Fujitsu LifeBook®
B6220 Notebook

User’s Guide
IMPORTANT SAFETY INSTRUCTIONS

This unit requires an AC adapter to operate. Use only UL Listed Class 2 Adapters with an output rating of 16 V DC, with a minimum current of 2.5 A.

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 the modem during an electrical storm. There may be a remote risk of electric shock from lightning.
■ Do not use the 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

System Disposal

LAMP(S) INSIDE THIS PRODUCT CONTAIN MERCURY AND MUST BE RECYCLED OR DISPOSED OF ACCORDING TO LOCAL, STATE, OR FEDERAL LAWS.

RECYCLING YOUR BATTERY

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

Fujitsu is very concerned with environmental protection, and has enlisted the services of the Rechargeable Battery Recycling Corporation (RBRC)**, a non-profit public service organization dedicated to protecting our environment by recycling old batteries at no cost to you. RBRC has drop-off points at tens of thousands of locations throughout the United States and Canada. To find the location nearest you, go to www.RBRC.org or call 1-800-822-8837.

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

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

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

** RBRC is an independent third party to which Fujitsu provides funding for battery recycling. RBRC is in no way affiliated with Fujitsu.
LifeBook® B6220 Notebook
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Preface

ABOUT THIS GUIDE
The LifeBook® B6220 notebook from Fujitsu Computer Systems is powered by a fast Intel® Core™ Solo ultra-low voltage processor, has a built-in 12.1” color touch screen display, and brings the computing power of a desktop personal computer to a portable environment.

This manual explains how to operate your LifeBook notebook’s hardware and built-in system software.


Your notebook is a completely self-contained unit with an active-matrix (TFT) color LCD touch screen display.

Conventions Used in the Guide
Keyboard keys appear in brackets.
Example: [Fn], [F1], [Esc], [Enter] and [Ctrl].

Pages with additional information about a specific topic are cross-referenced within the text.
Example: (See page xx.)

On screen buttons or menu items appear in bold
Example: Click OK to restart your notebook.

FUJITSU CONTACT INFORMATION
Service and Support
You can contact Fujitsu Computer Systems Service and Support the following ways:
- Toll free: 1-800-8Fujitsu (1-800-838-5487)
- Fax: 408-764-2724
- E-mail: 8fujitsu@us.fujitsu.com
- Website: www.us.fujitsu.com/computers

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 Online
You can go directly to the online Fujitsu Product catalog for your notebook by going to www.shopfujitsu.com.

WARRANTY
Your LifeBook notebook is backed by an International Limited Warranty and includes toll-free technical support. Check the service kit that came with your notebook for warranty terms and conditions.

You must have an active internet connection to use the online URL links.
Getting to Know Your LifeBook
Getting to Know Your LifeBook

Overview

This section describes the components of your Fujitsu LifeBook B6220 notebook. We strongly recommend that you read it before using your notebook, even if you are already familiar with notebook computers.

UNPACKING

When you receive your LifeBook notebook, unpack it carefully, and compare the parts you have received with the items listed below.

For a pre-configured model you should have:

- LifeBook B6220 notebook (Figure 2-1)
- AC adapter with AC power cord (Figure 2-2)
- Stylus (located in stylus holder)
- Driver and Application Restore CD
- Restore DVD
- Getting Started Guide
- User’s Guide (this document)
- International Limited Warranty Brochure
- Certificate of Authenticity

Depending upon the configuration of your notebook, you will have one of the following battery configurations:

- One main high-capacity Lithium ion battery (pre-installed),
- One main Lithium ion battery pre-installed and one spare main high-capacity Lithium ion battery

You may also have one or more of the following devices in the box:

- External USB Floppy Disk Drive (Figure 2-4),
- External CD-DVD Drive, and/or,
- Port Replicator (Figure 2-3)
Locating the Controls and Connectors

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

Display Panel Latch
The display panel latch locks and releases the display panel.

Touch Screen Display Panel
The display panel is a color LCD panel with back lighting for the display of text and graphics and touch screen functionality.

Status Indicator Panel
The Status Indicator Panel displays symbols that correspond with a specific component of your LifeBook notebook. See "Status Indicator Panel" on page 13.

LifeBook Security/Application Panel

Suspend/Resume Button
The Suspend/Resume button allows you to suspend notebook activity without powering off, resume your notebook from standby mode, and power on your notebook when it has been shut down from the Windows operating system. See "Power On" on page 31.

Stereo Speakers
The built-in dual speakers allow for stereo sound.

Built-in Microphone
The built-in microphone allows you to input or record mono audio.

Keyboard
A full-function keyboard with dedicated Windows keys. See "Using the Keyboard" on page 15.

Touchpad Pointing Device
The Touchpad pointing device consists of two mouse-like buttons, a scroll button, and a cursor control pad. Note that the scroll button also acts as a fingerprint recognition sensor. The fingerprint recognition sensor allows you to log onto your system by swiping your finger over the sensor. See "Touchpad Pointing Device" on page 17.
LEFT-SIDE PANEL COMPONENTS

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

Modem (RJ-11) Telephone Port
The Modem (RJ-11) telephone port is for attaching a telephone line to the internal multinational 56K modem.

The internal multinational modem is not intended for use with Digital PBX systems. Do not connect the internal modem to a Digital PBX as it may cause serious damage to the internal modem or your entire LifeBook notebook. Consult your PBX manufacturer’s documentation for details. Some hotels have Digital PBX systems. Be sure to find out BEFORE you connect your modem.

The internal modem is designed to the ITU-T V.90 standard. Its maximum speed of 53000bps is the highest allowed by FCC, and its actual connection rate depends on the line conditions. The maximum upload speed is 33600bps.

PC Card Slot
The PC Card Slot allows you to insert a Type I or Type II PC Card. See “PC Cards” on page 43.

PC Card Eject Button
The PC Card eject button allows you to remove PC Cards from the PC Card slot. See “PC Cards” on page 43.

Microphone/Line-In Jack
The microphone/line-in jack allows you to connect an external stereo microphone. See “Microphone/Line-In Jack” on page 31.

Headphone/Line-Out Jack
The headphone/line-out jack allows you to connect headphones or powered external speakers. See “Headphone/Line-Out Jack” on page 51.

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

Figure 2-6. LifeBook notebook left-side panel
RIGHT-SIDE PANEL COMPONENTS

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

**Stylus**

The stylus is used as the pointing device for the touch screen.

**Compact Flash Card Eject Button**

Allows you to eject a compact flash card.

**Compact Flash Card Slot**

Allows you to insert a compact flash (CF) card. See "Compact Flash Cards" on page 44.

**Universal Serial Bus (USB) 2.0 Ports**

The two Universal Serial Bus (USB) 2.0 ports allow you to connect Universal Serial Bus devices. See "Universal Serial Bus 2.0 Ports" on page 50.

**Anti-theft Lock Slot**

The anti-theft lock slot allows you to attach an optional physical locking device.
Following is a brief description of your LifeBook notebook’s bottom panel components.

**Docking Port Connector**
This connector allows you to connect the optional Port Replicator.

**Air Vents**
The air vents are used to cool the system to prevent overheating.

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.

**Memory Upgrade Compartment**
Your LifeBook notebook comes with high speed Synchronous Dynamic RAM (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 46.

**Hard Disk Drive Cover**
The hard disk drive cover protects the hard disk drive. Under normal circumstances, you should never remove this cover unless you are replacing a hard disk drive.

**Lithium ion Battery Pack**
The battery bay contains the internal Lithium ion battery. It can be opened for the removal of the battery when stored over a long period of time or for swapping a discharged battery with a charged Lithium ion battery. See “Lithium ion Battery” on page 39.

**Battery Pack Latches**
The battery pack latches are used to secure and release the Lithium ion battery pack. See “Lithium ion Battery” on page 39.

**Main Unit and Configuration Label**
The configuration label shows the model number and other information about your LifeBook notebook. In addition, the configuration portion of the label has the serial number and manufacturer information that you will need to give your support representative. It identifies the exact version of various components of your notebook.
REAR PANEL COMPONENTS

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

External Video Port

The external video port allows you to connect an external monitor or LCD projector. Note that when the optional Port Replicator is attached to the system, you must use the external video port on the Port Replicator rather than the port on the system. See “External Video Port” on page 51.

LAN (RJ-45) Jack

The optional internal LAN (RJ-45) port is used for an internal Fast Ethernet (10/100/1000 Base-T/Tx) Gigabit connection. See “Internal LAN (RJ-45) jack” on page 50.

Wireless LAN/Bluetooth On/Off Switch

Allows you to turn the optional Wireless LAN or Bluetooth devices on and off. This is present only on systems with optional wireless LAN or Bluetooth device installed.
Status Indicator Panel

The Status Indicator displays symbols that correspond with a specific component of your LifeBook notebook. These symbols tell you how each of those components are operating.  

**POWER INDICATOR**

The Power indicator symbol states whether your system is operational. It has several different states, each of which tells you what mode your 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 Standby mode.
- **Steady Off**: This means that your system is either in Hibernate mode, or that your notebook has been turned off.

If you are charging your battery, the Power indicator symbol will remain on even if your LifeBook notebook is shut off. The Power indicator symbol will also remain on if you have either adapter connected.

**AC ADAPTER INDICATOR**

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

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

**BATTERY LEVEL INDICATORS**

The Battery Level indicators state whether or not the primary Lithium ion battery is installed. In addition, this symbol states how much charge is available within the installed battery. The symbol will only be displayed for a battery that is currently installed in your notebook.
LifeBook B6200 Series – Section Two

BATTERY CHARGING INDICATOR
Located to the left of the Battery Level indicator is a small arrow symbol. This symbol states whether the battery is charging. This indicator will flash if the battery is too hot or cold to charge.

WIRELESS LAN/BLUETOOTH DEVICE ACCESS INDICATOR
The Wireless LAN/Bluetooth Access indicator shows whether the WLAN/Bluetooth switch is turned on and the WLAN module is in active mode.

HARD DRIVE OR REMOVABLE MEDIA DRIVE ACCESS INDICATOR
The Hard Drive Access indicator states whether your internal hard drive is being accessed.

PC CARD ACCESS INDICATORS
The PC Card Access indicator states whether or not your notebook is accessing a PC Card. The indicator will flash if your software tries to access a PC Card even if there is no card inserted. See "PC Cards" on page 43.

COMPACT FLASH (CF) CARD ACCESS INDICATORS
The Compact Flash Card Access indicator states whether or not your notebook is accessing a Compact Flash Card. The indicator will flash if your software tries to access a Compact Flash Card even if there is no card inserted. See "Compact Flash Cards" on page 44.

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

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

SCRLK INDICATOR
The ScrLk indicator states that your scroll lock is active.

SECURITY INDICATOR
The Security Indicator flashes (if a password was set) when the system resumes from Off or Standby modes. You must enter the password that was set in the Security Panel before your system will resume operation.

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

A shorted battery is damaged and must be replaced. (Figure 2-11)

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

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

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

You must enter the password that was set in the Security Panel before your system will resume operation.
GETTING TO KNOW YOUR LIFEBOOK

USING THE KEYBOARD

Your LifeBook 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 2-12)

- **Numeric keypad**: Your notebook allows certain keys to serve dual purposes, both as standard characters and as numeric and mathematical keys. The ability to toggle between the standard character and numerical keys is controlled through the [NumLk] key.

- **Cursor keys**: Your keyboard contains four arrow keys for moving the cursor or insertion point to the right, left, up, or down within windows, applications and documents.

- **Function keys**: The keys labeled [F1] through [F12], are used in conjunction with the [Fn] key to produce special actions that vary depending on what program is running.

- **Windows keys**: These keys work with your Windows operating system and function the same as the onscreen Start menu button, or the right button on your pointing device.

NUMERIC KEYPAD

Certain keys on the keyboard perform dual functions as both standard character keys and numeric keypad keys. NumLk can be activated by pressing the [NumLk] 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. (Figure 2-12)

WINDOWS KEYS

Your LifeBook 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.) (Figure 2-12)

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). (Figure 2-12)

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. (Figure 2-12)

[Fn] Key

The [Fn] key provides extended functions for the notebook and is always used in conjunction with another key.
- [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 touch pad on and off. Note that the [Fn+F4] combination only works if Manual Setting is selected in the BIOS.
- [Fn+F5]: Pressing [F5] while holding [Fn] allows you to toggle between video compensation and no compensation. (Video compensation controls spacing on the display. When it is enabled, displays with less than 1024 x 768 or 800 x 600 pixel resolution will still cover the entire screen.)
- [Fn+F6]: Pressing [F6] repeatedly while holding [Fn] will lower the brightness of your display.
- [Fn+F7]: Pressing [F7] repeatedly while holding [Fn] will increase the brightness of the display.
- [Fn+F8]: Pressing [F8] repeatedly while holding [Fn] will decrease the volume of your LifeBook notebook.
- [Fn+F9]: Pressing [F9] repeatedly while holding [Fn] will increase the volume of your LifeBook notebook.
- [Fn+F10]: Pressing [F10] while holding [Fn] allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are: built-in display panel only, external monitor only, and both built-in display panel and external monitor.
Getting to Know Your LifeBook

Figure 2-13. Touchpad pointing device

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 scrolling button, and left and right buttons.

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.

The scrolling button allows you to navigate quickly through pages.

The left and right buttons function the same as mouse buttons. The actual functionality of the buttons may vary depending on the application that is being used. (Figure 2-13)

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. (Figure 2-14) You can also perform the clicking operation by tapping lightly on the Touchpad once. To right-click, move the mouse cursor to the item you wish to select, press the right button once, and then immediately release it.

DOUBLE-CLICKING

Double-clicking means pushing and releasing the left button twice in rapid succession. This procedure does not function with the right button (Figure 2-15). To double-click, move the cursor to the item you wish to select, press the left button twice, and then immediately release it. You can also perform the double-click operation by tapping lightly on the Touchpad twice.

The scrolling button may be replaced by an optional fingerprint sensor. To read about the fingerprint sensor, see “Fingerprint Sensor Device” on page 107.

The Touchpad parameters can be adjusted from the Mouse Properties dialog box located by double-clicking the Mouse icon 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 releasing your finger. (Figure 2-16)

TOUCHPAD CONTROL ADJUSTMENT
If you need to change or adjust any of the touchpad control functions, you can customize them from the Mouse properties dialog box in the Control Panel. Click on Start, select Settings > Control Panel, then double-click Mouse.

TOUCH SCREEN
The integrated touch screen allows you to use either the included stylus, or your fingertip, as a pointing device. You can use the stylus to click, double-click, drag items and icons, or to draw like a pen or pencil in applications that support this behavior, such as drawing or painting programs. See the documentation that came with your application for details. (Figure 2-17)

Removing the Stylus
The stylus is located on the right side of the system, towards the front. (Figure 2-18) To remove the stylus, press the end of it into the stylus holder; this will disengage it, allowing it to pop out.

Clicking
To left-click, touch the object you wish to select, then lift the stylus tip immediately. You also have the option to perform the left-click operation by tapping lightly with your finger on the touch screen once. (Figure 2-19)

To right-click, go to Start -> Control Panel -> Touch Panel. From that window, you can specify a right button tool by using the Touch Panel Configuration Control button prior to the desired right mouse click. It can be used two ways: by holding down the key or by pressing the key once.

Double-Clicking
To double-click, touch the item twice, and then immediately remove the stylus tip. You also have the option to perform the double-click operation by tapping lightly with your finger on the touch screen twice. (Figure 2-20)
Getting to Know Your LifeBook

Figure 2-20. Double-clicking the Touch Screen

Dragging
Dragging means touching the screen with the stylus, moving and then lifting the stylus. To drag, tap the touch screen twice with your stylus over the item you wish to move, making sure to leave the stylus on the screen after the final tap. Next, move the item to its new location by moving the stylus across the screen, and then lifting the stylus to release it. Dragging can also be done using your fingertip. (Figure 2-21)

Figure 2-21. Dragging on the Touch Screen

Right-clicking
It is possible for you to perform right-click functions with the stylus. To perform a right-click function, hold the pen tip on the item you want to right-click, and touch it for a couple of seconds until a circle of red dots appears around the tip. This action is the same as a right-click.

Calibrating the Touch Screen
In order to ensure accurate tracking between the stylus and cursor, you should run the Touch Screen Calibration Utility before you use the touch screen for the first time, or after you change the display resolution.

Depending upon your operating system, the steps vary slightly, as noted below:

Microsoft Windows XP Tablet PC Edition

1. Go to [Start] -> Control Panel, and double-click on the Tablet and Pen Settings icon.
2. Select the Settings tab and click the [Calibrate...] button.
3. Adjust the display of your notebook to the angle at which you usually work, and follow the calibration instructions on the screen.
4. When you have finished calibrating the screen, reboot your system.

Microsoft Windows Vista Edition

1. Go to Start -> Control Panel and double-click on the Tablet PC Settings icon.
2. Select the General tab and click the [Calibrate] button.
3. Adjust the display of your notebook to the angle at which you usually work, and follow the calibration instructions on the screen.
4. When you have finished calibrating the screen, reboot your system.

If the interval between taps is too long, the double-click will not be executed.
Your Fujitsu LifeBook notebook has multiple volume controls which interact with each other.

CONTROLLING THE VOLUME

The volume can be controlled in several different ways:

- Volume can be set from within the Volume Control on the Taskbar.
- Volume can be controlled from the Control Panel by selecting the Sounds and Audio Devices icon. Select the Volume tab and move the slider bar to the desired volume level.
- Volume can be controlled with the F8 and F9 function 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.
Getting to Know Your LifeBook

Figure 2-22. LifeBook Security/Application Panel

LifeBook Security/Application Panel

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

If the security system is activated, upon starting your notebook or resuming from Standby mode the security system requires you to enter a password code using the buttons on the Security/Application Panel. After entering a correct password, your notebook resumes system operation. (Figure 2-22)

SETTING UP YOUR SECURITY PANEL

When you receive your LifeBook notebook, the security panel application is pre-installed without any passwords. The following sections provide detailed information on your security panel, how to set, change or remove passwords.

Numbered Buttons
Use these buttons to enter your password.

Enter Button
After entering the button strokes, push this button to enter the password into the LifeBook notebook.

PASSWORDS

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

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

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

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

Setting Passwords

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

- The purpose of supervisor password is to be able to bypass the user password in case the user password is forgotten. The supervisor password alone will not lock the system.
- You have to set both the supervisor and user passwords for the security panel to work.
**IMPORTANT NOTE:** In the following charts, the button functions for systems with *Microsoft Windows XP Professional* and *Microsoft Windows XP Tablet PC/Windows Vista Editions* are differentiated. Please note the functions for your operating system.

### Microsoft Windows XP Professional Edition

<table>
<thead>
<tr>
<th>Button/Icon</th>
<th>Security Button Function</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Security Button 1</td>
<td>User-defined Application (Default = Notepad)</td>
</tr>
<tr>
<td>2</td>
<td>Security Button 2</td>
<td>User-defined Application (Default = Calculator)</td>
</tr>
<tr>
<td>3</td>
<td>Security Button 3</td>
<td>Internet Explorer</td>
</tr>
<tr>
<td>4</td>
<td>Security Button 4</td>
<td>Outlook (for systems with Microsoft Office) - Outlook Explorer (for systems without Microsoft Office)</td>
</tr>
<tr>
<td>Enter</td>
<td>Enter</td>
<td>Enter Settings</td>
</tr>
</tbody>
</table>

### Microsoft Windows XP Tablet PC and Vista Editions

<table>
<thead>
<tr>
<th>Button/Icon</th>
<th>Security Button Function</th>
<th>Pre-Boot</th>
<th>Post-logon (Windows Logon screen is displayed)</th>
<th>Post-logon (Windows Desktop is displayed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Security Button 1</td>
<td>[Tab]</td>
<td>[Shift]+[Tab] Page Down</td>
<td>User-defined Application (Default = Calculator)</td>
</tr>
<tr>
<td>2</td>
<td>Security Button 2</td>
<td>[Enter]</td>
<td>[Escape] Page Up</td>
<td>User-defined Application (Default = Windows Journal)</td>
</tr>
<tr>
<td>3</td>
<td>Security Button 3</td>
<td>Screen Rotation</td>
<td>Screen Rotation</td>
<td>Display Switching 1. LCD only 2. CRT only 3. Dual display</td>
</tr>
<tr>
<td>4</td>
<td>Security Button 4</td>
<td>None</td>
<td>Secondary Function Selection</td>
<td>Fujitsu Menu Utility</td>
</tr>
<tr>
<td>Enter</td>
<td>Security Enter Button</td>
<td>[Ctrl]+[Alt]+[Del]</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>
Setting Supervisor Password
You must have set a supervisor password before setting any user passwords. The supervisor password can bypass the user password. Depending upon your operating system, use the appropriate procedure below.

Windows XP:
1. Go to the Start menu.
2. Click on Run.
3. Type in:
   C:\Program Files\Fujitsu\Security Panel Application\Supervisor\FJSECS.EXE, then press [Enter]
4. Follow the on-screen instructions to set the Supervisor password.

Windows Vista:
1. Go to the Start menu.
2. Select All Programs.
3. Select Accessories, then select Run.
4. Type in:
   C:\Program Files\Fujitsu\Security Panel Application\Supervisor\FJSECS.EXE, then press [Enter]
5. Follow the on-screen instructions to set the Supervisor password.

Setting User Password
Windows XP:
1. Go to the Start menu.
2. Click on Programs.
3. Click on Security Panel Application and Set User Password.
4. Follow the on-screen instructions to set the user password.

Windows Vista:
1. Go to the Start menu.
2. Select All Programs.
4. Follow instructions to set the user password.

OPERATING YOUR LIFEBOOK SECURITY/APPLICATION PANEL
The security lock feature is in effect both when the system resumes from Off or Standby state. You always need to push the Suspend/Resume button to input the user password. Your system will not begin the boot sequence without entering your supervisor/user password.

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

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

Incorrect Password Entry
If an invalid supervisor or user password is entered three times in succession, the system will “beep” for about one minute. If a valid password is entered within a minute (while system beeps), the beeping will stop and the notebook will resume normal operation. If no or an invalid password is entered while the system beeps, the system will return to its previous locked state (standby or off) and the Security Indicator will go off. To reactivate the notebook after a password failure, you must press the Suspend/Resume button, then enter a correct password.

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

Low Battery Operations
If your LifeBook notebook has low battery, pushing the suspend/resume button only turns on the Security Indicator. Your notebook does not unlock, the Security Indicator turns off after one minute. To resume normal operation, first attach a power supply to the notebook. Then you may unlock the notebook.
UNINSTALLING THE SECURITY PANEL APPLICATION
You have two options when uninstalling the security panel application:

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

Uninstalling the Security Panel Software
Remove passwords when User wants no password protection whatsoever and doesn’t want to give anybody the utility to set a password on their computer. In this case, if passwords (supervisor, user, or both) are set, the passwords must first be cleared before removing the application. To clear passwords, follow same procedure in “Setting Passwords” except this time, select [Remove], enter current password then click [Next]. When asked to confirm, select [Yes].

Removing Security Panel Application with Passwords Still Active
Using this feature will not allow any changes to the password.

User:
1. Go to Start Menu, Click on Control Panel.
2. Open Add or Remove Programs (In Vista: Programs and Features) in the Control Panel.
4. When the Confirm File Deletion box appears, click Yes.

Supervisor:
1. Go to Start Menu, Click on Control Panel.
2. Open Add or Remove Programs (In Vista: Programs and Features) in the Control Panel.
4. When the Confirm File Deletion box appears, click Yes.

Reinstalling the Security/Application Panel
To reinstall supervisor or user security application, you will need your Drivers and Applications CD. The Utilities/Security Application Panel folder contains two separate folders: Supervisor and User. The setup files for supervisor and user security applications are contained in those folders.


Supervisor and user passwords can be set via Windows software using the FJSECS.exe and FJSECU.exe files, respectively. FJSECU.exe for the user password cannot run without first setting a supervisor password. You need to run FJSECS.exe first to set the supervisor password. Follow instructions under Setting Passwords on page 21.

If you forget both passwords, contact Fujitsu Computer Systems Corporation Service and Support at 1-800-8FUJITSU (1-800-838-5487). Fujitsu Computer Systems Corporation charges a service fee for unlocking a password restricted LifeBook notebook. When calling please have a valid credit card and provide proof of ownership. You will then be given instructions on where to ship your notebook.

LAUNCHING APPLICATIONS WITH THE SECURITY/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.

Configuring your LifeBook Application Panel
Note that the procedures for configuring the application panel differ slightly based upon the operating system installed. Microsoft Windows XP Pro uses the LifeBook Application Panel utility, while Microsoft Windows XP Tablet PC Edition and Windows Vista use Fujitsu Button Utilities.

When you start Windows, the LifeBook Application Panel is automatically activated. An icon resembling a finger pressing a button will appear on the system tray (the indented portion of the status bar where the clock is
displayed). When you see this icon you will know that LifeBook Application Panel is active.

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.

**Microsoft Windows XP Tablet PC Edition**

To configure your LifeBook Application Panel:

1. Open the Control Panel.
2. Double-click on Tablet and Pen Settings.
3. Select the Tablet Buttons tab.
4. Select the button for which you want to modify the default application, then click the [Change] button.
5. Follow the instructions that appear to change the application assigned to the button.

**Microsoft Windows Vista Edition or Microsoft Windows XP Professional Edition**

To configure your LifeBook Application Panel:

1. Open the Control Panel.
3. In Windows Vista, select the Buttons tab.
4. Select the button for which you want to modify the default application, then click the [Change] button.
5. Follow the instructions that appear to change the application assigned to the button.
3
Getting Started
Power Sources

Your 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 notebook.
2. Plug the AC adapter into an AC electrical outlet.  
   (Figure 3-1)

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

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

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

The Lithium ion battery is not charged upon purchase. Initially, you will need to connect either the AC adapter or the Auto/Airline adapter to use your notebook.
Display Panel

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

OPENING THE DISPLAY PANEL
1. Press the Display Panel latch in. This releases the locking mechanism and raises the display slightly.
2. Lift the display backwards, being careful not to touch the screen, until it is at a comfortable viewing angle.

ADJUSTING DISPLAY PANEL BRIGHTNESS
Once you have turned on your notebook, you may want to adjust the brightness level of the screen to a more comfortable viewing level.

Adjusting the brightness using the keyboard changes the setting only temporarily.
- [Fn+F6]: Pressing repeatedly will lower the brightness of your display.
- [Fn+F7]: Pressing repeatedly will increase the brightness of the display.

The higher the brightness level, the more power the LifeBook 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.

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

If using AC power your brightness setting is set to its highest level by default. If using battery power your brightness setting is set to approximately mid-level by default.
Starting Your LifeBook Notebook

POWER ON

Suspend/Resume button

The 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 notebook.

Press the Suspend/Resume button (Figure 3-3). When you are done working you can either leave your LifeBook notebook in Suspend mode (See “Suspend/Resume Button” on page 34.), or you can turn it off (See “Power Off” on page 35.)

When you turn on your LifeBook notebook, it will perform a Power On Self Test (POST) to check the internal parts and configuration for correct functionality. If a fault is found, your LifeBook notebook will emit an audio warning and/or an error message will be displayed. See “Power On Self Test Messages” on page 62.

Depending on the nature of the problem, you may be able to continue by starting the operating system or by entering the BIOS setup utility and revising the settings.

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

BOOT SEQUENCE

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

The boot sequence is executed when:

- You turn on the power to your 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.

BIOS SETUP UTILITY

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

The BIOS Setup Utility configures:

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

Entering the BIOS Setup Utility

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

1. Turn on or restart your LifeBook notebook.
2. To enter the BIOS Setup Utility, press the [F2] key once the Fujitsu logo appears on the screen. This will open the main menu of the BIOS Setup Utility with the current settings displayed, or,
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 TrustedCore Menu
When the Fujitsu logo appears on the screen, press the [Enter] key or click on the left mouse or touchpad button; the TrustedCore Menu will appear. The TrustedCore Menu provides shortcuts to the following menus and information screens:
- BIOS Setup
- Diagnostic Screen
- Boot Menu
- Patent Information
- System Information
- Continue Booting
Clicking on any of the fields will invoke the screen, information, or action described.
The Boot Menu can also be invoked by pressing the [F12] key when the Fujitsu logo appears on the screen.

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

BOOTING THE SYSTEM
We strongly recommend that you not attach any external devices and do not put a DVD/CD in your drive until you have gone through the initial power on sequence.
When you turn on your LifeBook 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.
Depending upon your operating system (Windows Vista or XP edition), there is a different procedure for stating your system for the first time, as outlined below.

STARTING WINDOWS VISTA THE FIRST TIME
In order to ensure that you receive the most benefits from the Windows Vista operating system, it should be registered the first time you use it.

1. First of all, you will need to read and accept the End User License Agreements (EULAs).
2. You will be prompted to enter your User Name and Password and you will be given a chance to select an icon for your account.
3. The next screen asks for a Computer Name and allows you to choose a desktop background.
4. You will next see a “Help protect Windows automatically” screen in which the default choice is “Use recommended settings”. The other two choices are “Install important updates only” and “Ask me later”. Select from the three choices.
5. On the next screen set your time and date settings.
6. You will next see the “Select your computer’s current location” screen. Make your selection from Home, Work (Default), and Public location.
7. The “Thank you” screen follows and an offer for free Norton Internet Security is extended. Following are several screens while Windows checks the system performance.
8. Windows will then boot up for the first time.
Getting Started

Registering Windows Vista with Microsoft

1. After Windows has booted up for the first time, the Control Panel Welcome Center will appear. If the Register Windows Online icon is not seen in the window, click on “Show all 14 items”.
2. Click on Register Windows Online and follow the instructions that appear to register your copy of Windows.

STARTING WINDOWS XP THE FIRST TIME

Registering Windows XP with Microsoft

In order to ensure that you receive the most benefits from the Windows operating system, it should be registered the first time you use it.

After you receive the Windows Welcome screen, you will be prompted to enter registration information in the following order.

First of all, you will need to read and accept the End User License Agreements (EULAs). After accepting the EULAs, you will be asked if you want to enable the Automatic Updates feature. Acceptance of this feature is recommended because it allows your system to be updated automatically whenever an important change becomes available for your notebook.

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.

You will then be automatically connected to the Internet, if you have an appropriate connection available. If an automatic connection is not possible, you will be asked about how you dial out from where you will be using your LifeBook notebook. You cannot use your LifeBook 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.

Before installing the ClickMe! utility, be sure the wireless LAN switch is turned on.

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 81.
## Power Management

Your LifeBook notebook has many options and features for conserving battery power. Some of these features are automatic and need no user intervention, such as those for the internal modem. However, others depend on the parameters you set to best suit your operating conditions, such as those for the display brightness. Internal power management for your 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 notebook battery from running down as quickly. For example, you can create an appropriate power saving profile, put your notebook into Standby mode when it is not performing an operation, and you can limit the use of high power devices.

### Table 3-1. System Power States

<table>
<thead>
<tr>
<th>Power Mode</th>
<th>System Activity</th>
<th>Events causing system to enter mode state</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully On Mode</td>
<td>System is running. CPU, system bus, and all other interfaces operate at full speed.</td>
<td>• From Standby mode: System operation resumed (Suspend/Resume button pressed, resume on modem ring, resume on time).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• From Hibernation mode: Suspend/Resume button pressed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• From Off mode: Suspend/Resume button pressed.</td>
</tr>
<tr>
<td>In Windows XP: Standby Mode</td>
<td>Resume system logic remains powered and RAM remains powered to maintain active data. All other devices are turned off.</td>
<td>Standby timeout occurs.</td>
</tr>
<tr>
<td>or Suspend-to-RAM in</td>
<td></td>
<td>Suspend request issued by software or by pressing the Suspend/Resume button.</td>
</tr>
<tr>
<td>Windows Vista: Sleep Mode</td>
<td></td>
<td>Low battery.</td>
</tr>
<tr>
<td>Hibernation Mode or</td>
<td>Windows saves desktop state (including open files and documents) to hard disk. CPU stops. All other devices are turned off.</td>
<td>Suspend timeout occurs.</td>
</tr>
<tr>
<td>Suspend-to-Disk</td>
<td></td>
<td>Clicking Start -&gt; Shut Down -&gt; Hibernate (It may be necessary to Enable Hibernate Support from Windows Power Options.)</td>
</tr>
<tr>
<td>Power Off</td>
<td>System is fully powered off except for logic components required for Suspend/Resume button and real-time clock operation.</td>
<td>System shutdown.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low battery condition</td>
</tr>
</tbody>
</table>

### SUSPEND/RESUME BUTTON

When your LifeBook notebook is active, the Suspend/Resume button can be used to manually put your LifeBook into Standby mode. Push the Suspend/Resume button when your notebook is active, but not actively accessing anything, and immediately release the button. You will hear two short beeps and your system will enter Standby mode. (See figure 2-3 on page 8 for location).

If your notebook is suspended, pushing the Suspend/Resume button will return your notebook to active operation. You can tell whether or not your system is in Standby mode by looking at the Power indicator. See “Power Indicator” on page 13. If the indicator is visible and not flashing, your notebook is fully operational. If the indicator is both visible and flashing, your notebook is in Standby mode. If the indicator is not visible at all, the power is off or your notebook is in Hibernation mode.

### STANDBY (SLEEP) MODE

Standby (Sleep mode in Vista) mode in Windows saves the contents of your notebook’s system memory during periods of inactivity by maintaining power to critical parts. This mode will turn off the CPU, the display, the hard drive, and all of the other internal components except those necessary to maintain system memory and allow for restarting. Your notebook can be put in Standby mode by:

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

Your notebook’s system memory typically stores the file(s) on which you are working, open application(s) information, and any other data required to support the
operation(s) in progress. When you resume operation from Standby mode, your notebook will return to the point where it left off. To resume operation, you must use the Suspend/Resume button to resume operation, and there must be an adequate power source available, or your notebook will not resume.

HIBERNATION (SAVE-TO-DISK) FEATURE
The Hibernation feature saves the contents of your notebook's system memory to the hard drive. You can enable or disable this feature as follows.

Enable or Disable the Hibernation Feature
Windows Vista:
The default settings are not enabled. To enable or disable the Hibernation feature follow these steps:
1. From the Start menu, select Control Panel, then select Power Options (if you are in Control Panel Home view, you’ll need to click Mobile PC before clicking Power Options).
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 Vista
1. Click the Start button, and then click on the small arrow at the bottom right of the menu.
2. Select Restart from the list.

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

POWER OFF
Before turning off the power, check that the hard drive access indicator is off. (See “Hard Drive or Removable Media Drive Access Indicator” on page 14.) 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.

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:
1. Windows XP: Click the Start button, then click Shut Down.
2. Windows Vista: Click the Start button, then click the arrow at the bottom right of the menu.
3. Select the Shut Down option from within the Windows Shut Down dialog box.
4. Click OK to shut down your notebook.

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

If you are running your LifeBook notebook on battery power, be aware that the battery continues to discharge while your notebook is in Standby mode, though not as fast as when fully operational.

- The Standby or Hibernate modes 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, Hibernate mode cannot return to the exact state prior to suspension, because all of the peripheral devices will be re-initialized when the system restarts.

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.

Be sure to close all files, exit all applica- tions, and shut down your operating sys- tem 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.

4
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 40°F (5°C) or a high of 95°F (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. See “Battery Charging Indicator” on page 14.
- When using a high current device such as a modem, CD-ROM drive, or the hard drive. Using the AC adapter when operating such devices will help to conserve your battery life.

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 notebook and connect the AC or Auto/Airline adapter.

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

There is no memory effect on the Lithium ion battery therefore you do not need to discharge the battery completely before recharging. The charge times will be significantly longer if your notebook is in use while the battery is charging. If you want to charge the battery more quickly, put your notebook into Standby mode, or turn it off while the adapter is charging the battery. See “Power Management” on page 34.

Using heavy current devices such as a modem or frequent CD-ROM and PCMCIA powered external devices accesses may prevent charging completely.

Low Battery State

When the battery is running low, your notebook will beep every 15 seconds and the Battery Level indicator will flash. If you do not respond to the low battery alarm, the batteries will continue to discharge until they are too low to operate. When this happens there will be a multiple beep alarm and the Battery Level indicator will show a dead battery. Your LifeBook will then go into Standby 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 notebook reaches this point.

- 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.
- Under federal, state, or local law it may be illegal to dispose of batteries by putting them in the trash. Please take care of our environment and dispose of batteries properly. Check with your local government authority for details regarding recycling or disposing of old batteries. If you cannot find this information elsewhere, contact your support representatives at 1-800-8Fujitsu.
- Actual 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.

- You may not be able to hear the audio alarm if the volume control is set too low or is turned off by either the hardware or software. However, you will still be able to see the Battery Level indicator flash. Once the low battery alarm occurs you must save all your active data and put your notebook into Standby 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 Standby mode there must always be at least one power source active. If you remove all power sources while your notebook is in Standby mode, any data that has not been saved to the hard drive will be lost.
Dead Battery Suspend mode shows on the Status indicator just like the normal Standby mode. Once your notebook goes into Dead Battery Suspend mode you will be unable to resume operation until you provide a source of power either from an adapter, or a charged battery. Once you have provided power, you will need to press the 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 notebook while an adapter is charging the battery.

Shorted Batteries
The Status Indicator panel uses a symbol inside the battery outline of the Battery Level indicator to display the operating level available in that battery. (See figure 2-11 on page 13) If this display shows a Shorted Battery, it means that the battery is damaged and must be replaced so it does not damage any other parts of your notebook.

REPLACING THE BATTERY
Your LifeBook B6200 Series notebook comes with one battery pack, but it’s a good idea to purchase a second one. By keeping a spare battery fully charged, you can immediately swap with one that is not charged. The battery can only be replaced by cold-swapping; doing otherwise could result in loss of data. (Cold swapping means swapping batteries when the system has been powered down.)

Cold-swapping Batteries
To cold-swap batteries in your battery bay follow these easy steps: (Figure 4-2)

1. Have a charged battery ready to install.
2. Shut down your notebook and disconnect the AC adapter.
3. Push the battery bay release latches inward, then lift the front of the battery away from the battery bay and remove it from the bay.
4. Position the new battery in the bay and carefully lay it into the tray. (Figure 4-2) Press it down so that the latches click into place to secure the battery.
5. Turn the power on.
External Floppy Disk Drive*

*Optional device

CONNECTING AN OPTIONAL EXTERNAL FLOPPY DISK DRIVE

Your LifeBook notebook may have an optional external floppy disk drive which can read and write information on removable 1.44MB and 720KB floppy disks.

The USB floppy disk drive can be installed while your system is in a suspended state ("warm" connection), while the system is running ("hot" connection), or when the system is off ("cold" connection).

LOADING A DISK

To load a disk into your disk drive, follow these steps:
1. Orient the disk so that its label is facing upwards and the shutter side is pointing towards the drive. (Figure 4-3)
2. Push the disk into the drive until the Eject button pops out and you hear a click.

EJECTING A DISK

To eject a disk from the disk drive, follow these steps:
1. Check that the Floppy Disk Drive Access indicator is inactive.
2. Press the Eject button. This will push your disk partially out of the drive.
3. Remove the disk.

PREPARING A DISK FOR USE

Before you can use a new disk, it needs to be prepared so your notebook knows where to store information. This preparation is called formatting or initializing a disk. You will need to format new disks, unless they are preformatted. (Please refer to your operating-system manual for step-by-step instructions on formatting a disk)

To prevent accidental erasure of the data stored on a disk, slide the "write protect" tab until a small hole is exposed. This sets the disk into a protected state where nothing can be added or removed. If you want to add or remove data on a protected disk, slide the "write protect" tab to close the small hole. (Figure 4-5)
Figure 4-5. Floppy Disk Write Protect

Formatting a floppy disk that already contains data will erase all of the information on the disk.
PC Cards
Your LifeBook notebook supports Type I and Type II PC Cards, which can perform a variety of functions.

Some available PC Cards:
- Gigabit Ethernet local area network (LAN) cards
- S-ATA II cards
- Serial port cards
- IEEE 1394 port cards
- IEEE 802.11n cards

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

INSERTING PC CARDS
PC Cards are inserted in the PC Card slot. To insert a PC Card, follow these easy steps:
1. See your PC Card manual for specific instructions on the insertion of your card. Some PC Cards may require your notebook to be Off while inserting them.
2. Make sure there is no PC Card currently in the slot. If there is, see Removing PC Cards.
3. Insert your PC Card into the slot, with the product label facing up.
4. Push the card into the slot firmly until it is seated in the opening.

REMOVING PC CARDS
To remove a PC Card, follow these easy steps:
1. See your PC Card manual for specific instructions on removing your card. Some PC Cards may require your notebook to be in Standby Mode or Off while removing them.
2. Push the Eject button until it pops out, and then push it in to eject the card. This will allow you to remove the card.

SMART CARD READER
An embedded Smart Card Reader is provided on your LifeBook notebook. Smart Cards are the same size and shape as credit cards, but they contain an integrated microprocessor chip. The chip can hold a variety of information, and provides the user with many possible options, such as allowing them to make secure purchases, pay for phone calls, store security information, and provide identification and information.

In order to use the embedded Smart Card Reader, you must purchase an optional Smart Card holder for insertion into an available Type II PC Card slot.
Compact Flash Cards

Your Fujitsu LifeBook notebook supports Compact Flash (CF) cards, which can perform a variety of functions.

Some available Compact Flash Cards:
- Memory cards
- Fax/data modem cards
- Local area network (LAN) cards

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

**INSERTING COMPACT FLASH CARDS**

Compact Flash Cards are inserted in the Compact Flash Card slot. To insert a Compact Flash Card, follow these steps (Figure 4-7):

1. See your Compact Flash Card manual for specific instructions on the insertion of your card. Some Compact Flash Cards may require your notebook to be Off while inserting them.
2. When you receive your LifeBook, there will be a protective plug inserted in the slot. Whenever you don’t have a Compact Flash Card inserted, be sure to replace the plug to prevent system contamination. To remove the plug, press the Compact Flash Card eject button. (Figure 4-8)

**REMOVING COMPACT FLASH CARDS**

To remove a Compact Flash Card, follow these easy steps:

1. See your Compact Flash Card manual for specific instructions on removing your card. Some Compact Flash Cards may require your notebook to be in Standby Mode or Off while removing them.

**Inserting or removing a Compact Flash Card during your LifeBook notebook’s shutdown or bootup process may damage the card and/or your notebook.**

**Do not insert a Compact Flash 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.**

Windows has a shutdown procedure for Compact Flash Cards that must be followed before removing a card. (Please review your operating system manual for the correct procedure). It is good practice to remove devices using the Safely Remove Hardware icon in the system tray.

3. When the Compact Flash Slot plug is ejected, remove it from the slot.
4. Insert your Compact Flash Card into the slot, with the product label facing up.
5. Push the card into the slot firmly until it is seated in the opening. You will hear a click and the Eject button will pop away from your notebook.
2. Push the eject button in until it is flush with the notebook. This will push the Compact Flash Card slightly out of the slot allowing you to remove the card.

Figure 4-9. Removing a Compact Flash Card
LifeBook B6200 Series – Section Four

Memory Upgrade Module

Your notebook has been configured with a minimum of 512 MB of high speed DDR2 533 MHz RAM factory installed. In addition to the installed memory, there is a second DIMM slot in which you can install a second module. You can also increase your notebook’s memory capacity by replacing the original module with a higher capacity module (2 GB maximum). The memory upgrade must be a dual-in-line 533 MHz DDR2 module. (To be certain the correct module is used, you should only use Fujitsu memory modules. To order, go to the Fujitsu accessories website: www.shopfujitsu.com).

INSTALLING A MEMORY MODULE

1. Turn off power to your notebook and remove any attached power adapter (AC or auto/airline).
2. Make sure that all connector covers are closed.
3. Turn the notebook bottom side up.
4. Remove the memory upgrade compartment screws, then remove the cover. (Figure 4-10)
5. Align the new memory upgrade module with the part side up. Align the connector edge of the memory upgrade module with the empty connector slot in the compartment (Figure 4-11).
6. Insert the memory upgrade module at a 45° angle. Press the connector edge of the module firmly down and into the connector until it lodges under the retaining clip. You will hear a click when it is properly in place. (Figure 4-11)
7. Replace the memory compartment cover.

REMOVING A MEMORY MODULE

1. Turn off power to your notebook and remove any attached power adapter (AC or auto/airline).
2. Make sure you are properly grounded.
3. Make sure that all connector covers are closed.
4. Turn the notebook bottom side up, with the battery toward you.
5. Remove the memory upgrade module compartment screws and remove the cover (Figure 4-10).
6. Pull the clips sideways away from each side of the memory module at the same time (Figure 4-12).
7. While holding the clips out, remove the module from the slot by lifting it up and pulling towards the rear of your notebook.
8. Store the memory module in a static guarded sleeve.
9. Install a new memory module as instructed in “Installing a Memory Upgrade Module.”
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] -> Settings -> Control Panel, then double-clicking the System icon. Select the General tab and check the amount of memory under "Computer:"

Windows Vista: Check the memory capacity by clicking [Start] -> Control Panel -> System and Maintenance -> System. The amount of memory is displayed next to "Memory - RAM."

The amount of memory displayed should be approximately the total of all memory modules installed. There may be a discrepancy which is allocated for fixed video memory.

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 55.
Port Replicator

Ideal for quick connect/disconnect of peripheral devices, the optional Port Replicator extends the functionality of your LifeBook notebook by providing ports to connect a LAN (RJ-45) cable, an external video device, two USB 2.0 devices, and DC power.

The Port Replicator connects to the bottom of your notebook. See "Device Ports" on page 50.

PORT REPLICATOR COMPONENTS

(Figure 4-13)

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. The DC power jack is located on the end of the port replicator.

USB 2.0 Ports (Qty. 2)
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.

External Video Port
The external video port allows you to connect an external monitor or LCD 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.

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.

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

Port Replicator Release Latch
Pull the Port Replicator Release latch away from the Port Replicator to remove it from your notebook.

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 4-14)

Before docking your notebook with the port replicator, be sure to touch a grounded metal object to prevent electrostatic discharge from affecting the computer components.

* Optional device
DETACHING PORT REPLICATOR

Before undocking your notebook from the port replicator, be sure to touch a grounded metal object to prevent electrostatic discharge from affecting the computer components.

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 4-15)

   Figure 4-15. Unlatching the Port Replicator

2. Pull the notebook away from the Port Replicator to detach it from your notebook. (Figure 4-16)

   Figure 4-16. Removing the Port Replicator
Device Ports

Your LifeBook notebook and the optional Port Replicator come equipped with multiple ports to which you can connect an external device including: disk drives, keyboards, modems, printers, etc.

MODEM (RJ-11) JACK

The modem (RJ-11) jack is used for an internal modem. To connect the telephone cable follow these easy steps: See “LifeBook notebook left-side panel” on page 9.

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 telephone cable into a telephone outlet.

- The internal modem is designed to the ITU V.90 standard. Its maximum speed of 53000bps is the highest allowed by FCC, and its actual connection rate depends on the line conditions. The maximum speed is 33600bps at upload.
- The internal modem on all LifeBook notebooks from Fujitsu Computer Systems Corporation are certified for use in the United States and Canada.
- Depending upon the configuration of your system, your LifeBook notebook may have either a LAN jack or an IEEE 1394 jack.

The modem sound may initially be deactivated. To activate modem sound follow these easy steps.

Windows XP:
1. Right click on the Speaker icon in your system tray.
2. Select Open Volume Control.
3. Select Option/Properties.
4. Under “Show the following volume controls”, click on Phone Line and click OK.
5. Uncheck the Mute box under Phone Line Volume.

Windows Vista:
2. Select Classic View in the left pane.
3. Double-click Phone and Modems.
4. You may initially need to enter your area code in order to open the Phone and Modem Options window.
5. Select the Modems tab, and click the [Properties] button.
6. Select the Modem tab and adjust the volume as necessary.

INTERNAL LAN (RJ-45) JACK

The internal LAN (RJ-45) jack is used for an internal Fast Ethernet (10/100 /1000 Base-T/Tx) connection. If your notebook has been configured with internal LAN capability 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 steps: See “LifeBook notebook rear panel” on page 12.

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.

DOCKING PORT

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

UNIVERSAL SERIAL BUS 2.0 PORTS

The two Universal Serial Bus (USB) 2.0 ports allow you to connect USB devices such as external floppy disk drives, game pads, pointing devices, keyboards and/or speakers. In order to connect a USB device follow these easy steps: See “LifeBook notebook right-side panel” on page 10.

1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.
MICROPHONE/LINE-IN JACK
The microphone/line-in jack allows you to connect an external stereo microphone. Your microphone must be equipped with a 1/8” (3.5 mm) mono mini-plug in order to fit into the microphone jack of your notebook. In order to connect a microphone follow these easy steps: See “LifeBook notebook left-side panel” on page 9.
1. Align the connector with the port opening.
2. Push the connector into the port until it is seated.

HEADPHONE/LINE-OUT JACK
The stereo headphone/line-out jack allows you to connect stereo 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: See “LifeBook notebook left-side panel” on page 9.
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: See “LifeBook notebook rear panel” on page 12.
1. Remove the cover from the port opening, if present.
2. Align the connector with the port opening.
3. Push the connector into the port until it is seated.
4. Tighten the two hold-down screws, located on each end of the connector.

When a Port Replicator is attached and an external video device 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, starting with the built-in display panel only, moving to the external monitor only, finally moving to both the built-in display panel and an external monitor.
5
Troubleshooting
Troubleshooting

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

IDENTIFYING THE PROBLEM

If you encounter a problem that you are having difficulty in solving, go through the following procedure before pursuing further troubleshooting:

1. Turn off your LifeBook notebook.
2. Make sure the AC adapter is plugged into your notebook and to an active AC power source.
3. Make sure that any card inserted 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 on.
6. Go through the boot sequence.
7. If the problem has not been resolved, refer to the Troubleshooting Table, that follows, for more detailed troubleshooting information.
8. If you have tried the solutions suggested in the Troubleshooting Table without success, contact your support representative:
   - Toll free: 1-800-8Fujitsu
   - Fax: 408-764-2724
   - E-mail: 8fujitsu@us.fujitsu.com
   - Website: www.us.fujitsu.com/computers

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 LifeBook notebook for configuration and serial numbers. (See figure 2-8 on page 11 for location)

SPECIFIC PROBLEMS

Using the Troubleshooting Table

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

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

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 LifeBook notebook to your supplier until you have talked to a support representative.
## TROUBLESHOOTING TABLE

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Audio Problems</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is no sound coming from the built-in speakers.</td>
<td>The software volume control is set too low.</td>
<td>Adjust the sound volume control settings in your software, operating system and applications.</td>
</tr>
<tr>
<td></td>
<td>Headphones are plugged into your notebook.</td>
<td>Plugging in headphones disables the built-in speakers; remove the headphones.</td>
</tr>
<tr>
<td></td>
<td>BIOS audio settings are incorrect.</td>
<td>Set the BIOS setup utility to the default values within the Advanced/Miscellaneous Configurations menu. See &quot;BIOS Setup Utility&quot; on page 31.</td>
</tr>
<tr>
<td></td>
<td>Software driver is not configured correctly.</td>
<td>Refer to your application and operating system documentation for help.</td>
</tr>
<tr>
<td></td>
<td>Sound could have been muted with function keys.</td>
<td>Press [F3] while holding the [Fn] key to toggle the sound on and off.</td>
</tr>
<tr>
<td><strong>Port Replicator Problems</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LifeBook notebook does not turn on when installed in optional Port Replicator</td>
<td>Port Replicator AC adapter is not plugged in.</td>
<td>Provide power to the Port Replicator.</td>
</tr>
<tr>
<td></td>
<td>Notebook is not properly seated in the Port Replicator.</td>
<td>Remove and re-dock your notebook.</td>
</tr>
<tr>
<td><strong>Floppy Disk Drive Problems</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You cannot access your optional floppy disk drive.</td>
<td>You tried to write to a write-protected floppy disk.</td>
<td>Eject the floppy disk and set it to write enable. See &quot;Preparing a Disk for Use&quot; on page 41.</td>
</tr>
<tr>
<td></td>
<td>Floppy disk is not loaded correctly.</td>
<td>Eject floppy disk, check orientation and re-insert. See &quot;Ejecting a Disk&quot; on page 41.</td>
</tr>
<tr>
<td></td>
<td>The floppy disk drive may not be properly installed.</td>
<td>Remove and re-install your floppy disk drive.</td>
</tr>
<tr>
<td></td>
<td>Security is set to protect access to floppy disk data.</td>
<td>Verify your password and security settings.</td>
</tr>
<tr>
<td></td>
<td>The USB floppy disk drive is not selected in the BIOS.</td>
<td>Verify that USB Support is enabled in the BIOS Setup utility. See &quot;BIOS Setup Utility&quot; on page 31.</td>
</tr>
<tr>
<td><strong>Hard Drive Problems</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You cannot access your hard drive.</td>
<td>The setup utility is incorrectly set for your hard drive.</td>
<td>Revise BIOS settings to set both Primary Master and Slave correctly. See &quot;BIOS Setup Utility&quot; on page 31.</td>
</tr>
<tr>
<td></td>
<td>The wrong drive designator was used by an application when a bootable CD-ROM was used to start the notebook.</td>
<td>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.</td>
</tr>
</tbody>
</table>
## Troubleshooting

### You cannot access your hard drive. (continued)

<table>
<thead>
<tr>
<th>Possible Cause</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security is set so your operating system cannot be started without a password.</td>
<td>Verify your password and security settings.</td>
</tr>
</tbody>
</table>

### Keyboard or Mouse Problems

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The built-in keyboard does not seem to work.</td>
<td>The notebook has gone into Standby mode.</td>
<td>Push the Suspend/Resume button.</td>
</tr>
<tr>
<td></td>
<td>Your application has locked out your keyboard.</td>
<td>Try to use your integrated pointing device to restart your system. If this fails, turn your notebook off, wait 10 seconds or more, and then turn it back on.</td>
</tr>
<tr>
<td>You have installed an external keyboard or mouse, and it does not seem to work.</td>
<td>Your external device is not properly installed.</td>
<td>Re-install your device. See “Device Ports” on page 50.</td>
</tr>
<tr>
<td></td>
<td>Your operating system software is not set up with the correct software driver for that device.</td>
<td>Check your device and operating system documentation and activate the proper driver.</td>
</tr>
<tr>
<td>You have connected an external keyboard or mouse and it seems to be locking up the system.</td>
<td>Your operating system software is not set up with the correct software driver for that device.</td>
<td>Check your device and operating system documentation and activate the proper driver.</td>
</tr>
<tr>
<td></td>
<td>Your system has crashed.</td>
<td>Try to restart your notebook. If that fails, turn off power, wait at least 10 seconds, then re-apply power.</td>
</tr>
</tbody>
</table>

### Memory Problems

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your Power On screen, or Main menu of the BIOS setup utility information, does not show the correct amount of installed memory.</td>
<td>Your memory upgrade module is not properly installed.</td>
<td>Turn off your notebook. Remove and re-install your memory upgrade module. See “Memory Upgrade Module” on page 46.</td>
</tr>
<tr>
<td></td>
<td>You have a memory failure.</td>
<td>Check for Power On Self Test (POST) messages. If you are unclear on the message, contact your support representative. See “Power On Self Test Messages” on page 62.</td>
</tr>
</tbody>
</table>

### Modem Problems

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Messages about modem operation.</td>
<td>Messages about modem operation are generated by the modem application in use.</td>
<td>Set your application software documentation for additional information.</td>
</tr>
<tr>
<td></td>
<td>The modem driver has not been properly initialized.</td>
<td>Go to Start -&gt; Control Panel -&gt; System. Select the Hardware tab and click the [Device Manager] button. Click Modems and verify that yours is listed.</td>
</tr>
</tbody>
</table>

### USB Device Problems

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>You have installed a USB device but your notebook does not recognize the device, or the device does not seem to work properly.</td>
<td>The device is not properly installed.</td>
<td>Remove and re-install the device. See “Device Ports” on page 50.</td>
</tr>
<tr>
<td></td>
<td>The device may have been installed while an application was running, so your notebook is not aware of its installation.</td>
<td>Close the application and restart your notebook.</td>
</tr>
<tr>
<td></td>
<td>Your software may not have the correct driver active.</td>
<td>See your software documentation and activate the correct driver.</td>
</tr>
</tbody>
</table>
You have installed a USB device but your LifeBook notebook does not recognize the device, or the device does not seem to work properly. (continued)

You may have the wrong I/O address selected for your device.

See your device documentation and software documentation to determine the required I/O address. Change the settings in the BIOS setup utility. See “BIOS Setup Utility” on page 31.

PC/CF Card Problems

A card inserted in the PCI or CF Card slot does not work or is locking up the system.

The card is not properly inserted.

Remove and re-insert the card. See “PC Cards” on page 43.

The card may have been inserted while an application was running, so your notebook is not aware of its insertion.

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.

Power Failures

You turn on your LifeBook notebook and nothing seems to happen.

The installed battery is completely discharged or there is no power adapter (AC or Auto/Airline) installed.

Check the Status Indicator Panel to determine the presence and condition of the battery. See “Status Indicator Panel” on page 13. Install a charged battery or a power adapter.

The primary battery is installed but is faulty.

Use the Status Indicator Panel to verify the presence and condition of the battery. See “Status Indicator Panel” on page 13. Use a power adapter until a battery is changed or install a charged battery.

The battery is low.

Check the Status Indicator Panel to determine the presence and condition of the battery. See “Status Indicator Panel” on page 13. Use a power adapter until a battery is charged or install a charged battery.

The AC or auto/airline adapter is not plugged in properly.

Verify that your adapter is connected correctly. See “Power Sources” on page 29.

Power adapter (AC or auto/airline) has no power from the AC outlet, airplane seat jack, or the car’s cigarette lighter.

Move AC cord to a different outlet, check for a line switch or tripped circuit breaker for the AC outlet. If you are using an adapter in a car, make sure the ignition switch is in the On or Accessories position.

The Power adapter (AC or auto/airline) is faulty.

Try a different Power adapter.

Your LifeBook notebook turns off all by itself.

The power management parameters are set for auto timeouts which are too short for your operating needs.

Press any button on the keyboard, or move the mouse to restore operation. If that fails, push the Suspend/Resume button. Check your power management settings, or close your applications and go to the Power Savings menu of the setup utility to adjust the timeout values to better suit your operation needs.

Your power adapter has failed or lost its power source.

Make sure the adapter is plugged in and the outlet has power.
## Troubleshooting

### Problem: Your LifeBook notebook turns off all by itself.

**Possible Cause:**
- You are operating on battery power and have ignored a low battery alarm until the battery is at the dead battery state and your machine has gone into Dead Battery Suspend mode.
- You have a battery failure.

**Possible Solutions:**
- Install a power adapter and then push the Suspend/Resume button. See “Power Sources” on page 29.
- Verify the condition of the battery using the Status Indicator panel, and replace or remove any shorted battery. See “Status Indicator Panel” on page 13.

### Problem: Your notebook will not work on battery alone.

**Possible Cause:**
- The installed battery is dead.
- No battery is installed.
- The battery is improperly installed.
- Your Installed battery is faulty.

**Possible Solutions:**
- Replace the battery with a charged one or install a power adapter.
- Install a changed battery.
- Verify that the battery is properly connected by re-installing them.
- Verify the condition of the battery using the Status Indicator panel and replace or remove any battery that is shorted. See “Status Indicator Panel” on page 13.

### Problem: The battery seems to discharge too quickly.

**Possible Cause:**
- You are running an application that uses a great deal of power due to frequent hard drive access or CD-ROM access, use of a modem or a LAN PC card.
- The battery is very old.
- The power savings features may be disabled.
- The brightness is turned all the way up.
- The battery has been exposed to high temperatures.
- The battery is too hot or too cold.

**Possible Solutions:**
- Use a power adapter for this application when at all possible.
- Replace the battery.
- Check the power management and/or setup utility settings in the Power Savings menu and adjust according to your operating needs.
- Turn down the brightness adjustment. The higher the brightness the more power your display uses.
- Replace the battery.
- Restore the notebook to normal operating temperature. The Status Indicator panel Charging icon will flash when the battery is outside its operating range.

### Shutdown and Startup Problems

#### The Suspend/Resume button does not work.

**Possible Cause:**
- The Suspend/Resume button is disabled.

**Possible Solutions:**
- In Windows XP, enable the button by going to the Control Panel \-> Power Options Properties and clicking on the Advanced tab. In the Power buttons area, select the option that best suits your needs. In Windows Vista, select the "Change what the power button does" option.
- Hold the button longer. This may need to be a few seconds if your application is preventing the CPU from checking for button pushes.
- Close all applications and try the button again.
The LifeBook B6200 Series – Section Five

The system powers up, and displays power on information, but fails to load the operating system.

**Possible Cause:** The boot sequence settings of the setup utility are not compatible with your configuration.

**Possible Solutions:** Set the operating source by pressing the [F2] key while the Fujitsu logo is on screen and enter the setup utility and adjust the source settings from the Boot menu. See "BIOS Setup Utility" on page 31.

You have a secured system requiring a password to load your operating system.

**Possible Cause:** Power On Self Test (POST) has detected a problem.

**Possible Solutions:** See the Power On Self Test (POST) messages to determine the meaning of the problem. Not all messages are errors; some are simply status indicators. See "Power On Self Test Messages" on page 62.

Your system display won’t turn on when the system is turned on or when the system has resumed.

**Possible Cause:** The system may be password-protected.

**Possible Solutions:** Check the status indicator panel to verify that the Security icon is blinking. If it is blinking, enter your password.

Your notebook appears to change setup parameters when you start it.

**Possible Cause:** BIOS setup changes were not saved when you exited the BIOS setup utility, returning it to previous settings.

**Possible Solutions:** Make sure you select Save Changes And Exit when exiting the BIOS setup utility.

The BIOS CMOS back-up battery has failed.

**Possible Cause:**

**Possible Solutions:** Contact your support representative for repairs. This is not a user serviceable part but has a normal life of 3 to 5 years.

### Video Problems

The built-in display is blank when you turn on your notebook.

**Possible Cause:** The optional Port Replicator is attached, an external monitor is plugged in, and the notebook is set for an external monitor only.

**Possible Solutions:** Pressing [F10] while holding down the [Fn] key allows you to change your selection of where to send your display video. Each time you press the key combination you will step to the next choice. The choices, in order are: built-in display only, external monitor only, both built-in display and external monitor.

The angle of the display and the brightness settings are not adequate for your lighting conditions.

**Possible Solutions:** Move the display and the brightness control until you have adequate visibility.

The power management timeouts may be set for very short intervals and you failed to notice the display come on and go off again.

**Possible Solutions:** Press any button the keyboard, or move the mouse to restore operation. If that fails, push the Suspend/Resume button. (The display may be shut off by Standby mode, Auto Suspend or Video Timeout).

The notebook turned on with a series of beeps and your display is blank.

**Possible Cause:** Power On Self Test (POST) has detected a failure that does not allow the display to operate.

**Possible Solutions:** Contact your support representative.

Your system display won’t turn on when the system is turned on or when the system has resumed.

**Possible Cause:** The system may be password-protected.

**Possible Solutions:** Check the status indicator panel to verify that the Security icon is blinking. If it is blinking, enter your password.
### Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The display goes blank by itself after you have been using it.</td>
<td>The notebook has gone into Video Timeout, Standby Mode, or Hibernate Mode because you have not used it for a period of time.</td>
<td>Press any button on the keyboard, or move the mouse to restore operation. If that fails, push the Suspend/Resume button. Check your power management settings, or close your applications and go to the Power Savings menu of the setup utility to adjust the timeout values to better suit your operation needs. See “BIOS Setup Utility” on page 31.</td>
</tr>
<tr>
<td>The display does not close.</td>
<td>A foreign object, such as a paper clip, is stuck between the display and the keyboard.</td>
<td>Remove all foreign objects from the keyboard.</td>
</tr>
<tr>
<td>The display has bright or dark spots.</td>
<td>If the spots are very tiny and few in number, this is normal for a large LCD display.</td>
<td>This is normal; do nothing.</td>
</tr>
<tr>
<td>The display does not close.</td>
<td>If the spots are numerous or large enough to interfere with your operation needs.</td>
<td>Display is faulty; contact your support representative.</td>
</tr>
<tr>
<td>The application display uses only a portion of your screen and is surrounded by a dark frame.</td>
<td>You are running an application that does not support 800 x 600/1024 x 768 pixel resolution display and display compression is enabled.</td>
<td>Display compression gives a clearer but smaller display for applications that do not support 800 x 600/1024 x 768 pixel resolution. You can fill the screen but have less resolution by changing your display compression setting. (See the Video Features submenu, located within the Advanced menu of the BIOS. See “BIOS Setup Utility” on page 31.</td>
</tr>
<tr>
<td>The display is dark when on battery power.</td>
<td>The BatteryAid default is set on low brightness to conserve power.</td>
<td>Press [Fn] + [F7] to increase brightness or right-click on the battery gauge and adjust Power Properties (In Vista: Power Options).</td>
</tr>
<tr>
<td>You have connected an external monitor and it does not display any information.</td>
<td>Your BIOS setup is not set to enable your external monitor.</td>
<td>Toggle the video destination by pressing [Fn]+[F10] together, or check your BIOS setup and enable your external monitor. (See the Video Features submenu, located within the Advanced Menu of the BIOS. See “BIOS Setup Utility” on page 31.</td>
</tr>
<tr>
<td>You have connected an external monitor and it does not come on.</td>
<td>Your external monitor is not properly installed.</td>
<td>Reinstall your device. See “External Video Port” on page 51.</td>
</tr>
<tr>
<td>You have connected an external monitor and it does not come on.</td>
<td>Your operating system software is not set up with the correct driver for that device.</td>
<td>Check your device and operating system documentation and activate the proper driver.</td>
</tr>
<tr>
<td>Miscellaneous Problems</td>
<td>Error message is displayed on the screen during the operation of an application.</td>
<td>See your application manual and help displays screens for more information. Not all messages are errors some may simply be status.</td>
</tr>
</tbody>
</table>
**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 successfully tested by the Power On Self Test. (This can only appear if you have an SRAM PC Card inserted.)

- ***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 31 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 set if both the fixed disk, and drive A: are properly identified and that the boot sequence is set correctly. Unless you have changed your installation greatly, the operating system should be on drive C: If the setup utility is correctly set, your hard drive may be corrupted and your system may have to be re-installed from your backup media.
Troubleshooting

*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 for repairs.

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.

MODEM RESULT CODES
The operating system and application software that is factory installed detects the modem characteristics and provides the necessary command strings to operate the modem. The internal modem operation is controlled by generic AT commands from the operating system and application software. The standard long form result codes may, in some cases, be displayed on your screen to keep you informed of the actions of your modem. The operating system and application software may suppress display of the result codes.

Examples of result codes are:

- OK
- NO CARRIER
- NO DIALTONE
- CONNECT 3300 (Connection complete at 33,000 bps.)
- ERROR
- FAX
- RING (This means an incoming call)
- BUSY
- NO ANSWER

When using the internal modem with applications that are not factory installed refer to the application documentation.
LifeBook B6200 Series – Section Five

Restoring Your
Pre-installed Software

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

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.

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.
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 FACTORY IMAGE

The Restore Disc that came with your system contains two utilities:

- The Recovery utility allows you to restore the original contents of the C: drive.
- 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.

BOOT Priority Change

Before restoring an image, you must first verify that your system is set up to boot from the DVD drive. To verify/ change the boot-up priority (rather than booting-up from the hard drive or an external floppy disk drive), perform one of the following procedures:

Changing priority from BOOT Menu:

1. Start your system and press the [F12] key when the Fujitsu logo appears. You will open the Boot Menu window.
2. Using the arrow keys, select the device from which you want to boot.
3. Press [Enter]. Note that this is a one-time boot priority. To change the boot priority for a longer period, perform the steps above in "Changing priority from BIOS Setup utility".

Changing priority from BIOS Setup utility:

1. Start your system and press the [F2] key when the Fujitsu logo appears. You will enter the BIOS Setup Utility.
2. Press the [Enter] key or the left mouse button when the Fujitsu logo appears. The TrustedCore Menu will appear. Select BIOS Setup from the TrustedCore Menu.
3. Using the arrow keys, go to the Boot menu.

In order to install applications and/or drivers from the DAR DVD, you will need to connect an external DVD drive to your system.

If you have access to the internet, visit the Fujitsu Support website at www.us.fujitsu.com/computers to check for the most current information, drivers and hints on how to perform recovery and system updates.

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.

The use of this disc requires that you have a device capable of reading DVDs attached to your system. For more information on available external devices, visit our Website: www.shopfujitsu.com

This disc can only be used with the system with which it was purchased.
Troubleshooting

3. Arrow down to the Boot Device Priority submenu. Press [Enter].

4. If “Optical Media Drive” or “CD-ROM Drive” is not at the top of the list, arrow down to the drive in the list, and press the space bar (or the + key) to move it to the top of the list (the system attempts to boot from the devices in the order in which they are listed). Note that the BIOS for some systems will indicate “CD-ROM Drive”, even when a DVD drive is connected.

5. If you have an external DVD drive connected, proceed to the next step; otherwise, proceed to step 7.

6. If you have an external DVD drive connected:
   a. Select the Advanced menu in the BIOS window.
   b. Scroll down to the USB Features submenu and press the Enter key to open it.
   c. If Legacy USB Support is disabled, press the space bar to enable it.
   d. Scroll down to SCSI SubClass Support and press the space bar to enable it.

7. Press [F10], then click on [Yes] to exit the BIOS Setup Utility and return to the boot process.

After you have changed the boot priority, you can restore a backup image when you are booting up.

Procedure

1. Turn on the power to your system.
2. Ensure that you have a device that can read DVDs either installed in your system or attached externally to it.
3. Insert the Restore Disc into the drive tray.
4. Reboot your system.

After the system reboots, follow the instructions that appear to either restore your system image or erase all data from your hard disk.

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 FDU icon does not appear in the system tray, it can be started by going to [Start] -> All Programs, and clicking 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.
6

Care and Maintenance
Care and Maintenance

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

- 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 standby dates, 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 mishandled. 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.

LIFEBOOK NOTEBOOK

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

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

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

Traveling with your LifeBook notebook
- Do not transport your notebook while it is turned on.
- Do not check your notebook as baggage. Carry it with you.
- When traveling with the hard drive removed, wrap the drive in a non-conducting materials (cloth or paper). If you have the drive checked by hand, be ready to install the drive if needed. Never put your hard drive through a metal detector. Have your hard drive hand-inspected by security personnel. You can however, put your hard drive through a properly tuned X-ray machine.
- Take the necessary plug adapters if you’re traveling overseas. Check the following diagram to determine which adapter you’ll need or ask your travel agent.
Caring for your Keyboard
The keyboard of your computer is a very sensitive instrument. It is made up of many switches that are activated when you press on the keys. The keyboard is a major component of the heat dissipation system in a notebook. Due to heat and size considerations the keyboard is not sealed. Because the keys are so close together, it is not easy for the user to see when liquids have fallen onto the circuitry below the keys.

When attempting to clean the keyboard with a spray-on cleaner or rag soaked with cleaner, the liquid can drip unseen onto the circuitry. If liquid seeps between the layers of circuitry, it can cause corrosion or other damage to the circuits. This can result in keys which no longer operate, or which display the wrong characters. There is no repair for this problem other than replacement. The solution is to become aware of the issue and take appropriate steps to protect your keyboard.

Cleaning should be done with a rag lightly dampened with cleaning solution. Use extreme care to prevent liquid from dripping between the keys. Spraying directly on the keys should be avoided. The spray should first be applied to the cloth, then the cloth wiped over the keys.

Caring for your Batteries
Always handle batteries carefully.
Do not short-circuit the battery terminals (that is, do not touch both terminals with a metal object). Do not carry loose batteries in a pocket or purse where they may mix with coins, keys, or other metal objects. Doing so may cause an explosion or fire.

Do not drop, puncture, disassemble, mutilate or incinerate the battery.
Recharge batteries only as described in this manual and only in ventilated areas.
Do not leave batteries in hot locations for more than a day or two. Intense heat can shorten battery life.
Do not leave a battery in storage for longer than 6 months without recharging it.

Increasing Battery Life
Keep brightness to the lowest level comfortable.
Set the power management for maximum battery life.
Put your notebook in Standby mode when it is turned on and you are not actually using it.
Limit your CD-ROM access.
Disable the Windows CD auto insert function.
Always use fully charged batteries.
Eject PCMCIA cards when not in use.

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

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

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

**CDs**

Caring for your CDs

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

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

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

- The drive rotates the compact disk at a very high speed. Do not carry it around or subject it to shock or vibration with the power on.
- Avoid using or storing the drive where it will be exposed to extreme temperatures.
- Avoid using or storing the drive where it is damp or dusty.
- Use of a commercially-available lens cleaner kit is recommended to maintain the drive lens.
- 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 CD-ROM drive.

**PC/CF CARDS**

Caring for the Card Slots

PC and Compact Flash Cards are durable, but you must treat them with care. The documentation supplied with your cards provides specific information for caring for the cards.

When you don’t have a CF Card installed in your system, you should be sure to install the CF Card slot insert that came with your system. These will help to keep dust and dirt out of your system.
7 Specifications
Specifications

This section provides the hardware and environmental specifications for your Fujitsu LifeBook B6200 Series notebook. Specifications of particular configurations will vary.

CONFIGURATION LABEL

Your LifeBook notebook contains a configuration label located on the bottom. (See figure 2-8 on page 11 for location) This label contains specific information regarding the options you’ve chosen for your notebook. Following is an example label and information on how to read your own configuration label.

<table>
<thead>
<tr>
<th>Configuration P/N</th>
<th>P/N: FPCMXXXXX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>B6220, Intel U1500, 12.1T, XPP, 60G, 512M</td>
</tr>
</tbody>
</table>

| Processor         | 1286, Intel U1500 |
| Screen Size       | 12.1 inch XGA |
| Hard Drive        | 60 GB, 512 MB |
| Memory            | 512 MB |

Figure 7-5. Configuration Label

MICROPROCESSOR

Intel® Core™ Solo® ULV processor (to determine the speed of your processor, right-click My Computer, select Properties, then select the General tab.)

MEMORY

System Memory
- 2 DIMM slots
- Up to 2 GB DDR2 SDRAM
- Dual channel capable
- 533 MHz clock speed

Chipset
- Intel 945GM

Cache Memory
- L1: 64 KB
- L2: 2 MB on-die

BIOS Memory
- 1 MB Flash ROM

VIDEO

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

Graphics Card
- Integrated Intel® GMA950

Video Color and Resolution
- 12.1” XGA TFT
- Internal: 1024 x 768 pixel resolution, 16M colors.
- External: 1600 x 1200 pixel resolution, 16M colors.
- Simultaneous Video: 1024 x 768, 16M colors (XGA, SVGA and VGA compatible).

Video RAM
- Up to 224 MB of shared memory using Unified Memory Architecture (UMA). Dynamically responds to application requirements and allocates the proper amount of memory for optimal graphics and performance.

AUDIO

- Realtek ALC262 codec
- Stereo headphone/line-out jack, 1 Vrms or less, minimum impedance 32 Ohms.
- Stereo microphone/line-in jack, 125 mVp-p or less, minimum impedance 10K Ohms.
- Two built-in speakers, 28 mm diameter (Stereo).
- One built-in microphone

MASS STORAGE DEVICE OPTIONS

Floppy Disk Drive
- Optional external USB 3.5” Floppy Disk Drive, which accommodates 1.44MB or 720KB floppy disks.

Hard Disk Drive
- Depending upon your system configuration, you will have one of the following devices installed:
  - 40 GB, 60 GB, or 80 GB fixed hard drive, Ultra ATA/100 type, 2.5”; 9.5mm, 4200 rpm, shock-mounted
  - Ultra ATA/100 type, 2.5”; 9.5mm, 5400 rpm, shock-mounted fixed hard drive
  - Solid State Drive

INTEGRATED POINTING DEVICE

Touchpad pointing device
LIFEBOOK SECURITY/APPLICATION PANEL
Depending upon the operating system installed on your system, the security/application buttons have different and functions. If you have Microsoft Windows XP Professional Edition installed on your system, refer to Table 2-1 on page 22. If you have Microsoft Windows XP Tablet PC or Windows Vista Editions installed on your system, refer to Table 2-2 on page 22.

SECURITY FEATURES

Theft Prevention Lock Slot
Lock slot for use with physical restraining security systems.

Fingerprint Sensor
Optional fingerprint sensor in some configurations

Trusted Platform Module (TPM)
The embedded TPM 1.2 protects digital identification and data, and authenticates you to your network. It also allows you to securely store private keys and certificates for file and folder encryption, Web, email, digital signature and passwords.

COMMUNICATIONS

- Modem: Internal Multinational V.90 standard 56K* fax/modem (ITU V.90, 56K data, 14.4K fax.), and LAN: 10/100/1000 base-T/Tx Gigabit Ethernet (Marvell 88E805X, PCI-e)
- Optional Integrated Atheros SuperAG Wireless LAN (802.11a/b/g) with Antenna On/Off switch
- Optional Bluetooth 2.0 device for wireless personal area network communication

* Actual data transfer rate over U.S. telephone lines varies and is less than 56Kbps due to the current FCC regulations and line conditions.

DEVICE PORTS

On the LifeBook notebook:
- PC Card slot for Type I or Type II cards: PCMCIA Standard 2.1 with CardBus support
- Compact Flash Card slot, Type II
- One 15-pin D-SUB connector for VGA external video device (see Video specifications)
- Two USB 2.0 (Universal Serial Bus) jacks for input/output devices
- One modem (RI-11) connector
- One LAN (RI-45) jack
- One stereo headphone/line-out jack. (See Audio specifications)
- One stereo microphone/line-in jack. (See Audio specifications)
- One 80-pin connector for docking devices
- One embedded Smart Card Reader (requires an optional Smart Card holder and a third-party application)

On the Optional Port Replicator:
- One 15-pin D-SUB connector for VGA external video device (see Video specifications).
- One DC In jack
- Two USB 2.0 jacks
- One RJ-45 port for LAN connectivity

KEYBOARD
Built-in keyboard with all functions of 101 key PS/2 compatible keyboards.
- Total number of keys: 82
- Function keys: F1 through F12
- Feature extension key: Fn
- Two Windows keys: one Start key and one application key
- Key pitch: 18 mm
- Key stroke: 2 mm
- Spill resistant
- Built-in Flat Point pointing device with left and right buttons
- Built-in Palm Rest

External Keyboard/Mouse Support
USB-compatible only

POWER

Batteries
One 6-cell Lithium ion battery, rechargeable, 7.2V, 7800 mAh, 56.2 Whr, rated up to 8 hours

AC Adapter
Autosensing 100-240V AC, 60W, supplying 16V DC, 3.75A, to the LifeBook notebook, Fujitsu Model FPCAC45AP, which includes an AC cable.

Power Management
Conforms to ACPI (Advanced Configuration and Power Interface) standards.

DIMENSIONS AND WEIGHT

Overall Dimensions
Approximately 10.55"(w) x 9.02"(d) x 1.29"(h) (268 mm x 229 mm x 32.7 mm)

Weight
Approximately 3.30 lbs (1.50 kg) with 6-cell battery. Optional Port Replicator approximately 0.7 lbs.

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.
POPULAR ACCESSORIES
For ordering or additional information on Fujitsu accessories, please visit our Website at www.shop-fujitsu.com or call 1-800-FUJITSU.

PRE-INSTALLED SOFTWARE
Your LifeBook comes with pre-installed software for playing audio and video files of various formats. The software configuration installed is dependent upon the operating system that is pre-installed on your system. In addition, there is file transfer software, virus protection software and Power Management software.

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 LifeBook notebook you will find manuals for your operating system and other pre-installed software. 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.

Microsoft Windows
Depending upon the configuration of your notebook, Microsoft Windows XP Professional, Microsoft Windows XP Tablet PC Edition, or Microsoft Windows Vista Business is installed as your operating system.

Fujitsu HotKey Utility
Utility for displaying the brightness and volume levels on your LifeBook screen.

Microsoft Internet Explorer
Internet Explorer is installed as your default internet browser.

Adobe Acrobat Reader
The Adobe Acrobat Reader, located in the Service and Support Software folder, allows you to view, navigate, and print PDF files from across all major computing platforms.

LifeBook Security/Application Panel Software
Your LifeBook notebook is pre-installed with software utilities that let you operate and configure your LifeBook Application Panel. These utilities are found under the Start menu, under Programs, then under LifeBook Application panel. They include a CD Player, Application Panel Setup, Application Panel Guide, Activate Panel and Deactivate Panel.
Glossary
Glossary

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

**ACPI**
Advanced Configuration 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.

**AdHoc**
A name of a wireless LAN configuration. It is a type of communication using wireless cards only. Another type of communication is called Infrastructure (using a wireless card and an access point).

**ADSL**
Asymmetric Digital Subscriber Line

**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**
A radio frequency band used for communication between wireless cards and access points.

**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.

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

Encryption Key (Network Key)
Key information used to encode data for data transfer.
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. Example: the shock you get from a doorknob on a dry day or the sparks you get from brushing hair on a dry day.

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

FCC
Federal Communication Commission.

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

GB
Gigabyte.

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

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

IEEE 1394
Industry standard that allows you to connect between your notebook and a peripheral device such as a digital camera. Also known as “Firewire” or “iLINK”.

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

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

T

Glossary

**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 AdHoc.

**IP Address**
An address used for computers to communicate in the TCP/IP environment.

Current IPv4 (version 4) uses four values in the range between 1 and 255. (Example: 192.168.100.123).

There are two types of IP address: global address and private address.

The global address is an only address in the world. It is controlled by JPNIC (Japan Network Information Center). A private address is an only address in the closed network.

**IR**
An abbreviation for infrared.

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

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

**KB**
Kilobyte.

**LAN**
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.

**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.

**MUPU-401**
A standard for MIDI interfaces and connectors.

**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.

**NTSC**
National TV Standards Commission. The standard for TV broadcast and reception for the USA.
Operating System
A group of control programs that convert application commands, including driver programs, into the exact form required by a specific brand and model of 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.

PCI
Peripheral Component Interconnect
Self-configuring PC local bus. Designed by Intel, PCI has gained wide acceptance as a standard bus design.

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 computer telling your hardware what to do and how and when to do it.

Protocol
Procedures and rules use to send and receive data between computers.
- Method of sending and receiving data
- Process used to handle communication errors
Conditions required for communication are organized in procedures for correct transfer of information.

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

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

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

Restart
See Reset.

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

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

SDRAM
Synchronous Dynamic Random Access Memory.

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

SMART
Self-Monitoring, Analysis and Reporting Technology (SMART) is an emerging technology that provides near-term failure predictions for hard drives. When SMART is enabled the hard drive monitors pre-determined drive attributes that are susceptible to degradation over time. If a failure is likely to occur, SMART makes a status report available so that the LifeBook notebook can prompt the user to back up the data on the drive. Naturally not all failures are predictable. SMART predict-
ability is limited to those attributes which the drive can self-monitor. In those cases where SMART can give advance warning, a considerable amount of precious data can be saved.

**SRAM**
Static random access memory. A specific technology of making RAM which does not require periodic data refreshing.

**SSID**
Service Set Identifier
Specifies which network you are joining. Some systems allow you to specify any SSID as an option so you can join any network.

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

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

**SVGA**
Super VGA.

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

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

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

**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.

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

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

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

**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 website at: www.wirelessethernet.com.

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

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

**XGA**
Extended VGA.
FCC NOTICES

Notice to Users of Radios and Television

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.

Notice to Users of the US Telephone Network

This equipment complies with Part 68 of the FCC rules. On the bottom of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

This equipment is designed to be connected to the telephone network or premises wiring using a standard jack type USOC RJ11C. A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant.

The ringer equivalent number (REN) of this equipment is 0.1B as shown on the label. The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please refer to the manual or contact Fujitsu Computer Systems Corporation, Customer Service. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

The equipment cannot be used on public coin service provided by the telephone company. Connection to party line service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information).

If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this computer does not disable your alarm equipment. If you have any questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time of transmission, the date on which the document was originated, and the telephone number of the sending machine or other electronic device.

Changes or modifications not expressly approved by Fujitsu could void this user’s authority to operate the equipment.
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 classe B est conforme à toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Notice to Users of the Canadian Telephone Network
NOTICE: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

Before connecting this equipment to a telephone line the user should ensure that it is permissible to connect this equipment to the local telecommunications facilities. The user should be aware that compliance with the certification standards does not prevent service degradation in some situations.

Repairs to telecommunication equipment should be made by a Canadian authorized maintenance facility. Any repairs or alterations not expressly approved by Fujitsu or any equipment failures may give the telecommunications company cause to request the user to disconnect the equipment from the telephone line.

NOTICE: The Ringer Equivalence Number (REN) for this terminal equipment is 0.1B. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

For safety, users should ensure that the electrical ground of the power utility, the telephone lines and the metallic water pipes are connected together. Users should NOT attempt to make such connections themselves but should contact the appropriate electric inspection authority or electrician. This may be particularly important in rural areas.
Appendix A

Integrated Wireless LAN* User’s Guide

*Optional Device
FCC REGULATORY INFORMATION

Please note the following regulatory information related to the optional wireless LAN devices.

Regulatory Notes and Statements

Wireless LAN, Health and Authorization for use

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

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

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

Regulatory Information/Disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modifications, substitution or attachment. The manufacturer is not responsible for interference received, including interference that may cause undesired operation. Modifications not expressly authorized by Fujitsu Computer Systems Corporation may invalidate the user's right to operate this equipment.

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 Computer Systems Corporation 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 bands) to comply with the e.i.r.p. limit as stated in A.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 5600 - 5800 MHz and these radars could cause interference and/or damage to LE-LAN devices.

FCC Radio Frequency Exposure statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the Wireless LAN/Bluetooth antenna and your body. The WLAN antennas are located on left and right ends of the top edge of the LCD screen; the Bluetooth antenna is located in the center of the top edge of the LCD screen.

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

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 Computer Systems Corporation may invalidate the user's right to operate this equipment.

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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.
Before Using the Wireless LAN

This manual describes the procedures required to properly setup 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 Devices Covered by this Document
This document is applicable to systems containing an Atheros AR5006EXS (AR5BXB6) Mini-PCI wireless network card (802.11a+b/g).

Characteristics of the WLAN Device
• The WLAN device is a Mini-PCI card attached to the mainboard of the mobile computer.
• It is a dual-band radio that operates in two license-free RF bands, therefore eliminating the need to procure an FCC license to operate. It operates in the 2.4GHz Industrial, Scientific, and Medical (ISM) RF band. Additionally, the Atheros device operates in the lower, middle, and upper bands of the 5GHz Unlicensed National Information Infrastructure (UNII) bands.
• The Atheros SuperAG WLAN is capable of three operating modes, IEEE802.11a, IEEE802.11b and IEEE802.11g, wireless LAN standards governed by the IEEE (Institute of Electronics and Electrical Engineers).
• Encoding of data is modulated using Direct Sequence Spread Spectrum (DSSS) and Complementary Code Keying (CCK) when the WLAN device is operating in IEEE 802.11b mode and Orthogonal Frequency Division Multiplexing (OFDM) when operating in IEEE802.11a or IEEE802.11g mode.
• The WLAN device is Wi-Fi certified and operates at the maximum data transfer rate of 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.

WIRELESS LAN MODES USING THIS DEVICE
Ad Hoc Mode
(See Figure A-1)
"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 (service set identifier), network authentication, and encryption key settings are identically configured on all computers in the Ad Hoc network.

Access Point (Infrastructure) Mode
(See Figure A-2)
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 wired LAN in order to access computers, devices, and services such as file servers, printers, and databases.
How to Handle This Device
The WLAN device comes pre-installed in your mobile computer. Under normal circumstances, it should not be necessary for you to remove or re-install it. The operating system that your mobile computer comes with has been pre-configured to support the WLAN device.

WIRELESS NETWORK CONSIDERATIONS

- The Atheros WLAN device supports IEEE802.11a/b/g and operates in the 2.4GHz ISM band and the 5 GHz UNII bands.
- 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 2.4GHz frequency range may interfere with the operation of WLAN devices in IEEE802.11b/g modes. Symptoms of interference include reduced throughput, intermittent disconnects, and large amounts of frame errors. It is HIGHLY recommended that these interfering devices be powered off to ensure the proper operation of the WLAN device.

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 two methods with which to deactivate the WLAN device:

- Using the Wireless On/Off Switch, or,
- Using the Atheros Client Utility software.

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. (Figure A-3)

The wireless On/Off switch has no effect on non-Wireless LAN models.

Deactivation using Atheros Client Utility software
2. Choose Action and click Disable Radio.

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
- Using the Atheros software

*An optional hub for a wired LAN may be required depending upon the type of access point used.
Configuration of the WLAN Device

The optional WLAN device can be configured to establish wireless network connectivity using the Windows Vista software or for Windows XP systems - the Atheros Client Utility software. The Atheros Client Utility software allows for multiple profile setups and supports automatic profile switching. Support for most industry standard security solutions, as well as Cisco Compatible Extensions (CCX), is contained in this software.

There are two procedures outlined below: The first one is for use with the Windows Vista operating system, and the other is used with the Windows XP operating system.

CONFIGURING THE WLAN WITH WINDOWS VISTA

The WLAN device can be configured to establish wireless network connectivity using the software that is built into Windows Vista. 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:
1. Click the Start button, then select Control Panel.
2. If the Control Panel is not in Classic View, select Classic View from the left panel. Double-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 WITH WINDOWS VISTA

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".

CONFIGURATION USING AHEROS CLIENT UTILITY SOFTWARE (WINDOWS XP)

This section explains the procedure to properly configure the WLAN device using the Atheros Client Utility. Pre-defined parameters will be required for this procedure. Please consult with your network administrator for these parameters:

Network Name: Also known as the SSID
Network Key (WEP): Required if using static WEP keys.
Authentication Type: Open, Shared, WPA, or WPA-PSK

Procedure
1. Activate the WLAN device using either the Wireless On/Off Switch or the Atheros Client Utility.
2. Click [Start] -> Programs -> Atheros -> Atheros Client Utility.
3. Click the Profile Management tab.
4. If this is your first time using this utility, highlight the profile [Default] and Click the [Modify] button, otherwise Click the [New] button. The Profile Management dialog displays.
5. From the General tab, enter a profile name in the Profile Name field.
6. Enter the network SSID, in the SSID1 field. If you wish to create a profile that can connect to up to 3 different wireless networks, SSIDs can be entered in the SSID2 and SSID3 fields as well.
7. Click the Security tab.
8. The Security tab allows for the configuration of the Security modes listed in the table below. Please select the radio button of the desired security mode.
9. 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.
9. Click [OK].
10. Click the Advanced tab.
11. The Advanced tab allows for the configuration of the options detailed in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPA/WPA2</td>
<td>Enables the use of Wi-Fi Protected Access. Choosing WPA opens the WPA EAP drop-down menu. If these settings are not known to you, please consult with your network administrator for the correct settings.</td>
</tr>
<tr>
<td>WPA/WPA2</td>
<td>Enables WPA Pre-Shared Key. Click on the Configure button to enter the WPA Passphrase. If these settings are not known to you, please consult with your network administrator for the correct settings.</td>
</tr>
<tr>
<td>802.1x</td>
<td>Enables 802.1x security. If these settings are not known to you, please consult with your network administrator for the correct settings. Choosing this option opens the 802.1x EAP type drop-down menu.</td>
</tr>
<tr>
<td>Pre-Shared Key</td>
<td>Enables the use of pre-shared keys that are defined on both the access point and the station. This is where static WEP keys are entered. Click the Configure button to fill in the Define Pre-Shared Keys window.</td>
</tr>
</tbody>
</table>

None | No security

9. Click [OK].
10. Click the Advanced tab.
11. The Advanced tab allows for the configuration of the options detailed in the table below.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Save Mode</td>
<td>Options are Maximum, Normal, or Off.</td>
</tr>
<tr>
<td>Network Type</td>
<td>Options are AP (Infrastructure) or Ad Hoc.</td>
</tr>
<tr>
<td>802.11b Preamble</td>
<td>Specifies the preamble setting in 802.11b. The default setting is Short and Long (Access Point mode), which allows both short and long headers in the 802.11b frames. Set to Long Only to override allowing short frames.</td>
</tr>
<tr>
<td>Transmit Power Level</td>
<td>Options are selectable, depending upon whether 802.11b or 802.11a is used.</td>
</tr>
<tr>
<td>Wireless Mode</td>
<td>Specifies 5 GHz 54 Mbps, 2.4 GHz 11 Mbps, or 2.4 GHz 54 Mbps operation in an access point network.</td>
</tr>
<tr>
<td>Wireless Mode when Starting Ad Hoc Network</td>
<td>Specifies 5 GHz 54 Mbps, 5 GHz 108 Mbps, or 2.4 GHz 11 Mbps to start an Ad Hoc network if no matching network name is found after scanning all available modes.</td>
</tr>
</tbody>
</table>

12. Click [OK].
13. If the profile you just created does not activate immediately, click the Profile Management tab, highlight the desired Profile, and click Activate.
14. Click [OK] to close the Atheros Client Utility.

### CONNECTION TO THE NETWORK (WINDOWS XP)

#### Setting TCP/IP

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

1. Click the [Start] button first and then [Control Panel].
2. If the Control Panel is in Category view, switch to Classic view by clicking "Switch to Classic View" under Control Panel the left frame. (If you are already in Classic view, "Switch to Category View" will be displayed.)
3. Double-click [Network Connections]. A list of currently installed networks will be displayed.
5. Click the [General] tab if it is not already selected.
6. Click [Internet Protocol (TCP/IP)] and then click [Properties]. The [Internet Protocol (TCP/IP) Properties] window will be displayed.
7. Set the IP address as follows:
   - For ad hoc connection: Select [Use the following IP address:] and then enter data for [IP address] and [Subnet mask]. See page 102 for IP address setting.
   - For access point (infrastructure) connection: If your network uses DHCP, select [Obtain an IP address automatically] and [Obtain DNS server address automatically]. If your network uses static IP addresses, consult with your network administrator for the correct IP address settings.
8. Click the [OK] button. Processing will return to the [Wireless Network Connection Properties] window.
9. Click the [OK] button.
Following this operation, confirm the names of the computer and the workgroup as follows.
Confirming the computer and work group names

To modify the computer name and/or the work group name, you need to be logged in from Windows as an administrator.

1. Click the [Start] button, then [Control Panel].
2. If the Control Panel is in Category view, switch to Classic view by clicking "Switch to Classic View" under Control Panel the left frame. (If you are already in Classic view, "Switch to Category View" will be displayed.)
3. Double-click the [System] icon. The [System Properties] window will be displayed.
4. Click the [Computer Name] tab.
5. Confirm the settings of [Full computer name:] and [Workgroup:].
   a. The setting of [Full computer name:] denotes the name for identifying the computer. Any name can be assigned for each personal computer.
      Enter the desired name in less than 15 ASCII character code format. Identifiability can be enhanced by entering the model number, the user name, and other factors.
   b. [Workgroup name] is the group name of the network. Enter the desired name in less than 15 ASCII character code format.

For ad hoc connection: Assign the same network name to all personal computers existing on the network.

For access point (infrastructure) connection: Assign the name of the work group to be accessed.

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

To share a file and/or the connected printer, you need to be logged in as an administrator.

Setting the Microsoft network-sharing service

1. Click the [Start] button first and then [Control Panel].
2. If the Control Panel is in Category view, switch to Classic view by clicking "Switch to Classic View" under Control Panel the left frame. (If you are already in Classic view, "Switch to Category View" will be displayed.)
3. Double-click [Network Connections]. A list of currently installed networks will be displayed.
5. If [File and Printer Sharing for Microsoft Networks] is displayed, proceed to step 6. If [File and Printer Sharing for Microsoft Networks] is not displayed, skip to step 7.
6. Make sure that the [File and Printer Sharing for Microsoft Networks] check box is checked, and then click the [OK] button. Skip to "Setting file-sharing function".
7. Click [Install]. The [Select Network Component Type] window will be displayed.
8. Click [Service], then click the [Add] button. The [Select Network Service] window will be displayed.
9. Click [File and Printer Sharing for Microsoft Networks] and then click the [OK] button. Processing will return to the [Wireless Network Connection Properties] window, and [File and Printer Sharing for Microsoft Networks] will be added to the list.
10. Click the [Close] button.

Setting the file-sharing function

The procedure for setting the file-sharing function follows, with the "work" folder in drive C: as an example.

2. Double-click [Local disk (C:)].
3. Right-click the "work" folder (or whichever folder you want to share), and then click [Sharing and Security..] in the menu displayed. The [Folder Name Properties] window will be displayed.
4. Click [Sharing] if it isn’t already selected.
5. Click the link stating “If you understand the security risks, but want to share files without running the wizard, click here”.
6. Click “Just enable file sharing” and click [OK].
7. Check the [Share this folder on the network] check box.
8. Click the [OK] button. The folder will be set as a sharable folder, and the display of the icon for the “work” folder will change.

Setting the file-sharing function

To specify the corresponding folder as a read-only folder, select the [Read only] checkbox under the General tab.

8. Click the [OK] button. The folder will be set as a sharable folder, and the display of the icon for the “work” folder will change.

Setting the printer-sharing function

1. Click the [Start] button first and then [Printers and FAX] (In Vista: Printers control panel). A list of connected printers will be displayed.
2. Right-click the printer for which the sharing function is to be set, and then click [Sharing] in the menu displayed. The property window corresponding to the selected printer will be displayed.
3. Click the [Sharing] tab.
4. Click [Share this printer].
5. Enter the sharing printer name in [Share name].
6. Click the [OK] button.

Confirming connection

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

Connecting your personal computer to another personal computer

1. Click [Start] first and then [My Computer]. The [My Computer] window will be displayed in the left frame.
3. Click [View workgroup computers] under Network Tasks in the left frame.
4. Double-click the personal computer to which your personal computer is to be connected. The folder that was specified in “Setting the file-sharing function” on page 96 will be displayed.
5. Double-click the folder to be accessed.

Confirming the status of the radio

1. Right-click the Atheros icon in the lower right corner of the screen.
2. Click [Open Atheros Client Utility]. The Atheros Client Utility window opens.
3. Contained within the Current Status and Profile Management tabs, you will find the current operating status of the radio. (When the radio is turned off or the computer is not yet connected, some of the conditions will not be displayed.)

Among the information displayed are the following:
- **Network Name (SSID)**
  - Displays the Network Name (SSID) currently used by the radio.
- **Profile Name**
  - The current configuration profile is displayed.
- **Mode**
  - Displays the current operating mode. [Infrastructure (AP)] or [Ad Hoc] will be displayed.
LifeBook B6200 Series - Appendix A

- **Data Encryption**
  Displays the current security status of the profile being used:
  - None: No encryption used.
  - WEP: WEP encryption algorithm used.
  - CKIP: WEP encryption algorithm used.
  - TKIP: WEP encryption algorithm used.

- **Signal Strength**
  Displays the current strength of the signal being received by the radio.

- **Current Channel**
  Displays the current transmit and receive channel being used.

- **Radio Status**
  Displays the current status of the radio.
## Troubleshooting the WLAN

### TROUBLESHOOTING TABLE
Causes and countermeasures for troubles you may encounter while using your wireless LAN are described in the following table.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Possible Solution</th>
</tr>
</thead>
</table>
| Unavailable network connection| Incorrect network name (SSID) or network key                                  | **Ad hoc connection:** verify that the network names (SSID’s) and network keys (WEP) of all computers to be connected have been configured correctly. SSID’s and WEP key values must be identical on each machine.  
**Access Point (Infrastructure) connection:** set the network name (SSID) and network key to the same values as those of the access point.  
Set the Network Authentication value identically to that of the Access Point. Please consult your network administrator for this value, if necessary. |
| Weak received signal strength and/or link quality | **Ad hoc connection:** Retry connection after shortening the distance to the destination computer or removing any obstacles for better sight.  
**Access Point (Infrastructure) connection:** Retry connection after shortening the distance to the access point or removing any obstacles for better sight.  
To check the wave condition, refer to the following page: “Confirming the status of the radio” on page 97. |                                                                                                                                            |
| The WLAN device has been deactivated or disabled | Check if the wireless switch is turned ON. Also verify “Disable Radio” is not checked in “Network setting” window. |                                                                                                                                            |
| 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 misconfigured 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. For the method of checking, refer to the following page: “Connection to the Network” on page 95. |                                                                                                                                            |
| Incorrect IP address configuration | This only applies to networks using static IP addresses. Please contact your network administrator for the correct settings. |                                                                                                                                            |
## Wireless LAN Glossary

### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ad Hoc Mode</strong></td>
<td>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. For details, refer to &quot;Ad hoc connection&quot; on page 92.</td>
</tr>
<tr>
<td><strong>Channel</strong></td>
<td>Range of narrow-band frequencies used by the WLAN device to transmit data. IEEE802.11b/g - 11 channels, 22 MHz wide channels.</td>
</tr>
<tr>
<td><strong>DHCP</strong> (Dynamic Host Configuration Protocol)</td>
<td>A protocol that provides a means to dynamically allocate IP addresses to computers on a local area network.</td>
</tr>
<tr>
<td><strong>DNS</strong> (Domain Name System)</td>
<td>A data query service that provides a mechanism with which to translate host names into Internet addresses.</td>
</tr>
<tr>
<td><strong>IEEE802.11a</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>IEEE802.11b</strong></td>
<td>Wireless LAN standard that supports a maximum data rate of 11 Mbps. 802.11b devices operate in the 2.4 GHz ISM band.</td>
</tr>
<tr>
<td><strong>Access point</strong></td>
<td>Wireless network device used to bridge wireless and wired network traffic.</td>
</tr>
<tr>
<td><strong>IP address</strong></td>
<td>The logical 32-bit host address defined by the Internet Protocol that uniquely identifies a computer on a network. The IP address is usually expressed in dotted decimal notation.</td>
</tr>
<tr>
<td><strong>LAN</strong> (Local Area Network)</td>
<td>A LAN or Local Area Network is a computer network (or data communications network) which is confined to a limited geographical area.</td>
</tr>
</tbody>
</table>

**MAC address (Media Access Control Address)**

A MAC address (also called an Ethernet address or IEEE MAC address) is the 48-bit address (typically written as twelve hexadecimal digits, 0 through 9 and A through F) which uniquely identifies a computer that has an Ethernet interface.

**MTU (Maximum Transmission Unit)**

The maximum size of data which can be transmitted at one time in networks including the Internet. In an environment whose maximum size of data is too large to correctly receive data, normal communications can be restored by setting the size of MTU to a smaller value.

**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 the “Network name (SSID)” coincides with the network key.

**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.

**PPPoE** (Point to Point Protocol over Ethernet)

A method of allowing the authentication protocol adopted in telephone line connection (PPP) to be used over an Ethernet.

**Protocol**

A procedure or rule of delivering data among computers. Ordered data communication is allowed by making all conditions required for communication including the method of data transmission/reception and actions upon communication errors into procedures.
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 WEP key.

SSID (Service Set Identifier)

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.

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.

TCP/IP (Transmission Control Protocol/Internet Protocol)

A standard protocol of the Internet.

Wi-Fi

Wi-Fi, or Wireless Fidelity, is a set of standards for wireless local area networks (WLAN) based on the IEEE 802.11 specifications. Certified products can use the official Wi-Fi logo, which indicates that the product is interoperable with any other product also showing that logo.
IP address information

ABOUT IP ADDRESSES

IP addressing is much more complicated than can be briefly explained in this document. You are advised to consult with your network administrator for additional information.

If IP address is unknown, set IP address as follows, or;

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

[Obtain an IP address automatically]

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

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

If no access point is found in the network:

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

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

<Example>

Computer A: 192.168.100.2 (255.255.255.0)
Computer B: 192.168.100.3 (255.255.255.0)
Computer C: 192.168.100.4 (255.255.255.0)

Computer X: 192.168.100.254 (255.255.255.0)
**WLAN Specifications**

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of network</strong></td>
<td>Atheros Super AG (802.11a/b/g) WLAN device conforms to IEEE 802.11a and 802.11b/g (Wi-Fi-based)*</td>
</tr>
<tr>
<td><strong>Transfer rate</strong></td>
<td>(Automatic switching)</td>
</tr>
<tr>
<td></td>
<td>IEEE 802.11a/g: 54 Mbps maximum data rate (108 Mbps maximum data rate with compatible access points)</td>
</tr>
<tr>
<td></td>
<td>IEEE 802.11b: 11 Mbps maximum data rate</td>
</tr>
<tr>
<td><strong>Active frequency</strong></td>
<td>802.11b/g: 2400–2473 MHz</td>
</tr>
<tr>
<td></td>
<td>802.11a: 5090 – 5890 MHz</td>
</tr>
<tr>
<td><strong>Number of channels</strong></td>
<td>802.11a: 8 independent channels</td>
</tr>
<tr>
<td></td>
<td>802.11b/g: 11 channels, 3 non-overlapping channels</td>
</tr>
<tr>
<td><strong>Typical operating distances</strong></td>
<td>802.11a: 40 ft. (12 m) @ 54 Mbps; 300 ft. (91 m) @ 6 Mbps</td>
</tr>
<tr>
<td></td>
<td>802.11b: 100 ft. (30 m) @ 11 Mbps; 300 ft. (91 m) @ 1 Mbps</td>
</tr>
<tr>
<td></td>
<td>802.11g: 100 ft. (30 m) @ 54 Mbps; 300 ft. (91 m) @ 1 Mbps</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>Encryption Types - WEP, TKIP, AES***</td>
</tr>
<tr>
<td></td>
<td>WPA 1.0 compliant</td>
</tr>
<tr>
<td></td>
<td>Encryption Key lengths Supported: 64 bits, 128 bits, and 152 bits (Atheros module using AES encryption only)</td>
</tr>
<tr>
<td></td>
<td>802.1x/EAP</td>
</tr>
<tr>
<td></td>
<td>CCX 1.0 compliant</td>
</tr>
</tbody>
</table>
| **Maximum recommended number of computers to be connected over wireless LAN (during ad hoc connection)** | 10 units or less **

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

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

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

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

The Integrated Bluetooth module (EYTF3CSFT) 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.

WHERE TO FIND INFORMATION ABOUT BLUETOOTH

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

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

Windows Vista: To access the Help file, click [Start] -> All Programs, and click on Bluetooth, then select User’s Guide.

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

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

The 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

Security Device*
User’s Guide

* Fingerprint Sensor is optional; TPM is standard feature
Fingerprint Sensor Device

INTRODUCING THE OPTIONAL FINGERPRINT SENSOR DEVICE

Your system may have an optional fingerprint sensor device at the bottom center of the touchpad. (See Figure 2-5 on page 8 for location)

Figure B-1 Fingerprint sensor

Although the system may have a fingerprint sensor in place of a scroll button, the fingerprint sensor can be used for scrolling. Simply move your fingerprint over the sensor the same as you would use a scroll button.

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

- Log onto Windows
- Recover from Standby mode
- Cancel a password-protected screen saver
- Log into homepages 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 to 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.

The use of OmniPass results in a secure authentication system for restricting access to your computer, applications, websites, 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 108. You can determine whether OmniPass has already been installed by checking to see if the following are present:

- The presence of the gold key-shaped OmniPass icon in the system tray at the bottom right of the screen.
- The presence of 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 Home Edition, Windows XP Professional or Windows 2000 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 108. (If you have run the ClickMe! utility, it is likely that OmniPass has already been installed on your system.) Otherwise continue with this section on software 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.

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,
2. 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,
3. 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**

Before you uninstall the software, decrypt all OmniPass encrypted files and export all OmniPass User Profiles. Failure to do so may result in permanent loss of encrypted file data, and permanent loss of all remembered passwords and associated information (see Chapter 5 of the OmniPass help document: Exporting and Importing Users).

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 as an administrator 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.
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 **All 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 109 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 **User Settings**. 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 allows you to 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 Kimberly elongated rectangle. To capture a fingerprint, gently swipe or pull your fingertip over the sensor (starting at the second knuckle) in the direction of the arrow. 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 **Verifications Successful under the capture window**.

**USING OMNIPASS**

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

**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 track 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 frequently: during Windows Logon, during OmniPass Logon, when unlocking your workstation, when resuming from standby or hibernate, when unlocking a password-enabled screensaver, during password replacement for remembered 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. The icons in the lower left (fingerprint and key) show what authentication methods are available to you. Selected authentication 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.

1. 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], 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 this OmniPass cursor in the login prompt area, but do not click the Login or Submit button.

2. 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.

1. **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.

2. **Automatically enter this password protected site when it is activated.** 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.

3. **Do not prompt for authentication.** Check the upper box to get this setting, and when you navigate to this site OmniPass will not prompt you to authenticate.

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 websites, 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 [Win+Key + L] 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 fingerprint.

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 the current password for the new password. 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 you wish to login as and then click OK to login.

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 New 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 111.

CONFIGURING OMNIPASS
This section gives an overview of both the Export/Import function and the OmniPass Control Center. Exporting and Importing Users
Using the OmniPass Control Center, you can export and import users in and out of OmniPass. The export process backs up all remembered sites, credentials, and any 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.
Exporting an OmniPass User Profile

To export a user, open the OmniPass Control Center, select User Management tab, 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 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.

OmniPass will notify you if the user was successfully imported.

Things to Know Regarding Import/Export

- Asssume 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 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 111. Add/Remove User functionality is straightforward.

If you click Add a new user to OmniPass you will start the OmniPass Enrollment Wizard. The Enrollment Wizard is documented in “User Enrollment” on page 108.
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 are sure about removing the user, we recommend you export the user profile.

**User Settings**

The User Settings tab has four interfaces: **Audio**, **Taskbar Tips**, **Enrollment**, and **Startup Options**. User settings allow users to customize OmniPass to suit their individual preferences.

Under User Settings (Audio 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 and Taskbar Tips interfaces are self-explanatory.

The Enrollment interface allows you to enroll fingerprints. 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 Lagoon.

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 no one will be logged on to OmniPass. 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.

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, Settings, 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, Settings, 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.
Trusted Platform Module Installation

This disc contains several utilities that allow you to enhance the security of your system using the Trusted Platform Module (TPM) contained in the system. TPM is a Trusted Computer Group (TCG)-compliant embedded security chip that allows computers to run applications more securely and to make transactions and communications more trustworthy. TPM is an important component of the Fujitsu Security Platform.

Procedure

1. Before installing the TPM software, you will need to enable the security chip in the system BIOS. To do so:
   - If your system is running, click Start -> Shut Down, and select Restart. Click OK.
   - If the system is not running, power it up.

2. Insert the "Trusted Platform Module Drivers and Applications CD" in the drive.

3. Open the Security menu, scroll down to Set Supervisor Password, and enter a password (if not already set).


5. Press the [Space Bar] to Enable the Security Chip.

6. Click [F10] to save changes and exit.

Installing the TPM Applications

1. Insert the "Trusted Platform Module Drivers and Applications CD" in the drive.

2. The setup program should start the installation automatically. If the installation does not start automatically, go to the setup.exe file on the disc and double-click on it.

3. Follow the instructions that appear on your screen to load the drivers and applications for TPM.

4. After loading the software, you will be prompted to reboot your system. Remove the CD from the drive, then reboot.

5. After rebooting, the Security Platform Installation Wizard will open and lead you through the setup and customization of the TPM applications.

Getting Help

- For detailed help about installing the TPM applications, go to the readme.txt file on the disc.
- For in-depth help and information about the TPM applications, double-click on the Security Platform icon in the system tray, and click [Getting Started Guide].

When installing the software, be sure to create Emergency Recovery Archive and Emergency Recovery Token files when prompted by the Security Platform Initialization Wizard. These files will be necessary in the event of hardware failure. Failure to create these files could result in a loss of the Security Platform owner key, which is the physical root for secrets as well as the logical root for all Security Platform user-specific keys. The Initialization Wizard provides step-by-step instructions for creating the files.

Enabling the Security Chip in BIOS

1. Before installing the TPM software, you will need to enable the security chip in the system BIOS. To do so:
   - If your system is running, click Start -> Shut Down, and select Restart. Click OK.
   - If the system is not running, power it up.

2. When the Fujitsu logo appears, press the [F2] button. The BIOS Setup Utility will appear.
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Note: The table above is a sample of the index from the document. The entire index contains over 100 entries covering various topics from BIOS to troubleshooting.