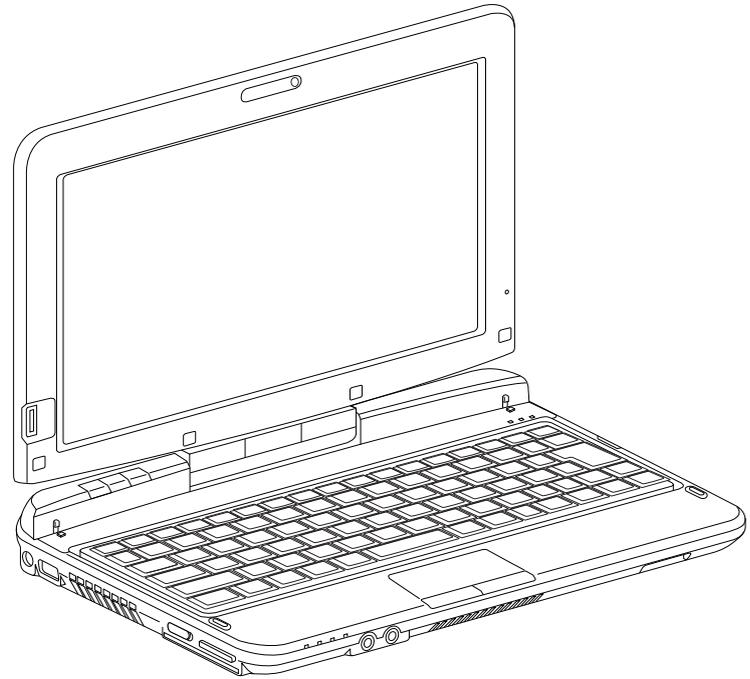


User's Guide

Learn how to use your
Fujitsu LIFEBOOK®
T580 Tablet PC




FUJITSU

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WARNING



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

WASH HANDS AFTER HANDLING.

USER GUIDE FOR WIRELESS BROADBAND CONNECTION



THE WIRELESS WAN USER'S GUIDE IS LOCATED AT:

http://solutions.us.fujitsu.com/www/content/support/mobile/support_notices

PLEASE CLICK "3G MINI-CARD GOBI2000 REGULATORY AND SAFETY INFORMATION" TO OPEN THE FULL USER GUIDE CONTAINING WARNINGS AND PRECAUTIONS ASSOCIATED WITH RF SAFETY WHEN USING THE WWAN DEVICE.



DECLARATION OF CONFORMITY

according to FCC Part 15

Responsible Party Name:	Fujitsu America, Incorporated
Address:	1250 E. Arques Avenue, Sunnyvale, CA 94085
Telephone:	(408) 746-6000
Declares that product:	Base Model Configuration: LIFEBOOK T580 Tablet PC Complies with Part 15 of the FCC Rules.

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

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IMPORTANT SAFETY INSTRUCTIONS

This unit requires an AC adapter to operate. Use only UL Listed I.T.E. Adapters with an output rating of 19 VDC, with a current of 3.16 A (60 W).

AC adapter output polarity:



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

- **CAUTION - HOT SURFACE:** The bottom of this notebook computer can become hot when used for long periods of time. When using this notebook, take caution to limit long term or continuous use while resting it on exposed skin, such as the lap.
- 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.
- 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.

SAVE THESE INSTRUCTIONS

For Authorized Repair Technicians Only



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



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

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Recycling your battery

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



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

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

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

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

- * To order a new battery for your Fujitsu mobile computer, go to the Fujitsu shopping site at www.shopfujitsu.com in the US or www.fujitsu.ca/products/notebooks in Canada.
- ** RBRC is an independent third party to which Fujitsu provides funding for battery recycling; RBRC is in no way affiliated with Fujitsu.

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Preface

About This Guide

The LIFEBOOK T580 Tablet PC from Fujitsu America is a powerful convertible computer. It can be used either as a standard notebook using keyboard input, or in tablet configuration using pen or finger input. It is powered by an Intel® Core™ Processor, has a built-in color display with a dual digitizer (accepting both pen and finger input), and brings the computing power of desktop personal computers to a portable and versatile environment.

This manual explains how to operate your LIFEBOOK T580 Tablet PC's hardware and pre-installed system software.

Conventions Used in the Guide

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

Pages with additional information about a specific topic are cross-referenced within the text. For example: (“See [Installation Procedure on page 43](#)”). Note that all cross-references are linked to the referenced items, so by clicking the link, you will automatically go to the referenced item or page.

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



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



THE CAUTION ICON HIGHLIGHTS INFORMATION THAT IS IMPORTANT TO THE SAFE OPERATION OF YOUR COMPUTER, OR TO THE INTEGRITY OF YOUR FILES. PLEASE READ ALL CAUTION INFORMATION CAREFULLY.



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

Fujitsu Contact Information

Service and Support

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

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

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

- Product name
- Product configuration number
- Product serial number
- Purchase date

- Conditions under which the problem occurred
- Any error messages that have occurred
- Type of device connected, if any

Fujitsu Shopping Online

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



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

Limited Warranty

Your LIFEBOOK T580 Tablet PC is backed by a Fujitsu International Limited Warranty. Check the service kit that came with your Tablet PC for the Limited Warranty period and terms and conditions.

Chapter 1

Getting to Know Your LIFEBOOK

Overview

This section describes the components of your Fujitsu LIFEBOOK T580 Tablet PC. We strongly recommend that you read it before using your Tablet PC – even if you are already familiar with notebook computers.

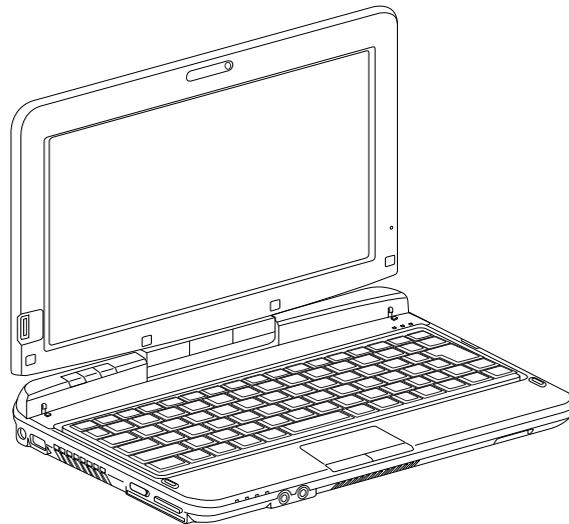
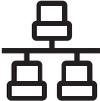


Figure 1. Fujitsu LIFEBOOK T580 Tablet PC

Locating the Controls and Connectors

Connectors and peripheral interfaces on the LIFEBOOK T580 Tablet PC allow you to connect a variety of devices. Specific locations are illustrated in Figures 2 through 6. The table below provides a short description of each icon on the LIFEBOOK T580 Tablet PC. Each of the icons is either molded into or printed on the Tablet PC.

Connection	Tablet PC Icon	Purpose
DC in connector		Connect an external power source such as the AC adapter or auto/airline adapter.
Secure Digital Card Slot		The Secure Digital (SD) high-capacity card slot allows you to insert a flash memory card for data storage. Flash memory cards allow you to transfer data to and from a variety of different digital devices.
USB Port		Connect Universal Serial Bus 2.0 or 1.1 compliant devices to the Tablet PC.
Microphone/Line In Jack		Connect an external microphone. The internal microphone is disabled when you plug in an external microphone.
Headphone/Line Out Jack		Connect stereo headphones or powered external speakers. The internal speaker is disabled when you plug in external headphones or powered speakers.
HDMI		The HDMI port allows you to connect compatible digital devices with your computer (such as a high-definition television or AV receiver).
Security lock slot		The security slot allows you to secure the Tablet PC using compatible locking devices.

Connection	Tablet PC Icon	Purpose
Smart Card Slot		<p>A dedicated Smart Card slot allows you to insert a Smart Card on which you can store such data as medical information or electronic “cash”.</p>
Power/Suspend/Resume Switch		<p>The Power/Suspend/Resume switch allows you to suspend Tablet PC activity without powering off, resume your Tablet PC from suspend mode, and power on the system when it has been shut down from Windows.</p>
Local Area Network (LAN)		<p>The LAN (RJ-45) jack is used to connect the internal 10/100/1000* Base-T/Tx Ethernet to a Local Area Network (LAN) in your office or home, or broadband devices such as a cable modem, DSL, or satellite Internet. <i>*1000 Mbps, commonly referred to as Gigabit Ethernet.</i></p>
Wireless LAN/Bluetooth On-Off Switch		<p>The WLAN/Bluetooth switch allows you to turn power to the optional wireless devices on and off.</p>
External Video port		<p>The external video port allows you to connect an external monitor or LCD projector to your computer.</p>

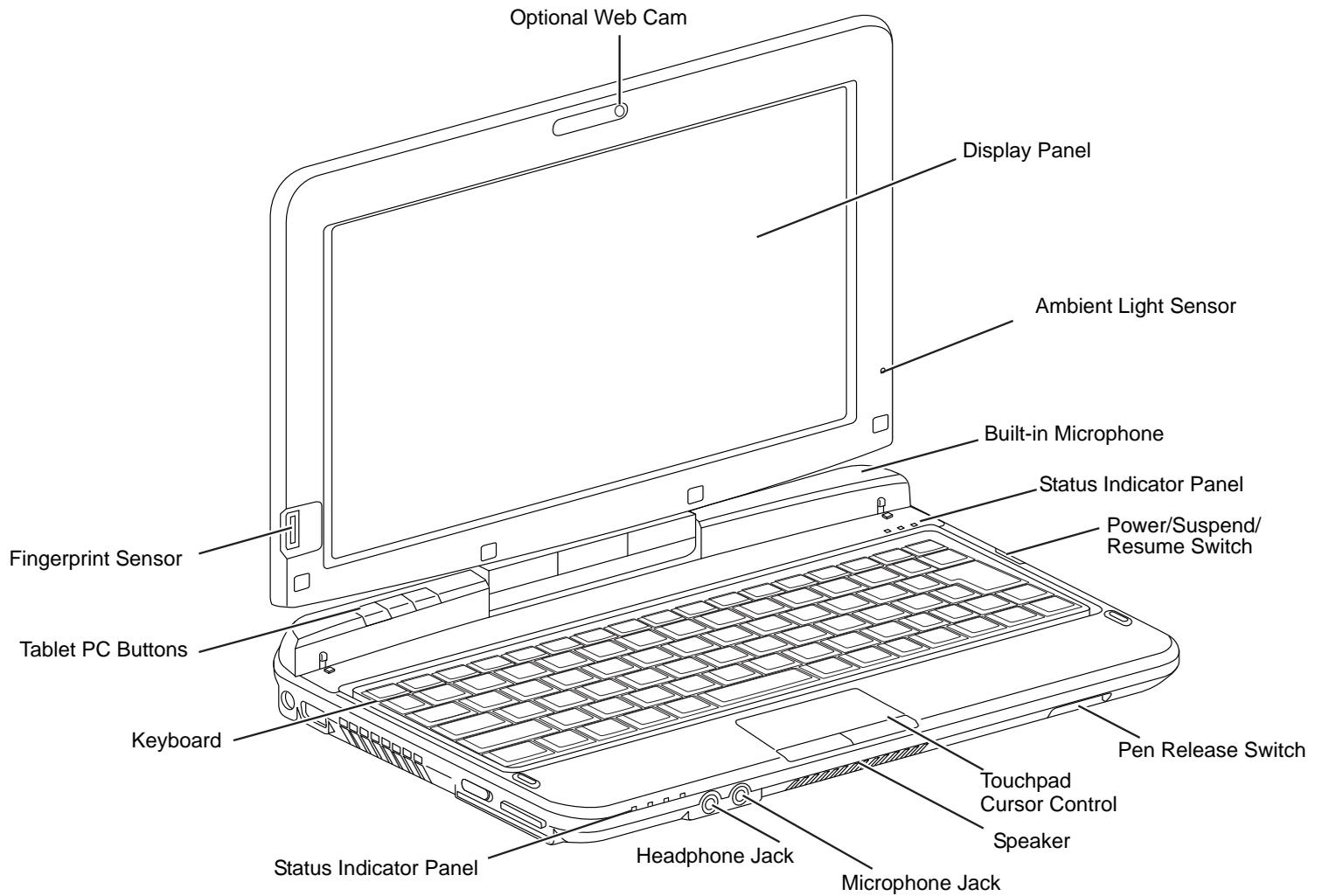


Figure 2. LIFEBOOK Tablet PC with display open

Top Components

The following is a brief description of your LIFEBOOK Tablet PC's top components.

Web Camera

The optional 1.3 megapixel web cam can be used to take pictures of yourself to send over the internet.

Display Panel

The display panel is a color LED panel with backlighting for the display of text and graphics. This is a dual digitizer display that can be used with either a pen (stylus) or your fingers.

Ambient Light Sensor

The ambient light sensor measures the light in which the computer is operating and automatically adjusts the brightness of the display to suit the lighting conditions. See “Enabling/Disabling Ambient Light Sensor” on page 35.

Built-in Microphone

The built-in microphone allows you to record voice and annotations.

Status Indicator Panels

The Status Indicator Panels display symbols that correspond to specific components of your Tablet PC. Status indicators are located in two locations: on the left front edge of the system (system status indicators) and just above the right corner of the keyboard (button status indicators). See “Status Indicator Panel” on page 28.

Power/Suspend/Resume Switch

The Power/Suspend/Resume switch allows you to suspend Tablet PC activity without powering off, resume your LIFEBOOK Tablet PC from sleep mode, and power on your Tablet PC when it has been shut down from Windows. See “Power/Suspend/Resume Switch” on page 67.

Pen Release Switch

The pen release switch allows you to dislodge the pen from the pen garage.

Touchpad Pointing Device

The Touchpad pointing device is a mouse-like cursor control with a left and right button. See “Touchpad/Active Digitizer/Touchscreen” on page 40.

Speaker

The built-in mono speaker provides sound from the system.

Headphone Jack

The headphone jack allows you to connect headphones. See “Headphone Jack” on page 83.

Microphone Jack

The microphone jack allows you to connect an external mono microphone. See “Microphone Jack” on page 84.

Keyboard

A full-size keyboard with dedicated Windows keys. See “Keyboard” on page 37.

LIFEBOOK Tablet PC Buttons

The LIFEBOOK Tablet PC Buttons provide one-touch application launch capability. See “LIFEBOOK Tablet Buttons” on page 56.

Fingerprint Sensor

The fingerprint sensor device allows you to log onto your system and password-protected websites and applications by swiping your finger over the sensor. See “Introducing the Fingerprint Sensor Device” on page 151.

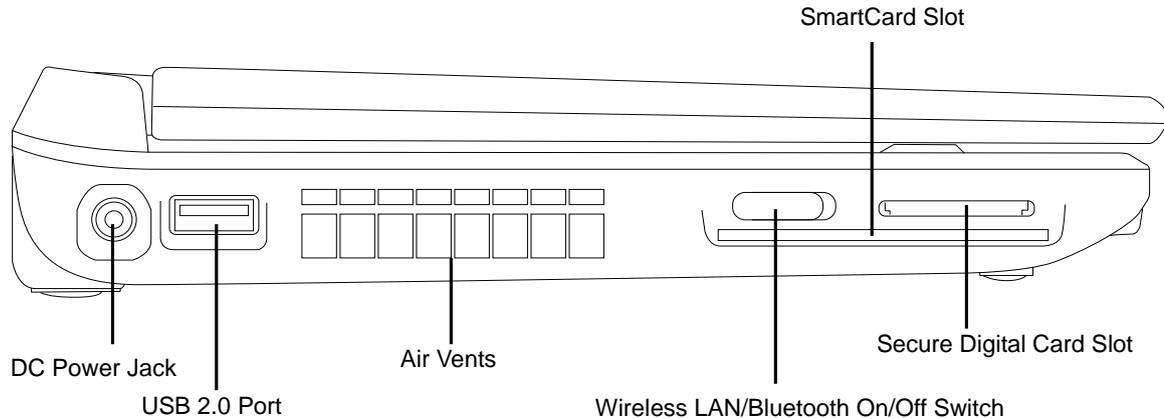


Figure 3. LIFEBOOK Tablet PC left-side panel

Left-Side Panel Components

The following is a brief description of your LIFEBOOK Tablet PC's left-side components.

DC Power Jack

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

USB 2.0 Ports

The USB 2.0 ports (one on the left side, one on the right side) allow you to connect Universal Serial Bus devices. USB 2.0 transfers data at up to 480 Mbps and is backward-compatible with USB 1.1 devices, which transfer data at up to 12 Mbps. See “Universal Serial Bus Ports” on page 83.

Air Vents

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



TO PROTECT YOUR TABLET PC FROM DAMAGE AND TO OPTIMIZE 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 TABLET PC IN AREAS WHERE THE AIR VENTS CAN BE OBSTRUCTED, SUCH AS IN TIGHT ENCLOSURES OR ON SOFT SURFACES LIKE A BED OR CUSHION.

Wireless LAN/Bluetooth On/Off Switch

The wireless LAN/Bluetooth On/Off switch is used to turn on and off the optional wireless devices. Switching the device off when not in use will help to extend battery life. See “Activating the WLAN Device” on page 143. Note that there is no wireless WAN available for systems with the optional dual digitizer.

Secure Digital (SD) Card Slot

The SD card slot allows you to install a Secure Digital (SD) card for data storage. This architecture allows you to transfer data from a variety of different digital devices. See “Installing SD Cards” on page 78.

Smart Card Slot

A dedicated Smart Card Reader is provided on your 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 you with many possible options, such as allowing you to make secure purchases, pay for phone calls, store security information, and provide personal identification and information.

In order to use the Smart Card Reader, you must purchase optional Smart Card third-party software.

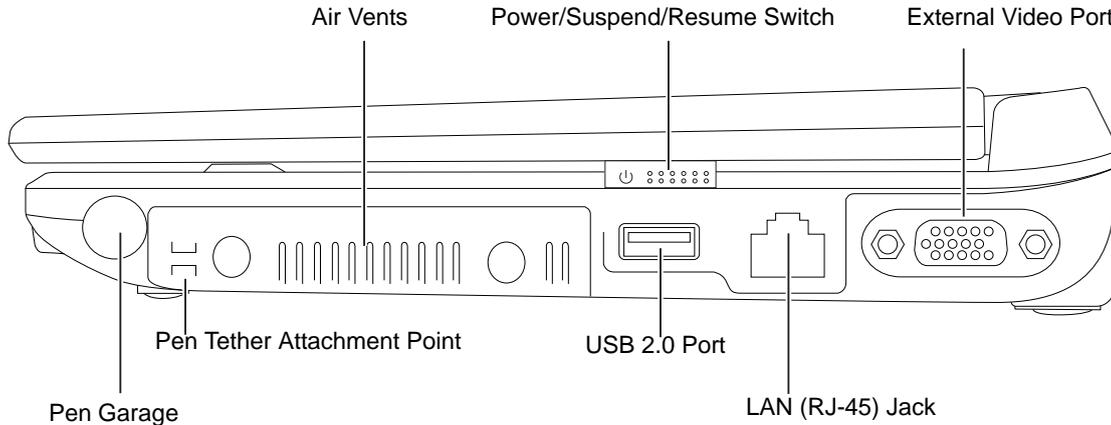


Figure 4. LIFEBOOK Tablet PC right-side panel

Right-Side Panel Components

The following is a brief description of your LIFEBOOK Tablet PC's right-side components.

Air Vents

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



TO PROTECT YOUR TABLET PC FROM DAMAGE AND TO OPTIMIZE 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 TABLET PC IN AREAS WHERE THE AIR VENTS CAN BE OBSTRUCTED, SUCH AS IN TIGHT ENCLOSURES OR ON SOFT SURFACES LIKE A BED OR CUSHION.

Power/Suspend/Resume Switch

The Power/Suspend/Resume switch allows you to suspend Tablet PC activity without powering off, resume your LIFEBOOK Tablet PC from sleep mode, and power on your Tablet PC when it has been shut down from Windows. See “Power/Suspend/Resume Switch” on page 67.

External Video Port

The external monitor port allows you to connect an external monitor or LCD projector. See “External Video Port” on page 84.

Pen Garage

The pen garage is used to store the pen (also called a “stylus”) when not in use. The pen is used as the interface with the active digitizer display.

Pen Tether Attachment Point

The pen tether attachment point is used to attach your pen to the system to prevent its loss.

USB 2.0 Ports

The USB 2.0 ports allow you to connect Universal Serial Bus devices. USB 2.0 transfers data at up to 480Mbps and is backward-compatible with USB 1.1 devices, which transfer data at up to 12Mbps. See “Universal Serial Bus Ports” on page 83.

LAN (RJ-45) Jack

The internal LAN (RJ-45) jack is used for an internal Ethernet LAN connection. See “Internal LAN (RJ-45) Jack” on page 82.

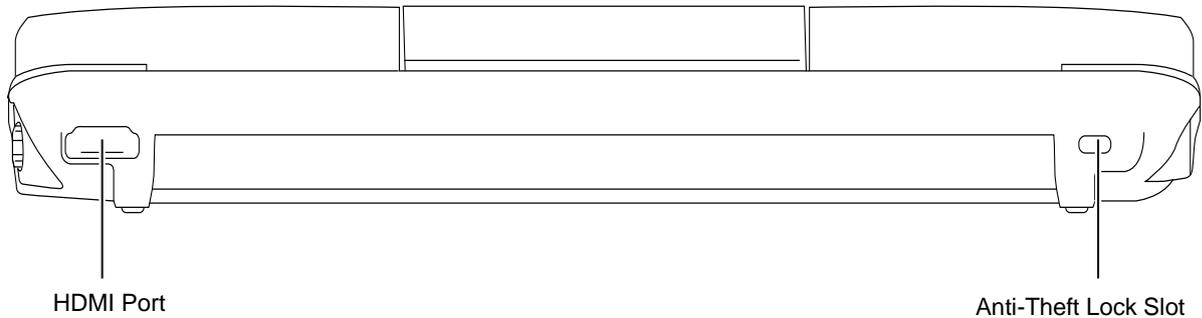


Figure 5. LIFEBOOK Tablet PC back panel

Back Panel Components

Following is a brief description of your LIFEBOOK Tablet PC's back panel components.

HDMI Port

The HDMI port is used to connect compatible digital devices with your computer (such as a high-definition television or AV receiver). See “*HDMI Port*” on page 84.

Anti-theft Lock Slot

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

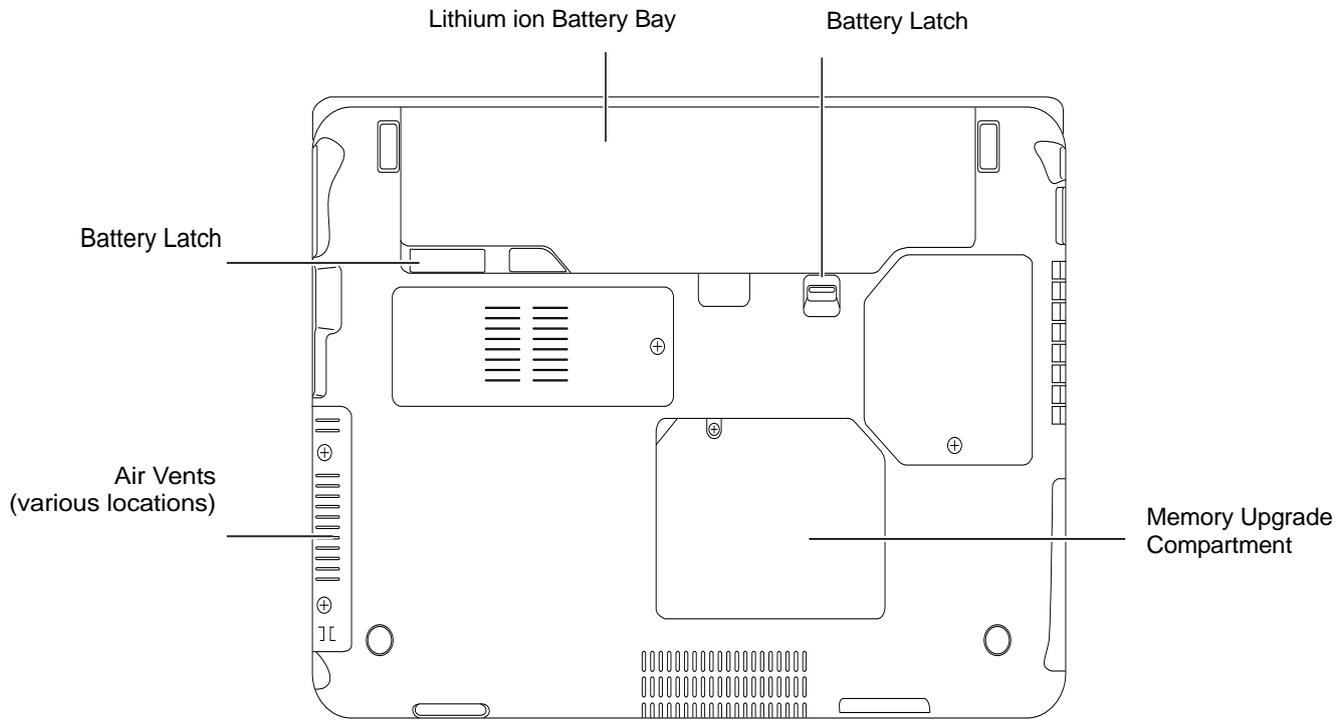


Figure 6. LIFEBOOK Tablet PC bottom panel

Bottom Components

The following is a brief description of your LIFEBOOK Tablet PC's bottom panel components.

Lithium ion Battery Bay

The battery bay contains the internal Lithium ion battery. It can be opened for the removal of the battery when stored over a long period of time or for swapping a discharged battery with a charged Lithium ion battery. See “Lithium ion Battery” on page 72.

Battery Latches

The battery latches are used to secure the Lithium ion battery in the battery bay.

Memory Upgrade Compartment

Your Tablet PC comes with high speed Double Data Rate 3 Synchronous Dynamic RAM (DDR3 800 MHz SDRAM). The memory upgrade compartment allows you to expand the system memory capacity of your Tablet PC, thus improving overall performance. See “Memory Upgrade Module” on page 79. Under normal circumstances, it should not be necessary to open this compartment.

Air Vents

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



TO PROTECT YOUR TABLET PC 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 TABLET PC IN AREAS WHERE THE AIR VENTS CAN BE OBSTRUCTED, SUCH AS IN TIGHT ENCLOSURES OR ON SOFT SURFACES LIKE A BED OR CUSHION.

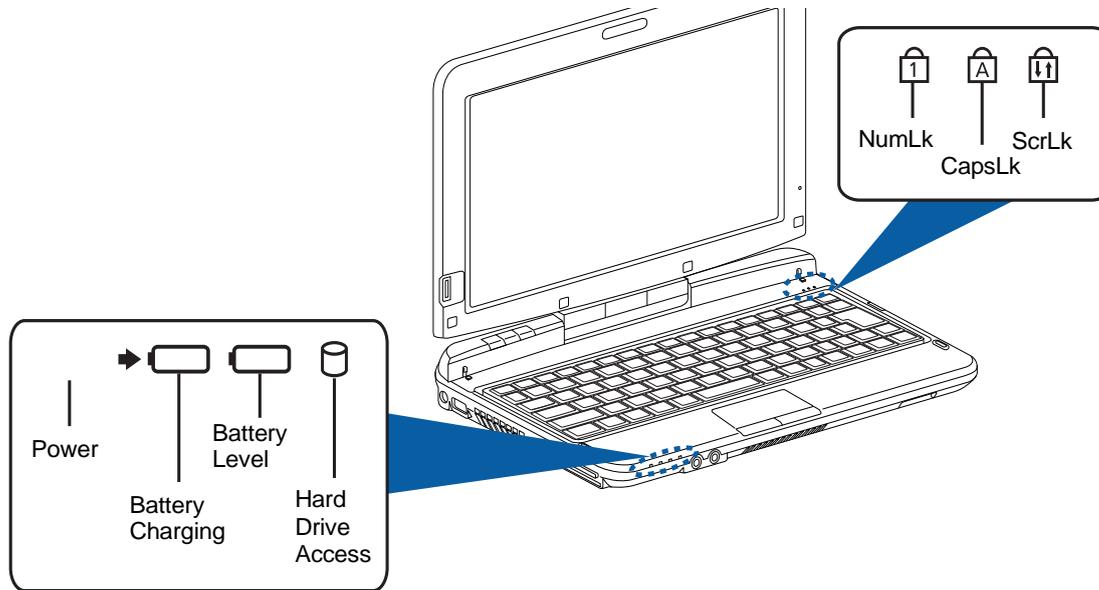


Figure 7. Status Indicator Panel

Status Indicator Panel

The Status Indicator Panel displays symbols and associated LEDs that correspond to specific components of your Tablet PC. These symbols tell you how each of those components is operating.(Figure 7)



Power Indicator

The power indicator shows whether your tablet is powered up and operating. This icon has three different states that can tell you the power operating mode your LIFEBOOK Tablet PC is using.

- **On, solid:** This means that the tablet is switched on and operating.
- **On, flashing:** This means the system is switched on, but has entered Sleep mode.
- **Off:** The tablet is either off or in Save-to-Disk mode.

➔ **Battery Charging Indicator**

The battery charging indicator shows whether a battery is installed and being charged.

- **Green, solid:** AC power supplied and battery charge completed.
- **Orange, solid:** AC power supplied and battery is charging.
- **Orange, flashing:** AC power supplied but an error occurred while battery was charging.
- **Off:** No AC power supplied.

Battery Level Indicator

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

- **Green, solid:** The battery is between 50% and 100% charged.
- **Orange, solid:** The battery is between 13% and 49% charged.
- **Red, solid:** The battery is between 0% and 12% charged.
- **Orange, flashing:** The battery state of charge is being checked (for four seconds after battery installation).
- **Red, flashing:** The battery is faulty and should be replaced.
- **Off:** There is no battery installed.



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



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



Hard Drive Access Indicator

The Hard Drive Access indicator shows whether your internal hard drive is being accessed.



NumLk Indicator

The NumLk indicator glows green when the integrated keyboard is set in ten-key numeric keypad mode.



CapsLock Indicator

The CapsLock indicator glows green when your keyboard is set to type in all capital letters.



ScrLk Indicator

The ScrLk indicator glows green when your scroll lock is active.

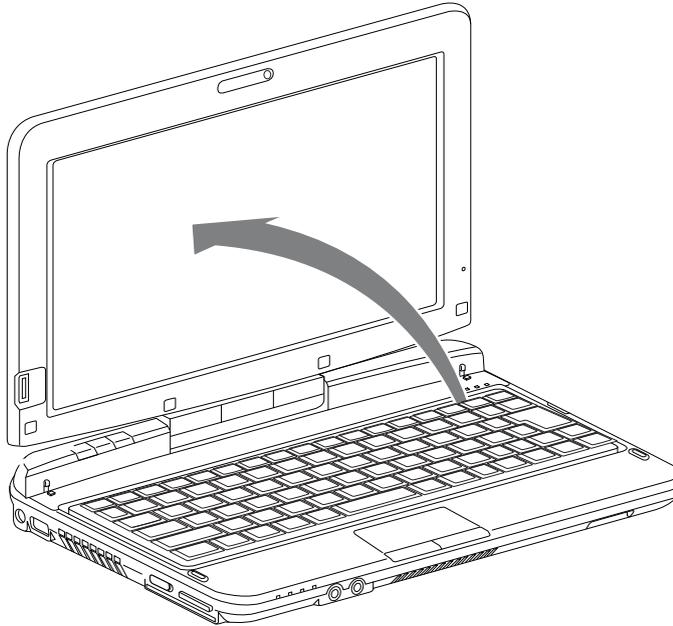


Figure 8. Opening the Display Panel

Display Panel

Your LIFEBOOK T580 Tablet PC contains an LED display panel that is backlit for easier viewing in bright environments. The convertible design of your Tablet PC allows you to open the display fully, rotate it in either direction 180 degrees, and lay it face up on the keyboard. This allows you to use the system as a tablet, much as you would a pad of paper.

Opening the Display Panel

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

Using the System as a Tablet

If you would like to use the system as a tablet, perform the following steps.



- The display can be rotated in either direction, but when returning the system to notebook mode, be sure to turn it back to its original position (i.e., the reverse of how you turned it when you opened it). Turning the display in the incorrect direction could cause hinge damage. The screen should rotate easily; if it does not rotate easily, you may be turning it in the wrong direction.
- In the following step, be sure to position the display perpendicular to the keyboard, otherwise the keyboard or display cover could get scratched.

- 1** Lift the display until it is perpendicular to the keyboard. (Figure 9).
- 2** When the display is perpendicular to the keyboard, rotate it 180 degrees in either direction so that it is facing backwards.
- 3** Holding the top edge of the display panel, pull it forward until it is lying atop the keyboard.

To return the system to notebook configuration:

- 1** Lift the display until it is perpendicular to the keyboard.
- 2** When the display is perpendicular to the keyboard, rotate it 180 degrees in the opposite direction from which you initially turned it (i.e., return it to its original position) so that it faces forward.

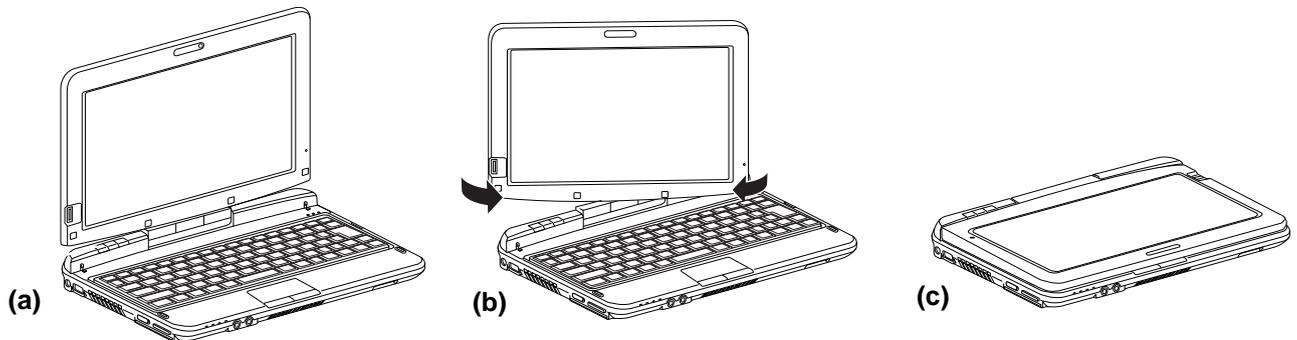
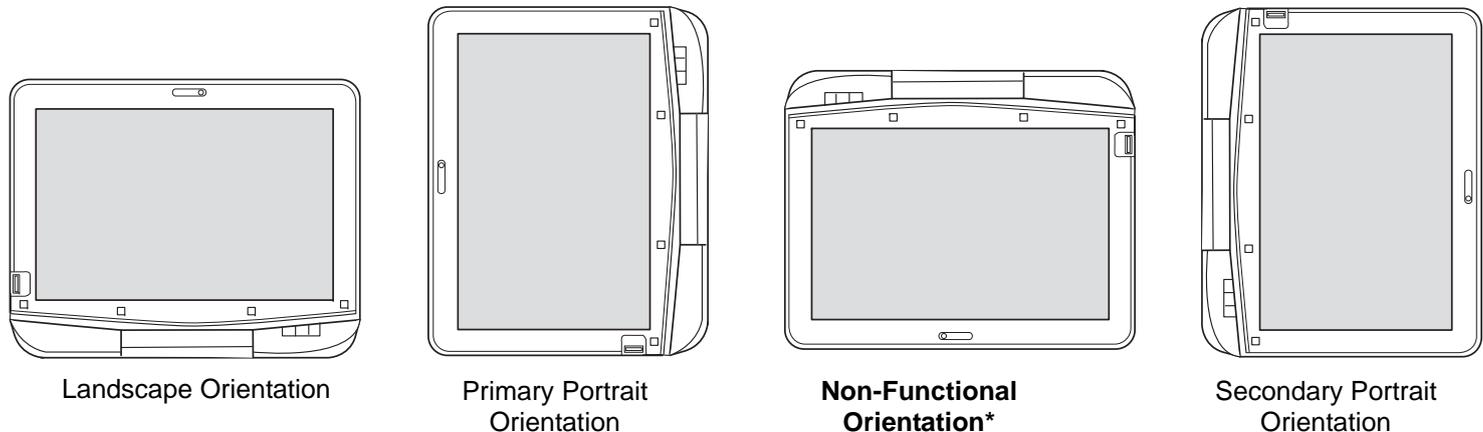


Figure 9. Converting from Notebook to Tablet: (a) Notebook Mode (b) Rotating (c) Tablet Mode

Holding the Tablet PC

Depending upon which model of Wireless LAN and/or Wireless WAN module is in your system, there are slight differences in the way you should hold your tablet.

To determine which WLAN module is in your system, right-click on **My Computer** on your desktop, then select **Properties**. Click [Device Manager] in the left pane of the **Properties** window. Tap the “+” next to Network adapters and see whether “Intel® Centrino® Advanced-N 6200 AGN”, “Atheros HB92 802.11abgn Wireless Network Adapter”, or “Atheros HB97 802.11bgn Wireless Network Adapter” is listed. If one of the Atheros devices is listed or you have a Gobi Wireless WAN module installed, the tablet will function in all orientations when the WLAN switch is on. If the Intel device is listed, the tablet will not function in secondary landscape orientation. Please reference Figures 10 and 11.



*NOTE: This orientation is non-functional only when the WLAN switch is activated; when the WLAN switch is off, this orientation is functional.

Figure 10. Orientations for Tablet PCs with Intel Centrino Advanced-N 6200 AGN module

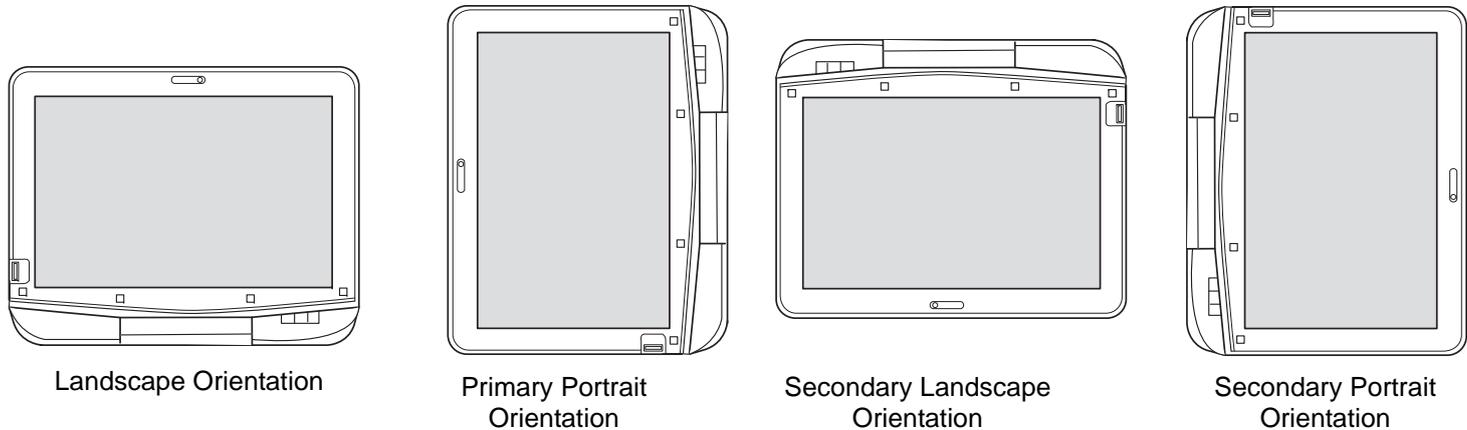


Figure 11. Orientations for Tablet PCs with Atheros WLAN and/or Gobi2000 Wireless WAN module

Adjusting Display Panel Brightness

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

Using Keyboard to Adjust Brightness

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

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

Note that changing the brightness with the [Fn] key is temporary. When you resume or restart, you will need to reset them if you used this method.

Using Power Management to Adjust Brightness

To adjust brightness with the power management utility:

Click Start -> **Control Panel**. In **View by:**, select one of the icon views. Select **Display**, then click **Adjust brightness** in the left pane. Under **Select a power plan**, select the plan settings you want to use. Drag **Screen brightness:** bar (at the bottom of the window) to the left or right, depending on your preference.

Using the Fujitsu Menu to Adjust Brightness

To adjust brightness using the Fujitsu menu, click on the Fujitsu Menu icon in the system tray in the lower right corner of the screen. Double-click Windows Mobility Center, then double-click the icon adjacent to **Display brightness**. Set the screen brightness sliders for **On battery** and **Plugged in** scenarios.



IF USING AC POWER, YOUR BRIGHTNESS SETTING IS SET TO ITS HIGHEST LEVEL BY DEFAULT. IF USING BATTERY POWER, YOUR BRIGHTNESS SETTING IS SET TO APPROXIMATELY MID-LEVEL BY DEFAULT.

THE HIGHER THE BRIGHTNESS, THE MORE POWER THE SYSTEM WILL CONSUME AND THE FASTER YOUR BATTERIES WILL DISCHARGE. FOR MAXIMUM BATTERY LIFE, SET THE BRIGHTNESS AS LOW AS POSSIBLE.

Enabling/Disabling Ambient Light Sensor

The ambient light sensor is located towards the bottom of the panel on the right of the display. This sensor automatically senses the light conditions in which the computer is operating. If the lighting is very bright, the brightness of the LCD will increase to make it easier to see the display. Conversely, if it is used in a darkened room, the display will automatically dim.



NOTE THAT WHEN YOU FIRST START YOUR SYSTEM, THE AMBIENT LIGHT SENSOR IS DISABLED. YOU WILL INITIALLY NEED TO ENABLE IT USING THE FOLLOWING STEPS.

The light sensor can be enabled or disabled from the Control Panel as follows:

- 1 Open the system Control Panel and click in the **View by:** field, select either large or small icons.
- 2 Click on the **Location and Other Sensors** icon.

- 3 To enable or disable the Light Sensor utility, check or uncheck the box in the Enabled column, then click the [Apply] button.
- 4 For more information about the light sensor, click on **Light Sensor** icon in the Sensor column to the right of the light sensor icon to open the Sensor Properties window.
- 5 From the Sensor Properties window, you can change the sensor's description, uninstall the sensor, or enable or disable selected users.
 - To change the sensor's description, click the [Change description] button, enter the new description, and click the [OK] button.
 - To limit who can access the sensors, click **Change who can access sensors**, then check or uncheck the box adjacent to the individual you would like to grant or prohibit access.
 - To uninstall the sensor, click **Uninstall this sensor**.

Precautions

Opening and Closing the Cover

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

To change the default when the cover is closed:

- 1 Open the system Control Panel and select Power Options.
- 2 Click **Choose what closing the lid does** in the left pane.
- 3 Select the desired action for **When I close the lid**, then click the [Save changes] or [Apply] button (depending upon your operating system).

Keyboard

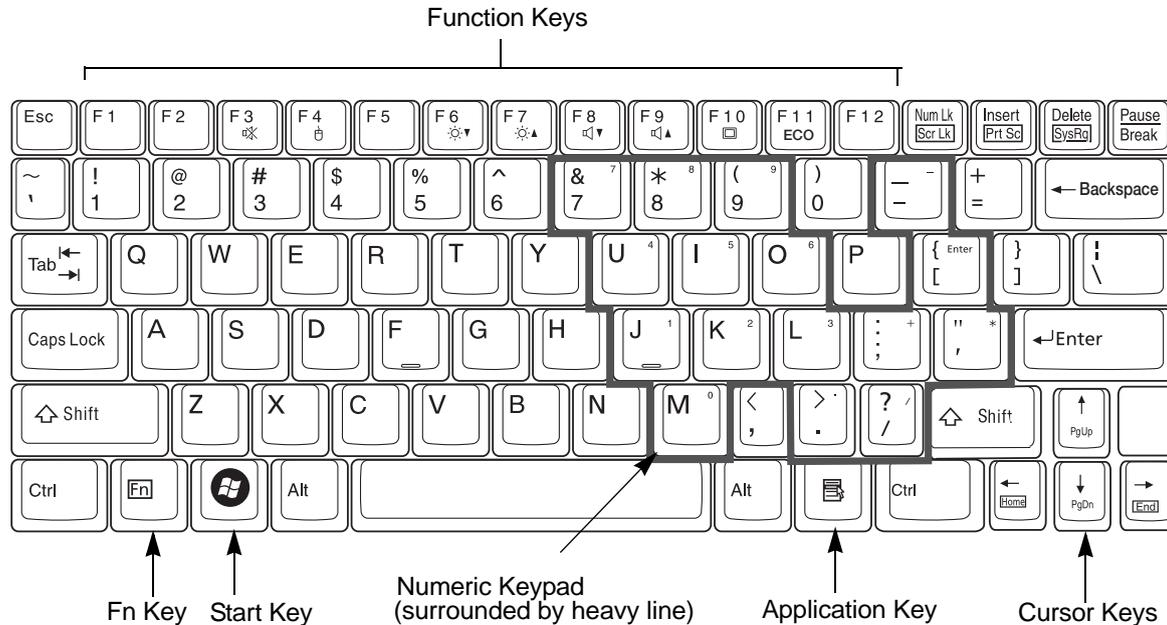


Figure 12. Keyboard

Using the Keyboard

Your Fujitsu LIFEBOOK Tablet PC 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 12):

- **Numeric keypad:** Your Tablet PC allows certain keys to serve dual purposes, both as standard characters and as numeric and mathematical keys. The ability to toggle between the standard character and numerical keys is controlled through the [NumLk] key.
- **Cursor keys:** Your keyboard contains four arrow keys for moving the cursor or insertion point to the right, left, up, or down within windows, applications and documents.

- **Function keys:** The keys labeled [F1] through [F12], are used in conjunction with the [Fn] key to produce special actions that vary depending on what program is running.
- **Windows keys:** These keys work with your Windows operating system and function the same as the onscreen Start menu button, or the right button on your pointing device.

Numeric Keypad

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

Windows Keys

Your LIFEBOOK Tablet PC has two Windows keys, consisting of 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 Help and Support documentation in the Start menu for additional information regarding the Windows keys.)

Cursor Keys

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

Function Keys

Your LIFEBOOK Tablet PC has 12 function keys, F1 through F12. Functions assigned to these keys differ for each application. You should refer to your software documentation to find out how these keys are used.

- The [Fn] key provides extended functions for the Tablet PC 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 Quick Point feature on and off. Note that the [Fn+F4] combination only works if Manual Setting is selected in the BIOS. (See “BIOS Setup Utility” on page 62)
- [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 Tablet PC.
- [Fn+F9]: Pressing [F9] repeatedly while holding [Fn] will increase the volume of your LIFEBOOK Tablet PC.
- [Fn+F10]: Pressing [F10] while holding [Fn] allows you to change your selection of where to send your display video. The order is determined by which type of external video device(s) is connected. Each time you press the key combination, you will step to the next choice.
 - If you only have an external CRT connected, the order is: internal display -> external CRT -> simultaneous display -> internal display.
 - If you only have an HDMI device connected, the order is: internal display -> HDMI display -> simultaneous display -> internal display.
 - If you have external CRT and HDMI devices connected, the order is: internal display -> external CRT -> simultaneous internal and external CRT -> HDMI display - simultaneous internal and HDMI display -> internal display.
- [Fn+F11]: Pressing [F11] while holding [Fn] will enable and disable ECO mode. ECO mode is designed to minimize notebook power consumption by reducing the LCD brightness, shutting down the communications devices and enabling the hard disk drive’s auto power off mode.

Touchpad/Active Digitizer/Touchscreen

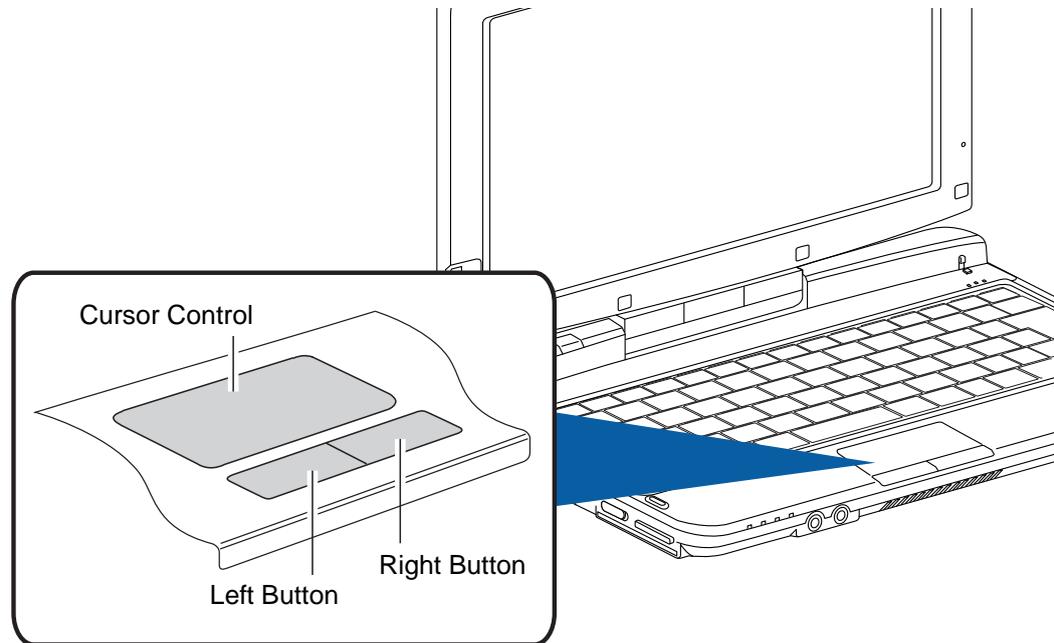


Figure 13. Touchpad pointing device

Using the Touchpad

The touchpad built into your LIFEBOOK Tablet PC is used to control the movement of the cursor to select items on your display panel. The touchpad is composed of a cursor control and two buttons below the center of the keyboard. The left button functions the same as a left mouse button while the right button has the same function as a right mouse button. The actual functionality of the buttons may vary depending on the application that is being used.

Clicking

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

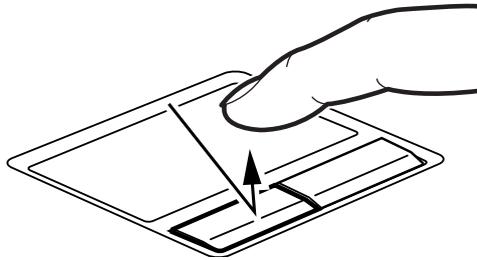


Figure 14. Clicking with button

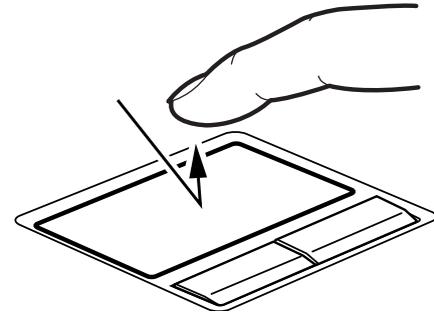


Figure 15. Clicking with Touchpad

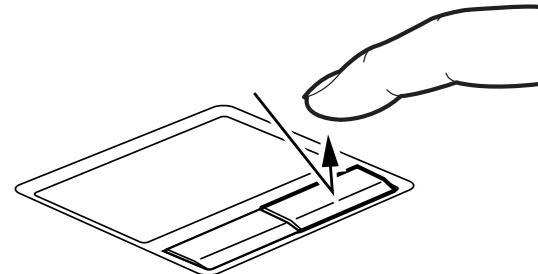


Figure 16. Right-clicking with button

Double-Clicking

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

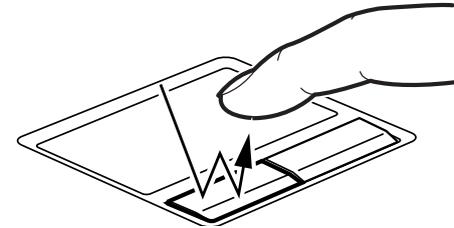


Figure 17. Double-clicking with button

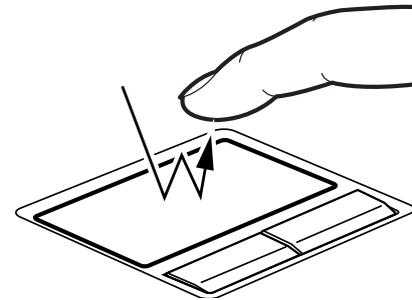


Figure 18. Double-clicking with Touchpad



- IF THE INTERVAL BETWEEN CLICKS IS TOO LONG, THE DOUBLE-CLICK WILL NOT BE EXECUTED.
- PARAMETERS FOR THE TOUCH PAD CAN BE ADJUSTED FROM THE MOUSE DIALOG BOX LOCATED IN THE WINDOWS CONTROL PANEL.

Dragging

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

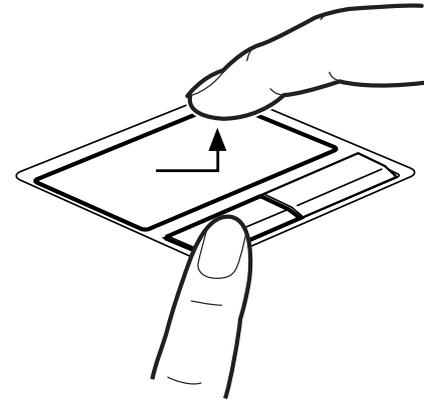


Figure 19

Dragging with button

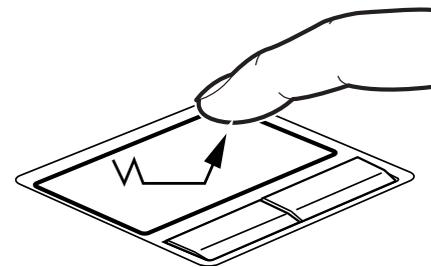


Figure 20. Dragging with Touchpad

Touchpad Control Adjustment

The Windows Control Panel allows you to customize your touchpad with selections made from within the Mouse Properties dialog box. There are three aspects of operation which you can adjust:

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

Active Digitizer Display

The integrated active digitizer allows you to use the included stylus (also called a “pen”) as a pointing device. **(For detailed information about caring for your stylus, go to “Caring for the Pen” on page 52.)**

You can use the stylus to click, double-click, drag items and icons, write text, 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.

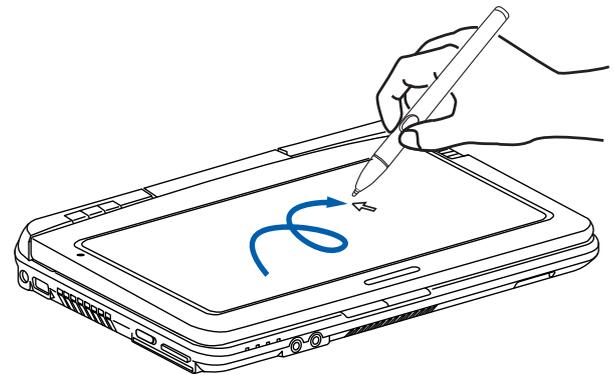


Figure 21. Using the Active Digitizer Display



- **DO NOT USE EXCESSIVE FORCE** WHEN TAPPING OR WRITING ON THE SCREEN WITH THE STYLUS. EXCESSIVE FORCE COULD RESULT IN DAMAGE TO THE LED AND/OR ACTIVE DIGITIZER.
- TO PURCHASE ADDITIONAL OR REPLACEMENT STYLUSES, VISIT FUJITSU’S ACCESSORIES WEBSITE AT: WWW.SHOPFUJITSU.COM.

Clicking on Active Digitizer Display

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

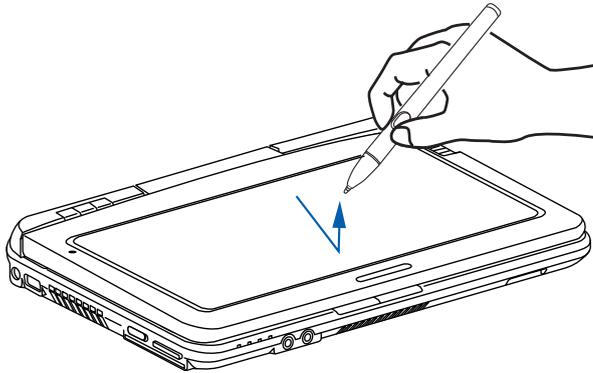


Figure 22. Clicking on the Active Digitizer Display

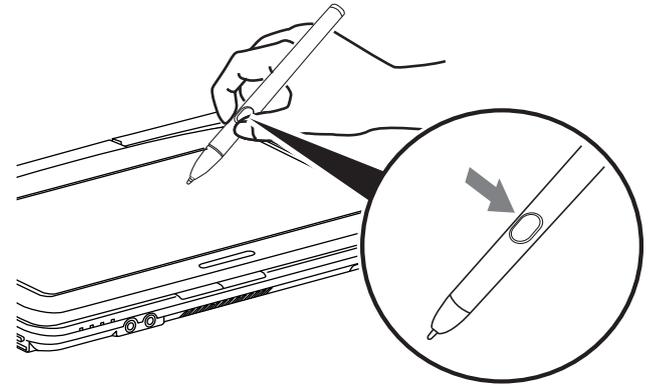


Figure 23. Right-clicking Active Digitizer
Right-Clicking on Active Digitizer

Right-click can be accomplished by holding the front of the toggle button down while tapping on the screen. To change the settings for the right-click feature, go to Start -> Control Panel -> Pen and Touch. In the Pen Options tab, select “Press and Hold” then click the [Settings] button.

Double-Clicking

To double-click, touch the item twice, and then immediately remove the stylus tip.

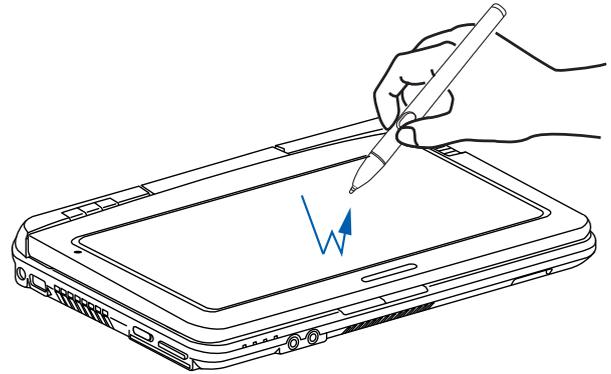


Figure 24. Double-clicking the Display

Dragging

Dragging means moving an item with the stylus by touching the screen, moving and then lifting the stylus. To drag, touch the Active Digitizer Display with your stylus on the item you wish to move. While continuing to touch the screen with the stylus, drag the item to its new location by moving the stylus across the screen, and then lifting the stylus to release it.

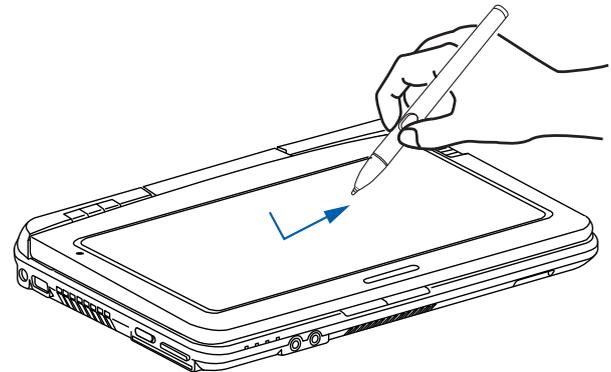


Figure 25. Dragging on the Display

Calibrating the Display

In order to ensure accurate tracking between the stylus and cursor, you must run the Calibration Utility before you use the system for the first time, or after you change the display resolution.

To run the calibration utility:

- 1 Go to Start -> Control Panel.
- 2 Double-click the Tablet PC Settings icon and select the Display tab
- 3 Click the [Calibrate] button, then select whether you want to calibrate pen input or touch input.
- 4 Adjust the display of your Tablet PC to a comfortable angle and find the (+) symbol in the upper-left corner of the display.



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

- 5 Using the stylus or your finger (depending upon which type of input you are calibrating), firmly touch the screen directly on the (+) symbol. Lift the stylus from the screen and the target will move to a different location on the screen.
- 6 Repeat step 5 until you have selected all of the (+) symbols.
- 7 Once you have selected all the symbols, press the [OK] button.
- 8 Touch the stylus to various points on the screen to verify that the screen is correctly calibrated. If you are not satisfied with the screen's calibration, press the [Calibrate] button to begin again.

Using the Capacitive Touchscreen

This Tablet PC has a dual digitizer that allows you to use either the stylus (as described in “Active Digitizer Display” on page 44) or your finger(s) as a pointing device. This type of display also allows you to use one-, two-, three-, or four-finger “gestures” to perform such actions as scroll, zoom, and rotate.



- GESTURE SUPPORT IS DETERMINED BY THE APPLICATION AND OPERATING SYSTEM IN USE.
- THE STYLUS TAKES PRECEDENCE OVER FINGER TOUCH. IF THE STYLUS IS WITHIN ACTIVE RANGE OF THE SCREEN, FINGER TOUCH WILL BE DISABLED.
- WHEN ONE FINGER IS USED ON THE TOUCHSCREEN, IT BEHAVES IN THE SAME MANNER AS A STYLUS.

One-Finger Functions	
<p>Click</p> <p>Tap the screen with a single finger to click on an item on the screen.</p> 	<p>Drag-and-Drop</p> <p>Use a finger to touch an item on the screen and move it without lifting your finger.</p> 
<p>Double-Click</p> <p>Tap the screen twice with a single finger to perform a double-click action.</p> 	

Two-Finger Functions

Scroll

Place two fingers on the screen and move them up or down to scroll.



Rotate

Place your thumb and index finger on an item on the screen. While holding your thumb as an anchor, move your index finger in a wide, clearly defined arc to rotate the item.



Zoom

Place two fingers on the screen, pinch them together to zoom in, and spread them apart to zoom out.



Tap

(to lock menus)

Tap two fingers twice in quick succession on the screen to lock context-sensitive menus. Note that this gesture can be customized to perform a specific action based upon your requirements.



Three-Finger Functions

Browse and Select

Hold two fingers on the screen; a context-sensitive menu will be displayed. Use a third finger to select from the menu.



Double Tap

(to minimize windows)

Tap three fingers twice on the screen to minimize all windows and display the desktop.



Sweep Up / Down

(to maximize/minimize)

Place three fingers on the screen. Sweep them up to maximize and downwards to minimize the current window.



Tap

(to display “carousel”)

Tap three fingers on the screen to display all currently open windows in a 3D “carousel” formation. Place and hold three fingers on the screen to rotate the carousel of files.



Side Sweep

(to browse through open files)

Sweep three fingers to the side in order to browse through all open files within a specific application. The initial direction you sweep determines the direction and order in which the files are displayed.



Four-Finger Functions

Tap

(to display context-sensitive web locations)

Select a word, sentence, paragraph or item. Tap four fingers on the screen and as the fingers are lifted, a menu of context-sensitive web locations is displayed.



Zoom

(to create zoom-in “magnifying glass”)

Place four fingers on the screen to create a zoom-in square for a specific area. Use one finger to move the square around to magnify the areas it moves over.



Select

Hold four fingers on the screen in a square to select an area and a context-sensitive menu of applications is displayed.



Sweep Up / Down

(to scroll a prescribed distance)

Place four fingers on the screen and sweep to scroll up or down. The distance you sweep dictates how far you move in a document.



Caring for the Pen

- ONLY USE THE PEN PROVIDED WITH YOUR NOTEBOOK. DO NOT USE SUBSTITUTE PEN TIPS THAT WERE NOT SPECIALLY DESIGNED FOR YOUR NOTEBOOK. REPLACE THE STYLUS TIP IF IT IS WORN. THE WARRANTY DOES NOT COVER A SCRATCHED SCREEN.
- WHILE WRITING, YOU SHOULD TAKE CARE NOT TO SCRATCH THE SURFACE OF THE DISPLAY (E.G., WITH A WRISTWATCH OR BRACELET).

THE PEN OF YOUR NOTEBOOK IS AN ELECTRONIC INSTRUMENT WHICH CAN BE DAMAGED IF USED INCORRECTLY. HANDLE THE PEN WITH CARE. THE FOLLOWING LIST CONTAINS GUIDELINES FOR PROPER PEN HANDLING:



- DO NOT GESTURE WITH THE PEN OR USE IT AS A POINTER.
- NEVER USE THE PEN ON ANY OTHER SURFACE THAN THE SCREEN OF YOUR NOTEBOOK.
- DO NOT TRY TO TURN THE THUMB GRIP ON THE PEN. THE THUMB GRIP IS USED TO PLACE THE PEN IN ITS SLOT AND TO TAKE IT OUT OF THE SLOT.
- NEVER STORE THE PEN WITH THE TIP BEARING THE WEIGHT OF THE PEN (E.G. WITH THE TIP DOWN IN A PEN HOLDER). IF THE PEN IS STORED WITH THE TIP POINTING DOWN, THIS MAY HAVE AN ADVERSE EFFECT ON THE PEN MECHANISM (PARTICULARLY UNDER HIGH TEMPERATURES). IN THIS CASE THE PEN TIP MAY REACT AS THOUGH IT IS CONSTANTLY BEING PRESSED DOWN. TO AVOID DAMAGE, THE PEN SHOULD BE STORED IN THE PEN SLOT WHEN NOT IN USE.
- THE PEN CAN BE INFLUENCED BY ELECTROMAGNETIC FIELDS (CURSOR QUIVERS OR JUMPS). THERE MAY BE A FEW AREAS ON THE SCREEN WHERE THE CURSOR QUIVERS SLIGHTLY IN SPITE OF PRESSING THE PEN DOWN FIRMLY.

Changing the Pen Settings

There are a few changes you can make to your pen settings in order to make it more suitable to your needs (such as changing the pressure sensitivity). To do so, go to **Start > Control Panel** and select one of the icon views from the “View by:” dropdown. Click on the Pen and Touch icon to open the window from which you can change a variety of pen settings.

Changing the Pen Battery



- **DO NOT USE REMOVE THE TIP OF THE PEN TO REPLACE THE BATTERY; REMOVE ONLY THE CAP ON THE REAR OF THE PEN.**
- THERE IS A RISK OF EXPLOSION IF THE BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES IN ACCORDANCE WITH LOCAL INSTRUCTIONS.

The pen contains a AAAA-battery. Before proceeding, be sure to have a new battery available.

- 1** Remove the rear Pen Cap (Figure 26).
- 2** Remove the battery from the pen barrel.
- 3** Insert the new battery into the pen barrel in the same orientation as the one that was removed.
- 4** Close the rear Pen Cap.

Replacing the Pen Tip

With use, the pen tip may become worn or may pick up foreign particles that can scratch the screen. A damaged or worn tip may not move freely, causing unpredictable results when using the pen. If a problem like this should occur, you should replace the pen tip.

- 1** Pull the tip from the barrel.
- 2** Using one of the new tips that were supplied with your pen, insert the pointed end of the tip into the barrel and push it in firmly until it is in place

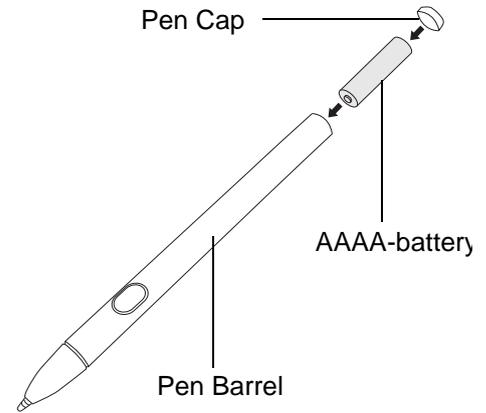


Figure 26. Replacing the Battery

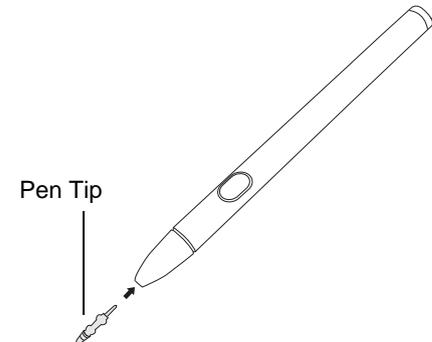


Figure 27. Replacing the Pen Tip

Installing a Pen Tether

To prevent dropping or losing your pen, you should attach it to your system using the pen tether that is included with the system.

To attach the pen tether to your Tablet PC, perform the following steps:

- 1** Attach the end of the pen tether with the smaller loop to your pen. To do so, push the end of the tether under the slot on the top of the pen, then thread the opposite end of the tether through the loop.
- 2** Attach the end of the pen tether with the larger loop to the attachment point on the right side of your tablet. To do so, insert the end of the pen tether through the attachment point, then feed the pen through the large loop in the tether.

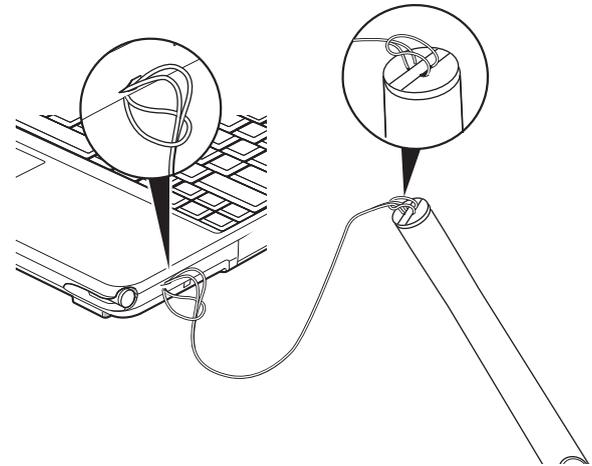


Figure 28. Installing a Pen Tether

Volume Control

Your Fujitsu LIFEBOOK Tablet PC has multiple volume controls which interact with each other.



ANY SOFTWARE THAT CONTAINS AUDIO FILES WILL ALSO CONTAIN A VOLUME CONTROL OF ITS OWN. IF YOU INSTALL AN EXTERNAL AUDIO DEVICE THAT HAS AN INDEPENDENT VOLUME CONTROL, THE HARDWARE VOLUME CONTROL AND THE SOFTWARE VOLUME CONTROL WILL INTERACT WITH EACH OTHER. IT SHOULD BE NOTED THAT IF YOU SET YOUR SOFTWARE VOLUME TO OFF, YOU WILL OVERRIDE THE EXTERNAL VOLUME CONTROL SETTING.

Controlling the Volume

The volume can be controlled in several different ways:

- Volume can be changed or muted from within the Volume Control in the system tray.
- Volume can be controlled with the F8 and F9 functions keys. Pressing [F8] repeatedly while holding [Fn] will decrease the volume of your Tablet PC. Pressing [F9] repeatedly while holding [Fn] will increase the volume of your Tablet PC.
- Volume can be muted by pressing the [F3] key while holding down the [Fn] key. To restore audio, repeat the [Fn+F3] procedure.
- Volume can be controlled by many volume controls that are set within individual applications.
- Certain external audio devices you might connect to your system may have hardware volume controls.

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

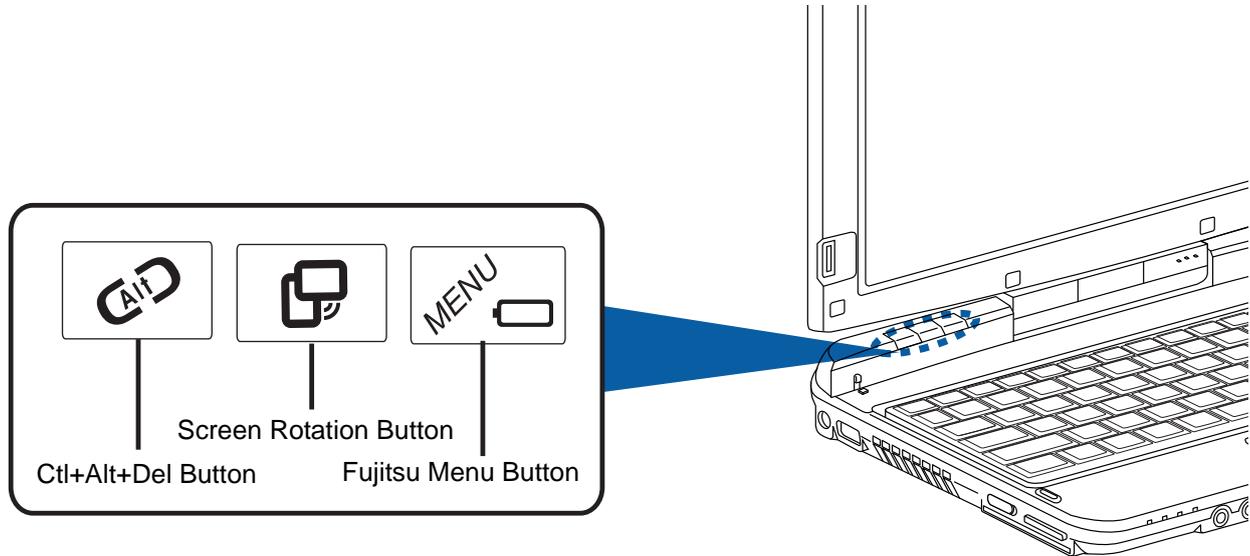


Figure 29. LIFEBOOK T580 Tablet PC Buttons

LIFEBOOK Tablet Buttons

Your LIFEBOOK T580 Tablet PC has an array of three Tablet PC buttons. These buttons allow you to perform a variety of common tasks and functions with the touch of a button.



Ctl+Alt+Del Button

Log on to the system or open the Windows Task Manager

If you hold this tablet button down for two seconds, you can log back on to the system again after system startup, after a system lock, or when returning from power management

After log-on, pressing the tablet button for two seconds launches the Windows Task Manager or – in the network – opens the security window.



Screen Rotation Button

Change screen orientation

When you press the Orientation button, the orientation of the screen display changes from portrait (vertical) to landscape (horizontal) or vice versa. If you would like to use the Tablet PC as an eBook, for example, you would use the portrait orientation. On the other hand, if you are accessing spreadsheets, you would more typically use a landscape orientation.



THE SCREEN ORIENTATION DEFAULT CAN BE CHANGED BY GOING TO THE CONTROL PANEL AND DOUBLE-CLICKING ON TABLET PC SETTINGS AND THEN CLICKING ON THE GO TO ORIENTATION ICON AND SELECTING THE DESIRED SETTINGS IN THE DISPLAY TAB. AFTER CHANGING THE SETTINGS, SAVE THEM IN FUJITSU TABLET CONTROLS.



Fujitsu Menu Button

Opening the Fujitsu Menu

Pressing this tablet button will bring up the TouchLauncher on your screen. The TouchLauncher is used to start installed programs.

Pressing and holding this tablet button will bring up the Fujitsu menu on your screen. The Fujitsu menu is used to change certain system settings.

Pressing this tablet button in Sleep or Off mode will bring up the battery check. You can check the current battery status without the need to start the operating system. The battery LED indicates the battery status (See “Battery Level Indicator” on page 29.)



Chapter 2

Getting Started with Your LIFEBOOK

Power Sources

Your Fujitsu LIFEBOOK Tablet PC 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 Tablet PC and charging the batteries.

Connecting the AC Adapter

- 1 Plug the DC output cable into the DC power jack of your LIFEBOOK Tablet PC.
- 2 Plug the AC adapter into an AC electrical outlet.

Connecting the Optional Auto/Airline Adapter

- 1 Plug the DC output cable into the DC power jack on your Tablet PC.
- 2 Plug the Auto/Airline adapter into the cigarette lighter of an automobile, or,
- 3 Plug the Auto/Airline adapter into the DC power jack on an airplane seat.

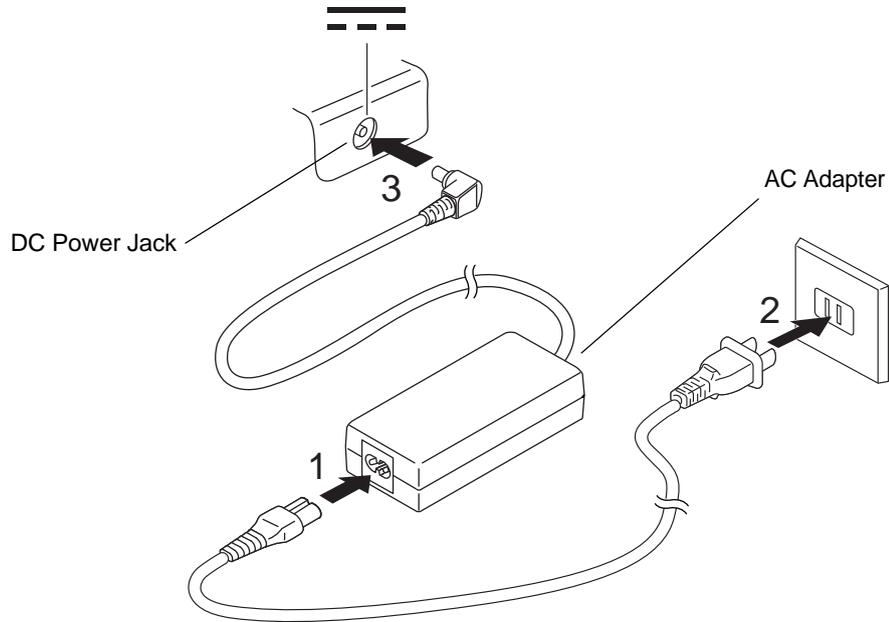


Figure 30. Connecting the AC Adapter

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 TABLET PC.

Starting Your LIFEBOOK Tablet PC

Power On

Power/Suspend/Resume Switch

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



WHEN YOU TURN ON YOUR LIFEBOOK TABLET PC BE SURE YOU HAVE A POWER SOURCE. THIS MEANS THAT AT LEAST ONE BATTERY IS INSTALLED AND CHARGED, OR THAT THE AC OR AUTO/AIRLINE ADAPTER IS CONNECTED AND HAS POWER.

To turn on your LIFEBOOK Tablet PC from its off state, slide the Power/Suspend/Resume switch, located on the top edge of the right side. When you are done working you can either leave your Tablet PC in Suspend mode or you can turn it off. See “Sleep Mode” on page 67 and “Powering Off” on page 70.

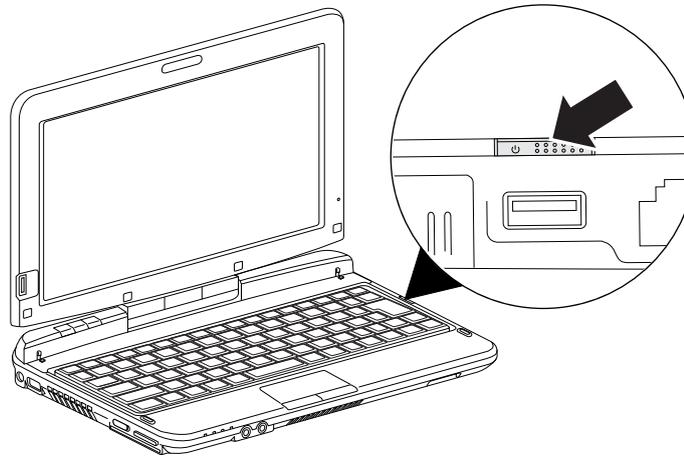


Figure 31. Power/Suspend/Resume Switch



- **PRE-BOOT AUTHENTICATION (PBA)** ALLOWS YOU TO LOG IN PRIOR TO WINDOWS' OWN AUTHENTICATION, BEFORE THE SYSTEM BOOTS UP. A PBA ENVIRONMENT SERVES AS AN EXTENSION OF THE BIOS OR BOOT FIRMWARE AND ALLOWS FOR A MORE SECURE ENVIRONMENT EXTERNAL TO THE OPERATING SYSTEM. IT'S ONE MORE LAYER OF SECURITY TO PROTECT YOUR VALUABLE DATA. PBA REDUCES THE RISK OF MALICIOUS ATTACKERS GAINING ACCESS TO YOUR DATA BY NOT LOADING THE OPERATING SYSTEM UNTIL THE USER IS AUTHENTICATED.
- DO NOT CARRY YOUR LIFEBOOK TABLET PC AROUND WITH THE POWER ON OR SUBJECT IT TO SHOCKS OR VIBRATION, AS YOU RISK DAMAGING YOUR TABLET PC.

When you power on your LIFEBOOK, it will perform a Power On Self Test (POST) to check the internal parts and configuration for correct functionality. If a fault is found, your LIFEBOOK Tablet PC will emit an audio warning and/or an error message will be displayed. See “Power On Self Test Messages” on page 97. Depending on the nature of the problem, you may be able to continue by starting the operating system or by entering the BIOS setup utility and revising the settings.

After satisfactory completion of the POST, your Tablet PC will load your operating system.



NEVER TURN OFF YOUR LIFEBOOK TABLET PC DURING THE POWER ON SELF TEST (POST) OR IT WILL CAUSE AN ERROR MESSAGE TO BE DISPLAYED WHEN YOU TURN YOUR LIFEBOOK TABLET PC ON THE NEXT TIME. See “Power On Self Test Messages” on page 97.

Boot Sequence

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

The boot sequence is executed when:

- You turn on the power to your LIFEBOOK Tablet PC.
- You restart your Tablet PC from the Windows Shut Down dialog box.
- The software initiates a system restart. Example: When you install a new application.

Hard Disk Drive Passwords

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



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

BIOS Setup Utility

The BIOS Setup Utility is a program that sets up the operating environment for your LIFEBOOK Tablet PC. 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 Tablet PC.

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 setup utility, do the following (or use the TrustedCore Menu, as detailed in the next section):

- 1** Turn on or restart your LIFEBOOK Tablet PC.
- 2** To enter the BIOS Setup Utility, press the [F2] key once the Fujitsu logo appears on the screen. This will open the main menu of the BIOS Setup Utility with the current settings displayed.

- 3 Press the [RIGHT ARROW] or [LEFT ARROW] key to scroll through the other setup menus to review or alter the current settings.

Using the SecureCore Menu

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

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

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

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

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

Booting the System

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

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

Starting Windows the first time



THE FIRST TIME YOU INITIALIZE YOUR WINDOWS SYSTEM, THE SCREEN WILL BE BLANK FOR APPROXIMATELY TWO MINUTES. THIS IS NORMAL. AFTER INITIALIZATION, A “SET UP WINDOWS” DIALOG BOX WILL APPEAR.

IMPORTANT: DURING THE SETUP PROCEDURE, DO NOT DISCONNECT THE POWER SUPPLY, PRESS ANY BUTTONS, OR USE ANY PERIPHERAL DEVICES SUCH AS A MOUSE, KEYBOARD, OR REMOTE CONTROL.

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.

1 First of all, you will need to read and accept the End User License Agreements (EULAs).



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

- 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. As noted above, the first time you initialize your system, the screen will be blank for approximately two minutes. This is normal. During this period, do not disconnect the power supply, press any buttons, or use any peripheral devices such as mouse, keyboard, or remote control.

Registering Windows 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 xx items" (where "xx" is the number of topics in the Welcome Center).
- 2 Click on Register Windows Online and follow the instructions that appear to register your copy of Windows.

Registering Your LIFEBOOK Tablet PC with Fujitsu

You can register your LIFEBOOK by going to our website at: <http://solutions.us.fujitsu.com/>. You will need to be set up with an Internet Service Provider (ISP) to register online.



Installing ClickMe!



BEFORE INSTALLING THE CLICKME! UTILITY, BE SURE THE WIRELESS LAN SWITCH IS TURNED ON.

The first time you boot up your system, you will see a "Primary Settings for the PC" window. This window explains the installations which will be performed by the Click Me! utility. If you click [Execute], ClickMe! will begin installing. If after clicking the button you receive a "User Account Control" window, you will be asked for your permission to continue. Click [Continue] to continue. If you cancel the operation, the ClickMe! icon will appear on your desktop for later installation.



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



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 105.

Power Management

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

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

Power/Suspend/Resume Switch

When your Tablet PC is active, the Power/Suspend/Resume switch can be used to manually put the Tablet PC into Sleep mode. Push the Power/Suspend/Resume switch when the Tablet PC is active, but not actively accessing anything, and immediately release the button.

If your Tablet PC is suspended, pushing the Power/Suspend/Resume switch returns it to active operation. You can tell whether the system is Suspended by looking at the Power indicator. If the indicator is visible and not flashing, your Tablet PC is fully operational. If the indicator is visible *and* flashing, the Tablet PC is in Sleep mode. If the indicator is not visible, the power is off or your Tablet PC is in Hibernation mode.

Sleep Mode

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

Your Tablet PC can be put in sleep mode by:

- Pressing the Power/Suspend/Resume switch when your system is turned on.

- Selecting “Sleep” after clicking [Start] then clicking the small arrow at the bottom right of the window.
- Timing out from lack of activity.
- Allowing the battery to reach the Dead Battery Warning condition.

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



- IF RUNNING YOUR TABLET PC ON BATTERY POWER, BE AWARE THAT THE BATTERY CONTINUES TO DISCHARGE WHILE YOUR TABLET PC IS IN SLEEP MODE, THOUGH NOT AS QUICKLY AS WHEN FULLY OPERATIONAL.
- DISABLING THE POWER/SUSPEND/RESUME SWITCH PREVENTS IT FROM BEING USED TO PUT THE TABLET PC INTO SLEEP OR HIBERNATION (SAVE-TO-DISK) MODE. THE BUTTON RESUME FUNCTION CANNOT BE DISABLED.
- IF YOUR TABLET PC IS ACTIVELY ACCESSING INFORMATION WHEN YOU ENTER THE SLEEP OR HIBERNATION MODE, CHANGES TO OPEN FILES ARE NOT LOST. THE FILES ARE LEFT OPEN AND MEMORY IS KEPT ACTIVE DURING SLEEP MODE OR THE MEMORY IS TRANSFERRED TO THE INTERNAL HARD DRIVE DURING HIBERNATION MODE.
- THE MAIN ADVANTAGE OF USING HIBERNATION IS THAT POWER IS NOT REQUIRED TO MAINTAIN YOUR DATA. THIS IS PARTICULARLY IMPORTANT IF YOU WILL BE LEAVING YOUR TABLET PC IN A SUSPENDED STATE FOR A PROLONGED PERIOD OF TIME. THE DRAWBACK OF USING HIBERNATION MODE IS THAT IT LENGTHENS THE POWER DOWN AND POWER UP SEQUENCES AND RESETS PERIPHERAL DEVICES.

Hibernation (Save-to-Disk) Feature

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

Enable or Disable the Hibernation Feature

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 the Power Options icon.
- 2 Select "Choose what the power button does" or "Choose what closing the lid does", then make your selections (Do Nothing, Sleep, Hibernate, or Shut Down).

Windows 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 Tablet PC 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.

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



TURNING OFF YOUR LIFEBOOK TABLET PC WITHOUT EXITING WINDOWS OR TURNING ON YOUR TABLET PC WITHIN 10 SECONDS OF THE SYSTEM BEING SHUT OFF MAY CAUSE AN ERROR WHEN YOU START THE NEXT TIME.

Powering Off

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



BE SURE TO CLOSE ALL FILES, EXIT ALL APPLICATIONS, AND SHUT DOWN YOUR OPERATING SYSTEM PRIOR TO TURNING OFF THE POWER. IF FILES ARE OPEN WHEN YOU TURN THE POWER OFF, YOU WILL LOSE ANY CHANGES THAT HAVE NOT BEEN SAVED, AND MAY CAUSE DISK ERRORS.

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

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

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

ENERGY STAR® Compliance



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

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

Sleep Mode:

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

Energy saving benefits:

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

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

To read about how Fujitsu is supporting Sustainable Management along with several other environmental activities, visit the Fujitsu Corporate Citizenship page at:

<http://www.computers.us.fujitsu.com/www/content/aboutus/environmental/environment.php>

Chapter 3

User-Installable Features

Lithium ion Battery

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

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

- When used at temperatures that exceed a low of 5°C or a high of 35°C (41° to 95° F). Extreme temperatures not only reduce charging efficiency, but can also cause battery deterioration. The Charging icon on the Status Indicator panel will flash when you try to charge a battery that is outside its operating temperature range.
- When using a high current device such as an external optical drive or the hard drive, using the AC adapter will conserve your battery life.



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



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

Recharging the Batteries

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

The Lithium ion battery is recharged internally using the AC adapter or Auto/Airline adapter. To recharge the battery make sure the battery that needs to be charged is installed in your LIFEBOOK Tablet PC and connect the AC or Auto/Airline adapter.



MAKE SURE THAT THE PERCENTAGE CHARGE IS INDICATED BY THE BATTERY CHARGING INDICATOR ON THE STATUS INDICATOR PANEL.

There is no memory effect on the Lithium ion battery therefore you do not need to discharge the battery completely before recharging. The charge times will be significantly longer if your Tablet PC is in use while the battery is charging. If you want to charge the battery more quickly, put your Tablet PC into Sleep mode, or turn it off while the adapter is charging the battery. *(See Power Management on page 67 for more information on Sleep mode and shutdown procedure)*



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

Low Battery State

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



- ONCE THE LOW BATTERY NOTIFICATION MESSAGE APPEARS, YOU NEED TO SAVE ALL YOUR ACTIVE DATA AND PUT YOUR TABLET PC INTO SLEEP MODE UNTIL YOU CAN PROVIDE A NEW POWER SOURCE. YOU SHOULD PROVIDE A CHARGED BATTERY, AN AC POWER ADAPTER, OR AUTO/AIRLINE ADAPTER AS SOON AS POSSIBLE.
- WHEN YOU ARE IN SLEEP MODE THERE MUST ALWAYS BE AT LEAST ONE POWER SOURCE ACTIVE. IF YOU REMOVE ALL POWER SOURCES WHILE YOUR LIFEBOOK TABLET PC IS IN SLEEP MODE, ANY DATA THAT HAS NOT BEEN SAVED TO THE HARD DRIVE WILL BE LOST.

Dead Battery Suspend mode shows on the Status indicator just like the normal Sleep mode. Once your Tablet PC goes into Dead Battery Suspend mode you will be unable to resume operation until you provide a source of power either from an adapter, or a charged battery. Once you have provided power, you will need to press the Power/Suspend/Resume switch 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 Tablet PC while an adapter is charging the battery.

Shorted Batteries

The Status Indicator panel indicator associated with the Battery Level indicator displays the operating level available in that battery. If this display shows a flashing red LED, it means the battery is damaged and must be replaced so it does not damage other parts of your LIFEBOOK Tablet PC.

Replacing the Battery

With the purchase of an additional battery, you can have a fully charged spare to swap with one that is not charged. There are two ways to swap batteries, cold-swapping and hot-swapping:

Cold-swapping Batteries

To cold-swap batteries in your battery bay, follow these easy steps (Figure 32):

- 1 Have a charged battery ready to install.
- 2 Shut down your Tablet PC and disconnect the AC adapter.
- 3 While pushing the battery bay release latches towards each other, lift the battery up out of the bay.
- 4 Insert a new battery into the bay, and press it in firmly so that the latches click into place.
- 5 Plug in the AC adapter and turn the power on.

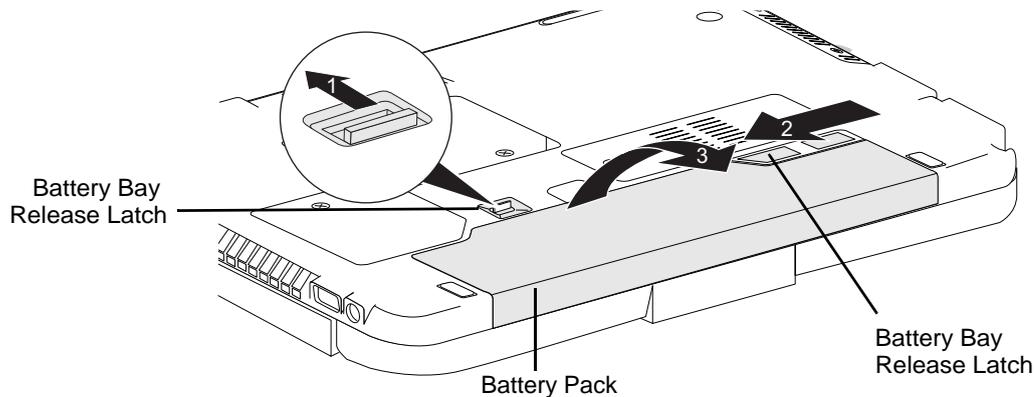


Figure 32. Removing a Battery

Hot-swapping Batteries

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



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

- 1** Plug an AC Adapter into the system and connect it to a power outlet.
- 2** Follow steps 3 through 5 in “Cold Swapping Batteries”.



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

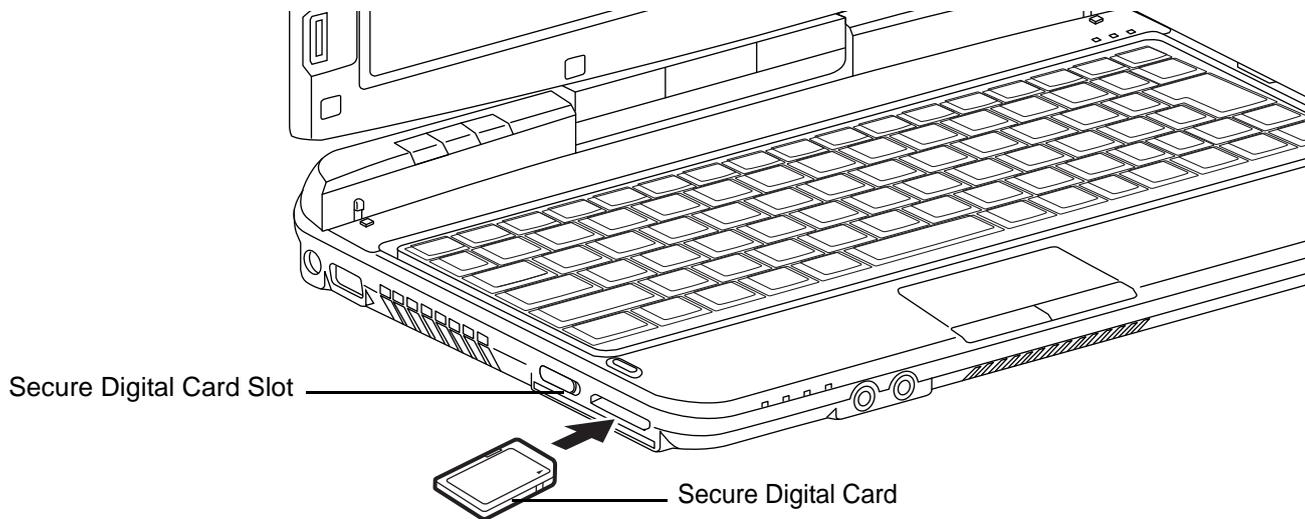


Figure 33. Installing a Secure Digital (SD) Card

Secure Digital Cards

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

SD Cards allow portable storage among a variety of devices, such as cell phones, GPS systems, digital cameras, and PDAs. SD Cards transfer data quickly, with low battery consumption.

Installing SD Cards

SD Cards are installed in the Secure Digital Card slot on the left side of the system. To install an SD Card, follow these steps:



INSTALLING OR REMOVING AN SD CARD DURING YOUR LIFEBOOK TABLET PC'S SHUTDOWN OR BOOTUP PROCESS MAY DAMAGE THE CARD AND/OR YOUR LIFEBOOK TABLET PC.

DO NOT INSERT A CARD INTO A SLOT IF THERE IS WATER OR ANY OTHER SUBSTANCE ON THE CARD AS YOU MAY PERMANENTLY DAMAGE THE CARD, YOUR LIFEBOOK TABLET PC, OR BOTH.

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

Removing an SD Card

To remove an SD Card, follow these easy steps:



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

- 1 Select Safely Remove Hardware from the System Tray. Highlight the card in the list, then click [Stop].
- 2 Push the SD Card in until it unlatches. It will then eject from the slot for removal.

Memory Upgrade Module

Your Fujitsu LIFEBOOK Tablet PC comes with a minimum of 2 GB of high speed Double Data Rate Synchronous Dynamic RAM (DDR3-1066 SDRAM) factory installed. To increase your Tablet PC's memory capacity, you may install an additional memory upgrade module. The memory upgrade must be a dual-in-line (DIMM) SDRAM module. To ensure 100% compatibility, purchase the SDRAM module only from the Fujitsu web store at www.shopfujitsu.com.

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



- BEFORE HANDLING A MEMORY MODULE, TOUCH A GROUNDED METAL OBJECT TO DISCHARGE STATIC ELECTRICITY BUILT UP IN YOUR BODY.
- WHEN INSTALLING OR REMOVING A MEMORY MODULE, HOLD IT BY THE EDGE SO AS NOT TO TOUCH ANY CONTACTS OR CHIPS. BE CAREFUL NOT TO TOUCH ANY INTERNAL COMPUTER TERMINALS OR COMPONENTS; THE OIL FROM YOUR FINGERS COULD CAUSE A SHORT TO THE COMPONENTS.
- BE SURE TO POWER DOWN YOUR SYSTEM BEFORE ADDING OR REMOVING MEMORY MODULES. EVEN IF THE SYSTEM IS IN HIBERNATE OR SLEEP STATES, DATA COULD BE LOST OR THE MEMORY COULD BE DAMAGED IF POWER IS STILL AVAILABLE TO THE SYSTEM.

Installing Memory Upgrade Modules

- 1 Turn off power to your Tablet PC, remove any power adapter (AC or auto/airline). Remove the battery.
- 2 Make sure that all the connector covers are closed.
- 3 Turn the Tablet PC bottom side up, and remove the screw from the memory upgrade module compartment.
- 4 Slide the cover towards the battery compartment slightly, then lift it and remove it (Figure 34).
- 5 Remove the memory upgrade module from the static guarded sleeve.
- 6 Align the memory upgrade module with the part side up. Align the connector edge of the memory upgrade module with the connector slot in the compartment. Be sure the alignment key is positioned correctly. (Figure 35)

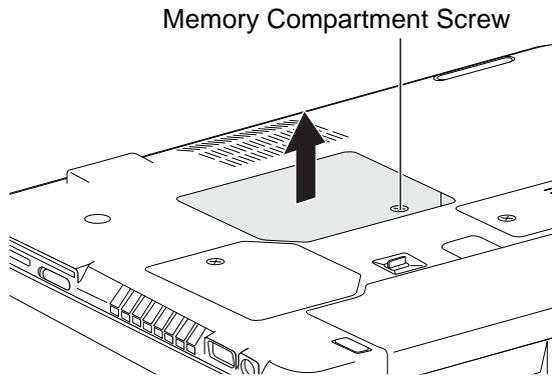


Figure 34. Opening Memory Compartment

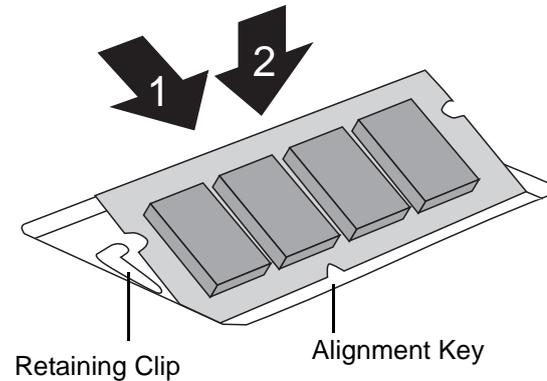


Figure 35. Installing a Second Memory Module

- 7** 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'll hear a click when it is properly in place.
- 8** Replace the cover and reinstall the screw.



THE MEMORY UPGRADE MODULE IS NOT SOMETHING YOU ROUTINELY REMOVE FROM YOUR TABLET PC. ONCE IT IS INSTALLED, YOU CAN LEAVE IT IN PLACE UNLESS YOU WANT TO CHANGE SYSTEM MEMORY CAPACITY.

Removing a Memory Upgrade Module

- 1** Perform steps 1 through 4 of Installing a Memory Upgrade Module.
- 2** Pull the clips sideways away from each side of the memory upgrade module at the same time.
- 3** While holding the clips out, remove the module by lifting it up and pulling it away from your Tablet PC.
- 4** Store the memory upgrade module in a static guarded sleeve.
- 5** Replace the cover and reinstall the screw.

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 Tablet PC has recognized the change.

Click Start > Control Panel.

- If you are in Category view, check the memory capacity by clicking [System and Security -> System -> **View amount of RAM and processor speed**. The amount of memory is displayed next to “Memory - RAM:”
- If you are in one of the icon views, check the memory capacity by clicking System. The amount of memory is displayed next to “Memory - RAM:”

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



IF THE TOTAL MEMORY DISPLAYED IS INCORRECT, CHECK THAT YOUR MEMORY UPGRADE MODULE IS PROPERLY INSTALLED. (IF THE MODULE IS PROPERLY INSTALLED AND THE CAPACITY IS STILL NOT CORRECTLY RECOGNIZED, SEE TROUBLESHOOTING ON PAGE 86.

Device Ports

Your Fujitsu LIFEBOOK Tablet PC comes equipped with multiple ports to which you can connect external devices including: disk drives, keyboards, printers, etc.

Internal LAN (RJ-45) Jack

The internal LAN (RJ-45) jack is used for a Gigabit (10Base-T/100Base-Tx/1000Base-T) Ethernet LAN connection. You may need to configure your Tablet PC to work with your particular network. (Please refer to your network administrator for information on your network configuration.) To connect the LAN cable follow these easy steps:

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

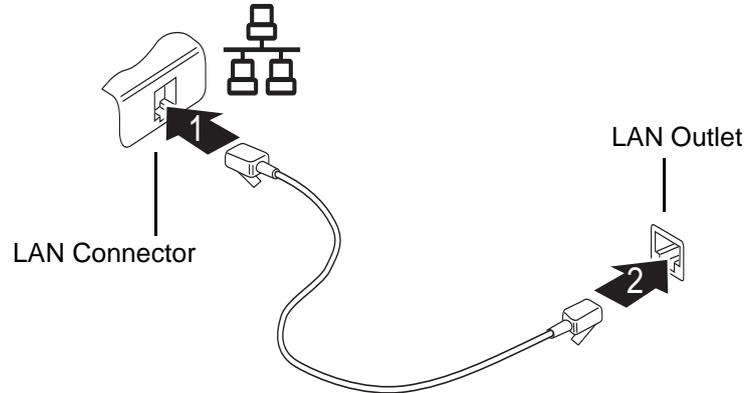


Figure 36. Connecting the LAN

Universal Serial Bus Ports

The Universal Serial Bus 2.0 ports (USB) allow you to connect USB devices such as external game pads, pointing devices, keyboards and/or speakers. There are two USB 2.0 ports on your Tablet PC: one on the left side and one on the right..

In order to connect a USB device follow these steps:

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

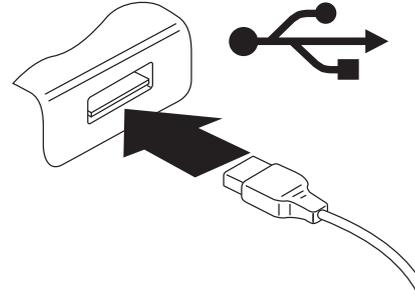


Figure 37. Connecting a USB Device



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

Headphone Jack

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

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

Microphone Jack

The microphone jack allows you to connect an external 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 Tablet PC. In order to connect a microphone follow these easy steps:

- 1 Align the connector with the port opening and push the connector into the port until it is seated.

HDMI Port

The High-Definition Multimedia Interface (HDMI) port is a digital audio/video interface over which uncompressed streams can be transmitted. HDMI is used to connect compatible digital devices with your computer (such as big-screen TVs and video recorders). See the note on the next page regarding the steps for selecting the HDMI device using keyboard shortcuts.

To connect an HDMI device:

- 1 Align the connector with the port opening on the left rear of the system.
- 2 Push the connector into the port until it is seated.

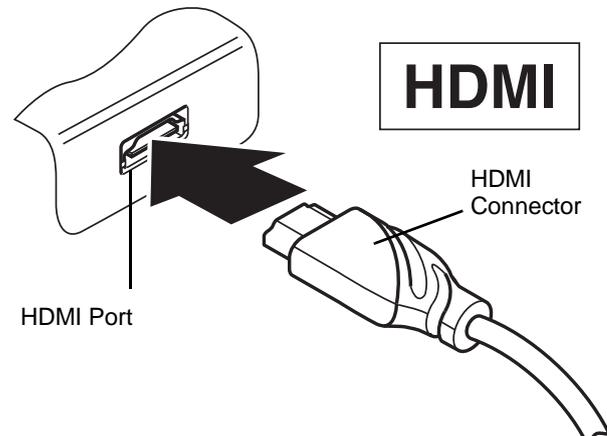


Figure 38. Connecting an HDMI device

External Video Port

The external video port allows you to connect an external monitor or LCD projector. In order to connect an external video device, follow these easy steps:

- 1 Align the connector with the port opening.

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



PRESSING THE [FN] + [F10] KEYS ALLOWS YOU TO CHANGE YOUR SELECTION OF WHERE TO SEND YOUR DISPLAY VIDEO. THE ORDER IS DETERMINED BY WHICH TYPE OF EXTERNAL VIDEO DEVICE(S) IS CONNECTED. EACH TIME YOU PRESS THE KEY COMBINATION, YOU WILL STEP TO THE NEXT CHOICE.

IF YOU ONLY HAVE AN EXTERNAL CRT CONNECTED, THE ORDER IS: INTERNAL DISPLAY -> EXTERNAL CRT -> SIMULTANEOUS DISPLAY -> INTERNAL DISPLAY.

If you only have an HDMI device connected, the order is: internal display -> HDMI display -> simultaneous display -> internal display.

If you have external CRT and HDMI devices connected, the order is: internal display -> external CRT -> simultaneous internal and external CRT -> HDMI display - simultaneous internal and HDMI display -> internal display.

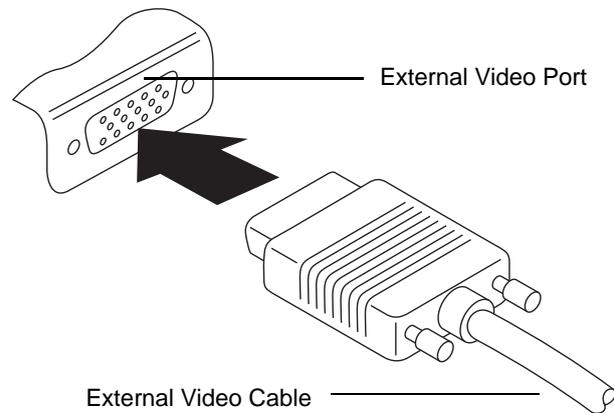


Figure 39. Connecting an External Video Device



Chapter 4

Troubleshooting Your LIFEBOOK

Troubleshooting

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

Identifying the Problem

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

- 1 Turn off your LIFEBOOK Tablet PC.
- 2 Make sure the AC adapter is plugged into your Tablet PC and to an active AC power source.
- 3 Make sure that any cards installed are seated properly. If it appears that there is a problem with a card, 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 Tablet PC. Make sure it has been off at least 10 seconds before you turn it back on.
- 6 Go through the boot sequence.
- 7 If the problem has not been resolved, refer to the Troubleshooting Table, that follows, for more detailed troubleshooting information.



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

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

Toll free: 1-800-8Fujitsu (1-800-838-5487)

Web site: <http://www.computers.us.fujitsu.com/support>.

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

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

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

Specific Problems

Using the Troubleshooting Table

When you have problems with your LIFEBOOK Tablet PC, 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 Tablet PC.

Troubleshooting Table

ProblemPage

Audio Problems	page 89
Hard Drive Problems	page 89
Keyboard or Mouse Problems . . .	page 90
Memory Problems	page 90
USB Device Problems	page 90

ProblemPage

Power Failures	page 91
Shutdown and Startup Problems . .	page 93
Video Problems	page 94
Miscellaneous Problems	page 96

Problem	Possible Cause	Possible Solutions
Audio Problems		
There is no sound coming from the built-in speaker.	The volume is turned too low.	Adjust the volume control on your Tablet PC and operating system. Use the [Fn+F9] key combination on your keyboard. Pressing [F9] repeatedly while holding [Fn] will increase the volume of your Tablet PC.
	The software volume control is set too low.	Manually adjusting the volume (i.e., keyboard "hot keys") should dynamically adjust the volume of the operating system (see above). If that doesn't work, adjust the sound volume control settings in your software or application.
	Headphones are plugged into your Tablet PC.	Plugging in headphones disables the built-in speakers. Remove the headphones.
	BIOS audio settings are incorrect.	Set the BIOS setup utility to the default values within the Multimedia Device Configuration menu. See <i>"BIOS Setup Utility"</i> on page 62.
	Software driver is not configured correctly.	The audio driver may be installed or reinstalled using the Drivers and Applications CD that came with your Fujitsu LIFEBOOK. Refer to your application and operating system documentation for help.
	The speakers have been muted using the Volume icon in the system tray.	Click the Volume icon in the system tray on the bottom right of the screen. (It looks like a speaker). If the Mute box has a red circle on it, click on it to deselect it. You can also use the [Fn+F3] key combination to toggle the volume on and off. Pressing [F3] while holding [Fn] will toggle the audio mute.
Hard Drive Problems		
You cannot access your hard drive.	The wrong drive designator was used by an application when a bootable disc was used to start the Tablet PC.	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.

Problem	Possible Cause	Possible Solutions
You cannot access your hard drive. (continued)	Security is set so your operating system cannot be started without a password.	Verify your password and security settings.
Keyboard or Mouse Problems		
The built-in keyboard does not seem to work.	The Tablet PC has gone into Sleep mode.	Push the Power/Suspend/Resume switch.
	Your application has locked out your keyboard.	Try to use your integrated pointing device to restart your system.
You have installed an external keyboard or mouse, and it does not seem to work.	Your external device is not properly installed.	Re-install your device. See <i>“Device Ports” on page 82.</i>
	Your operating system is not set up with correct software driver for that device.	Check your device and operating system documentation and activate the proper driver.
You have connected an external keyboard or a mouse and it seems to be locking up the system.	Your operating system is not setup with correct software driver for that device.	Check your device and operating system documentation and activate the proper driver.
	Your system has crashed.	Try to restart your Tablet PC.
Memory Problems		
Your System screen in the Control Panel does not show the correct amount of installed memory.	Your memory upgrade module is not properly installed.	Remove and re-install your memory upgrade module. See <i>“Memory Upgrade Module” on page 79.</i>
	You have a memory failure.	Check for Power On Self Test (POST) messages. See <i>“Power On Self Test Messages” on page 97.</i>
USB Device Problems		
Your system doesn't recognize a USB device you installed, or the device doesn't work properly.	The device is not properly installed.	Remove and re-install the device. See <i>“Device Ports” on page 82.</i>

Problem	Possible Cause	Possible Solutions
Your system doesn't recognize a USB device you installed, or the device doesn't work properly. (continued)	The device may have been installed while an application was running, so your system is not aware of its installation.	Close the application and restart your Tablet PC.
	Your device may not have the correct software driver active.	See your software documentation and activate the correct driver.
Power Failures		
You turn on your Tablet PC 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 28. Install a charged battery or a Power adapter.
	The battery is installed but is faulty.	Use the Status Indicator panel to verify the presence and condition of the battery. See "Status Indicator Panel" on page 28. If the battery indicates a short, remove it and operate from another power source or replace that battery.
	The battery is low.	Check the Status Indicator Panel to determine the presence and condition of the battery. See "Status Indicator Panel" on page 28. Use a Power adapter to operate until a battery is charged or install a charged battery.
	AC power adapter is not plugged in properly.	Verify that your adapter is connected correctly. See "Power Sources" on page 58.
	The power adapter has no power from the AC or airline outlet.	Move the AC cord to a different outlet, or check for a line switch or tripped circuit breaker. If you are using an auto/airline adapter in a car be sure the ignition switch is in the On or Accessories position.
	The power adapter (AC or auto/airline) is faulty.	Try a different power adapter.

Problem	Possible Cause	Possible Solutions
Your LIFEBOOK Tablet PC 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 Power/Suspend/Resume switch. Check your power management settings, or close your applications and go to Power Options located in the Control Panel to adjust timeouts to better suit your needs.
	Your power adapter has failed or lost its power source.	Make sure the adapter is plugged in and the outlet has power.
	You ignored a low battery alarm until the battery entered Dead Battery Suspend mode.	Install a power adapter, then push the Power/Suspend/Resume switch. See <i>“Power Sources” on page 58.</i>
	You have a battery failure.	Verify the condition of the battery using the Status Indicator panel. If the battery is shorted, replace or remove it. See <i>“Status Indicator Panel” on page 28.</i>
Your Tablet PC will not work on battery alone.	The installed battery is dead.	Replace the battery with a charged one or install a power adapter.
	No battery is installed.	Install a charged battery.
	The battery is improperly installed.	Verify that the battery is properly connected by re-installing it.
	Your installed battery is faulty.	Verify the condition of the battery using the Status Indicator panel and replace or remove any batteries that are shorted. See <i>“Status Indicator Panel” on page 28.</i>
The battery seems to discharge too quickly.	The power savings features may be disabled.	Check the Power Options menu settings and adjust according to your operating needs.
	You’re running an application that uses a lot of power due to frequent drive access, or use of LAN, WLAN, or Bluetooth.	Use a power adapter for this application when at all possible.

Problem	Possible Cause	Possible Solutions
The battery seems to discharge too quickly. (continued)	The brightness is turned all the way up.	Turn down the brightness adjustment. The higher the brightness the more power your display uses.
	The battery is very old.	Replace the battery.
	The battery was exposed to high temperatures.	Replace the battery.
	The battery is too hot or too cold.	Restore the Tablet PC to normal operating temperature. Charging icon on the Status Indicator panel will flash when battery is outside of operating range.
Shutdown and Startup Problems		
The Suspend/Resume button does not work.	Suspend/Resume button is disabled.	To enable the button, go to Control Panel -> Power Options and click on the Advanced tab. In the Power buttons area, select the "Change what the power button does" option.
The Suspend/Resume button does not work. (continued)	There may be application software conflict	Close all applications and try the button again.
The system powers up and displays power on information, but fails to load the operating system.	You have a secured system requiring a password to load your operating system.	Make sure you have the right password. Enter the setup utility and verify the Security settings and modify them as accordingly. See "BIOS Setup Utility" on page 62.
	The boot sequence settings of the setup utility are not compatible with your configuration.	Set the operating source by pressing the [ESC] key while the Fujitsu logo is on screen or use the [F2] key and enter the setup utility and adjust the source settings from the Boot menu. See "BIOS Setup Utility" on page 62.
	Internal hard drive was not detected.	Use the BIOS setup utility to try to auto detect the internal hard drive.
An error message is displayed on the screen during the boot sequence.	Power On Self Test (POST) has detected a problem.	See the Power On Self Test (POST) messages to determine the meaning and severity of the problem. Not all messages are errors; some are simply status indicators. See "Power On Self Test Messages" on page 97.

Problem	Possible Cause	Possible Solutions
Your Tablet PC appears to change setup parameters when you start it.	BIOS setup changes were not saved when made and you exited the setup utility.	Make sure you select Save Changes And Exit when exiting the BIOS setup utility.
	The BIOS CMOS hold-up battery has failed.	Contact your support representative for repairs. This is not a user serviceable part but has a normal life of 3 to 5 years.
Video Problems		
The built-in display is blank when you turn on your Tablet PC.	Display angle and brightness settings are not adequate for your lighting conditions.	Move the display and the brightness control until you have adequate visibility. Pressing either the [F6] or [F7] keys while holding down the [Fn] key also allows you to change the brightness level of the display.
	Power management timeouts are set for short intervals and you didn't see the display go on and off again.	Press a keyboard button or move the mouse to restore operation. If that fails, push the Power/Suspend/Resume switch. (The display may be shut off by Sleep mode, Auto Suspend or Video Timeout)
	The Tablet PC is set for an external monitor only.	Pressing [F10] while holding down the [Fn] key allows you to change your selection of where to send your display video. Each time you press the keys you will step to the next choice. The choices, in order are: built-in display only, external monitor only, both built-in display and external monitor.
The Tablet PC turned on with a series of beeps and the built-in display is blank.	Power On Self Test (POST) has detected a failure which does not allow the display to operate.	Contact your support representative.
The display goes blank by itself after you have been using it.	Power management timeouts are set for short intervals and you failed to notice the display come on and go off again.	Press any button on the keyboard, or move the mouse to restore operation. If that fails, push the Power/Suspend/Resume switch. (The display may be shut off by Sleep Mode, Auto Suspend or Video Timeout)

Problem	Possible Cause	Possible Solutions
The display goes blank by itself after you have been using it. (continued)	The Tablet PC has gone into Video timeout, Sleep mode, or Save-to-Disk mode because you have not used it for a period of time.	Press any button on the keyboard, or move the mouse to restore operation. If that fails, push Power/Suspend/Resume switch. 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 <i>“BIOS Setup Utility”</i> on page 62.
The display does not close.	A foreign object, such as a paper clip, is stuck between the display and keyboard.	Remove all foreign objects from the keyboard.
The display has bright or dark spots.	If the spots are very tiny and few in number, this is normal for a large LCD display.	This is normal; do nothing.
	If the spots are numerous or large enough to interfere with your operation needs.	Display is faulty; contact your support representative.
The Display is dark when on battery power.	The Power Management utility default is set on low brightness to conserve power.	Press [Fn] + [F7] to increase brightness or click the battery gauge, click on More power options , and select Adjust the display brightness .
You have connected an external monitor and it does not display any information.	Your BIOS setup is not set to enable your external monitor.	Toggle the video destination by pressing [Fn]+ [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 <i>“BIOS Setup Utility”</i> on page 62.
	Your external monitor is not properly installed.	Reinstall your device. See <i>“External Video Port”</i> on page 84.
	Your operating system is not setup with the correct software driver for that device.	Check your device and operating system documentation and activate the proper driver.

Problem	Possible Cause	Possible Solutions
You have connected an external monitor and it does not come on.	Your external monitor is not compatible with your LIFE-BOOK Tablet PC.	See your monitor documentation and the External Monitor Support portions of the Specifications section. See “Specifications” on page 114.
Miscellaneous Problems		
Error message displayed on the screen during operation of an application.	Application software often has its own set of error message displays.	See your application manual and help displays screens for more information. Not all messages are errors some may simply be status.

Power On Self Test Messages

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

nnnn Memory Cache Passed

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

***Extended Memory Failed at address line: xx**

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

nnnn Extended RAM Passed

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

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

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

***Incorrect Drive A type – run SETUP**

Type of floppy drive A: not correctly identified in Setup. This means that the floppy disk drive type identified in your setup utility does not agree with the type detected by the Power On Self Test. Run the setup utility to correct the inconsistency.

***Incorrect Drive B type – run SETUP**

Type of floppy drive B: not correctly identified in Setup. This means that the floppy disk drive type identified in your setup utility does not agree with the type detected by the Power On Self Test. Run the setup utility to correct the inconsistency.

***Invalid NVRAM Data**

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

***Keyboard controller error**

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

***Keyboard error**

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

***Stuck Key**

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

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

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

***Operating system not found**

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

***Parity Check 1 nnnn**

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

***Parity Check 2 nnnn**

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

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

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

***Previous boot incomplete – Default configuration used**

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

***Real time clock error**

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

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

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

nnnn Shadow RAM Passed

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

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

The BIOS CMOS RAM memory hold up battery is dead. This is part of your BIOS and is a board mounted battery which requires a support representative to change. You can continue operating but you will have to use setup utility default values or reconfigure your setup utility every time you turn off your Tablet PC. This battery has an expected life of 2 to 3 years.

System BIOS shadowed

System BIOS copied to shadow RAM.

***System CMOS checksum bad – Default Configuration Used**

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

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

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

nnnn System Memory Passed

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

***System timer error**

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

Video BIOS shadowed

Video BIOS successfully copied to shadow RAM.

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Restoring Your Pre-installed Software

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

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

Microsoft Windows XP Edition: Please use the following instructions.

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



IF YOU HAVE ACCESS TO THE INTERNET, VISIT THE FUJITSU SUPPORT WEBSITE AT [HTTP://WWW.COMPUTERS.US.FUJITSU.COM/SUPPORT](http://www.computers.us.fujitsu.com/support) TO CHECK FOR THE MOST CURRENT INFORMATION, DRIVERS AND HINTS ON HOW TO PERFORM RECOVERY AND SYSTEM UPDATES.

Re-installing Individual Drivers and Applications

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



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

To re-install drivers and/or applications:

- 1 Boot up the system and insert the DAR CD after Windows has started. A Fujitsu Installer screen is displayed after the CD is inserted.
- 2 After reading the License Agreement, click [I agree].

- 3 A window will appear containing a list of applications, drivers, and utilities that you can install from the Drivers and Applications CD.



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

- 4 In the list, check off all the components you want to install. If you want to install all components, click [Select All]. Clicking [Select All] will select all of the blue-coded components; you must select grey and green components separately.
- 5 Once you have selected the components you wish to install, click [Install Selected Subsystems]; the components will be installed.
- 6 After the components are installed, click [OK], then click [Yes] when asked if you want to reboot the system.

Restoring the Operating System for Windows

The Recovery and Utility disc contains four utilities:

- The **Recovery** utility allows you to restore the system operating system (OS). The restored OS is the same one that was originally installed on the hard disk drive. After the OS is restored, you will need to reinstall the drivers and applications from the Drivers and Applications Restore disc and from any application discs that were bundled with the system when you purchased it.
- The **Hard Disk Data Delete** utility on this disc is used to delete all data on your hard disk and prevent it from being reused. Do not use the Hard Disk Data Delete utility unless you are absolutely certain that you want to erase your entire hard disk, including all partitions.
- The **Partition Creation** utility allows you to create a new D: partition or resize existing partitions on your hard disk. **NOTE: Creating or resizing partitions with this utility will cause all data on the hard disk to be completely erased.**
- The **Diagnostics** utility allows the IT professional to determine device status/condition by executing diagnostics tests on selected system components.

Methods for accessing the utilities

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

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

Determining whether Recovery and Utility is pre-loaded

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

Running Recovery and Utility from hard disk

- 1 Cursor down to <Recovery and Utility> and press the [Enter] key.
- 2 While the files are being loaded from the disc, a progress bar will appear at the bottom of the screen.
- 3 When the System Recovery Options dialog opens, select a new keyboard layout, if necessary, then click [Next].
- 4 When the Operating System dialog appears, click [Next].
- 5 If necessary, enter your password, then click [OK].
- 6 When System Recovery Options window appears, click on Recovery and Utility.
- 7 The Recovery and Utility screen appears on the screen with three tabs: Diagnostics, Recovery and Utility. Please note that Diagnostics tab is not supported on certain LIFEBOOK/Stylistic models when running Recovery and Utility from the hard disk. In order to restore the operating system, please insert the “Recovery and Utility” disc in the CD/DVD drive and use the Start Recovery function under the Recovery tab. For more information about the tabs, go to “Recovery and Utility tabs” on page 104.

Running Recovery and Utility from the disc



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

Procedure

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

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

Recovery and Utility tabs

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

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

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

- **System Restore** can help fix problems that might be making your computer run slowly or stop responding. System Restore enables you in rolling back the system to an earlier restore point, and does not affect any of your documents, pictures, or other personal data.
- The **Hard Disk Data Delete** utility is used to delete all data on the hard disk and prevent the data from being reused. **NOTE: Do not use the Hard Disk Data Delete utility unless you are absolutely certain that you want to erase your entire hard disk, including all partitions.**
- The **Partition Creation** utility allows you to create a D: partition or resize existing partitions on your hard disk. **NOTE: Creating or resizing partitions with this utility will cause all data on the hard disk to be completely erased.**

Automatically Downloading Driver Updates

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

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

To invoke the FDU menu, you can either right-click on the FDU icon or hold the pen on the icon for a couple of seconds until the menu appears. The menu contains the following items:

Check for updates now

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

Enable Automatic Update Notifications

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

Show update history

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

About Fujitsu Driver Update

Displays the FDU version number and copyright information

Fujitsu Driver Update Readme

Displays the FDU readme.

Chapter 5

Care and Maintenance

Caring for your LIFEBOOK Tablet PC

If you use your LIFEBOOK Tablet PC carefully, you will increase its life and reliability. This section provides some tips for looking after the Tablet PC 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 TABLET PC (WHEN USING A PORT REPLICATOR), IT IS A GOOD PRACTICE TO ALWAYS TOUCH A GROUNDED METAL OBJECT TO DISCHARGE STATIC ELECTRICITY BUILT UP IN YOUR BODY.
- BE SURE TO POWER DOWN YOUR SYSTEM BEFORE ADDING OR REMOVING SYSTEM COMPONENTS. EVEN IF THE SYSTEM IS IN HIBERNATE OR SLEEP STATES, DATA COULD BE LOST OR MEMORY COULD BE DAMAGED IF POWER IS STILL AVAILABLE TO THE SYSTEM.
- WHEN INSTALLING OR REMOVING A MEMORY MODULE, HOLD IT BY THE EDGE SO AS NOT TO TOUCH ANY CONTACTS OR CHIPS. BE CAREFUL NOT TO TOUCH ANY INTERNAL COMPUTER TERMINALS OR COMPONENTS; THE OIL FROM YOUR FINGERS COULD CAUSE A SHORT TO THE COMPONENTS.
- ELECTRICAL EQUIPMENT MAY BE HAZARDOUS IF MISUSED. OPERATIONS OF THIS PRODUCT OR SIMILAR PRODUCTS, MUST ALWAYS BE SUPERVISED BY AN ADULT. DO NOT ALLOW CHILDREN ACCESS TO THE INTERIOR OF ANY ELECTRICAL PRODUCTS AND DO NOT PERMIT THEM TO HANDLE ANY CABLES.

- Your LIFEBOOK is a durable but sensitive electronic device. Treat it with respect and care.
- Make a habit of transporting it in a suitable carrying case.
- Do not attempt to service the computer yourself. Always follow installation instructions closely.
- Keep it away from food and beverages.
- To protect your Tablet PC 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 Tablet PC in areas where the air vents can be obstructed, such as in tight enclosures or on soft surfaces like a bed or cushion.
- If you accidentally spill liquid on your LIFEBOOK Tablet PC:
 - 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 Tablet PC will not boot after it has dried out, call your support representative.
- Do not use your Fujitsu LIFEBOOK Tablet PC in a wet environment (near a bathtub, swimming pool).
- Always use the AC adapter and batteries that are approved for your Tablet PC.
- Avoid exposure to sand, dust and other environmental hazards.
- Do not expose your Tablet PC to direct sunlight for long periods of time as temperatures above 140° F (60° C) may damage your Tablet PC.
- Keep the covers closed on the connectors and slots when they are not in use.
- Do not put heavy or sharp objects on the computer.
- If you are carrying your LIFEBOOK Tablet PC in a briefcase, or any other carrying case, make sure that there are no objects in the case pressing on the lid.
- Never position your Tablet PC such that the optical drive is supporting the weight of the Tablet PC.

Cleaning your LIFEBOOK Tablet PC

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

NOTE: Avoid wetting the thermal suede in all cases.

Cleaning guidelines using recommended off-the-shelf cleaners

Computer exterior, computer keyboard

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

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

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

Disinfecting LIFEBOOK computers

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



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

Storing your LIFEBOOK Tablet PC

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

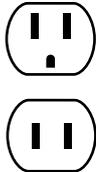


- ALWAYS POWER OFF THE COMPUTER BEFORE TRANSPORTING AND/OR PACKAGING IT. AFTER SHUTTING DOWN THE SYSTEM, WAIT UNTIL THE STATUS LED PANEL INDICATES POWER OFF CONDITION (I.E., NO LIGHTS ARE ILLUMINATED).
- IT IS POSSIBLE THAT THE UNIT MAY NOT AUTOMATICALLY GO TO POWER OFF OR HIBERNATE MODE WHEN YOU CLOSE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

Traveling with your LIFEBOOK Tablet PC

- Do not transport your Tablet PC while it is turned on.
- It is recommended that you carry your Tablet PC with you while traveling, rather than checking it in as baggage.
- Always bring your System Recovery CD that came with your Tablet PC when you travel. If you experience system software problems while traveling, you may need it to correct any problems.
- Never put your Tablet PC through a metal detector. Have your Tablet PC hand-inspected by security personnel. You can however, put your Tablet PC through a properly tuned X-ray machine. To avoid problems, place your Tablet PC close to the entrance of the machine and remove it as soon as possible or have your Tablet PC hand-inspected by security personnel. Security officials may require you to turn your Tablet PC on, so make sure you have a charged battery on hand.

- Take the necessary plug adapters if you're traveling overseas. Check the following diagram to determine which plug adapter you'll need or ask your travel agent.

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

Batteries

Caring for your Batteries

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

Increasing Battery Life

- Power your Tablet PC through the AC or optional auto/airline adapter whenever possible.
- If your tablet runs on battery power all day, connect it to an AC adapter overnight to recharge it.
- Keep brightness to the lowest level comfortable.
- Set the power management for maximum battery life.
- Put your Tablet PC in Sleep mode when it is turned on and you are not actually using it.
- Limit your media drive access.
- Disable the Media Player auto insert notification function.

Media Care

Caring for your Media (when optional external optical drive is installed)

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

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

Caring for an Optional Optical Drive

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

- The drive rotates the compact disc at a very high speed. Do not carry it around or subject it to shock or vibration with the power on.
- Avoid using or storing the drive where it will be exposed to extreme temperatures.
- Avoid using or storing the drive where it is damp or dusty.
- Avoid using or storing the drive near magnets or devices that generate strong magnetic fields.
- Avoid using or storing the drive where it will be subjected to shock or vibration.
- Do not disassemble or dismantle the optical drive.
- Use of a commercially available lens cleaner is recommended for maintenance of your drive.

Secure Digital Cards

Caring for your Cards

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

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

Chapter 6

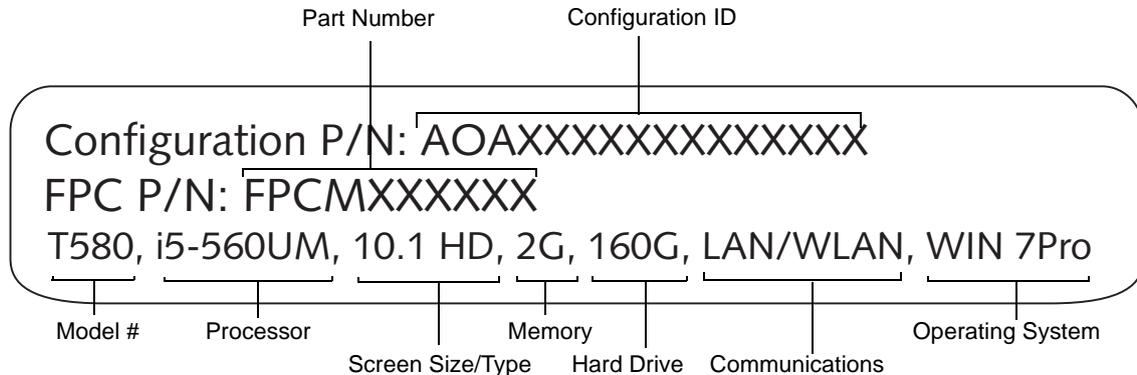
System Specifications

Specifications

This section provides the hardware and environmental specifications for your Fujitsu LIFEBOOK Tablet PC. Specifications of particular configurations will vary.

Configuration Label

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



Microprocessor

New 2010 Intel® Core™ Processor (Refer to the system label to determine the speed of your processor).

Chipset

- Mobile Intel® HM55 Express
- Platform Control Hub (PCH)

Memory

System Memory

- DDR3-800 MHz SDRAM dual-channel memory module.
- Two DIMM slots; upgradeable to 8 GB of total memory (4 GB x 2).

Cache Memory

Up to 3MB L2 cache on-die (depending upon CPU)

Video

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

Video Color and Resolution

10.1" High Definition display

- Internal: 1366 x 768 pixel resolution, 16M colors
- External: 1920 x 1200 pixel resolution, 16M colors
- Simultaneous: 1280 x 800, 16M colors

Video RAM

Intel(R) HD Graphics with dynamic frequency. Automatically distributes performance to CPU and graphics applications that need an extra boost up to approximately 20%.

Digitizer

- Dual Digitizer, consisting of active digitizer and capacitive touch panel (uses active stylus input and up to four finger touch input).

Audio

- Realtek codec ALC269 with High Definition (HD) audio.
- **Headphones:** Stereo headphone jack, 3.5 mm, 1 V_{rms} or less, minimum impedance 32 Ohms
- **Microphone:** Stereo microphone jack, 3.5 mm, 100 mV_{p-p} or less, minimum impedance 10K Ohms
- One built-in mono speaker, 25 mm x 16 mm, 0.6 W
- One built-in digital microphone

Mass Storage Device Options

Hard Drive

Depending upon your system configuration, one of the following hard drives is installed in your Tablet PC. Capacity and speed of the hard drive are determined by system configuration:

- Serial ATA hard disk drive, 2.5", 9.5 mm, shock-mounted with Shock Sensor utility, or,
- Solid State Drive

Features

Integrated Pointing Device

Touchpad cursor control with left and right buttons

Communications

- **Gigabit LAN:** Realtek 10/100/1000 Gigabit Ethernet LAN
- **WLAN:** Optional integrated Intel Centrino Advanced-N 6200 (a/b/g/n, 2 x 2), Atheros HB92 802.11abgn, or Atheros HB97 802.11bgn

- **Bluetooth:** Optional Bluetooth V2.1 (BSMAN3) device for wireless personal area network communication
- **WWAN:** Optional Gobi2000 Wireless Wide Area Network (WWAN) with GPS* support of NMEA-compatible (V3.1 or later) applications. Note that the WWAN is compatible only with the Intel wireless LAN.

** Requires separately purchased wireless data service contracts. Check with your local provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. AGPS access requires an unobstructed view of multiple satellites. Performance may be affected if you are inside of a building, on a bridge, or in a heavily congested area. GPS accessibility requires separately purchased GPS navigation software available from GPS application vendors.*

Web Camera

Optional built-in 1.3 megapixel web camera.

Security

- **Trusted Platform Module:** The LIFEBOOK T580 may have an optional Trusted Platform Module (TPM) V1.2 installed for added system security.
- **Theft Prevention Lock:** Lock slot for use with security restraint systems.
- **Fingerprint Sensor:** The fingerprint sensor uses biometric readings to ensure that only a person with a registered fingerprint can access the system.
- **Two-level BIOS and HDD Password Protection**
- **CompuTrace BIOS Persistence Module:** Requires separate subscription
- **Dedicated Smart Card slot:** Smart Cards contain integrated microprocessor chip that can hold a variety of security, financial, and personal information

Device Ports

- Secure Digital (SD) Card slot
- One 15-pin D-SUB connector for VGA external monitor (see Display specifications)
- Two USB 2.0 (Universal Serial Bus) connectors for input/output devices

- One DC In connector
- One LAN (RJ-45) connector
- One HDMI port
- One stereo headphone jack
- One stereo microphone/line-in jack

Keyboard

Built-in keyboard with all functions of 101 key keyboard

- Total number of keys: 82
- Function keys: F1 through F12, plus Fn extension key
- Two Windows keys: one Start key, one application key
- Key pitch: 17.5 mm; key stroke: 2.0 mm
- Built-in Touchpad pointing device with left and right buttons.
- Built-in Palm Rest
- External USB keyboard/mouse support

Power

Battery

- Standard Main Lithium ion battery, rechargeable, 3-cell, 10.8V, 2900 mAh
- High-capacity Main Lithium ion bay battery, rechargeable, 6-cell 10.8V, 5800 mAh

AC Adapter

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

Power Management

Conforms to ACPI (Advanced Configuration and Power Interface).

Dimensions and Weight

Overall Dimensions

10.63" (W) x 7.09" (D) x 1.56" (D) (270 mm x 180 mm x 39.7 mm) (with rubber foot)

Weight

2.95 lb (1.34 kg) with 3-cell battery, without UMTS or WLAN devices

Environmental Requirements

Temperature

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

Humidity

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

Altitude

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

Popular Accessories

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

Pre-Installed Software

Depending on your pre-installed operating system, your Tablet PC comes with pre-installed software for playing audio and video files of various formats. In addition there is file transfer software and virus protection software.



THE FOLLOWING LIST CONSTITUTES THE SOFTWARE THAT MAY BE INSTALLED ON YOUR COMPUTER. THE PRE-INSTALLED SOFTWARE MAY VARY, AND IS DETERMINED BY YOUR OPERATING SYSTEM AND CONFIGURATION.

- Adobe Reader
- Norton Internet Security™ (60-day free trial)
- CyberLink YouCam
- Roxio Creator
- OmniPass Fingerprint application
- Fujitsu Driver Update utility
- Google Toolbar
- Microsoft Office Starter 2010 (32-bit)
- Microsoft Windows Live Essentials

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 Tablet PC you will find manuals for your installed operating system and other pre-installed software. Any manuals that are not included are available online through the software's "Help" menu. We recommend that you review these manuals for information on the use of these applications.

Adobe Reader

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

Norton Internet Security

Your system is preinstalled with a free 60-day trial version of Symantec's Norton Internet Security™. Internet Security is a suite of tools designed to protect your LIFEBOOK from viruses, hackers, spam, and spyware. It helps you protect data currently on your hard disk from destruction or contamination. The trial version is activated upon your acceptance of software license agreement. After 60 days, you will need to purchase a subscription from Symantec to download latest virus, spyware, and spam definitions.

CyberLink YouCam

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

Roxio Creator

Roxio Creator lets you burn CDs and organize, edit and share digital photos, music, data, or videos.

OmniPass Fingerprint application

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

Fujitsu Driver Update Utility

The Fujitsu Driver Update (FDU) utility is pre-installed on your system. With FDU, you can choose to automatically or manually go to the Fujitsu site to check for new updates for your system. See "Automatically Downloading Driver Updates" on page 105.

Google Toolbar

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

Microsoft Windows Live Essentials

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

Microsoft Office Starter 2010 (32-bit)

Microsoft Office Starter 2010 includes reduced-functionality versions of Microsoft Word and Microsoft Excel that include advertising. Microsoft PowerPoint, Microsoft Outlook, and Microsoft Publisher are not included. Customers must purchase an Office 2010 Disc, PKC (Product Key Card), or select one of the full Microsoft Office 2010 suites to activate full-featured Office software on the PC.

Fujitsu offers a PKC (Product Key Card) for Microsoft Office Home and Student 2010 and Microsoft Office Home and Business 2010 (32-bit). Simply enter your product key and you're ready to go!

Another option is to purchase a full Microsoft Office 2010 suite from either your computer reseller or online from Microsoft.

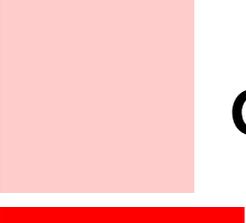
Operating System Options

Microsoft Windows 7 Professional

With Microsoft OneNote and Microsoft OfficeReady with Office Assistant

Microsoft Windows XP Tablet PC Downgrade Edition

Available by special order only.



Glossary

AC Adapter

A device which converts the AC voltage from a wall outlet to the DC voltage needed to power your LIFEBOOK Tablet PC.

Access point

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

ACPI

Advanced Configuration and Power Interface

Active-Matrix Display

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

Ad Hoc Mode

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

ADSL

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

AGP

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

Auto/Airline Adapter

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

BIOS

Basic Input-Output System. A program and set of default parameters stored in ROM which tests and operates your LIFEBOOK Tablet PC 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 Tablet PC.

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.

Channel

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

CMOS RAM

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

Command

An instruction which you give your operating system.

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. Used to automatically acquire parameters for communication, such as IP address. The sender of IP address is called a DHCP server; the receiver is called a DHCP client.

DIMM

Dual-in-line memory module.

Disk

A spinning platter of magnetic data storage media. Disk Drive

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

DMA

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

DMI

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

DNS

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

Driver

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

DVMT

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

ECP

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

Encryption Key (Network Key)

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

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

ESD

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

FCC

Federal Communications Commission.

GB

Gigabyte. One billion bytes.

Hard drive

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

I/O

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

I/O Port

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

IDE

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

IEEE802.11a

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

IEEE802.11b

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

IEEE802.11g

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

IEEE802.11n

Wireless LAN standard that supports a maximum data rate of up to 150 Mbps. 802.11n devices operate in the 2.4 and 5 GHz ISM bands.

Infrastructure

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

IP Address

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

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

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

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

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

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

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

IRQ

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

KB

Kilobyte. One thousand bytes.

LAN

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

LCD

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

Lithium ion Battery

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

MAC Address

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

MB

Megabyte. One million bytes.

Memory

A repository for data and applications which is readily accessible to your LIFEBOOK Tablet PC's CPU.

MHz / Megahertz

1,000,000 cycles per second.

Modem

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

Monaural

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

MTU

Maximum Transmission Unit

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

Network key

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

Network name (SSID: Service Set Identifier)

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

NTSC

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

Operating System (OS)

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

Partition

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

PCMCIA

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

Peripheral Device

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

Pitch (keyboard)

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

Pixel

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

POST

Power On Self Test. A program which is part of the BIOS which checks the configuration and operating condition of your hardware whenever power is applied to your Tablet PC. 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 cannot continue, the operating system will not be loaded.

PPPoE

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

Program

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

Protocol

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

- Method of sending and receiving data
- Process used to handle communication errors

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

RAM

Random Access Memory. A hardware component of your Tablet PC 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 / Restart

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

Resume

To proceed after interruption. In your Tablet PC 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 cannot be changed by your Tablet PC and does not require power to maintain it.

SDRAM

Synchronous Dynamic Random Access Memory.

Serial Port

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

Shared key authentication

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

SSID

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

Status Indicator

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

Stereo (audio)

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

Subnet mask

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

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 – Independent organization that tests and certifies electrical safety of devices.

USB

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

VRAM

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

WFM

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

Wi-Fi Compatible

Wi-Fi (Wireless Fidelity) Identifies that the product has passed the interoperability test, supplied by the WECA (Wireless Ethernet Compatibility Alliance), which guarantees the interoperability of wireless IEEE 802.11 LAN products.

WLAN

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

Regulatory Information

Notice

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

FCC NOTICES

Notice to Users of Radios and Television

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

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

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

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

DOC (INDUSTRY CANADA) NOTICES

Notice to Users of Radios and Television

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de classe B respecte la norme canadienne ICES-003



Appendix A: WLAN User's Guide

FC FCC Regulatory Information

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

Regulatory Notes and Statements

Wireless LAN, Health and Authorization for use

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

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

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

Regulatory Information/Disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution or attachment of connecting cables and equipment other than those specified by the manufacturer. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. The manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failure to comply with these guidelines.

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

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

Federal Communications Commission statement

This device complies with Part 15 of FCC Rules.

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

FCC Interference Statement

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

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

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

FCC Radio Frequency Exposure statement

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure to low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposure have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research.

The wireless LAN radio device has been tested and found to comply with FCC radiation exposure limits set forth for an uncontrolled equipment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65.

Export restrictions

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

Canadian Notice

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

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

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

Before Using the Optional Wireless LAN

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

Wireless LAN Device Covered by this Document

This document is applicable to systems containing one of the following optional devices:

- Optional integrated Intel® Centrino® Advanced-N 6200 (a/b/g/n, 2 x 2)
- Optional integrated Atheros® HB92 802.11abgn
- Optional integrated Atheros® HB97 802.11bgn

Characteristics of the WLAN Device

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

Wireless LAN Modes Using this Device

Ad Hoc Mode

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

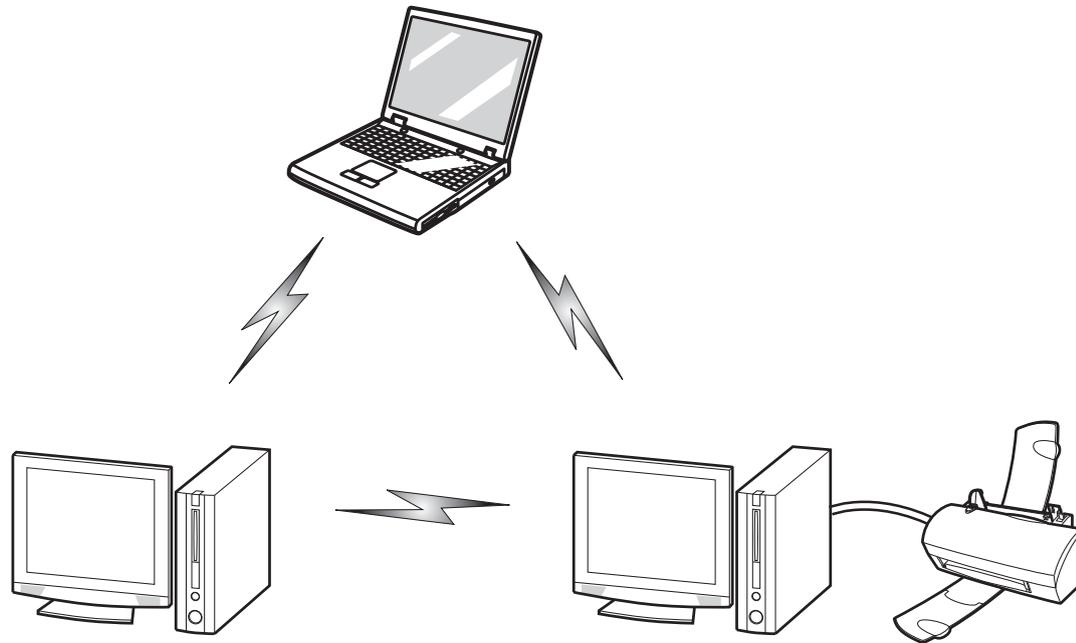


Figure 40. Ad Hoc Mode Network

Access Point (Infrastructure) Mode

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

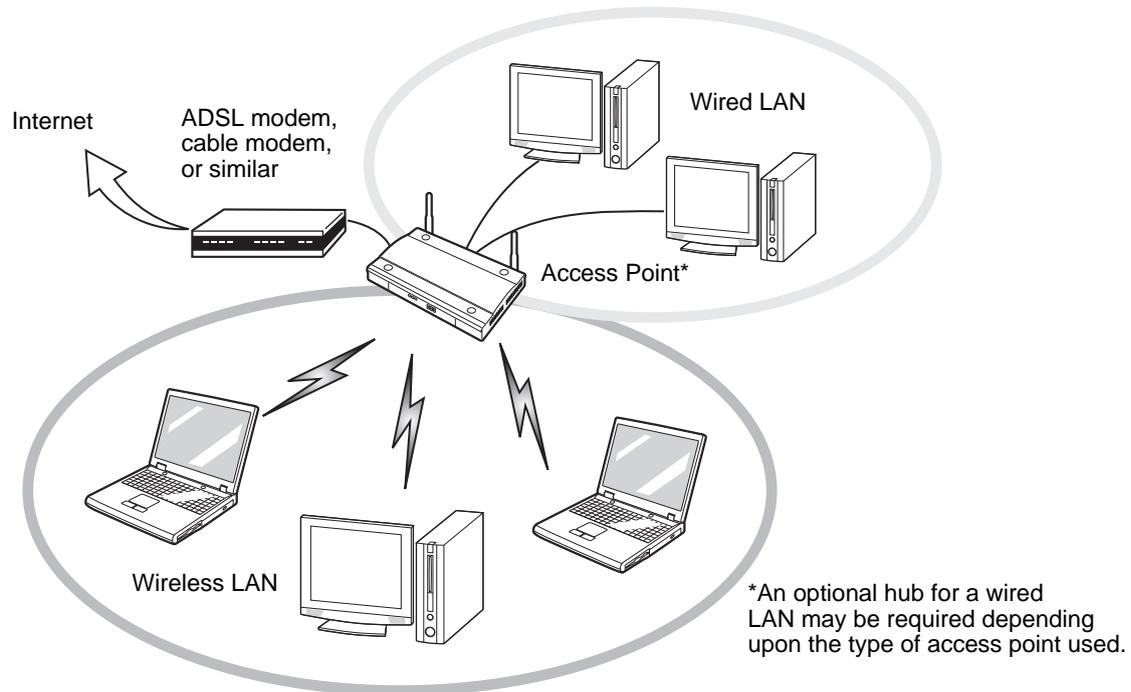


Figure 41. Access Point (Infrastructure) Mode Network

How to Handle This Device

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

- The Wireless LAN devices support IEEE802.11a, IEEE802.11b, IEEE802.11g, and IEEE802.11n.
- The WLAN devices operate in the 2.4 GHz ISM band and the 5 GHz lower, middle, and upper UNII bands.
- Microwave ovens may interfere with the operation of WLAN devices since they operate in the same 2.4 GHz frequency range as IEEE802.11b/g/n devices. Interference by microwaves does not occur with IEEE802.11a radio which operates in the 5 GHz RF band.
- Wireless devices that transmit in the 2.4 GHz range may interfere with operation of WLAN devices in IEEE802.11b/g/n modes. Symptoms of interference include reduced throughput, intermittent disconnects, and many frame errors. It is HIGHLY recommended that these interfering devices be powered off to ensure proper operation of the WLAN device.

Deactivating/Disconnecting the WLAN Device

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



BEFORE USING THE WIRELESS LAN DEVICE, YOU MUST FIRST INSTALL CLICKME! TO ENSURE THAT THE CORRECT SOFTWARE FOR YOUR DEVICE IS INSTALLED. SEE "INSTALLING CLICKME!" ON PAGE 65.

Deactivation Using the Wireless On/Off Switch

The WLAN device can be deactivated quickly and efficiently by toggling the Wireless LAN/Bluetooth On/Off Switch to the Off position. The switch has no effect on non-Wireless LAN models.

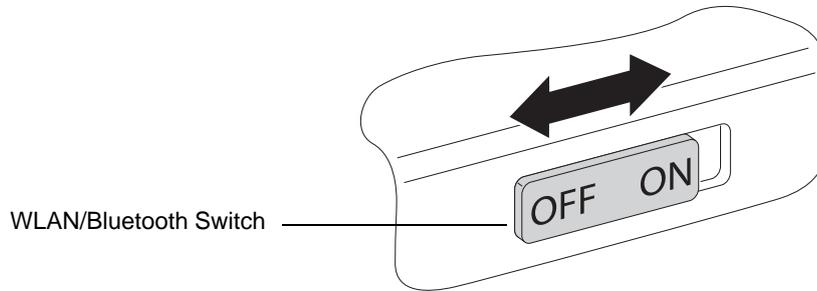


Figure 42. Wireless LAN/Bluetooth On/Off Switch Location

Disconnection Using the Icon in the Taskbar

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

- 1 Right-click the WLAN icon in the taskbar at the bottom right of your screen.
- 2 Choose Disconnect from a network.

Activating the WLAN Device

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

- Using the Wireless On/Off Switch
- In Windows, by right-clicking the WLAN icon then clicking "Connect to a network"

Configuring the Wireless LAN

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

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

Configuring the WLAN

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

Connection to the network

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

- 1 Click on the WLAN icon in the system tray.
- 2 Select "Connect to a network".
- 3 Select a network from the list that appears, and click the [Connect] button.

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

Troubleshooting the WLAN

Troubleshooting

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

Problem	Possible Cause	Possible Solution
Unavailable network connection	Incorrect network name (SSID) or network key	Ad hoc connection: verify that the network names (SSID's) and network keys (WEP) of all computers to be connected have been configured correctly. SSID's and WEP key values must be identical on each machine. Access Point (Infrastructure) connection: set network name (SSID) and network key to the same values as those of the access point. Set the Network Authentication value identically to that of the Access Point. 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 transmission.
	The WLAN device has been deactivated or disabled	Check if the wireless switch is turned On. Go to Start -> Control Panel, and double-click on Windows Mobility Center. If the wireless network is off, click the [Turn wireless on] button.
	The computer to be connected is turned off	Check if the computer to be connected is turned ON.

Problem	Possible Cause	Possible Solution
Unavailable network connection (continued)	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.
	Incorrect IP address configuration	This only applies to networks using static IP addresses. Please contact your network administrator for the correct settings.

WLAN Specifications

Specifications

Item	Specification
Type of network	The optional integrated Intel Centrino Advanced-N 6200 (a/b/g/n, 2 x 2), Atheros HB92 802.11abgn, and Atheros HB97 802.11bgn) WLAN devices conform to IEEE 802.11a, 802.11b/g, and 802.11n, Wi-Fi based*.
Transfer rate	(Automatic switching) 54 Mbps maximum data rate (IEEE802.11n to be determined)
Active frequency	<ul style="list-style-type: none">• 802.11n: 2.4 GHz or 5 GHz• 802.11b/g: 2400~2473 MHz• 802.11a: 4900 ~ 5850 MHz
Typical operating distances**	<ul style="list-style-type: none">• 802.11a: 40 ft. (12 m) @ 54 Mbps; 300 ft. (91 m) @ 6 Mbps• 802.11b: 100 ft. (30 m) @ 11 Mbps; 300 ft. (91 m) @ 1 Mbps• 802.11g: 100 ft. (30 m) @ 54 Mbps; 300 ft. (91 m) @ 1 Mbps• 802.11n: Estimated double the operating distance of 802.11g and 802.11a in their respective frequencies.
Number of channels	<ul style="list-style-type: none">• 802.11a: 8 independent channels• 802.11b/g: 11 channels, 3 non-overlapping channels• 802.11n: 2.4 GHz - 3 non-overlapping channels when Channel Bonding is not used; 2 non-overlapping channels when Channel Bonding is used. 5 GHz - 12 non-overlapping UNII channels with or without Channel Bonding
Security	Encryption Types - WEP, TKIP, AES***, WPA 1.0 compliant Encryption Key lengths Supported: 64 bits and 128 bits 802.1x/EAP
Maximum recommended number of computers to be connected over wireless LAN (during ad hoc connection)	10 units or less ****

- * “Wi-Fi based” indicates that the interconnectivity test of the organization which guarantees the interconnectivity of wireless LAN (Wi-Fi Alliance) has been passed.
- ** The communication ranges shown above will increase or decrease depending on factors such as number of walls, reflective material, or interference from external RF sources.
- *** Encryption with network key (WEP) is performed using the above number of bits, however, users can set 40 bits/ 104 bits after subtracting the fixed length of 24 bits.
- **** Depending on practical environments, the allowable number of computers to be connected may be decreased.

Using the Bluetooth Device

The optional Integrated Bluetooth module (BSMAN3) is a wireless device installed in selected Fujitsu mobile computers.

What is Bluetooth

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



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

- 1 Slide the Wireless LAN/Bluetooth on/off switch to On position.
- 2 Go to Start > **All Programs** > **Bluetooth**.
- 3 Click on **Options** under the Bluetooth menu and click on the **Bluetooth Radio Power** button.
- 4 Click [OK].

Where to Find Information About Bluetooth

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

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

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

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The Bluetooth antenna is located on the front edge of the right palm rest and is exempt from minimum distance criteria due to its low power.

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

Canadian Notice

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

Warranty

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

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

Appendix B: Fingerprint Sensor Device

Introducing the Fingerprint Sensor Device

Your system has a fingerprint sensor device at the bottom left below the display screen.

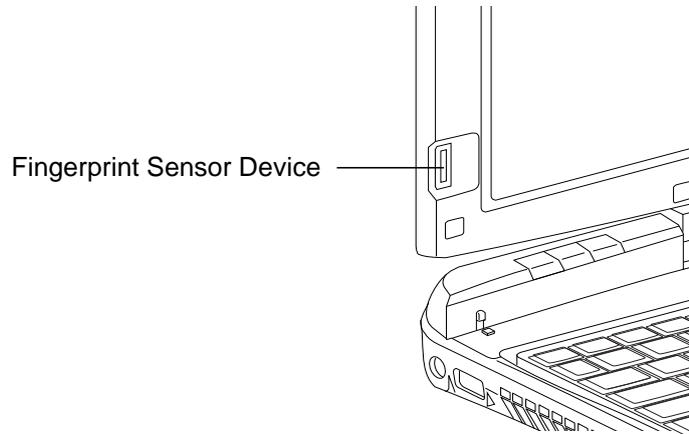


Figure 43. Fingerprint sensor

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

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



NOTE THAT IN ADDITION TO FINGERPRINT RECOGNITION FEATURES, YOUR SYSTEM HAS **PRE-BOOT AUTHENTICATION (PBA)**, WHICH ALLOWS YOU TO LOG IN PRIOR TO WINDOWS' OWN AUTHENTICATION, BEFORE THE SYSTEM BOOTS UP. A PBA ENVIRONMENT SERVES AS AN EXTENSION OF THE BIOS OR BOOT FIRMWARE AND ALLOWS FOR A MORE SECURE ENVIRONMENT EXTERNAL TO THE OPERATING SYSTEM. IT'S ONE MORE LAYER OF SECURITY TO PROTECT YOUR VALUABLE DATA. PBA REDUCES THE RISK OF MALICIOUS ATTACKERS GAINING ACCESS TO YOUR DATA BY NOT LOADING THE OPERATING SYSTEM UNTIL THE USER IS AUTHENTICATED.

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

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

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

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

Getting Started

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

Installing OmniPass

If OmniPass has already been installed on your system, skip this section and go directly to “User Enrollment” on page 155. You can determine whether OmniPass has already been installed by checking to see if the following are present:

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

System Requirements

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

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

Installing the OmniPass Application

If OmniPass is already installed on your system, go to “User Enrollment” on page 155. Otherwise continue with this section on software installation.



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

To install OmniPass on your system you must:

- 1 Insert the installation media for the OmniPass application into the appropriate drive. If you are installing from CD-ROM or DVD-ROM, you must find and launch the OmniPass installation program (setup.exe) from the media.
- 2 Follow the directions provided in the OmniPass installation program. Specify a location to which you would like OmniPass installed. It is recommended that you NOT install OmniPass in the root directory (e.g. C:\).

- 3 Once OmniPass has completed installation you will be prompted to restart your system. Once your system has rebooted you will be able to use OmniPass. If you choose not to restart immediately after installation, OmniPass will not be available for use until the next reboot.
- 4 The installation program automatically places an icon (Softex OmniPass) in the Windows Control Panel as well as a golden key shaped icon in the taskbar.

Verifying Information about OmniPass

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

To check the version information of OmniPass:

- 1 From the Windows Desktop, double-click the key-shaped OmniPass icon in the taskbar (usually located in the lower right corner of the screen),
or,
Click the **Start** button, select **Settings**, and click **Control Panel**. Double-click **Softex OmniPass** in the Control Panel, and the OmniPass Control Center will appear. If it does not appear, then the program is not properly installed,
or,
Click the **Start** button, select **Programs**, and from the submenu select the **Softex** program group, from that submenu click **OmniPass Control Center**.
- 2 Select the **About** tab at the top of the OmniPass Control Center. The About tab window appears with version information about OmniPass.

Uninstalling OmniPass



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

To remove the OmniPass application from your system:

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

User Enrollment

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

Master Password Concept

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

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

Example: A user, John, installs OmniPass on his system (his home computer) and enrolls an OmniPass user with username "John_01" and password "freq14". He then goes to his webmail site to log onto his account. He inputs his webmail credentials as usual (username "John_02" and password "lifebook"), but instead of clicking [Submit], he directs OmniPass to **Remember Password**. Now whenever he returns to that site, OmniPass will prompt him to supply access credentials.

John enters his OmniPass user credentials ("John_01" and "freq14") in the OmniPass authentication prompt, and he is allowed into his webmail account. He can do this with as many web sites or password protected resources he likes, and he will gain access to all those sites with his OmniPass user credentials ("John_01" and "freq14"). This is assuming he is accessing those sites with the system onto which he enrolled his OmniPass user. OmniPass does not actually change the credentials of the password protected

resource. If John goes to another computer without he OmniPass account to access his webmail, he would need to enter his original webmail credentials (“John_02” and “lifebook”) to gain access. If he attempts his OmniPass user credentials on a system other than a system he’s enrolled on, he will not gain access.



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

Basic Enrollment

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

- 1 Click **Enroll** to proceed to username and password verification. By default, the OmniPass Enrollment Wizard enters the credentials of the currently logged in Windows user.
- 2 Enter the password you use to log in to Windows. This will become the “master password” for this OmniPass user. In most cases, the **Domain:** value will be your Windows computer name. In a corporate environment, or when accessing corporate resources, the **Domain:** may not be your Windows computer name. Click [Next] to continue.
- 3 In this step OmniPass captures your fingerprint. Refer to “Enrolling a Fingerprint” on page 157 for additional information.
- 4 Next, choose how OmniPass notifies you of various events. We recommend you keep **Taskbar Tips** on **Beginner mode taskbar tips** and **Audio Tips** on at least **Prompt with system beeps only** until you get accustomed to how OmniPass operates. Click [Next] to proceed with user enrollment. You will then see a Congratulations screen indicating your completion of user enrollment.
- 5 Click [Done] to exit the OmniPass Enrollment Wizard. You will be asked if you’d like to log in to OmniPass with your newly enrolled user; click [Yes].

Enrolling a Fingerprint

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

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

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

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

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

Using OmniPass

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

Password Replacement

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

OmniPass Authentication Toolbar

After installing OmniPass and restarting, you will notice a dialog you have not seen before at Windows Logon. This is the OmniPass Authentication Toolbar, and it is displayed whenever the OmniPass authentication system is invoked. The OmniPass authentication system may be invoked frequently: during Windows Logon, during OmniPass Logon, when unlocking your workstation, when resuming from sleep 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 with a password prompt. Using the following procedure, you can store a set of credentials into OmniPass. These credentials will then be linked to your “master password” or fingerprint.

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

Associating a Friendly Name

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

Additional Settings for Remembering a Site

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

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

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



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

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

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

Logging in to a Remembered Site

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

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

With Master Password

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

Logging into Windows with a Fingerprint Device

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



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

Password Management

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

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

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

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

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

OmniPass User Identities

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

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

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

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



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

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

Choosing User Identity during Login

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

Switch User Identity

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

Identities and Password Management

On the **Manage Passwords** interface of the **Vault Management** tab of the OmniPass Control Center, there is a pull-down selection box labeled, **Identity**. This field lets you choose which identity you are managing passwords for. When you select an identity here, only those password protected dialogs that are associated with that identity are shown. You can perform all the functions explained in “Password Management” on page 161.

Configuring OmniPass

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

Exporting and Importing Users



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

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



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

Exporting an OmniPass User Profile

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

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

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

Importing an OmniPass User Profile

To import an OmniPass user open the OmniPass Control Center, and click Import/Export User under Manage Users. Click Imports a new user into OmniPass and then select OmniPass Import/Export File (*.opi) and click Next. OmniPass will then prompt you to browse for the file you had previously exported (.opi file). When you select the .opi file for importation, OmniPass will prompt you for authentication. The credentials that will allow a user profile to be imported are the Windows login credentials of the exported user. They are the credentials that had to be submitted when the user profile was exported. You will need User Name, Password, and Domain. If you don't remember the value for Domain, in a PC or SOHO environment Domain should be your computer name.

OmniPass will notify you if the user was successfully imported.

Things to Know Regarding Import/Export

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

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

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

OmniPass Control Center

This section serves to explain functions within 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 163.

Add/Remove User functionality is straightforward.

If you click **Adds a new user to OmniPass** you will start the OmniPass Enrollment Wizard. The Enrollment Wizard is documented in “User Enrollment” on page 155.

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



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

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

User Settings

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

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

System Settings

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

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

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

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

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

Troubleshooting

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

Cannot add Windows users to OmniPass

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

Cannot add a User with a Blank Password to OmniPass

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

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

Dialog appears after OmniPass authentication during Windows Logon

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

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

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

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

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

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