control Panel and double-click on the **Power Options** icon. Select **Adjust the display brightness** in the left panel, then drag the brightness bars to the desired level. Note that the settings you make via this utility become permanent until you decide to change them again.

## Windows XP:

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

Click Start -> **Control Panel**. If you are not in Classic View, select it in the left panel. Double-click the Windows Mobility Center icon, 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 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.) Scroll down to the Mobility Center and double-click it, 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.

# Starting Your LifeBook Notebook

## Power On

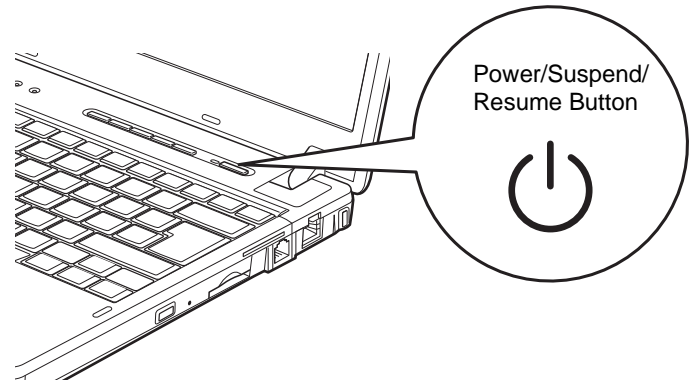
### Power/Suspend/Resume Button

The Power/Suspend/Resume button is used to turn on your LifeBook notebook from its off state. Once you have connected your AC adapter or charged the internal Lithium ion battery, you can power on your LifeBook notebook.



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 to the right. When you are done working you can either leave your notebook in Suspend mode (see “*Sleep Mode*” on page 54) or you can turn it off (see “*Powering Off*” on page 57).







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 99. 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 99.

## 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 found. 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.
- 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 MASTER 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 SecureCore Menu, as detailed in the next section):

- 1** Turn on or restart your LifeBook.
- 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 ARROW] or [LEFT ARROW] key to scroll through the other setup menus to review or alter the current settings.

## Using the SecureCore Menu

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

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

- BIOS Setup
- Diagnostic Screen
- Boot Menu
- Diagnostic Program
- 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 the 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, an Administrator password, and a domain name. Read the instructions on the screens carefully and fill in the information as directed. Once you have finished with the setup, it is very important that you install ClickMe!, as detailed below.



### Installing ClickMe!



BEFORE INSTALLING THE CLICKME! UTILITY, BE SURE THE WIRELESS LAN DEVICE IS ENABLED BY PUSHING THE WLAN/BLUETOOTH ON/OFF SWITCH TO THE ON POSITION.

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.



THERE MAY BE SOME THIRD-PARTY APPLICATIONS THAT DO NOT GET INSTALLED USING THE CLICKME! UTILITY. FOR MORE INFORMATION, REFER TO YOUR GETTING STARTED GUIDE.

### Registering your LifeBook with Fujitsu

You can register your notebook by going to our website at: [us.fujitsu.com/computers](http://us.fujitsu.com/computers). You will need to be set up with an Internet Service Provider (ISP) to register online.



### 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 108.

## 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.

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. 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 (Save-to-Disk) Feature*” on page 55.

### 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** or **Standby** from the Windows Shut Down menu.
- Timing out from lack of activity.
- Allowing the battery to reach the Dead Battery Warning condition.

Your notebook's system memory typically stores the file on which you are working, open application information, and any other data required to support operations in progress. When you resume operation from Sleep mode, your notebook will return to the point 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 (SAVE-TO-DISK) MODE. THE BUTTON RESUME FUNCTION CAN'T BE DISABLED.
- THE SLEEP OR HIBERNATION (SAVE-TO-DISK) MODE SHOULD NOT BE USED WITH CERTAIN PC CARDS. CHECK YOUR PC CARD DOCUMENTATION FOR MORE INFORMATION. WHEN PC CARDS OR EXTERNAL DEVICES ARE IN USE, HIBERNATION (SAVE-TO-DISK) MODE CANNOT RETURN TO THE EXACT STATE PRIOR TO SUSPENSION, BECAUSE ALL OF THE PERIPHERAL DEVICES WILL BE RE-INITIALIZED WHEN THE SYSTEM RESTARTS.
- IF YOUR NOTEBOOK IS ACTIVELY ACCESSING INFORMATION WHEN YOU ENTER SLEEP OR HIBERNATION MODE, CHANGES TO OPEN FILES ARE NOT LOST. 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 (SAVE-TO-DISK) 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 Suspend/Resume mode. You can enable or disable this feature.

## Enable or Disable the Hibernation Feature

### Windows 7:

The Hibernation is enabled by default. To disable or enable the Hibernation feature follow these steps:

- 1 From the **Start** menu, select **Control Panel**, then select the **Power Options** icon.
- 2 Select “Choose what the power button does” or “Choose what closing the lid does”, then make your selections (Do Nothing, Sleep, Hibernate, or Shut Down).

### Windows XP:

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

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

## Windows Power Management

The **Power Options** icon located in the Windows Control Panel allows you to configure some of the power management settings. For example, you can use the Power Options to set the timeout values for turning off the display and hard disks whether you are running the notebook on battery power 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.

### Windows 7:

- 1 Click the [Start] button, and then move the mouse over the small arrow at the bottom right of the right-hand pane.
- 2 Select **Restart** from the list.



## Windows XP:

- 1 Click the [Start] button, and then click Turn Off Computer.
- 2 Select the **Restart** option. Your notebook will shut down and then reboot.



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, EXIT ALL APPLICATIONS, AND SHUT DOWN YOUR OPERATING SYSTEM 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:

## Windows 7:

- 1 Click the [Start] button, and then move the mouse over the small arrow at the bottom right of the right-hand pane.
- 2 Select **Shut Down** from the list.

## Windows XP:

1 Click the [Start] button, and then click Turn Off Computer.

Select the **Turn Off** option.

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



- ALWAYS POWER OFF THE COMPUTER BEFORE TRANSPORTING AND/OR PACKAGING IT. AFTER SHUTTING DOWN THE SYSTEM, WAIT UNTIL THE STATUS LED PANEL INDICATES POWER OFF CONDITION (I.E., NO LIGHTS ARE ILLUMINATED).
- IT IS POSSIBLE THAT THE UNIT MAY NOT AUTOMATICALLY GO TO POWER OFF OR HIBERNATE MODE WHEN YOU CLOSE THE LID. THIS SITUATION MAY OCCUR DUE TO PRE-OS BOOT PASSWORD SECURITY SETTINGS OR SOME OTHER APPLICATION RUNNING ON THE COMPUTER.
- ATTEMPTING TO TRANSPORT THE COMPUTER WHILE POWER IS ON MAY DAMAGE THE NOTEBOOK DUE TO SHOCK OR OVERHEATING SINCE THE AIR VENTS MAY BE BLOCKED OR RESTRICTED.

## ENERGY STAR® Compliance



**On selected models**

Your Fujitsu system is an ENERGY STAR® 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](http://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. TAKE CARE OF OUR ENVIRONMENT AND DISPOSE OF BATTERIES PROPERLY. CHECK WITH YOUR LOCAL GOVERNMENT AUTHORITY FOR DETAILS ON RECYCLING OR DISPOSING OF 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 primary Lithium ion battery, check the Battery Level indicator located on the Status Indicator panel. The indicator changes as the battery level changes.

The Lithium ion battery is recharged internally using the AC adapter 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 BATTERY CHARGING INDICATOR AND THE BATTERY LEVEL INDICATOR ICON ON THE STATUS INDICATOR PANEL LIGHT.

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 54 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, the Battery Level indicator will glow red. If you do not respond to the low battery alarm, the batteries will continue to discharge until they are too low to operate. Your notebook will then go into Sleep mode to try and protect your data for as long as possible. There is no guarantee that your data will not be lost once the system 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.
- USING HEAVY CURRENT DEVICES SUCH AS A MODEM OR FREQUENT DVD/CD-RW/CD-ROM ACCESSES MAY PREVENT CHARGING COMPLETELY.

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 Suspend/Resume button to resume operation. In the Dead Battery Suspend mode, your data can be maintained for some time, but if a power source is not provided promptly, the Power indicator will stop flashing and go out, meaning that you have lost the data that was not stored. Once you provide power, you can continue to use your system while an adapter is charging the battery.

## Replacing the Battery

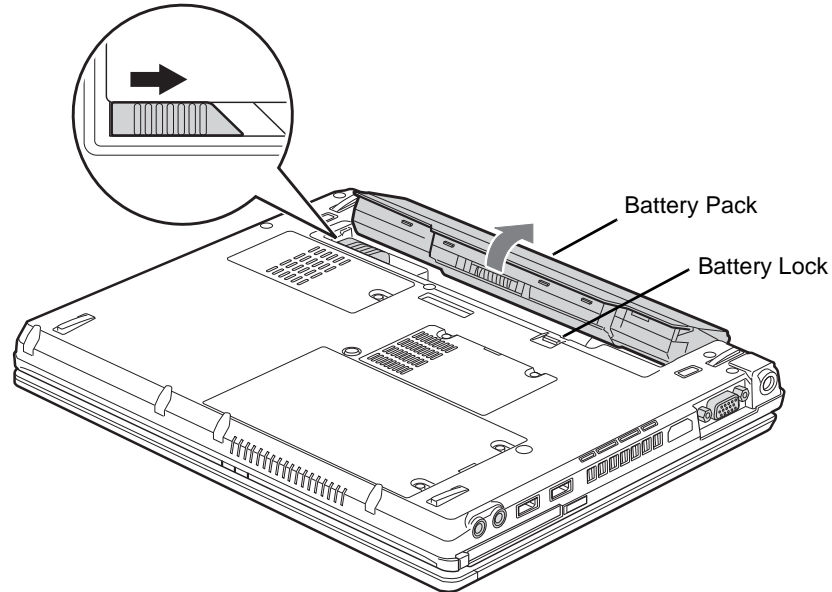
With the purchase of an additional battery, you can have a fully charged spare to swap with one that is not charged.

### Swapping Batteries when Additional Power Source is not Available

To swap batteries in your battery compartment when you don't have another power source available (such as an AC Adapter or charged modular battery), follow these easy steps: (*Figure 20*)

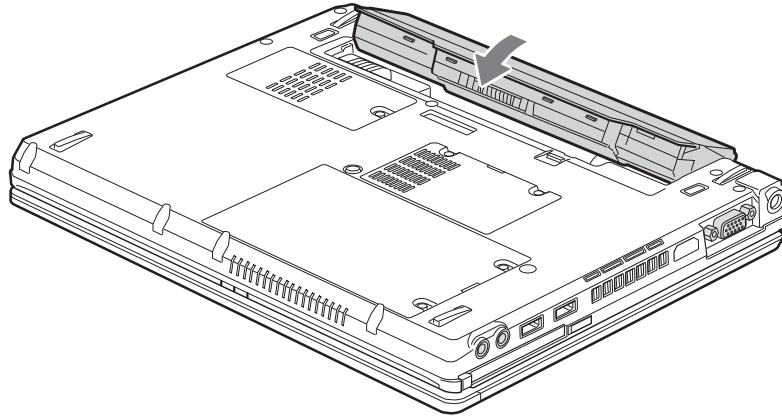
- 1 Have a charged battery ready to install.

- 2 Shut down your notebook.
- 3 If connected, disconnect the AC Adapter and turn the system over.



**Figure 20. Removing the Battery**

- 4 While holding the battery lock, slide the battery latch towards the center of the notebook; this will unlock the battery.
- 5 Lift the battery from the battery compartment.
- 6 Insert the new battery into the compartment. (*Figure 21*)
- 7 Verify that the battery latch clicks into place



**Figure 21. Installing a Battery**

### **Swapping Batteries when another Power Source is available**

To swap batteries in your battery compartment when you have an additional power source (such as an AC Adapter), follow these easy steps:

- 1** Plug in an AC Adapter to ensure power is supplied to the system.
- 2** Slide and hold the battery lock, then slide the battery latch to unlock the battery.
- 3** Remove the battery from the compartment.
- 4** Slide the new battery into the compartment.



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



# Memory Upgrade Module

Your LifeBook notebook can be upgraded to include up to 5 GB of in-slot high speed Double Data Rate (DDR3) Synchronous Dynamic RAM (SDRAM). To increase your LifeBook notebook's memory capacity, you may install a larger memory upgrade module.

Your LifeBook notebook has two DIMM slots. **Note that only one slot is user-upgradeable.** The DIMM slots are located on different parts of the motherboard, and only one can be accessed for upgrade. If you would like to increase the installed memory, you will need add a new module to the empty slot. The memory upgrade must be a dual-in-line (DIMM) SDRAM module. To ensure 100% compatibility, purchase the memory module only from the Fujitsu web store at [us.fujitsu.com/computers](http://us.fujitsu.com/computers).

- DO NOT REMOVE ANY SCREWS FROM THE MEMORY UPGRADE MODULE COMPARTMENT EXCEPT THE ONES SPECIFICALLY SHOWN IN THE DIRECTIONS FOR INSTALLING AND REMOVING THE MEMORY UPGRADE MODULE.
- THE MEMORY UPGRADE MODULE CAN BE SEVERELY DAMAGED BY ELECTROSTATIC DISCHARGE (ESD). TO MINIMIZE RISK TO THE MODULE, OBSERVE THE FOLLOWING PRECAUTIONS:



- BEFORE HANDLING A MEMORY MODULE, TOUCH A GROUNDED METAL OBJECT TO DISCHARGE STATIC ELECTRICITY BUILT UP IN YOUR BODY.
- 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 COMPUTER TERMINALS OR COMPONENTS; THE OIL FROM YOUR FINGERS COULD CAUSE A SHORT TO THE COMPONENTS.
- BE SURE TO POWER DOWN YOUR SYSTEM BEFORE ADDING OR REMOVING MEMORY MODULES. EVEN IF THE SYSTEM IS IN HIBERNATE OR SLEEP STATES, DATA COULD BE LOST OR THE MEMORY COULD BE DAMAGED IF POWER IS STILL AVAILABLE TO THE SYSTEM.

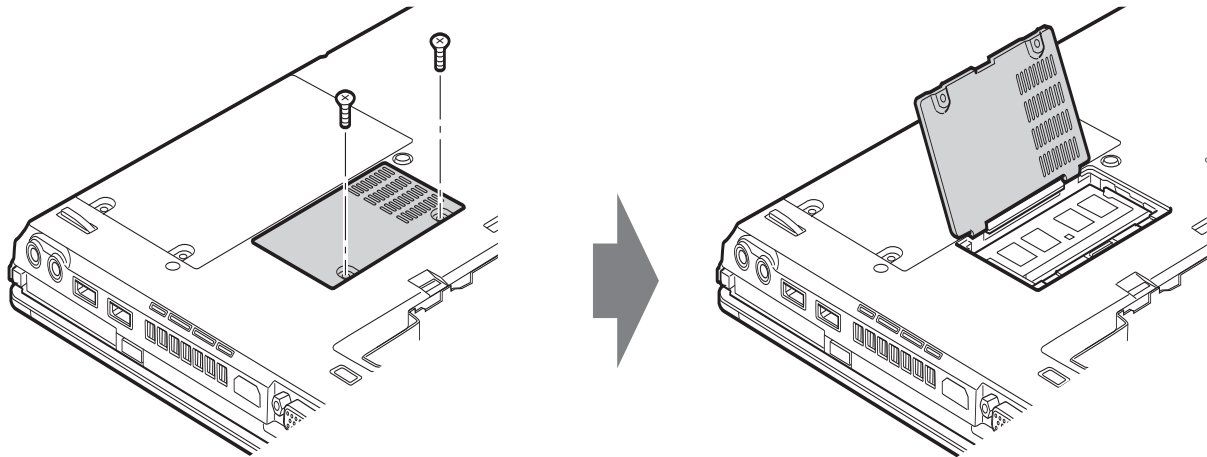
## Accessing the Memory Compartment

To gain access to the upgradeable memory compartment, follow these steps:



YOU MUST TURN OFF POWER AND REMOVE ANY MODEM CONNECTION BEFORE INSTALLING THE MEMORY UPGRADE MODULE.

- 1 Turn off power to your LifeBook notebook, and remove any power adapter (AC or auto/airline) and battery pack.
- 2 Place your LifeBook notebook with the bottom facing up on a clean work surface.
- 3 Remove the two screws from the holes in the memory compartment cover. (*Figure 22*)

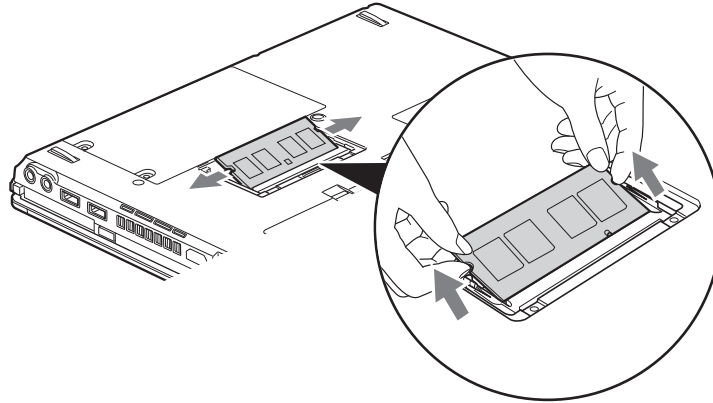


**Figure 22. Removing the Memory Compartment Cover**

## Removing a Memory Module

- 1 Perform steps 1 through 3 of Accessing the Memory Compartment.
- 2 Pull the module clips sideways away from each side of the memory module simultaneously. (*Figure 23*)

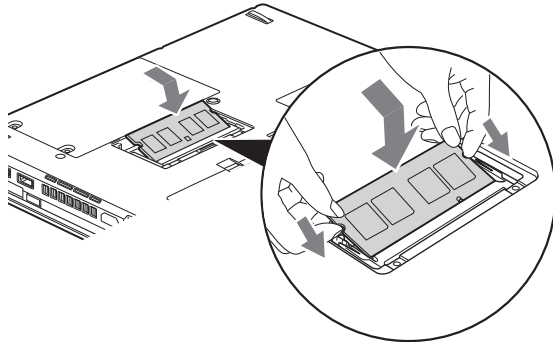
- 3** While holding the clips out, remove the module from the slot by lifting it up and pulling towards the back of your LifeBook notebook.
- 4** Store the memory upgrade module in a static guarded sleeve.
- 5** Install a new memory module as detailed in the procedure below.
- 6** Replace the memory compartment cover. (*Figure 25*)



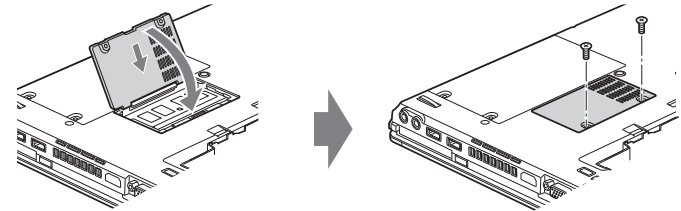
**Figure 23. Removing a memory module**

## Installing a Memory Module

- 1 Align the connector edge of the memory upgrade module, chip side up, with the connector slot in the compartment. (*Figure 24*)



**Figure 24. Inserting a Memory Module**



**Figure 25. Reinstalling the Memory Cover**

- 2 Insert the memory upgrade module at a 45° angle and press it firmly onto the connector.
- 3 Press the memory upgrade module down into the compartment until it locks underneath the retaining clip. You will hear a click when it is properly in place.
- 4 Replace the memory compartment cover. (*Figure 25*)



THE MEMORY UPGRADE MODULE IS NOT SOMETHING YOU ROUTINELY REMOVE FROM YOUR LIFEBOOK NOTEBOOK. ONCE IT IS INSTALLED, YOU SHOULD LEAVE IT IN PLACE UNLESS YOU WANT TO INCREASE SYSTEM MEMORY CAPACITY.

## Checking the Memory Capacity

Once you have changed the system memory capacity by replacing the installed module with a larger one, be sure to check that your notebook has recognized the change.

### Windows XP:

Check the memory capacity by clicking [Start] > **Control Panel**, then double-clicking the **System** icon. Select the **General** tab and check the amount of memory under “Computer:”

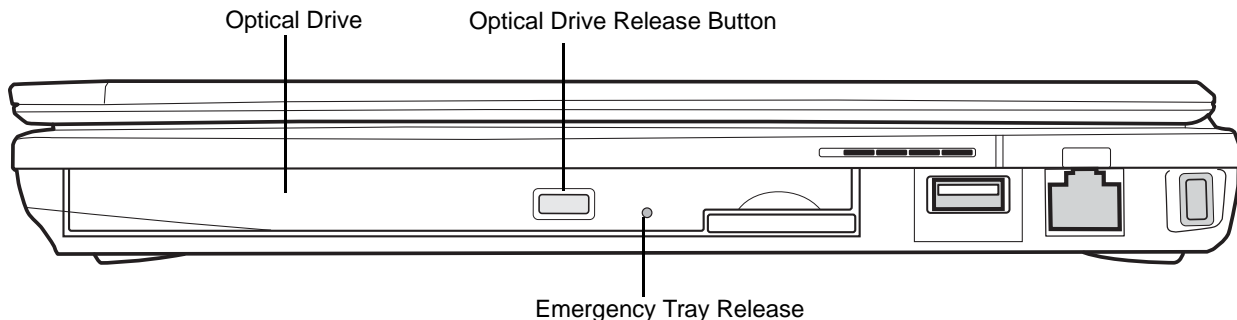
### Windows 7:

Check the memory capacity by clicking [Start] -> **Control Panel** -> **System and Security** -> **System**. The amount of memory is displayed next to “Installed memory - RAM:”

There may be a variation between the actual memory size and what is displayed. This is possible if your system is configured with an integrated Intel Graphics Media Accelerator which dynamically allocates system memory to accelerate graphics performance.



IF THE TOTAL MEMORY DISPLAYED IS INCORRECT, CHECK THAT YOUR MEMORY UPGRADE MODULE IS PROPERLY INSTALLED. (IF THE MODULE IS PROPERLY INSTALLED AND THE CAPACITY IS STILL NOT CORRECTLY RECOGNIZED, SEE TROUBLESHOOTING ON *page 88*.)



**Figure 26. Optical Drive**

## Optical Drive

There is a variety of media available to use with the Dual Layer Multi Format DVD Writer in your system. Multi-Format DVD Writers are also known as “optical drives”.

Your optical drive allows you to access movies, software, and audio DVD/CDs as well as to read and write to CD-R, CD-RW, DVD-R, DVD+R, DVD-RW, DVD+RW, and DVD RAM discs. The dual-layer architecture allows you to record up to 8.5 GB of data on DVD+R discs.

DVD-R and DVD-RW discs hold up to 4.7 GB of data (DVD-R discs used with Multi-Format Dual-Layer DVD writer hold up to 8.5 GB). A DVD-R disc can only be written to once; DVD-RW discs can be written to over and over. DVD-R and DVD-RW discs can be played on most standard players.

CD-R and CD-RW discs hold up to 640 MB of data. A CD-R disc can only be written to once; CD-RW discs can be written to over and over.



INSTALL YOUR MEDIA PLAYER SOFTWARE BEFORE FIRST USING THE OPTICAL DRIVE. REFER TO THE APPLICABLE README FILE ON THE DRIVER APPLICATIONS CD-ROM.

## Media Player Software

With the Dual-Layer Multi-Format DVD Writer and media player software you can play DVD movies and music CDs on your LifeBook notebook. The media player includes controls which allow you to take full advantage of the features of a DVD movie, as well as standard features such as fast forward, fast reverse, pause, etc. With this drive you can also burn onto recordable DVD-R/RW, DVD+R/RW, or CD-R/RW discs.



- DO NOT OPERATE YOUR OPTICAL DRIVE UNLESS YOUR LIFEBOOK NOTEBOOK IS SITTING ON A FLAT SURFACE. USING A DRIVE WHEN THE SYSTEM IS NOT LEVEL MAY DAMAGE THE DRIVE OR PREVENT PROPER OPERATION.
- PROLONGED USE OF THE OPTICAL DRIVE, SUCH AS WATCHING A DVD MOVIE, WILL SUBSTANTIALLY REDUCE YOUR BATTERY LIFE IF NO EXTERNAL POWER SOURCE IS ATTACHED.

## Loading Media on Your Drive

To load a disc into your optical drive:

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

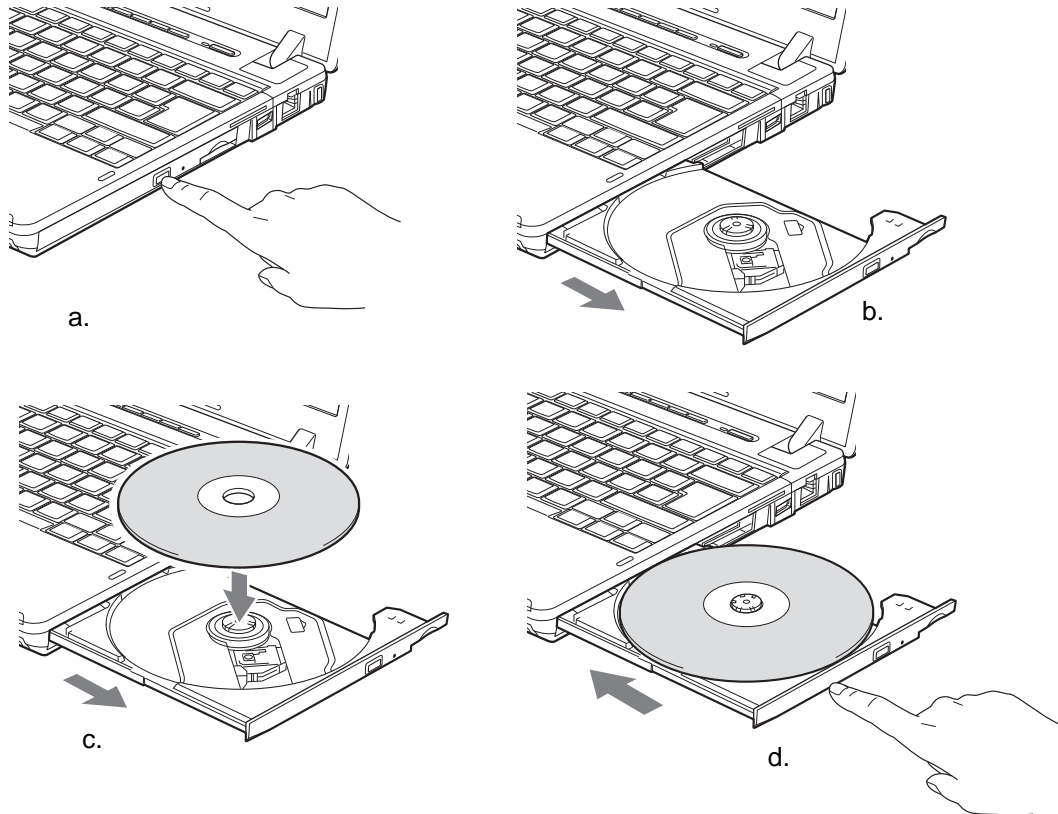


- YOU SHOULD PERIODICALLY CHECK THE FUJITSU WEBSITE AT [US.FUJITSU.COM/COMPUTERS](http://US.FUJITSU.COM/COMPUTERS) FOR THE MOST CURRENT DRIVERS.
  - ALL LIFEBOOK DVD PLAYERS ARE SET TO PLAY DVD TITLES WITH REGION CODE NUMBER 1 WHICH IS SPECIFIED FOR THE NORTH AMERICAN MARKET. THE REGION NUMBER IS A REGIONAL RESTRICTION CODE DEFINED BY THE DVD FORUM ACTING ON HOLLYWOOD REQUIREMENTS. DIFFERENT REGION CODES ARE RECORDED ON VIDEO DVD TITLES FOR PUBLICATION IN DIFFERENT AREAS OF THE WORLD. IF THE REGIONAL CODE OF THE DVD PLAYER DOES NOT MATCH THE REGIONAL CODES ON THE TITLES, THEN PLAYBACK IS IMPOSSIBLE.
  - YOU CAN CHANGE THE REGION CODE ON THE DVD PLAYER USING THE PROPERTIES MENU OF THE DVD SOFTWARE. NOTE, HOWEVER, THAT **YOU CAN ONLY CHANGE THE REGION CODE UP TO FOUR TIMES**. AFTER THE 4TH CHANGE, THE LAST CODE ENTERED BECOMES PERMANENT, AND CANNOT BE CHANGED.
- 3 Place the media into the tray, label side up, with the hole in the center of the disc. Snap the disc onto the raised circle in the center of the tray.

- 4 Gently push the holder tray back in until you hear a click



IF YOU HAVE DISABLED THE AUTO INSERT NOTIFICATION FUNCTION, YOU WILL HAVE TO START THE DRIVE EITHER BY USING MY COMPUTER OR FROM WITHIN WINDOWS EXPLORER, SINCE YOUR NOTEBOOK WILL NOT AUTOMATICALLY RECOGNIZE THAT MEDIA HAS BEEN LOADED.



**Figure 27. Loading/Ejecting Media**



## Removing Media

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

## Using the Optical Drive Software

### Starting a DVD Movie

- 1 Insert the DVD movie into the optical drive of your notebook. If the CD AutoRun feature activates, skip Step 2.
- 2 The first time you insert a movie into the media tray, you will be prompted to select what you want the system to do when discs are inserted (i.e., start automatically or wait for a prompt). Until you make a selection, you will receive the same prompt whenever you insert a disc.

### Opening the Optical Drive Control Panel

With most DVD-ROMs, you have the option of altering how the movie should play and what you wish to view. You can do this by using the optical drive control panel and the mouse.

- 1 Right-click on the movie screen to open a dropdown menu for options.
- 2 Select **View**, then **Player** for all the controls available. This will open the control panel into the bottom of the screen.

### Using the Optical Drive Control Panel

The optical drive software allows you to watch the movie much like a VCR player. You have the option to pause, rewind, fast-forward and stop the movie at any point.

- 1 To Pause the movie, click the **||** button.
- 2 To Rewind the movie, click the **◀** button to rewind to a specific portion of the movie, or the **⏮** button to return to the opening screen.

- 3 To Fast-forward the movie, click the ►► button to forward to a specific portion of the movie, or the►►► button to jump to the ending credits.
- 4 To Stop the movie, click the ■ button.

### Exiting the DVD/CD-RW Application

- 1 Click the ✕ located in the upper right corner of the title bar. This will open an optical drive dialog box.
- 2 Click Yes to stop and exit the movie, or No to close the optical drive dialog box and return to the movie.

### Using the Optical Drive on Battery Power

Since an optical drive consumes a lot of power, your overall battery life will be shorter when operating the drive continuously (such as watching a DVD movie) than during standard operation. Many movies run-times are longer than your LifeBook notebook can support on a single battery. If you are watching a DVD movie on battery power you may need to swap in an additional, charged battery or attach AC power during the movie to view it in its entirety.



- PROLONGED USE OF THE OPTICAL DRIVE, SUCH AS WHEN WATCHING A DVD MOVIE, WILL SUBSTANTIALLY REDUCE YOUR NOTEBOOK'S BATTERY LIFE.
- AN ADDITIONAL FULLY-CHARGED BATTERY IS HIGHLY RECOMMENDED IF YOU WILL BE WATCHING DVD MOVIES ON BATTERY POWER. IF YOU DON'T HAVE AN ADDITIONAL BATTERY, YOU MAY PURCHASE ONE EITHER ON-LINE AT [US.FUJITSU.COM/COMPUTERS](http://US.FUJITSU.COM/COMPUTERS) OR CALL 1-877-372-3473.

### To Watch a Movie on Battery Power:

- 1 Have an additional full-charged battery or your AC adapter ready for use.
- 2 Start watching your DVD movie.

- 3 If a low battery warning occurs, immediately stop the movie and exit the DVD/CD-RW application.



IF YOU DO NOT STOP THE OPTICAL DRIVE QUICKLY AND THE LIFEBOOK NOTEBOOK ATTEMPTS TO AUTO-SUSPEND (CRITICAL BATTERY LOW STATE) THE NOTEBOOK WILL SHUT DOWN IMPROPERLY. IF THIS OCCURS, YOU WILL NEED TO INSTALL A FRESH POWER SOURCE (EITHER A CHARGED BATTERY OR AC ADAPTER).

- 4 Connect an AC Adapter to your system, or install a fully charged battery in the Flexible Bay (after removing any modular devices that may be present in the bay) prior to removing the main battery.
- 5 Manually place your notebook into Sleep mode by depressing the Suspend button then replace the discharged battery with a fully-charged battery.
- 6 If you removed the optical drive from the Flexible Bay in step 4, reinstall it now.
- 7 Resume your notebook by pressing the Suspend button again. This step is not required if you attached AC power without entering Sleep mode.
- 8 Restart your DVD/CD-RW application and skip to the chapter of the movie you were last watching.
- 9 Continue watching your DVD movie.



SOME SHORTER DVD MOVIES MAY NOT REQUIRE YOU TO SWAP BATTERIES OR ATTACH AC POWER TO COMPLETE THEM. HOWEVER, IT IS BEST TO BE PREPARED SINCE ACTUAL BATTERY LIFE WHILE OPERATING THE OPTICAL DRIVE CANNOT BE GUARANTEED.

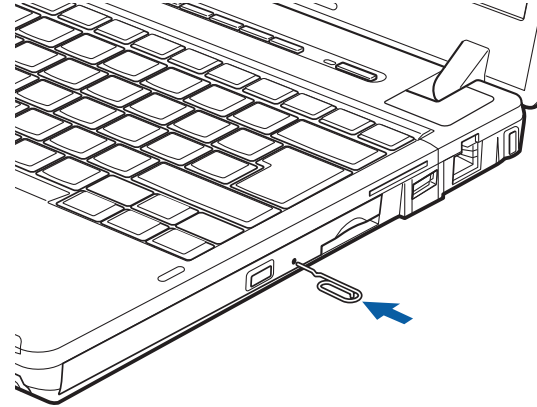
### **Auto Insert Notification Function**

The Auto Insert Notification function allows your LifeBook notebook to automatically start a DVD/CD as soon as it is inserted in the optical drive and the tray is closed. Your notebook will begin playing an audio DVD/CD or will start an application if the DVD/CD includes an auto run file.

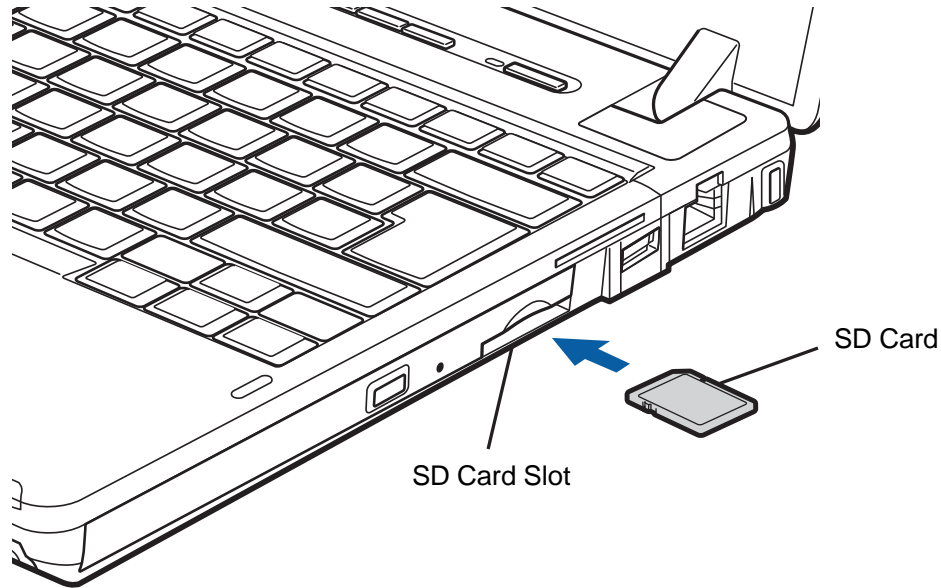
To prevent a CD from playing automatically as soon as it is inserted, refer to the related help file for your specific operating system.

## Emergency Tray Release

In the event that your system does not have power applied, you can still open the media tray using the end of an opened paper clip. To open the tray, insert the paper clip into the small emergency tray release hole on the face of the tray (Figure 28). The tray will pop open.



**Figure 28. Using the Emergency Tray Release**



**Figure 29. Installing an SD Card**

## **Secure Digital (SD)/Secure Digital High Capacity (SDHC) Cards**

Your LifeBook notebook supports Secure Digital (SD) and Secure Digital High Capacity (SDHC) 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 (SD) and Secure Digital High Capacity (SDHC) cards allow portable storage among a variety of devices, such as cell phones, GPS systems, digital cameras, and PDAs. SD/SDHC cards transfer data quickly, with low battery consumption. It uses flash memory architecture.

## Inserting SD/SDHC Cards

SD and SDHC cards are inserted in the SD Card slot (*Figure 29*). To insert a card, follow these steps:

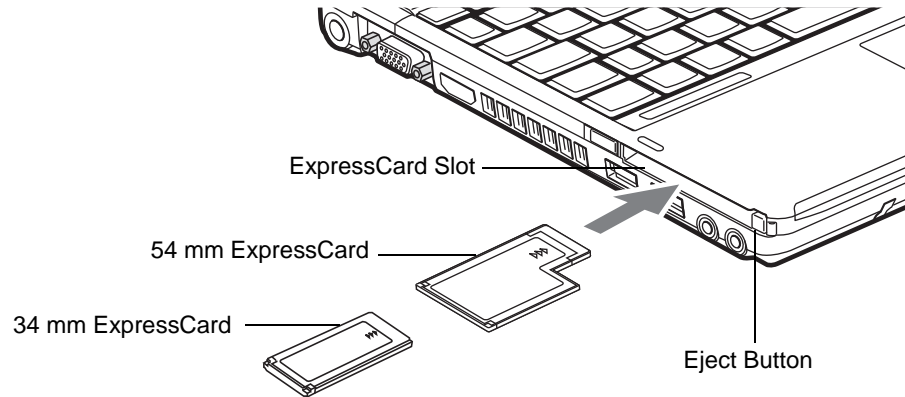


- INSERTING OR REMOVING AN SD/SDHC CARD DURING YOUR LIFEBOOK NOTEBOOK'S SHUTDOWN OR BOOTUP PROCESS MAY DAMAGE THE CARD AND/OR YOUR LIFEBOOK NOTEBOOK.
- DO NOT INSERT A CARD INTO A SLOT IF THERE IS WATER OR ANY OTHER SUBSTANCE ON THE CARD AS YOU MAY PERMANENTLY DAMAGE THE CARD, YOUR LIFEBOOK NOTEBOOK,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

- 1** See your card manual for instructions on the insertion of your card. Some cards may require that your system is off while inserting them.
- 2** Make sure there is no card currently in the slot. If there is, see Removing an SD/SDHC 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/SDHC Card

To remove a card, first see your SD/SDHC card manual for instructions. Some cards may require your LifeBook notebook to be in Suspend Mode or Off while removing them. Prior to removing the card from the slot, first select it using the **Safely Remove Hardware** icon in the notification area. To remove the card, push it in to release it, then pull it out.



**Figure 30. Installing/Removing PC Card**

## ExpressCards

Your LifeBook notebook supports ExpressCards which can perform a variety of functions depending on which type of card you install. There are two different width ExpressCards: 34 mm and 54 mm. The connector inside the slot is located on the left-hand side of the slot. If you insert a 34 mm card, be sure to align it with the left side of the slot when inserting it.

For further information, refer to the instructions supplied with your card(s).

### Installing ExpressCards

To install an ExpressCard in the ExpressCard slot, follow these steps:



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



YOU MAY BE REQUIRED TO LOG ON AS AN ADMINISTRATOR OR MEMBER OF THE ADMINISTRATOR'S GROUP TO COMPLETE THIS PROCEDURE. IF THE COMPUTER IS CONNECTED TO A NETWORK, NETWORK POLICY SETTINGS MAY ALSO PREVENT YOU FROM COMPLETING THIS PROCEDURE.

- 1 See your ExpressCard 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 ExpressCard currently in the slot. If there is, see Removing ExpressCards.
- 3 If the eject button is extended, press it until it clicks.
- 4 Insert the card into the slot with the label facing up.
- 5 Push the card firmly into the slot until it is seated in the connector.

## Removing ExpressCards

See your ExpressCard manual for specific instructions on removing your card. Some cards may require your notebook to be in Sleep Mode or Off during removal.



- WINDOWS HAS A SHUTDOWN PROCEDURE FOR EXPRESSCARDS THAT MUST BE FOLLOWED BEFORE REMOVING A CARD. (REVIEW YOUR OPERATING SYSTEM MANUAL FOR THE CORRECT PROCEDURE.) IT IS GOOD PRACTICE TO REMOVE DEVICES USING SAFELY REMOVE HARDWARE IN THE SYSTEM TRAY.
- IF THE DIALOG BOX STATES THAT THE DEVICE CANNOT BE REMOVED, YOU MUST SAVE ALL OF YOUR OPEN FILES, CLOSE ANY OPEN APPLICATIONS AND SHUT DOWN YOUR NOTEBOOK.

- 1 Unlock the card from the slot by pressing the eject button associated with the slot in which the card is located. When pressed, the button will pop out.
- 2 Firmly press the button again until it is flush with the notebook. This will eject the card slightly out of the slot allowing you to remove the card.



IF THE EXPRESSCARD HAS AN EXTERNAL CONNECTOR AND CABLE, DO NOT PULL THE CABLE WHEN REMOVING THE CARD.



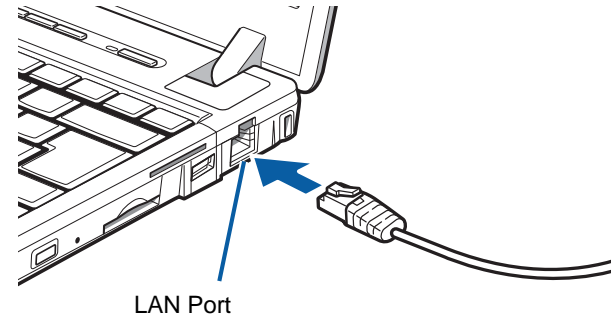
## Device Ports

Your LifeBook P770 Series notebook and the optional Port Replicator (see “*Port Replicator*” on page 85) come equipped with multiple Device Ports to which you can connect an external device including: disk drives, keyboards, modems, printers, etc.

### Internal LAN (RJ-45) Jack

The internal LAN (RJ-45) jack is used for an internal 10/100/1000 BaseTx Ethernet connection. You will 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:

- 1** Align the connector with the jack opening.
- 2** Push the connector into the jack until it is seated.
- 3** Plug the other end of the cable into a LAN outlet.



**Figure 31. Connecting the LAN**

### Docking Port

The docking port is used for the connection of your system to an optional port replicator. In order to connect your system to one of these devices follow the instructions that came with your port replicator. (See “*Port Replicator*” on page 85)

## Universal Serial Bus Ports

The three Universal Serial Bus (USB) 2.0 ports (two on the left side, one on the right) allow you to connect USB devices such as external floppy disk drives, external DVD drives, game pads, pointing devices, keyboards and/or speakers. USB 2.0 is downward-compatible with USB 1.1 devices, so older USB devices will work with these ports. USB 2.0 is a much faster design, running forty times faster than USB 1.1.

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

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

## HDMI Port

The High-Definition Multimedia Interface (HDMI) port is a digital audio/video interface over which uncompressed streams can be transmitted. HDMI is used to connect compatible digital devices with your computer (such as big-screen TVs and video recorders).

To connect an HDMI device:

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

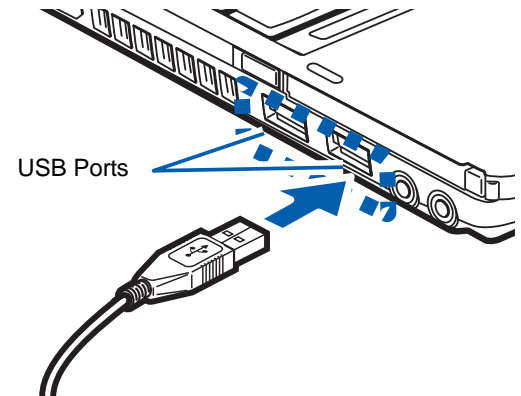


Figure 32. Connecting a USB Device

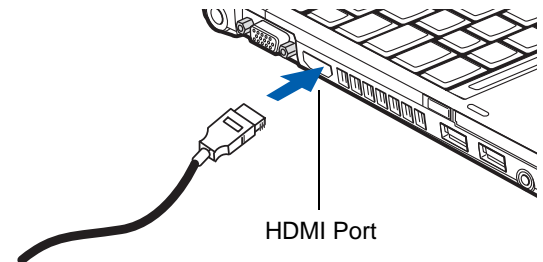


Figure 33. Connecting an HDMI Device

## Microphone Jack

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

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

## 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.

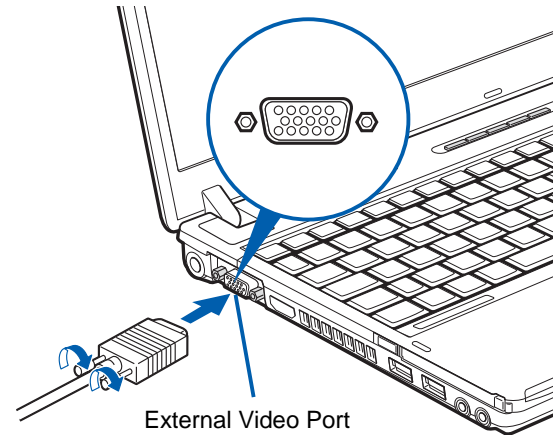


IF YOU PLUG HEADPHONES INTO THE HEADPHONE JACK, THE BUILT-IN STEREO SPEAKERS WILL BE DISABLED.

## External Video Port

The external video port allows you to connect an external monitor or LCD projector. In order to connect an external device follow these easy steps: There is also an external VGA monitor port on the port replicator (*Figure 35*).

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



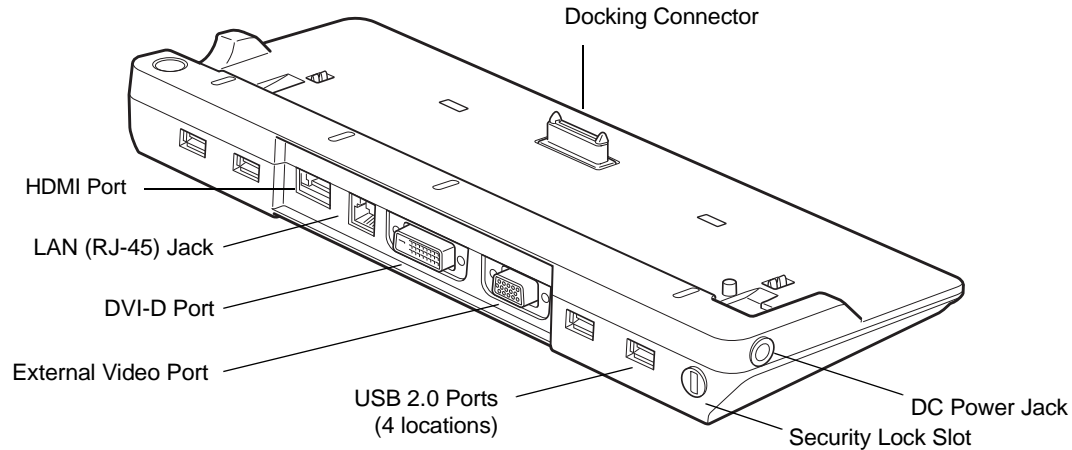
**Figure 34. Connecting an External Video Device**



WHEN AN EXTERNAL MONITOR IS PLUGGED IN, PRESSING THE [FN] + [F10] KEYS ALLOWS YOU TO CHANGE YOUR SELECTION OF WHERE TO SEND YOUR DISPLAY VIDEO. EACH TIME YOU PRESS THE KEY COMBINATION, YOU WILL STEP TO THE NEXT CHOICE. THE CHOICES, IN ORDER, ARE: BUILT-IN DISPLAY PANEL ONLY, EXTERNAL MONITOR ONLY, BOTH BUILT-IN DISPLAY PANEL AND EXTERNAL MONITOR, HDMI DISPLAY, BOTH LCD AND HDMI, DVI DEVICE, AND BOTH LCD AND DVI. NOTE THAT DEPENDING UPON SYSTEM CONFIGURATION, ALL OF THESE STEPS MAY NOT BE AVAILABLE.

## Port Replicator

An optional Port Replicator is available from Fujitsu to extend the functionality of your LifeBook® notebook by providing ports to connect an external VGA monitor, a LAN (RJ-45) cable, four USB 2.0 devices, DC Power, and DVI and e-SATA devices.



**Figure 35. Port Replicator rear panel**

### Port Replicator Components

Following is a description of the Port Replicator components. (*Figure 35*)

#### HDMI Port

The High-Definition Multimedia Interface (HDMI) port is a digital audio/video interface over which uncompressed streams can be transmitted. HDMI is used to connect compatible digital devices with your computer (such as big-screen TVs and video recorders).

#### LAN (RJ-45) Jack

The LAN jack allows you to connect a LAN to the Port Replicator. Note that when the system is attached to the Port Replicator, the LAN Jack on the Port Replicator should be used, not the one on the system.

## **DVI-D Port**

The DVI-D port lets you to connect digital display devices such flat panel displays and digital projectors.

## **External Video Port**

The external video port lets you connect an external monitor or projector. Note that if a Port Replicator is attached, you must use the external video port on the Port Replicator, not the one on your system.

## **USB 2.0 Ports (Qty. 4)**

Universal Serial Bus (USB) 2.0 ports allow you to connect USB devices. USB 2.0 ports are backward-compatible with USB 1.1 devices.

## **Security Lock Slot**

The security lock slot allows you to attach an optional physical lock down device.

## **DC Power Jack**

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

## **Docking Port**

The docking port connects the Port Replicator to your LifeBook notebook.

THE SYSTEM CONTAINS COMPONENTS THAT CAN BE SEVERELY DAMAGED BY ELECTROSTATIC DISCHARGE (ESD). TO MINIMIZE RISK TO THE COMPONENTS, OBSERVE THE FOLLOWING PRECAUTIONS:



- BEFORE DOCKING OR UNDOCKING YOUR LIFEBOOK WHEN USING A PORT REPLICATOR, YOU SHOULD TOUCH A GROUNDED METAL OBJECT TO DISCHARGE STATIC ELECTRICITY BUILT UP IN YOUR BODY.
- 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.

## Attaching Port Replicator

To attach the Port Replicator, align the Port Replicator connector on the bottom of your notebook with the connector on the Port Replicator and push the corners down simultaneously. (Figure 36)

## Detaching Port Replicator

To detach the Port Replicator:

- 1 Pull the Port Replicator's release latch away from the Port Replicator to release it from your notebook. (Figure 37)
- 2 Pull the notebook away from the Port Replicator to detach it from your system. (Figure 38)

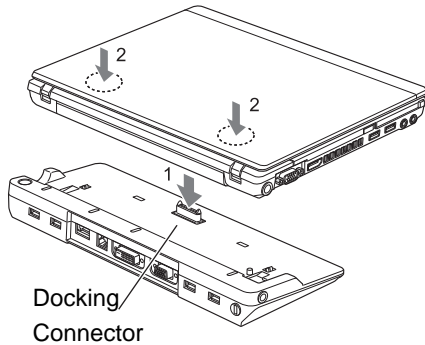


Figure 36. Attaching

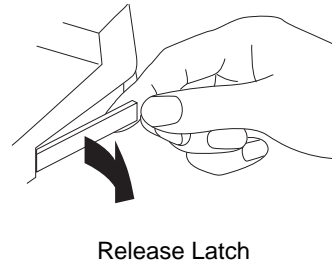


Figure 37. Unlatching

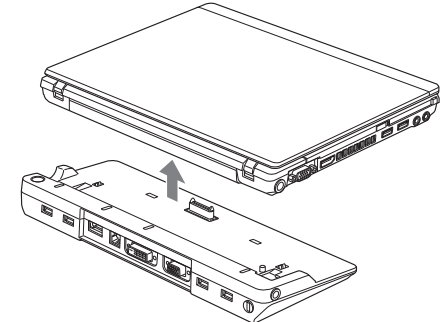


Figure 38. Removing



## 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.
- DO NOT RETURN A FAILED NOTEBOOK TO YOUR SUPPLIER UNTIL YOU HAVE TALKED TO A SUPPORT REPRESENTATIVE.

**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, 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

<b>Problem</b>	<b>Page</b>	<b>Problem</b>	<b>Page</b>
Audio Problems . . . . .	<i>page 91</i>	ExpressCard Problems . . . . .	<i>page 93</i>
Port Replicator Problems . . . . .	<i>page 91</i>	Power Failures . . . . .	<i>page 93</i>
Hard Drive Problems . . . . .	<i>page 91</i>	Shutdown and Startup Problems . . . . .	<i>page 95</i>
Keyboard or Mouse Problems . . . . .	<i>page 92</i>	Video Problems . . . . .	<i>page 96</i>
Memory Problems . . . . .	<i>page 92</i>	Miscellaneous Problems . . . . .	<i>page 98</i>
USB Device Problems . . . . .	<i>page 93</i>		

Problem	Possible Cause	Possible Solutions
<b>Audio Problems</b>		
There is no sound coming from the built-in speaker.	The volume is turned too low.	Adjust the volume control on your notebook and operating system. Use the [Fn+F9] key combination on your keyboard to increase the volume of your notebook.
	The software volume control is set too low.	Manually adjusting the volume (i.e., keyboard "hot keys") should dynamically adjust the volume of the operating system (see above). If that doesn't work, adjust the sound volume control settings in your software or application.
	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 can be installed or reinstalled using the Drivers and Applications CD that came with your LifeBook. Refer to application and operating system documentation.
	The speakers have been muted using the <b>Volume</b> icon in the system tray.	Click on the <b>Volume</b> icon in the system tray on the bottom right of the screen. If the Mute box is checked (Windows XP) or the <b>Mute</b> icon has a red circle on it (Windows 7), click on it to unselect it. You can also press [F3] while holding [Fn] will toggle the audio on and off.
<b>Port Replicator Problems (optional external device)</b>		
System does not turn on when installed in optional Port Replicator	Port Replicator AC adapter is not plugged in.	Provide power to the Port Replicator.
	LifeBook is not properly seated in the Port Replicator.	Remove and re-dock your notebook.
<b>Hard Drive Problems</b>		
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.

<b>Problem</b>	<b>Possible Cause</b>	<b>Possible Solutions</b>
You cannot access your hard drive. (continued)	Security is set so your operating system cannot be started without a password.	Verify your password and security settings.
<b>Keyboard or Mouse Problems</b>		
The built-in keyboard does not seem to work.	The notebook has gone into Sleep mode.	Push the <b>Power/Suspend/Resume</b> button.
	Your application has locked out your keyboard.	Try to use your integrated pointing device to restart your system.
	NumLock key has been set.	Press the NumLock key to toggle it off.
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. <i>See “Device Ports” on page 81.</i>
	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.
You have connected an external keyboard or a mouse and it seems to be locking up the system.	Your operating system is not setup 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.
<b>Memory Problems</b>		
Your System screen in the Control Panel does not show the correct amount of installed memory.	Your memory upgrade module is not properly installed.	Remove and re-install your memory upgrade module. <i>See “Memory Upgrade Module” on page 65.</i>
	You have a memory failure.	Check for Power On Self Test (POST) messages. <i>See “Power On Self Test Messages” on page 99.</i>

Problem	Possible Cause	Possible Solutions
<b>USB Device Problems</b>		
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. <i>See “Device Ports” on page 81.</i>
	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.
	Your device may not have the correct software driver active.	See your software documentation and activate the correct driver.
<b>ExpressCard Problems</b>		
A card inserted in the ExpressCard slot does not work or is locking up the system.	Card is not properly installed.	Remove and re-install the card. <i>See “ExpressCards” on page 79.</i>
	Card may have been installed while an application was running, so your notebook is not aware of its installation.	Close the application and restart your notebook.
	Your software may not have the correct driver active.	See your software documentation and activate the correct driver.
<b>Power Failures</b>		
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. <i>See “Status Indicator Panel” on page 26.</i> 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. <i>See “Status Indicator Panel” on page 26.</i> If the battery indicates a short, remove it and operate from another power source or replace that battery.

Problem	Possible Cause	Possible Solutions
<p>You turn on your LifeBook notebook and nothing seems to happen. (continued)</p>	<p>The battery is low.</p>	<p>Check the Status Indicator Panel to determine the presence and condition of the battery. <i>See “Status Indicator Panel” on page 26.</i> Use a Power adapter to operate until a battery is charged or install a charged battery.</p>
	<p>The power adapter (AC or auto/airline) is not plugged in properly.</p>	<p>Verify that your adapter is connected correctly. <i>See “Power Sources” on page 44.</i></p>
	<p>The power adapter (AC or auto/airline) has no power from the AC outlet, airplane jack, or car cigarette lighter.</p>	<p>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.</p>
	<p>The power adapter (AC or auto/airline) is faulty.</p>	<p>Try a different power adapter.</p>
<p>Your LifeBook notebook turns off all by itself.</p>	<p>The power management parameters are set for auto timeouts which are too short for your operating needs.</p>	<p>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.</p>
	<p>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.</p>	<p>Install a power adapter, then push the Power/Suspend/Resume button. <i>See “Power Sources” on page 44.</i></p>
	<p>You have a battery failure.</p>	<p>Verify the condition of the battery using the Status Indicator panel. If the battery is shorted, replace or remove it. <i>See “Status Indicator Panel” on page 26.</i></p>
	<p>Your power adapter has failed or lost its power source.</p>	<p>Make sure the adapter is plugged in and the outlet has power.</p>

Problem	Possible Cause	Possible Solutions
Your notebook will not work on battery alone.	The installed battery is dead.	Replace battery with a charged one or install an AC 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 “ <i>Status Indicator Panel</i> ” on page 26.
The battery seems to discharge too quickly.	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 power savings features may be disabled.	Check the Power Options menu settings and adjust according to your operating needs.
	The brightness is turned all the way up.	Turn down the brightness adjustment. The higher the brightness the more power your display uses.
	The battery is very old.	Replace the battery.
	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. <b>Charging</b> icon on the Status Indicator panel will flash when battery is outside of operating range.
<b>Shutdown and Startup Problems</b>		
The Suspend/Resume button does not work.	There may be application software conflict.	Close all applications and try the button again.

Problem	Possible Cause	Possible Solutions
The Suspend/Resume button does not work (continued)	Suspend/Resume button is disabled.	In Windows XP, enable the button by going to the <b>Control Panel &gt; Power Options Properties</b> and clicking on the Advanced tab. In the Power buttons area, select the option that best suits your needs. In Windows 7, select the Change what the power button does” option.
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. <i>See “BIOS Setup Utility” on page 50.</i>
	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. <i>See “BIOS Setup Utility” on page 50.</i>
An error message is displayed on the screen during the boot sequence.	Power On Self Test (POST) has detected a problem.	See the Power On Self Test (POST) messages to determine the meaning and severity of the problem. Not all messages are errors; some are simply status indicators. <i>See “Power On Self Test Messages” on page 99.</i>
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 <b>Save Changes And Exit</b> 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.
<b>Video Problems</b>		
The built-in display is blank when you turn on your LifeBook notebook.	The optional Port Replicator is attached, an external monitor is plugged in, and the system is set for an external monitor only.	Pressing [F10] while holding down [Fn] allows you to change 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, external monitor, both built-in display and external monitor.



<b>Problem</b>	<b>Possible Cause</b>	<b>Possible Solutions</b>
The built-in display is blank when you turn on your LifeBook notebook. (continued)	Display angle and brightness settings are not adequate for your lighting conditions.	Move the display and the brightness control until you have adequate visibility. Pressing either the [F6] or [F7] keys while holding down the [Fn] key also allows you to change the brightness level of the display.
	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 test 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 a keyboard button or move the mouse to restore operation. If that fails, push the Power/Suspend/Resume button. Check your power management settings.
	Power management timeouts may be set for short intervals and you failed to notice the display come on then go 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 does not close.	A foreign object, such as a paper clip, is stuck between the display and keyboard.	Remove all foreign objects from the keyboard.
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.

Problem	Possible Cause	Possible Solutions
The application display uses only a portion of your screen and is surrounded by a dark frame.	You are running an application that does not support the system's native resolution and display compression is enabled.	Display compression gives a clearer but smaller display for applications that do not support the system's native pixel resolution. You can fill the screen but have less resolution by changing display compression settings. These settings can be changed in the Intel GMA control panel.
You have connected an external monitor and it does not display any information.	Your external monitor is not properly installed.	Reinstall your device. <i>See "External Video Port" on page 84.</i>
	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. <i>See "Specifications" on page 117.</i>
<b>Miscellaneous Problems</b>		
Error message is displayed on the screen during the operation of an application.	Application software often has its own set of error message displays.	See your application manual and help displays screens for more information. Not all messages are errors some may simply be status.

## Power On Self Test Messages

The following is an alphabetic list of error-and-status messages that 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 Cache SRAM Passed**

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

### **\*Diskette drive A error or Diskette drive B error**

Drive A: or B: is present but fails the BIOS Power On Self Test diskette tests. Check to see that the drive is defined with the proper diskette type in the Setup Utility, *See “BIOS Setup Utility” on page 50.* and that the diskette drive is installed correctly. If the disk drive is properly defined and installed, avoid using it and contact your support representative.

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

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

### **nnnn Extended RAM Passed**

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

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

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

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

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

**\*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 media type**

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

**\*Keyboard controller error**

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

**\*Keyboard error**

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

### **\*Keyboard error nn**

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

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

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

### **\*Operating system not found**

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

### **\*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. This battery has an expected life of 2 to 3 years.

### **System BIOS shadowed**

System BIOS copied to shadow RAM.

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

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

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

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

**nnnn System RAM Passed**

Where nnnn is the amount of system memory in 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.

**UMB upper limit segment address: nnnn**

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

**Video BIOS shadowed**

Video BIOS successfully copied to shadow RAM.

## Restoring Your Pre-installed Software

The location of your applications, drivers, and utilities is determined by the operating system you are running.

**Microsoft Windows 7 Professional:** Please use the information contained in the “Saving and Recovering Your Factory and System Images” booklet that was packed with your system.

**Microsoft Windows XP Edition:** Please use the following instructions.

The Drivers and Applications Restore (DAR) CD contains sets of device drivers and Fujitsu utilities (in specific directories) that are unique to your computer configuration for use as documented below.



IF YOU HAVE ACCESS TO THE INTERNET, VISIT THE FUJITSU SUPPORT WEBSITE AT [HTTP://WWW.COMPUTERS.US.FUJITSU.COM/SUPPORT](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 CD 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 CD. 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 CD after Windows has started. A Fujitsu Installer screen is displayed after the CD 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 Drivers and Applications CD.



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.

## Restoring the Operating System for Windows

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.

## Methods for accessing the utilities

Certain LifeBook models have the Recovery and Utility applets pre-installed. Other systems require that the Recovery and Utility disc be used (or in the event the hard disk has been reformatted).

In order to determine the method for accessing the Recovery and Utility applet, perform the following procedures in order.

### Determining whether Recovery and Utility is pre-loaded

- 1 Turn on or reboot your system. When the Fujitsu logo appears, press [F12] key.
- 2 From the Boot Menu that appears, check whether the <Recovery and Utility> option is present. If it is not present, it means that the utility must be used from the disc. Proceed to “Running Recovery and Utility from the disc” if <Recovery and Utility> is unavailable.
- 3 You can also use the SecureCore menu to determine whether the utility is pre-loaded by powering on your system then pressing the {Enter} key when the Fujitsu logo appears on the screen. The SecureCore Menu will appear and the Recovery and Utility option will appear in the menu.

### Running Recovery and Utility from hard disk

- 1 Cursor down to <Recovery and Utility> and press the [Enter] key.
- 2 While the files are being loaded from the disc, a progress bar will appear at the bottom of the screen.
- 3 When the System Recovery Options dialog opens, select a new keyboard layout, if necessary, then click [Next].
- 4 When the Operating System dialog appears, click [Next].
- 5 If necessary, enter your password, then click [OK].
- 6 When System Recovery Options window appears, click on Recovery and Utility.
- 7 The Recovery and Utility screen appears on the screen with three tabs: Diagnostics, Recovery and Utility. Please note that Diagnostics tab is not supported on certain LifeBook/Stylistic models when running Recovery and Utility from the hard disk. In order to restore the operating system, please insert the “Recovery and Utility” disc in the CD/DVD drive and use the Start Recovery function under the Recovery tab. For more information about the tabs, go to “Recovery and Utility tabs” on page 107.

## Running Recovery and Utility from the disc



- THE USE OF THIS DISC REQUIRES THAT YOU HAVE A DEVICE CAPABLE OF READING CDS ATTACHED TO YOUR SYSTEM. YOU WILL NEED TO ATTACH AN EXTERNAL PLAYER. FOR MORE INFORMATION ON AVAILABLE EXTERNAL DEVICES, VISIT OUR WEB SITE AT: [HTTP://SOLUTIONS.US.FUJITSU.COM/](http://solutions.us.fujitsu.com/).
- THIS DISC CAN ONLY BE USED WITH THE SYSTEM WITH WHICH IT WAS PURCHASED.

### Procedure

To verify/change the boot-up priority (rather than booting-up from the hard drive or an external floppy disk drive), perform the following steps:

- 1** Power on your system. When the Fujitsu logo appears on the screen. press the [Enter] key or click on the left mouse or touchpad button; the SecureCore Menu will appear.
- 2** Select the **Boot Menu** from the SecureCore Menu.
- 3** Highlight the **CD/DVD** option.
- 4** Insert the Recovery and Utility Disc into the drive tray.
- 5** Click [OK]. While the files are being loaded from the disc, a progress bar will appear at the bottom of the screen.
- 6** When the Recovery and Utility screen appears, three tabs will be present: Diagnostics, Recovery, and Utility.

### Recovery and Utility tabs

**Diagnostics tab:** The Diagnostics tool is designed for use by IT professionals. It is not likely you will need to use this tool. When you select devices from the Diagnosis window then click [Execute], several tests are performed on the selected components.

**Recovery tab:** The Recovery tab contains the Start Recovery tool. Note that the recovery process erases all data from the C: drive. If you decide to use the recovery tool, be sure to back up all data that you don't want to lose. Also note that you must run the system using your AC adapter while running the recovery tool. To use the Recovery tool, select the Start Recovery function, click on the [Execute] button, then follow the instructions on the screen.

**Utility tab:** The Utility tab contains three tools: System Restore, Hard Disk Data Delete and Partition Creation.

- **System Restore** can help fix problems that might be making your computer run slowly or stop responding. System Restore enables you in rolling back the system to an earlier restore point, and does not affect any of your documents, pictures, or other personal data.
- The **Hard Disk Data Delete** utility is used to delete all data on the hard disk and prevent the data from being reused. **NOTE: 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 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.**

### 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.

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, you can either right-click on the FDU icon or hold the pen on the icon for a couple of seconds until the menu appears. 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.



- IN THE EVENT YOU DROP YOUR NOTEBOOK OR DAMAGE THE HOUSING IN ANY WAY, IMMEDIATELY TURN OFF POWER AND DISCONNECT THE POWER PLUG. FAILURE TO DO SO COULD RESULT IN A SHORT CIRCUIT, SMOKE, AND/OR FIRE. CONTACT FUJITSU SERVICE AND SUPPORT BY PHONE AT 1-800-8FUJITSU (1-800-838-5487), BY EMAIL AT 8FUJITSU@US.FUJITSU.COM, OR THROUGH THE WEBSITE AT [HTTP://WWW.COMPUTERS.US.FUJITSU.COM/SUPPORT](http://www.computers.us.fujitsu.com/support) TO LEARN HOW TO GET THE SYSTEM REPAIRED.
- THE SYSTEM CONTAINS COMPONENTS THAT CAN BE SEVERELY DAMAGED BY ELECTROSTATIC DISCHARGE (ESD). TO MINIMIZE RISK TO THE COMPONENTS, OBSERVE THE FOLLOWING PRECAUTIONS:
  - BEFORE DOCKING OR UNDOCKING YOUR LIFEBOOK NOTEBOOK (WHEN USING A PORT REPLICATOR), IT IS A GOOD PRACTICE TO ALWAYS TOUCH A GROUNDED METAL OBJECT TO DISCHARGE STATIC ELECTRICITY BUILT UP IN YOUR BODY.
  - 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 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.
  - 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 Fujitsu 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 LifeBook notebook in a briefcase, or any other carrying case, make sure that there are no objects in the case pressing on the lid.
- Never position your notebook such that the optical drive is supporting the weight of the notebook.

## **Cleaning your LifeBook notebook**

- Always disconnect the power plug. (Pull the plug, not the cord.)
- Clean your LifeBook notebook with a damp, lint-free cloth. Do not use abrasives or solvents.
- Use a soft cloth to remove dust from the screen. Never use glass cleaners.
- Always shut down the computer, unplug the power adapter, and remove the battery when cleaning or disinfecting the computer exterior, keyboard or LCD display.

NOTE: Avoid wetting the thermal suede in all cases.

## **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, use one of the following off-the-shelf products:

- Office Depot® #154-616 Notebook Cleaning Kit
- Meridrew Enterprises Klear\_Screen® Wipes

\* Applies to Tablet PC, convertible PC with LCD shield, and standard notebook LCD displays.

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, 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 13°F (-25°C) and 140°F (60°C).



- ALWAYS POWER OFF THE COMPUTER BEFORE TRANSPORTING AND/OR PACKAGING IT. AFTER SHUTTING DOWN THE SYSTEM, WAIT UNTIL THE STATUS LED PANEL INDICATES POWER OFF CONDITION (NO LIGHTS ARE ILLUMINATED).
- IT IS POSSIBLE THAT THE UNIT MAY NOT AUTOMATICALLY GO TO POWER OFF OR HIBERNATE MODE WHEN YOU CLOSE THE LID. THIS SITUATION MAY OCCUR DUE TO PRE-OS BOOT PASSWORD SECURITY SETTINGS OR SOME OTHER APPLICATION RUNNING ON THE COMPUTER.
- ATTEMPTING TO TRANSPORT THE COMPUTER WHILE POWER IS ON MAY DAMAGE THE NOTEBOOK DUE TO SHOCK OR OVERHEATING SINCE THE AIR VENTS MAY BE BLOCKED OR RESTRICTED.

## Traveling with your LifeBook notebook

- Do not transport your notebook while it is turned on.
- It is recommended that you carry your notebook with you while traveling, rather than checking it in as baggage.
- 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.
- 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.
- 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		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
	United Kingdom, Ireland, Malaysia, Singapore, parts of Africa		China, Australia, New Zealand

## Batteries

### Caring for your Batteries

- Always handle batteries carefully.
- Do not short-circuit the battery terminals (that is, do not touch both terminals with a metal object). Do not carry loose batteries in a pocket or purse where they may mix with coins, keys, or other metal objects. Doing so may cause an explosion or fire.
- Do not drop, puncture, disassemble, mutilate or incinerate the battery.
- Recharge batteries only as described in this manual and only in ventilated areas.
- Do not leave batteries in hot locations for more than a day or two. Intense heat can shorten 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.
- Limit your media drive access.
- Disable the Media Player auto insert notification function.
- Always use fully charged batteries.
- Eject ExpressCards when not in use.

## Media Care

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

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 or 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 Optical Drive

The optional optical drive is durable but you must treat it with care. 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 is damp, dusty, or will be exposed to extreme temperatures.
- 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 the drive.

## Chapter 6

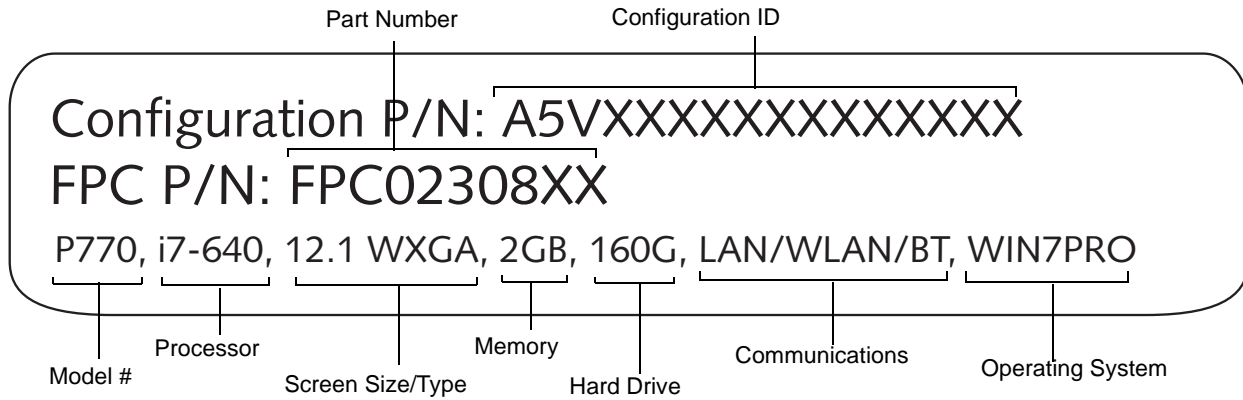
# System Specifications

## 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.



## Microprocessor

Intel® Core™ i7-640UM processor, 1.20 GHz

## Chipset

- Mobile Intel® QS57 Express

## Memory

### System Memory

- DDR3-800 MHz SDRAM (PC3-6400) dual-channel memory module.
- Two DIMM slots; one slot is fixed, one is upgradeable. System memory is upgradeable to 5 GB of total memory.

### Cache Memory

4 MB L2 cache on-die

## Video

Built-in color flat-panel LCD with LED backlighting with simultaneous display capability.

### Video Color and Resolution

12.1" Wide XGA display

- Internal: 1280 x 800 pixel resolution, 16M colors
- External: 1920 x 1200 pixel resolution, 16M colors
- Simultaneous: 1280 x 768 pixel resolution, 16M colors

### Video RAM

Intel® HD Graphics

## Audio

- Realtek codec ALC269 with High Definition (HD) audio.
- Headphones: Stereo headphone jack, 3.5 mm, 1 V<sub>rms</sub> or less, minimum impedance 32 Ohms
- **Microphone:** Stereo microphone jack, 3.5 mm, 100 mV<sub>p-p</sub> or less, minimum impedance 1K Ohms (AC) and 2K ohms (DC)
- Two built-in stereo speakers, 15 mm diameter
- One built-in analog microphone

## Mass Storage Device Options

### Hard Drives

- Serial ATA, 150 Mbps data buffer, 5400 rpm, 2.5", shock-mounted, or,
- 2.5" SATA MLC Solid State Drive (SSD). Capacity will vary, depending upon configuration.

## Media Player

Dual-Layer Multi-Format DVD Writer

## Features

### Integrated Pointing Device

Touchpad cursor control pad with left and right buttons, and fingerprint recognition/scroll sensor.

### Communications

- **Gigabit LAN:** Internal wired 10/100/1000 Gigabit Ethernet LAN with Intel Active Management Technology (iAMT)
- **WLAN:** Optional Integrated Intel Wireless Advanced-N 6200 (802.11 abgn), or, Atheros XSPAN 802.11 abgn
- **Bluetooth:** Optional Bluetooth device for wireless personal area network communication

### Trusted Platform Module

Trusted Platform Module (TPM) for added system security.

## **Theft Prevention Lock**

Lock slots for use with security restraint systems.

## **Device Ports**

### **On the LifeBook notebook:**

- ExpressCard slot
- Secure Digital (SD) Card slot
- One 15-pin D-SUB connector for VGA external video device (see Display specifications)
- Three USB 2.0 (Universal Serial Bus) connectors for input/output devices
- One DC In connector
- One LAN (RJ-45) connector
- One HDMI connector
- Docking port (50-pin, to dock with port replicator)
- One stereo headphone/line-out jack
- One stereo microphone/line-in jack
- Wireless LAN antenna with pre-installed on/off switch
- Optional 2.0 MP web camera

### **On the Optional Port Replicator:**

- One 15-pin D-SUB connector for VGA external video device
- Four USB 2.0 connectors for input/output devices
- One LAN (RJ-45) connector
- One eSATA port
- One DC-in connector
- One DVI-D connector



## **Keyboard**

Built-in keyboard with all functions of 101 key PS/2 compatible keyboards.

- Total number of keys: 82
- Function keys: F1 through F12, plus Fn extension key
- Two Windows keys: one Start key, one application key
- Key pitch: 18 mm; key stroke: 2.0 mm
- Left and right buttons
- External USB keyboard/mouse support

## **Power**

### **Batteries**

High capacity 6-cell Lithium ion battery, rechargeable, 10.8V, 5800 mAh

### **AC Adapter**

Autosensing 100-240V AC, supplying 19V DC, 3.16 A, 60W, to the LifeBook; includes an AC cable

### **Power Management**

Conforms to ACPI (Advanced Configuration and Power Interface).

## **Dimensions and Weight**

### **Overall Dimensions**

Approximately 11.1"(w) x 8.46"(d) x 1.18"(h) (282 mm x 215 mm x 29.9 mm)

### **Weight**

Approximately 2.9 lb (1.32 Kg) with 6-cell battery and optical drive

## **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](http://www.shopfujitsu.com) or call 1-800-FUJITSU.

## **Included Software**

Depending on your pre-installed operating system, your notebook comes with 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 software included with your system.

- Adobe Reader
- Norton Internet Security™ 2008 (90-day free trial)
- Google Tool Bar
- Google Picasa
- CyberLink PowerDVD
- CyberLink PowerDirector
- CyberLink MakeDisc (Windows XP models)
- CyberLink YouCam
- OmniPass Fingerprint application
- Fujitsu Driver Update utility

Depending upon the configuration of your system, one of the following packages will be installed:

- Microsoft Office Starter 2010 (32-bit) and Microsoft Windows Live Essentials, or,
- Microsoft Office Ready with Office Assistant

## 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 operating system and other pre-installed software. Any manuals that are not included, are available online 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

Adobe Reader lets you to view, navigate, and print PDF files from across all major computing platforms.

### Norton Internet Security

Your system is preinstalled with a free 90-day trial version of Norton Internet Security™. Internet Security is a suite of tools designed to protect your LifeBook notebook from computer viruses, hackers, spyware, and spam. It assists in the protection of 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.

### CyberLink PowerDVD

PowerDVD from CyberLink is a versatile DVD player software application. PowerDVD provides high-quality video and audio playback on your system.

## **CyberLink PowerDirector**

CyberLink PowerDirector allows you to edit and enhance your videos, and add special effects to them.

## **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.

## **CyberLink MakeDisc**

CyberLink MakeDisc allows you to burn data, videos and photographs to CDs or DVDs.

## **OmniPass Fingerprint application**

The fingerprint sensor uses Softex OmniPass which provides password management capabilities to Microsoft Windows operating systems. OmniPass lets you use a "master password" for all Windows, applications, and on-line passwords, and presents a convenient user interface through which you can securely manage passwords, users, and multiple identities for each user.

## **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 108.*

## **Microsoft software**

Depending upon your system configuration, your system is pre-installed with either Microsoft Starter 2010 and Microsoft Windows Live Essentials, or Microsoft Office Ready with Office Assistant, as described below.

### **Microsoft Office Starter 2010 (32-bit)**

Microsoft Office Starter 2010 includes reduced-functionality versions of Microsoft Word and Microsoft Excel that include advertising. Microsoft PowerPoint, Microsoft Outlook, and Microsoft Publisher are not included.

Customers must purchase an Office 2010 Disc, PKC (Product Key Card), or select one of the full Microsoft Office 2010 suites to activate full-featured Office software on the PC.

Fujitsu offers a PKC (Product Key Card) for Microsoft Office Home and Student 2010 and Microsoft Office Home and Business 2010 (32-bit). Simply enter your product key and you're ready to go! Another option is to purchase a full Office 2010 suite from either your computer reseller or online from Microsoft.

## **Microsoft Windows Live Essentials**

Windows Live Essentials is a suite of programs that makes it easier and more enjoyable to use your LifeBook. Live Essentials consists of six Live applications: Messenger, Photo Gallery, Writer, Mail, Movie Maker, and Silverlight. Messenger lets you communicate and interact with individuals and groups. Photo Gallery is a flexible application that lets you organize, edit, and share photos. Writer can be used to generate blog entries, upload videos and photos to your blogs, and publish your entries online. Mail makes it easy for you to manage your email accounts. Movie Maker makes great-looking movies and slide shows from your videos and photos. It's simple to import standard or high definition video and photos, and then have AutoMovie add animations, music, and a title in minutes. Silverlight powers rich application experiences and delivers high quality, interactive video across the Web and mobile devices.

## **Microsoft Office Ready with Office 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 "unlock" 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.

## **Operating System Options**

Depending upon your system, one of the following operating system configurations will be installed:

- **Microsoft Windows 7 Professional Edition**
- **Microsoft Windows XP Professional Edition**



# 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.

## **ADSL**

Asymmetric Digital Subscriber Line. Technology for transporting high bit-rate services over ordinary phone lines.

**AGP**

Accelerated Graphics Port. Graphics port specifically designed for graphics-intensive devices, such as video cards and 3D accelerators.

**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.

## **CMOS RAM**

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

## **COM Port**

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

## **Command**

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

## **Configuration**

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



**CRT**

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

**Data**

The information a system stores and processes.

**DC**

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

**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.

**Diskette**

A floppy disk in a hard housing with a shutter.

**DMA**

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

**DMI**

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

**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**

Electro-Static Discharge. The sudden discharge of electricity from a static charge which has built-up slowly.

**FCC**

Federal Communication Commission.

**Floppy Disk**

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

**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 control interface for a hard drive which is inside the hard drive unit.

**IEEE802.11a**

Wireless LAN standard that supports a maximum data rate of 54 Mbps. 802.11a devices operate in the 5 GHz lower and middle UNII bands.

**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.

**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.

**LPT Port**

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

**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.

**PCMCIA**

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

**Peripheral Device**

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

**Pitch (keyboard)**

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

**Pixel**

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

**POST**

Power On Self Test. A program which is part of the BIOS which checks the configuration and operating condition of your hardware whenever power is applied to your 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.

## **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.

## **Sleep**

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. On your LifeBook notebook this is an LCD screen just above the keyboard.

**Stereo (audio)**

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

**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.

**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.

**TFT**

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

**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](http://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 Règlement sur le matériel brouilleur du Canada.



# Appendix A: WLAN User's Guide

---

## **FC** 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.

### **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, Inc. 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 Optional Wireless LAN

This manual describes the procedures required to properly set up and configure the optional 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 one of the following devices:

- Integrated Intel Wireless Advanced-N 6200 (802.11 abgn)
- Atheros XSPAN 802.11 abgn

### Characteristics of the WLAN Device

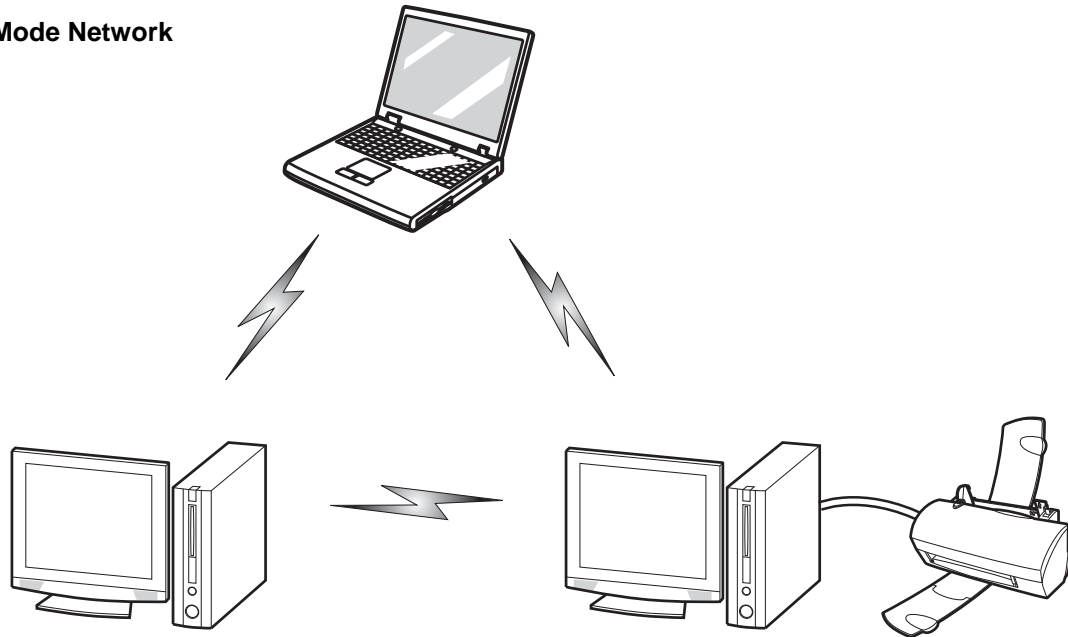
- The WLAN device is a Mini-PCI card attached to the main board of the mobile computer.
- The WLAN device operates in license-free RF bands, eliminating the need to procure an FCC operating license. The WLAN operates in the 2.4GHz Industrial, Scientific, and Medical (ISM) RF band and the lower, middle, and upper bands of the 5GHz Unlicensed National Information Infrastructure (UNII) bands.
- The WLAN devices are capable of four operating modes, IEEE802.11a, IEEE802.11b, IEEE802.11g, and IEEE802.11n.
- The WLAN device is Wi-Fi certified and operates at a the maximum data rate of 300 Mbps in IEEE802.11n mode; 54 Mbps in IEEE802.11a or 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 WLAN device is compliant with the following standards: WPA, WPA2, CCX1.0, CCX2.0, CCX3.0, CX4.0.

## 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.

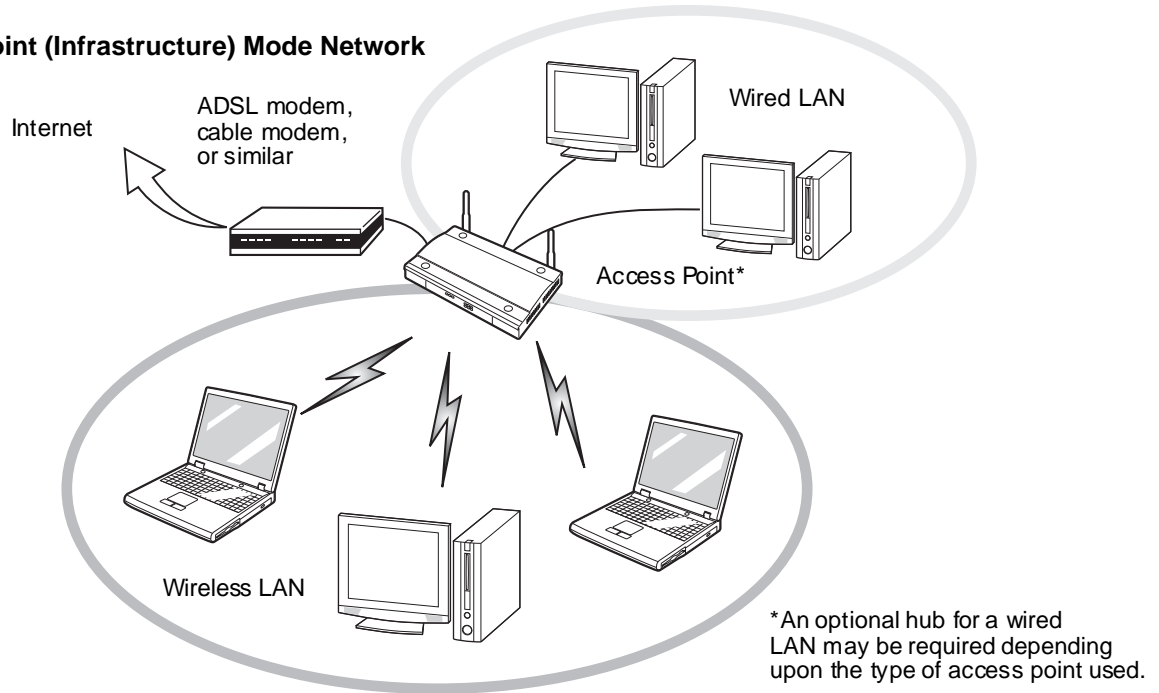
**Ad Hoc Mode Network**



## 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).

### Access Point (Infrastructure) Mode Network



## How to Handle This Device

The WLAN device is an optional device that may come 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.

## Wireless Network Considerations

- Intel Wireless Advanced-N 6200 (622 ANHMMW) and Atheros xSPAN 802.11abgn devices support IEEE802.11a, IEEE802.11b, IEEE802.11g, and IEEE802.11n.
- The devices operate in the 2.4GHz ISM band and the 5 GHz lower and middle UNII bands.
- The maximum range of the WLAN device indoors is typically 80 feet (25 meters). Please note that the maximum range you achieve may be shorter or longer than 80 feet, depending on factors such as access point transmit power, number and density of obstructions, or external RF interference.
- Microwave ovens will interfere with the operation of WLAN device as microwave ovens operate in the same 2.4GHz frequency range that IEEE802.11b/g devices operate in. Interference by microwaves does not occur with IEEE802.11a radio which operates in the 5 GHz RF band.
- Wireless devices that transmit in the 2.4 GHz frequency range may interfere with the operation of WLAN devices in IEEE802.11b/g modes. Interference symptoms include reduced throughput, intermittent disconnects, and large amounts of frame errors. It is HIGHLY recommended that interfering devices be powered off to ensure proper operation of the WLAN

## Deactivating the WLAN Device

Deactivation of 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.). Fujitsu mobile computers employ three methods with which to deactivate the WLAN device:

- Using the Wireless On/Off Switch, or,
- In Windows 7, using the **WLAN** icon in the taskbar, or,
- In Windows XP, using the Intel PROSet Software (Intel WLAN device) or Atheros Client Utility (Atheros WLAN device).

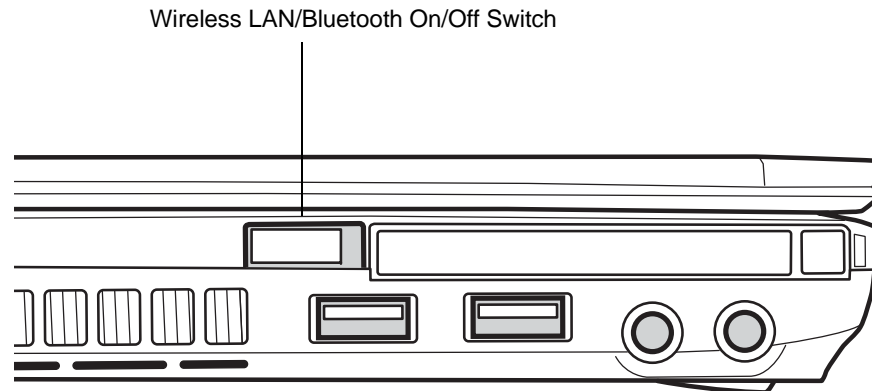
## Deactivation using the Wireless On/Off Switch

The WLAN device can be deactivated quickly and efficiently by toggling the Wireless On/Off Switch to the Off position. The Wireless LAN/Bluetooth On/Off switch has no effect on systems without wireless devices.

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 Control Panel, double-click the **Fujitsu Radio Control** icon.
- 3 In the window that appears, click the button associated with Bluetooth and/or Wireless LAN Status to enable or disable the individual devices.
- 4 Click [OK].



**Figure 39. Wireless LAN/Bluetooth Switch**

## **Windows 7: Deactivation using the icon in the taskbar**

Right-click the **WLAN** icon in the system tray at the bottom right of your screen. Choose Disconnect from a network.

## **Windows XP: Deactivation using the Intel PROSet Software**

The WLAN device can also be deactivated in Windows using the Intel PROSet Software. The procedure to accomplish this:

- 1** Click [Start] > **All Programs**.
- 2** Select Intel ProSet Wireless, then click on Intel ProSet Wireless from the menu that appears. The Intel ProSet Wireless utility will be displayed.
- 3** At the bottom left corner of the window, select Wireless Off from the dropdown list.

## **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
- In Windows XP, using either the Intel PROSet Software (Intel device) or Atheros Client Utility (Atheros device).
- In Windows 7, by right-clicking the **WLAN** icon then clicking “Connect to a network”



# Configuring the Wireless LAN

The optional 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 7

- 1 Click the Start button, then select Control Panel.
- 2 If the Control Panel is not in icon view, select either Large or Small icons from the View by: list. Click the **Network and Sharing Center** icon.
- 3 Select “Manage wireless networks” from the left panel.
- 4 Click on the [Add] button.
- 5 Depending upon what type of connection you would like to make, make a selection. For an infrastructure network, select “Manually create a network profile. For ad hoc network, select “Create an ad hoc network”.
- 6 Enter the required information. It may be necessary to consult with your network administrator for some of the information.
- 7 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.

## Configuring the WLAN Using Windows XP

### Procedure

- 1 Click the Start button, then select Settings -> Control Panel.
- 2 Double-click on the **Wireless Network Connection** icon.
- 3 Choose a wireless network.
- 4 Click [Connect].
- 5 Enter the Network Key, if required.
- 6 Enter any required information. It may be necessary to consult with your network administrator for some of the information.
- 7 In the event you require assistance, go to [Start] > **Help and Support** > **Networking and the Web**. Select the main topic in which you are interested, then type in relevant keywords in the Search box.

### Connection to the network

After you have configured your computer, you can connect to an active network by clicking on the **Wireless Network** icon in the system tray:

# 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	<p><b>Ad hoc connection:</b> 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.</p> <p><b>Access Point (Infrastructure) connection:</b> set network name (SSID) and network key to the same values as those of the access point.</p> <p>Set the Network Authentication value identically to that of the Access Point. Consult your network administrator for this value, if necessary.</p>
	Weak received signal strength and/or link quality	<p>Ad hoc connection: Retry connection after shortening the distance to the destination computer or removing any obstacles for better sight.</p> <p>Access Point (Infrastructure) connection: Retry connection after shortening the distance to the access point or removing any obstacles for better sight.</p>
	The WLAN device has been deactivated or disabled	<p>Check if the wireless switch is turned On. In Windows XP, go to [Start] &gt; <b>Control Panel</b>&gt; <b>Network Connections</b> and right-click on <b>Wireless Network Connection</b>. If <b>Enable</b> appears at the top of the menu, click it to enable the device. In Windows 7, go to [Start] &gt; <b>Control Panel</b>, and double-click on <b>Windows Mobility Center</b>. If the wireless network is off, click the [Turn wireless on] button.</p>

<b>Problem</b>	<b>Possible Cause</b>	<b>Possible Solution</b>
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 Intel Wireless Advanced-N 6200 (622 ANHMMW) and Atheros XSPAN 802.11abgn WLAN devices conform to IEEE 802.11a, 802.11b/g, and 802.11n, Wi-Fi based*.
Transfer rate	(Automatic switching) 300 Mbps maximum data rate
Active frequency	<ul style="list-style-type: none"><li>• 802.11n: 2.4 GHz or 5 GHz</li><li>• 802.11b/g: 2400~2473 MHz</li><li>• 802.11a: 4900 ~ 5850 MHz</li></ul>
Typical operating distances**	<ul style="list-style-type: none"><li>• 802.11a: 40 ft. (12 m) @ 54 Mbps; 300 ft. (91 m) @ 6 Mbps</li><li>• 802.11b: 100 ft. (30 m) @ 11 Mbps; 300 ft. (91 m) @ 1 Mbps</li><li>• 802.11g: 100 ft. (30 m) @ 54 Mbps; 300 ft. (91 m) @ 1 Mbps</li><li>• 802.11n: Estimated double the operating distance of 802.11g and 802.11a in their respective frequencies.</li></ul>
Number of channels	<ul style="list-style-type: none"><li>• 802.11a: 12 independent channels</li><li>• 802.11b/g: 11 channels, 3 non-overlapping channels</li><li>• 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</li></ul>
Security	<ul style="list-style-type: none"><li>• Encryption Types - WEP, TKIP, AES***; WPA 1.0 compliant</li><li>• Encryption Keylengths Supported: 64 bits and 128 bits; 802.1x/EAP</li></ul>
Maximum recommended number of computers to be connected over wireless LAN (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 (EYSMJCSFX) 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 Control Panel, click the button associated with Bluetooth and/or Wireless LAN Status to enable or disable the individual devices.
- 3 Click [OK].

### Where to Find Information About Bluetooth

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

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

Windows 7: 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](http://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 on the front edge of the right palm rest 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.

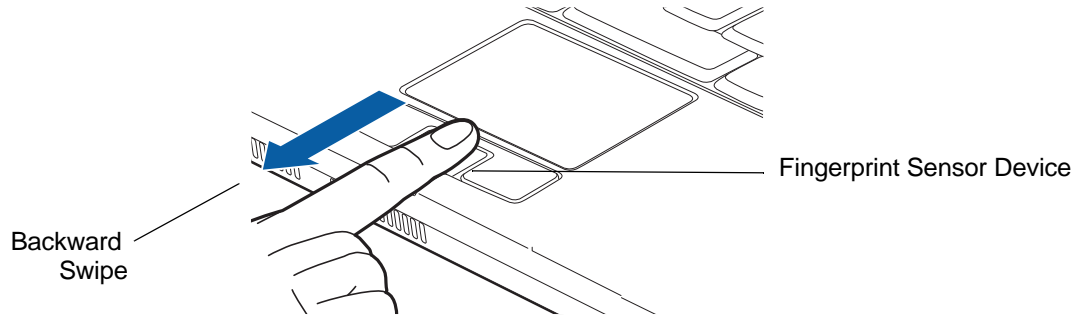
This equipment may not be modified, altered, or changed in any way without signed written permission from Fujitsu. Unauthorized modification will void the equipment authorization from the FCC and Industry Canada and the warranty.



# Appendix B: Fingerprint Sensor Device

## Introducing the Fingerprint Sensor Device

Your system has a fingerprint sensor device between the left and right buttons, below the touchpad.



**Figure 40. Fingerprint sensor**

With a fingerprint sensor, you can avoid having to enter a username and password every time you want to:

- Log onto Windows
- Resume from sleep mode
- Cancel a password-protected screen saver
- Log into websites that require a username and password

After you have “enrolled” - or registered - your fingerprint, you can simply swipe your fingertip over the sensor for the system recognize you.

The fingerprint sensor uses Softex OmniPass which provides password management capabilities to Microsoft Windows operating systems. OmniPass enables you to use a "master password" for all Windows, applications, and on-line passwords.

OmniPass requires users to authenticate themselves using the fingerprint sensor before granting access to the Windows desktop. This device results in a secure authentication system for restricting access to your computer, applications, web sites, and other password-protected resources.

OmniPass presents a convenient graphical user interface, through which you can securely manage passwords, users, and multiple identities for each user.

## Getting Started

This section guides you through the preparation of your system for the OmniPass fingerprint recognition application. You will be led through the OmniPass installation process. You will also be led through the procedure of enrolling your first user into OmniPass.

## Installing OmniPass

If OmniPass has already been installed on your system, skip this section and go directly to “*User Enrollment*” on page 164. You can determine whether OmniPass has already been installed by checking to see if the following are present:

- The gold key-shaped **OmniPass** icon in the system tray at the bottom right of the screen.
- The Softex program group in the **Programs** group of the **Start** menu

## System Requirements

The OmniPass application requires space on your hard drive; it also requires specific Operating Systems (OS's). The minimum requirements are as follows:

- Windows XP Professional operating system
- At least 35 MB available hard disk space

## Installing the OmniPass Application

If OmniPass is already installed on your system, go to “*User Enrollment*” on page 164. Otherwise continue with this section on software installation.



- INSTALLATION OF THE APPLICATION REQUIRES THAT YOU HAVE AN EXTERNAL OPTICAL DRIVE ATTACHED TO YOUR SYSTEM.
- FOR INSTALLATION, OMNIPASS REQUIRES THAT THE USER INSTALLING OMNIPASS HAVE ADMINISTRATIVE PRIVILEGES TO THE SYSTEM. IF YOUR CURRENT USER DOES NOT HAVE ADMINISTRATIVE PRIVILEGES, LOG OUT AND THEN LOG IN WITH AN ADMINISTRATOR USER BEFORE PROCEEDING WITH OMNIPASS INSTALLATION.

To install OmniPass on your system you must:

- 1 Insert the installation media for the OmniPass application into the appropriate drive. If you are installing from CD-ROM or DVD-ROM, you must find and launch the OmniPass installation program (setup.exe) from the media.
- 2 Follow the directions provided in the OmniPass installation program. Specify a location to which you would like OmniPass installed. It is recommended that you NOT install OmniPass in the root directory (e.g. C:\).
- 3 Once OmniPass has completed installation you will be prompted to restart your system. Once your system has rebooted you will be able to use OmniPass. If you choose not to restart immediately after installation, OmniPass will not be available for use until the next reboot.
- 4 The installation program automatically places an icon (Softex OmniPass) in the Windows Control Panel as well as a golden key shaped icon in the taskbar.

### Verifying Information about OmniPass

After you have completed installing OmniPass and restarted your system, you may wish to check the version of OmniPass on your system.

To check the version information of OmniPass:

- 1 From the Windows Desktop, double-click the key-shaped OmniPass icon in the taskbar (usually located in the lower right corner of the screen),  
or,  
Click the **Start** button, select **Settings**, and click **Control Panel** (if you are using Windows XP you will see the

Control Panel directly in the **Start** menu; click it, then click **Switch to Classic View**). Double-click **Softex OmniPass** in the Control Panel, and the OmniPass Control Center will appear. If it does not appear, then the program is not properly installed,

or,

Click the **Start** button, select **Programs**, and from the submenu select the **Softex** program group, from that submenu click **OmniPass Control Center**.

- 2 Select the **About** tab at the top of the OmniPass Control Panel. The **About** tab window appears with version information about OmniPass.

## Uninstalling OmniPass



FOR UNINSTALLATION, OMNIPASS REQUIRES THAT THE USER UNINSTALLING OMNIPASS HAVE ADMINISTRATIVE PRIVILEGES TO THE SYSTEM. IF YOUR CURRENT USER DOES NOT HAVE ADMINISTRATIVE PRIVILEGES, LOG OUT AND THEN LOG IN WITH AN ADMINISTRATOR USER BEFORE PROCEEDING WITH OMNIPASS UNINSTALLATION.

To remove the OmniPass application from your system:

- 1 Click **Start** on the Windows taskbar. Select **Settings**, and then **Control Panel**.
- 2 Double-click **Add/Remove Programs**.
- 3 Select **OmniPass**, and then click **Change/Remove**.
- 4 Follow the directions to uninstall the OmniPass application.
- 5 Once OmniPass has finished uninstalling, reboot your system when prompted.

## User Enrollment

Before you can use any OmniPass features you must first enroll a user into OmniPass.

## Master Password Concept

Computer resources are often protected with passwords. Whether you are logging into your computer, accessing email, e-banking, paying bills online, or accessing network resources, you often have to supply credentials to gain access. This can result in dozens of sets of credentials that you have to remember.

During user enrollment a "master password" is created for the enrolled user. This master password "replaces" all other passwords for sites you register with OmniPass.

**Example:** A user, John, installs OmniPass on his system (his home computer) and enrolls an OmniPass user with username "John\_01" and password "freq14". He then goes to his webmail site to log onto his account. He inputs his webmail credentials as usual (username "John\_02" and password "lifebook"), but instead of clicking [Submit], he directs OmniPass to **Remember Password**. Now whenever he returns to that site, OmniPass will prompt him to supply access credentials.

John enters his OmniPass user credentials ("John\_01" and "freq14") in the OmniPass authentication prompt, and he is allowed into his webmail account. He can do this with as many web sites or password protected resources he likes, and he will gain access to all those sites with his OmniPass user credentials ("John\_01" and "freq14"). This is assuming he is accessing those sites with the system onto which he enrolled his OmniPass user. OmniPass does not actually change the credentials of the password protected resource. If John were to go to another computer without he OmniPass account to access his webmail, he would need to enter his original credentials ("John\_02" and "lifebook") to gain access. If he attempts his OmniPass user credentials on a system other than a system he's enrolled on, he will not gain access.



THE ENROLLMENT PROCEDURE ASSUMES YOU HAVE NO HARDWARE AUTHENTICATION DEVICES OR ALTERNATE STORAGE LOCATIONS THAT YOU WISH TO INTEGRATE WITH OMNIPASS. IF YOU DESIRE SUCH FUNCTIONALITY, CONSULT THE APPROPRIATE SECTIONS OF THIS DOCUMENT.

## Basic Enrollment

The Enrollment Wizard will guide you through the process of enrolling a user. Unless you specified otherwise, after OmniPass installation the Enrollment Wizard will launch on Windows login. If you do not see the Enrollment Wizard, you can bring it up by clicking **Start** on the Windows taskbar; select **Programs**; select **Softex**; click **OmniPass Enrollment Wizard**.

- 1 Click **Enroll** to proceed to username and password verification. By default, the OmniPass Enrollment Wizard enters the credentials of the currently logged in Windows user.

- 2 Enter the password you use to log in to Windows. This will become the “master password” for this OmniPass user. In most cases, the **Domain:** value will be your Windows computer name. In a corporate environment, or when accessing corporate resources, the **Domain:** may not be your Windows computer name. Click [Next] to continue.
- 3 In this step OmniPass captures your fingerprint. Refer to “*Enrolling a Fingerprint*” on page 166 for additional information.
- 4 Next, choose how OmniPass notifies you of various events. We recommend you keep **Taskbar Tips** on **Beginner mode taskbar tips** and **Audio Tips** on at least **Prompt with system beeps only** until you get accustomed to how OmniPass operates. Click [Next] to proceed with user enrollment. You will then see a Congratulations screen indicating your completion of user enrollment.
- 5 Click [Done] to exit the OmniPass Enrollment Wizard. You will be asked if you’d like to log in to OmniPass with your newly enrolled user; click [Yes].

## Enrolling a Fingerprint

Enrolling a fingerprint will increase the security of your system and streamline the authentication procedure.

You enroll fingerprints in the OmniPass Control Center. With an OmniPass user logged in, double-click the system tray OmniPass icon. Select the **User Settings** tab and click **Enrollment** under the **User Settings** area. Click **Enroll Authentication Device** and authenticate at the authentication prompt to start device enrollment.

- 1 During initial user enrollment, you will be prompted to select the finger you wish to enroll. Fingers that have already been enrolled will be marked by a green check. The finger you select to enroll at this time will be marked by a red arrow. OmniPass will allow you re-enroll a finger. If you choose a finger that has already been enrolled and continue enrollment, OmniPass will enroll the fingerprint, overwriting the old fingerprint. Select a finger to enroll and click [Next].
- 2 It is now time for OmniPass to capture your selected fingerprint. It may take a several capture attempts before OmniPass acquires your fingerprint. Should OmniPass fail to acquire your fingerprint, or if the capture screen times out, click [Back] to restart the fingerprint enrollment process.

Your system has a “swipe” fingerprint sensor. A swipe sensor is small and resembles a skinny elongated

rectangle. To capture a fingerprint, gently swipe or pull your fingertip over the sensor (starting at the second knuckle) **towards yourself**. Swiping too fast or too slow will result in a failed capture. The **Choose Finger** screen has a [Practice] button; click it to practice capturing your fingerprint. When you are comfortable with how your fingerprint is captured, proceed to enroll a finger.

- 3 Once OmniPass has successfully acquired the fingerprint, the **Verify Fingerprint** screen will automatically appear. To verify your enrolled fingerprint, place your fingertip on the sensor and hold it there as if you were having a fingerprint captured. Successful fingerprint verification will show a green fingerprint in the capture window and the text **Verification Successful** under the capture window.

## Using OmniPass

You are now ready to begin using OmniPass. Used regularly, OmniPass will streamline your authentications.

### Password Replacement

You will often use the password replacement function. When you go to a restricted access website (e.g., your bank, your web-based email, online auction or payment sites), you are always prompted to enter your login credentials. OmniPass can detect these prompts and you can teach OmniPass your login credentials. The next time you go to that website, you can authenticate with your fingerprint to gain access.

### OmniPass Authentication Toolbar

After installing OmniPass and restarting, you will notice a dialog you have not seen before at Windows Logon. This is the OmniPass Authentication Toolbar, and it is displayed whenever the OmniPass authentication system is invoked. The OmniPass authentication system may be invoked during Windows Logon, during OmniPass Logon, when unlocking your workstation, when resuming from hibernate or sleep, when unlocking a password-enabled screensaver, during password replacement for site or application logins, and more. When you see this toolbar, OmniPass is prompting you to authenticate.

The **Logon Authentication** window indicates what OmniPass-restricted function you are attempting. Icons in the lower left (fingerprint and key) show what authentication methods are available to you. Selected methods are highlighted while unselected methods are not. When you click the icon for an unselected authentication method, the authentication prompt associated with that method is displayed.

When prompted to authenticate, you must supply the appropriate credentials: an enrolled finger for the fingerprint capture window or your master password for the master password prompt (the key icon).

### **Remembering a Password**

OmniPass can remember any application, GUI, or password protected resource that has a password prompt.

Using the following procedure, you can store a set of credentials into OmniPass. These credentials will then be linked to your “master password” or fingerprint.

Go to a site that requires a login (username and password), but *do not log in yet*. At the site login prompt, enter your username and password in the prompted fields, but *do not enter the site* (do not hit [Enter], [Submit], [OK], or Login). Right-click the OmniPass system tray icon and select **Remember Password** from the submenu. The Windows arrow cursor will change to a golden key OmniPass cursor. Click the OmniPass cursor in the login prompt area, but don’t click [Login] or [Submit].

### **Associating a Friendly Name**

After clicking the OmniPass key cursor near the login prompt, OmniPass will prompt you to enter a “friendly name” for this site. You should enter something that reminds you of the website, the company, or the service you are logging into. In its secure database, OmniPass associates this friendly name with this website.

### **Additional Settings for Remembering a Site**

When OmniPass prompts you to enter a “friendly name” you also have the opportunity to set how OmniPass authenticates you to this site. There are three effective settings for how OmniPass handles a remembered site.

The default setting is **Automatically click the “OK” or “Submit” button for this password protected site once the user is authenticated**. With this setting, each time you navigate to this site OmniPass will prompt you for your master password or fingerprint authentication device. Once you have authenticated with OmniPass, you will automatically be logged into the site.



Less secure is the option to **Automatically enter this password protected site when it is activated. Do not prompt for authentication.** Check the upper box to get this setting, and each time you navigate to this site OmniPass will log you into the site without prompting you to authenticate.



THIS SETTING IS MORE CONVENIENT IN THAT WHENEVER YOU GO TO A SITE REMEMBERED WITH THIS SETTING, YOU WILL BYPASS ANY AUTHENTICATION PROCEDURE AND GAIN INSTANT ACCESS TO THE SITE. BUT SHOULD YOU LEAVE YOUR SYSTEM UNATTENDED WITH YOUR OMNIPASS USER LOGGED IN, ANYONE USING YOUR SYSTEM CAN BROWSE TO YOUR PASSWORD PROTECTED SITES AND GAIN AUTOMATIC ACCESS.

If you uncheck both boxes in **Settings for this Password Site**, OmniPass will prompt you for your master password or fingerprint authentication device. Once you have authenticated with OmniPass your credentials will be filled in to the site login prompt, but you will have to click the website [OK], [Submit], or [Login] button to gain access to the site.

Click **Finish** to complete the remember password procedure. The site location, the credentials to access the site, and the OmniPass authentication settings for the site are now stored in the OmniPass secure database. The OmniPass authentication settings (**Settings for this Password Site**) can always be changed in **Vault Management**.

### **Logging in to a Remembered Site**

Whether or not OmniPass prompts you to authenticate when you return to a remembered site is determined by **Settings for this Password Site** and can be changed in **Vault Management**.

The following cases are applicable to using OmniPass to login to: Windows, remembered web sites, and all other password protected resources.

### **With Master Password**

Once you return to a site you have remembered with OmniPass, you may be presented with a master password prompt. Enter your master password and you will be allowed into the site.

## Logging into Windows with a Fingerprint Device

When logging into Windows with a fingerprint device, the fingerprint capture window will now appear next to the Windows Login screen. Place your enrolled fingertip on the sensor to authenticate. You will be simultaneously logged into Windows and OmniPass. The capture window will also appear if you have used **Ctrl-Alt-Del** to lock a system, and the fingerprint device can be used to log back in as stated above.



IF A MACHINE IS LOCKED AND OMNIPASS DETECTS A DIFFERENT USER LOGGING BACK IN WITH A FINGERPRINT, THE FIRST USER WILL BE LOGGED OUT AND THE SECOND USER LOGGED IN.

In Windows XP, your login options must be set either for classic login, or for fast user switching and logon screen to be enabled to use your fingerprint to log on to Windows. To change this go to **Control Panel**, select **User Accounts** and then click **Change the way users log on or off**. If your Windows screensaver is password protected, the fingerprint capture window will now appear next to screensaver password dialog during resume. You can authenticate to your screensaver password prompt with your enrolled finger.

### Password Management

OmniPass provides an interface that lets you manage your passwords. To access this GUI, double-click the OmniPass key in the system tray. Click **Vault Management**; you will be prompted to authenticate. Once you gain access to **Vault Management**, click **Manage Passwords** under **Vault Settings**. You will see the **Manage Passwords** interface, with a list of friendly names.

You can view the credentials stored for any remembered website by highlighting the desired resource under **Password Protected Dialog** and clicking **Unmask Values**. Should a password be reset, or an account expire, you can remove stored credentials from OmniPass. Highlight the desired resource under **Password Protected Dialog** and click **Delete Page**. You will be prompted to confirm the password deletion.

The two check boxes in **Manage Passwords** govern whether OmniPass prompts you to authenticate or directly logs you into the remembered site.

OmniPass will overwrite an old set of credentials for a website if you attempt to use **Remember Password** on an already remembered site.

The exception to the above rule is when resetting the Windows password. If your password is reset in Windows, the next time you login to Windows, OmniPass will detect the password change and prompt you to “Update” or “Reconfirm” the password with OmniPass. Enter your new Windows password in the prompt and click **OK**. Your OmniPass "master password" will still be your Windows password.

### **OmniPass User Identities**

Identities allow OmniPass users to have multiple accounts to the same site (e.g., *bob@biblomail.com* and *boballen@biblomail.com*). If OmniPass did not provide you identities, you would be limited to remembering one account per site.

To create and manage identities, double-click the OmniPass key in the system tray. Click **Vault Management**; OmniPass will prompt you to authenticate. Once you gain access to **Vault Management**, click **Manage Identities** under **Vault Settings**. You can only manage the identities of the currently logged in OmniPass user

To add a new identity, click **New Identity** or double-click **Click here to add a new identity**. Name the new identity and click [OK], then click [Apply]. You can now switch to the new identity and start remembering passwords.

To delete an identity, highlight the identity you want to delete and click [Delete Identity], then click [Apply].



WHEN YOU DELETE AN IDENTITY, ALL OF ITS ASSOCIATED REMEMBERED SITES AND PASSWORD PROTECTED DIALOGS ARE LOST.

To set the default identity, highlight the identity you want as default and click [Set as Default]; click [Apply] to ensure the settings are saved. If you log in to OmniPass with a fingerprint device, you will automatically be logged in to the default identity for that OmniPass user. You can choose the identity with which you are logging in if you login using "master password".

### Choosing User Identity during Login

To choose your identity during login, type your username in the **User Name:** field. Press [Tab] and see that the **Domain:** field self-populates. Click the **Password:** field to bring the cursor to it, and you will see the pull-down menu in the **Identity:** field. Select the identity to login as, then click **OK**.

### Switch User Identity

To switch identities at any time, right-click the OmniPass system tray icon and click **Switch User Identity** from the submenu. The **Switch Identity** dialog will appear. Select the desired identity and then click **OK**.

### Identities and Password Management

On the **Manage Passwords** interface of the **Vault Management** tab of the OmniPass Control Center, there is a pull-down selection box labeled, **Identity**. This field lets you choose which identity you are managing passwords for. When you select an identity here, only those password protected dialogs that are associated with that identity are shown. You can perform all the functions explained in "*Password Management*" on page 170.

## Configuring OmniPass

This section gives an overview of both the Export/Import function and the OmniPass Control Center.

### Exporting and Importing Users



YOU CANNOT IMPORT A USER INTO OMNIPASS IF THERE ALREADY IS A USER WITH THE SAME NAME ENROLLED IN OMNIPASS.

Using OmniPass Control Center, you can export and import users in and out of OmniPass. The export process backs up all remembered sites, credentials, and enrolled fingerprints for an OmniPass user. All OmniPass data for a user is backed up to a single encrypted database file. During the import process, the Windows login of the exported user is required. If the proper credentials cannot be supplied, the user profile will not be imported.



- YOU SHOULD PERIODICALLY EXPORT YOUR USER PROFILE AND STORE IT IN A SAFE PLACE. IF ANYTHING HAPPENS TO YOUR SYSTEM, YOU CAN IMPORT YOUR OMNIPASS PROFILE TO A NEW SYSTEM AND HAVE ALL YOUR REMEMBERED SETTINGS AND FINGERPRINTS INSTANTLY.
- YOU DON'T FORGET THE WINDOWS LOGIN CREDENTIALS WHEN EXPORTING. WHEN YOU EXAMINE THE IMPORTATION, YOU ARE PROMPTED FOR AUTHENTICATION. THE CREDENTIALS THAT WILL ALLOW A USER PROFILE TO BE IMPORTED ARE THE WINDOWS LOGIN CREDENTIALS OF THE EXPORTED USER. THEY ARE THE CREDENTIALS THAT HAD TO BE SUBMITTED WHEN THE USER PROFILE WAS EXPORTED. YOU WILL NEED USER NAME, PASSWORD, AND DOMAIN.

### Exporting an OmniPass User Profile

To export a user, open the OmniPass Control Center, and click **Import/Export User** under **Manage Users**.

Click **Exports an OmniPass user profile**. OmniPass will prompt you to authenticate. Upon successfully authentication, you must name the OmniPass user profile and decide where to save it. An .opi file is generated, and you should store a copy of it in a safe place.

This .opi file contains all your user specific OmniPass data, and it is both encrypted and password protected. This user profile does NOT contain any of your encrypted data files.

### Importing an OmniPass User Profile

To import an OmniPass user open the OmniPass Control Center, and click **Import/Export User** under **Manage Users**. Click **Imports** a new user into OmniPass and then select **OmniPass Import/Export File (\*.opi)** and click **Next**. OmniPass will then prompt you to browse for the file you had previously exported (.opi file). When you select the .opi file for importation, OmniPass will prompt you for authentication. The credentials that will allow a user profile to be imported are the Windows login credentials of the

exported user. They are the credentials that had to be submitted when the user profile was exported. You will need User Name, Password, and Domain. If you don't remember the value for Domain, in a PC or SOHO environment Domain should be your computer name.

OmniPass will notify you if the user was successfully imported.

### Things to Know Regarding Import/Export

- Assume you export a local Windows User profile from OmniPass. You want to import that profile to another machine that has OmniPass. Before you can import the profile, a Windows user with the same login credentials must be created on the machine importing the profile.

**Example:** I have a Windows user with the username “Tom” and the password “Sunshine” on my system. I have enrolled Tom into OmniPass and remembered passwords. I want to take all my passwords to new system. I export Tom’s OmniPass user profile. I go to my new system and using the Control Panel I create a user with the username "Tom" and the password "Sunshine". I can now successfully import the OmniPass user data to the new system.

- If you export an OmniPass-only user, you can import that user to any computer running OmniPass, provided that a user with that name is not already enrolled in OmniPass.
- If you attempt to import a user profile who has the same name as a user already enrolled in OmniPass, the OmniPass import function will fail.

### OmniPass Control Center

This section will serve to explain functions within the OmniPass Control Center that weren't explained earlier.

You can access the OmniPass Control Center any of three ways:

- Double-click the golden OmniPass key shaped icon in the Windows taskbar (typically in the lower-right corner of the desktop)
- Click the **Start** button; select the **Programs** group; select the **Softex** program group; and click the **OmniPass Control Center** selection.

- Open the Windows **Control Panel** (accessible via **Start** button > **Settings** > **Control Panel**) and double-click the **Softex OmniPass** icon.

## User Management

The **User Management** tab has two major interfaces: **Add/Remove User** and **Import/Export User**. Import/Export User functionality is documented in “*Exporting and Importing Users*” on page 172. Add/Remove User functionality is straightforward.

If you click **Adds a new user to OmniPass** you will start the OmniPass Enrollment Wizard. The Enrollment Wizard is documented in “*User Enrollment*” on page 164.

If you click **Removes a user from OmniPass**, OmniPass will prompt you to authenticate. Authenticate with the credentials (or enrolled fingerprint) of the user you wish to remove. OmniPass will prompt you to confirm user removal. Click **OK** to complete user removal.



REMOVING A USER WILL AUTOMATICALLY DESTROY ALL OMNIPASS DATA ASSOCIATED WITH THAT USER. ALL IDENTITIES AND CREDENTIALS ASSOCIATED WITH THE USER WILL BE LOST.

IF YOU'RE SURE YOU WANT TO REMOVE THE USER, WE RECOMMEND YOU EXPORT THE USER PROFILE.

## User Settings

The **User Settings** tab has four interfaces: **Audio Settings**, **Taskbar Tips**, and **Enrollment**. User settings allow users to customize OmniPass to suit their individual preferences. Under **User Settings (Audio Settings and Taskbar Tips)** you can set how OmniPass notifies the user of OmniPass events (e.g., successful login, access denied, etc.). The details of each setting under the **Audio Settings** and **Taskbar Tips** interfaces are self-explanatory.

The **Enrollment** interface allows you to enroll fingerprints. For the procedure to enroll and authentication device refer to *Chapter 2.3*. To enroll additional fingerprints, click **Enroll Authentication Device**, and authenticate with OmniPass. Select the fingerprint recognition device in the **Select Authentication Device** screen (it should already be marked by a green check if you have a finger enrolled) and click **Next**.

## System Settings

The OmniPass **Startup Options** interface can be found in the **System Settings** tab. With these options you can specify how your OmniPass Logon is tied to your Windows Logon.

The first option, **Automatically log on to OmniPass as the current user**, will do just as it says; during Windows login, you will be logged on to OmniPass using your Windows login credentials. If the user logging into Windows was never enrolled into OmniPass, upon login no one will be logged on to OmniPass. This setting is appropriate for an office setting or any setting where users must enter a username and password to log into a computer. This is the default setting.

With the second option, **Manually log on to OmniPass at startup**, OmniPass will prompt you to login once you have logged on to Windows.

With the third option, **Do not log on to OmniPass at startup**, OmniPass will not prompt for a user to be logged on.

You can manually log on to OmniPass by right-clicking the OmniPass taskbar icon and clicking **Log in User** from the right-click menu.

## Troubleshooting

You cannot use OmniPass to create Windows users. You must first create the Windows user, and you will need administrative privileges to do that. Once the Windows user is created, you can add that user to OmniPass using the same username and password

### Cannot add Windows users to OmniPass

If you experience difficulties adding a Windows user to OmniPass, you may need to adjust your local security settings. You can do this by going to **Start, Control Panel, Administrative Tools, and Local Security Settings**. Expand **Local Policies**, expand **Security Options**, and double-click **Network Access: Sharing and Security Model for Local Accounts**. The correct setting should be *Classic - Local Users Authenticate as Themselves*.



## Cannot add a User with a Blank Password to OmniPass

If you experience difficulties adding a user with a blank password to OmniPass, you may need to adjust your local security settings. First attempt the procedure explained in the *Cannot add Windows user to OmniPass* section. If the difficulties persist, then try the following procedure.

Click **Start, Control Panel, Administrative Tools, and Local Security Settings**. Expand **Local Policies**, expand **Security Options**, and double-click **Accounts: Limit local account use of blank passwords to console login only**. This setting should be set to Disabled.

## Dialog appears after OmniPass authentication during Windows Logon

After installing OmniPass on your system, you can choose to logon to Windows using OmniPass. You authenticate with OmniPass (via master password, or an enrolled security device) and OmniPass logs you into Windows. You may, during this OmniPass authentication, see a **Login Error** dialog box.

This dialog box occurs when OmniPass was unable to log you into Windows with the credentials supplied (username and password). This could happen for any of the following reasons:

- Your Windows password has changed
- Your Windows account has been disabled

If you are having difficulties due to the first reason, you will need to update OmniPass with your changed Windows account password. Click **Update Password** and you will be prompted with a dialog to reconfirm your password.

Enter the new password to your Windows user account and click **OK**. If the error persists, then it is unlikely the problem is due to your Windows user account password changing.

# Index

---

## A

- About This Guide 1, 13
- AC
  - adapter 44
  - plug adapters 114
- Air Vents 25
- Anti-theft Lock Slot 21
- Application Panel Buttons 39
- Auto Insert Notification 75
- Auto/Airline Adapter 44
- Automatically Downloading Driver Updates 108

## B

- Battery 60
  - alarm 62
  - care 115
  - charging indicator 28
  - conserving power 54
  - dead 95
  - faulty 95
  - increasing life 115
  - level indicators 29
  - lithium ion battery 60
  - low 62
  - problems 95
  - recharging 61
  - replacing 62
  - suspend mode 62
  - swapping 62

## BIOS

- guide 51
- setup utility 50

## Bluetooth

- Where to Find Information 159

## Boot Sequence 49

## Booting the System 51

## Built-in Speakers 91

## C

- CapsLock Indicator 27
- Click Me! 52
- Clicking 34
- Configuration Label 117
- Contact Information 14
- Controls and Connectors 17
- Conventions Used in the Guide 13
- Cursor control 33
- Cursor Keys 31

## D

- DC Output Cable 44
- DC Power Jack 44
- DIMM 65
- Display Panel 18, 45
  - brightness 46
  - latch 18
  - opening 45
  - problems 96, 97

- Docking Port 81
- Double-Clicking 34
- Dragging 35
- Drivers and Application Restore CD 104
- DVD/CD-RW drive
  - control panel 73
  - software 73
  - using 74

## E

- Error Messages 99
- ExpressCards
  - installing 79
  - removing 80
- External Video Port 20, 84

## F

- FDU 53, 108, 124
- Fingerprint Sensor Device 161
  - enrolling a fingerprint 166
  - getting started 162
  - installing OmniPass 162
  - logging into a remembered site 169
  - OmniPass authentication toolbar 167
  - password replacement 167
  - remembering a password 168
  - uninstalling OmniPass 164
  - user enrollment 164
  - using OmniPass 167
- Flexible Bay, Modular Multi-Format DVD Writer 70
- Fujitsu Contact Information 14
- Fujitsu Driver Update utility 53, 108, 124
- Fujitsu LifeBook, traveling with 114
- Fujitsu Shopping Online 15
- Fujitsu Support Center 41

- Function Key
  - F10 32
  - F3 32
  - F4 32
  - F6 32
  - F7 32
  - F8 32
  - F9 32

## G

- Glossary 126

## H

- Hard Disk Drive
  - problems 91, 92
- Hard Disk Drive Passwords 50
- Headphone Jack 21, 83
- Hibernation Feature 55
  - disable/enable 56

## K

- Keyboard 18, 30
  - cursor keys 31
  - numeric keypad 31
  - problems 92
  - windows keys 31

## L

- LAN (RJ-45) Jack 22
- LifeBook Application Panel
  - configuring 40
  - launching applications 40
- LifeBook Application Panel Buttons 18
- Lithium ion Battery Bay 24

## **M**

### Media Player

- care 116
- loading 71
- removing 73
- Software 71

### Memory

- capacity 68, 69
- checking capacity 68
- compartment 25
- installing 66
- problems 92
- removing 68
- upgrade module 65

### Microphone Jack 21, 83

### Mouse problems 92

## **N**

### NumLk Indicator 28

## **O**

### Optical Drive 70

- emergency tray release 76

## **P**

### PC Card 79

- problems 93

### Port Replicator

- attaching 87
- connector 24
- detaching 87

### Power

- AC adapter 44
- Auto/Airline adapter 44

failure 93, 94

indicator 28

management 54

off 57

on 48

problems 95, 96

sources 44

Power Management 54

Power On Self Test 49, 99

Power/Suspend/Resume Button 54

Pre-Installed Software 122

Google Toolbar 123

manuals 123

## **R**

Registration 53

Regulatory Information 141

Removing an SD Card 78

Restarting 56

Restoring Your Pre-installed Software 104

RJ-45 81

## **S**

ScrLk Indicator 27

Scroll Button 20

Scrolling 35

SD Card

installing 78

removing 78

SDRAM 25, 65

Secure Digital Card

removing 78

Secure Digital Cards 77

- Specifications 117
  - Audio 119
  - Chipset 118
  - Device Ports 120
  - Dimensions and Weight 121
  - Environmental Requirements 121
  - Keyboard 121
  - mass storage device options 119
  - Memory 118
  - Microprocessor 118
  - Power 121
  - Video 118
- Status Indicator Panel 26
- Status Indicators 18
- Support Button 39, 41
- Suspend/Resume Button 18
- Swapping batteries 62

## T

- Touchpad 33
  - buttons 33
  - control adjustment 36
  - controls 36, 37
- Touchpad Pointing Device 19, 33
- Troubleshooting 88

## U

- Universal Serial Bus Port 82
- USB 2.0 82, 93
  - problems 93
- USB 2.0 Ports 21, 22, 23, 24

## V

- Volume control 38

## W

- Warranty 15
- Windows
  - starting the first time 51
- Windows 7
  - configuring the WLAN 153
- Windows keys 31
  - Application key 31
  - Start key 31
- Windows Power Management 56
- Windows XP
  - configuring the Wireless LAN 154
  - starting the first time 52
- Wireless LAN
  - Before Using the Wireless LAN 147
  - connection to the network 154
  - Specifications 157
  - Troubleshooting 155