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## DECLARATION OF CONFORMITY according to FCC Part 15

Responsible Party Name: Fujitsu PC Corporation

Address: 598 Gibraltar Drive  
Milpitas, CA 95035

Telephone: (408) 935-8800

Declares that product: Model: LifeBook 565Tx,  
LifeBook 585Tx.

Complies with Part 15  
of the FCC Rules.

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

David Woo  
FULL NAME

Fujitsu  
COMPANY

9/15/97  
DATE



## CAUTION

Changes or modification not expressly approved by Fujitsu™ PC Corporation could void this user's authority to operate the equipment.

## FCC NOTICES

### Notice to Users of Radios and Television

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

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

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

Notice to Users of the US Telephone Network  
The LifeBook™ 500 Series notebook computers are supplied with an internal modem which complies with Part 68 of the FCC rules. On this notebook is a label that contains the FCC Registration Number and the Ringer Equivalence Number (REN) for this equipment among other information. If requested, the user must provide their telephone company with the following information:

1. The telephone number to which the notebook is connected.
2. The Ringer Equivalence Number (REN) for this equipment.
3. That the equipment requires a standard modular jack type USOC RJ-11C which is FCC Part 68 compliant.
4. The FCC Registration Number.

This equipment is designed to be connected to the telephone network or premises wiring using a standard modular jack type USOC RJ-11C which is FCC Part 68 compliant and a line cord between the modem and the telephone network with a minimum of 26AWG.

The REN is used to determine the number of devices that you may connect to your telephone line and still have all of those devices ring when your number is called. Too many devices on one line may result in failure to ring in response to an incoming call. In most, but not all, areas the sum of the RENs of all of the devices should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the RENs, contact your local telephone company.

If this equipment causes harm to the telephone network, your telephone company may discontinue your service temporarily. If possible, they will notify you in advance. If advance notice is not practical they will notify you as soon as possible. You will also be advised of your right to file a complaint with the FCC.

This fax modem also complies with fax branding requirements per FCC Part 68.

If you experience trouble with this equipment please contact your support representative, toll free at 1-800-8FUJITSU (1-800-838-5487) or Fujitsu Computer Products of America (FCPA), 7300 NE Evergreen Parkway, Hillsboro, OR 97124, telephone 503-681-7300.

Your telephone company will probably ask you to disconnect this equipment from the telephone network until the problem is corrected and you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service telephones provided by your telephone company. Connection to party lines is subject to state tariffs. Contact your state's public utility commission, public service commission or corporation commission for more information.

This equipment includes automatic dialing capability. When programming and/or making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in off-peak hours, such as early morning or late evening.

FCC rules prohibit the use of non-hearing aid compatible telephones in the following locations or applications:

- All public or semipublic coin-operated or credit card telephones.
- Elevators, highways, tunnels (automobile, subway, railroad or pedestrian) where a person with impaired hearing might be isolated in an emergency.

- Places where telephones are specifically installed to alert emergency authorities such as fire, police or medical assistance personnel.
- Hospital rooms, residential health care facilities, convalescent homes and prisons.
- Workstations for the hearing impaired.
- Hotel, motel or apartment lobbies.
- Stores where telephones are used by patrons to order merchandise.
- Public transportation terminals where telephones are used to call taxis or to reserve lodging or rental cars.
- In hotel and motel rooms as at least ten percent of the rooms must contain hearing aid compatible telephones or jacks for plug-in hearing aid compatible telephones which will be provided to hearing impaired customers on request.

## DOC (INDUSTRY CANADA) NOTICES

Notice to Users of Radios and Television  
This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

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

Notice to Users of the Canadian Telephone Network

The Canadian Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

The LifeBook™ 500 Series notebook computers are supplied with an internal modem which complies with the Industry Canada certification standards for telecommunication network protection and safety requirements. Before connecting this equipment to a telephone line the user should ensure that it is permissible to connect this equipment to the local telecommunication facilities. The user should be aware that compliance with the certification standards does not prevent service degradation in some situations.

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

The connecting arrangement code for this equipment is CA11A.

The Load Number is 3.

The Load Number assigned to each telephone terminal device denotes the percentage of the total load to be connected to a telephone loop or circuit which is used by the device to prevent overloading. The termination on a loop may consist of any combination of devices such that the total of the load numbers of all devices does not exceed 100.



#### CAUTION

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

Avis Aux Utilisateurs Du Réseau

Téléphonique Canadien

L'étiquette canadienne Industrie Canada identifie l'équipement certifié. Cette certification signifie que l'équipement satisfait certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le département ne garantit pas le fonctionnement de l'équipement à la satisfaction de l'utilisateur.

La série LifeBook™ 500 possèdent un modem interne conforme aux normes de certification d'Industrie Canada pour protéger les réseaux de télécommunications et satisfaire aux normes de sécurité. Avant de connecter cet équipement à une ligne téléphonique, l'utilisateur doit vérifier s'il est permis de connecter cet équipement aux installations de télécommunications locales. L'utilisateur est averti que même la conformité aux normes de certification ne peut dans certains cas empêcher la dégradation du service.

Les réparations de l'équipement de télécommunications doivent être effectuées par un service de maintenance agréé au Canada. Toute réparation ou modification, qui n'est pas expressément approuvée par Fujitsu PC Corp.,

ou toute défaillance de l'équipement peut entraîner la compagnie de télécommunications à exiger que l'utilisateur déconnecte l'équipement de la ligne téléphonique.

Le code d'arrangement de connexion de cet équipement est CA11A.

Le numéro de charge est 3.

Le numéro de charge assigné à chaque terminal téléphonique indique le pourcentage de la charge totale pouvant être connecté à une boucle ou à un circuit téléphonique, utilisé par ce périphérique afin de prévenir toute surcharge. La terminaison d'une boucle peut être constituée de n'importe quelle combinaison de périphériques de sorte que le total de numéros de charge de tous les périphériques n'exède pas 100.



## **AVERTISSEMENT**

Pour assurer la sécurité, les utilisateurs doivent vérifier que la prise de terre du service d'électricité, les lignes téléphoniques et les conduites d'eau métalliques sont connectées ensemble. Les utilisateurs NE doivent PAS tenter d'établir ces connexions eux-mêmes, mais doivent contacter les services d'inspection d'installations électriques appropriés ou un électricien. Ceci peut être particulièrement important en régions rurales.

**UL NOTICE (FOR AUTHORIZED REPAIR TECHNICIANS ONLY)**

**CAUTION:** For continued protection against risk of fire, replace only with the same type and rating fuse.

**CAUTION:** Danger of explosion if CMOS 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.

**WARNING:** CMOS and NiCAD batteries may explode if mistreated. Do not recharge, disassemble or dispose of in fire.



Black & White  
of Cover  
(to come)



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**LifeBook™ 500 Series from Fujitsu™**

## PREFACE

The LifeBook™ 500 Series from Fujitsu™ PC Corporation is a powerful notebook computer. It is powered by an Intel Pentium® microprocessor with MMX™ technology, has a built-in color display, a CD-ROM drive and brings the computing power of desktop personal computers (PCs) to a portable environment.

This manual explains how to operate your LifeBook 500 Series' hardware and built-in system software. The LifeBook 500 Series is compatible with the IBM PC AT®. It comes with Windows® 95.

A LifeBook 500 Series is a completely self-contained unit with an active-matrix (TFT) color LCD display. It has a powerful interface that enables it to support a variety of optional features. (Figure P-1.)

## CONVENTIONS USED IN THE GUIDE

Screen examples in this manual are intended as examples only, and screen and file names may differ in actual use.

Messages displayed by the LifeBook 500 Series appear in *Courier* type.

Example: Shutdown the computer?

Commands that you enter into the computer using the keyboard appear in *Courier* type.

Example: Fujitsu .

Keyboard keys are shown in boldface Helvetica type.

Example: Fn, F1, Esc, and Ctrl.

Pages with additional information about a specific topic are cross-referenced within the text.

Example: (See page xx.)



### POINT

The point icon highlights information that will enhance your understanding of the subject material.



### CAUTION

The caution icon highlights information that is important to your safety, to the safe operation of your computer, or to the integrity of your files. Please read all caution information carefully.

**LifeBook 500 Series from Fujitsu**

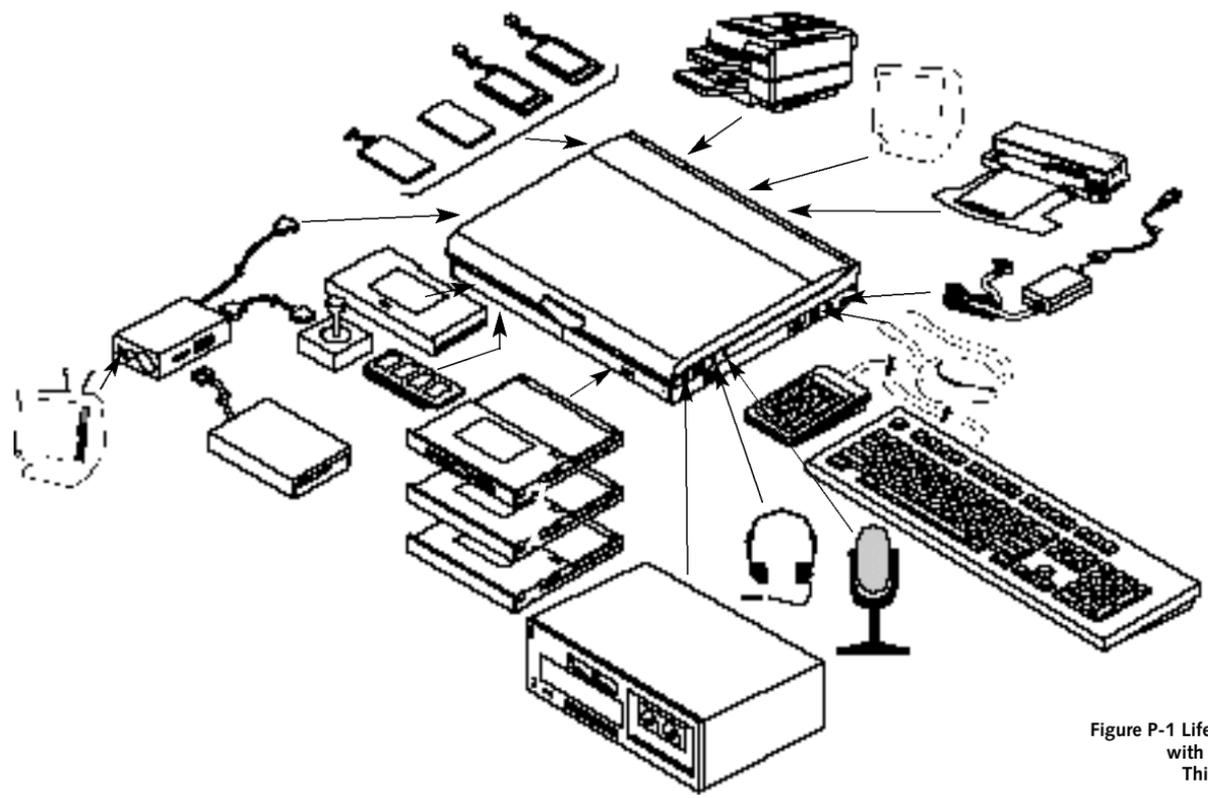


Figure P-1 LifeBook 500 Series with Both Fujitsu and Third Party Options

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## SECTION ONE

### SETTING UP YOUR LIFEBOOK™ 500 SERIES FROM FUJITSU™

This section describes how to set up your LifeBook 500 Series from Fujitsu. We strongly recommend that you read it before using your notebook – even if you are already familiar with notebook computers.

#### UNPACKING

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

For a standard configuration you should have:

- LifeBook 500 Series from Fujitsu. (Figure 1-1.)
- AC adapter with AC power cord (located in the accessories box). (Figure 1-2.)
- Main Lithium ion battery (already installed in the computer).
- Modular 20-speed maximum CD-ROM drive (already installed in the computer).
- Modular 3.5" floppy disk drive (located in the accessories box). (Figure 1-4.)
- MediaConnect (located in the accessories box.) (Figure 1-3.)
- External floppy disk drive adapter (located in the accessories box). (Figure 1-5.)
- RJ-11 cable (located in the accessories box).
- User's Guide.
- Registration card and customer information pack.
- Microsoft Windows® 95 Manual.
- Recovery CD-ROM (located in the accessories box).
- Additional equipment and documentation depending on the option package you have purchased.

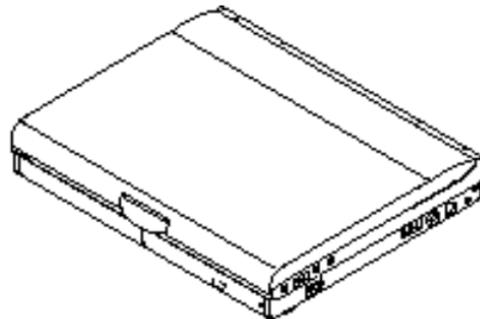


Figure 1-1 LifeBook 500 Series Computer

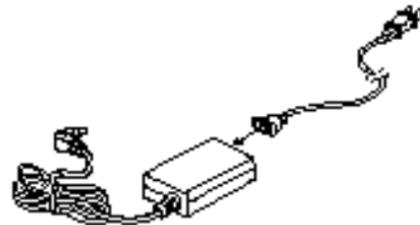


Figure 1-2 AC Adapter Unit

## Setting Up Your LifeBook 500 Series



Figure 1-3 MediaConnect



Figure 1-4 Floppy Disk Drive

Once you have checked and confirmed that your notebook system is complete, connect the AC adapter and follow the instructions on page 12 to accept the conditions for using the LifeBook 500 Series. When you have completed the setup process please complete and send in your registration card.

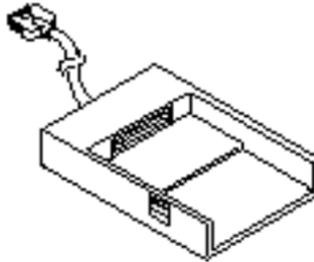


Figure 1-5 External Floppy Disk Drive Adapter

### OVERVIEW OF LIFEBOOK 500 SERIES FEATURES

The LifeBook 500 Series is a compact, yet powerful notebook computer available with standard features including: (See Appendix A, pages 144–151, for detailed information.)

- 166MHz or 233MHz Intel Pentium processor with MMX™ technology .
- 32MB SDRAM standard, expandable to 96MB.
- 12.1" active-matrix (TFT) color display with 1024 x 768 resolution (XGA).
- 2MB Video RAM.
- Built-in 2GB or 4GB hard drive.
- Main Lithium ion battery.
- Multi-function bay which supports the following:
  - 3.5" floppy disk drive (included with all models).
  - 20-speed maximum CD-ROM drive (included with all models).
  - Optional second 1.3GB hard drive.
  - Optional second Lithium ion battery.
- Internal 33.6 fax/data/voice modem.
- Full audio and video features:
  - 16-bit SoundBlaster-compatible sound chip.
  - 3D-Stereo for multiple speaker effect.
  - Built-in stereo speakers and microphone.
  - NTSC/PAL and S-Video support for TV presentations.

- Stereo line in jack.
  - Microphone jack.
  - Stereo headphone jack.
  - MPEG-1 player and Zoomed Video support for full motion video.
  - Universal Serial Bus (USB) port for a multitude of devices.
  - Two Type II/one Type III PC Card slots.
  - Fast IrDA 1.1 compatible infrared port for wireless data transfer.
  - Integrated touchpad pointing device for easy cursor control.
  - External monitor support with simultaneous display capabilities.
  - Standard external floppy disk drive adapter.
  - “No re-learning”, full-size keyboard with three dedicated Windows® 95 keys.
  - Hot swap connection for an external keyboard or an external mouse.
- Bridge battery for warm-swapping capabilities for batteries.
  - Standard pre-installed software:
    - Microsoft® Windows® 95.
    - LapLink® for file transfers via modem, cable or infrared port.
    - PC-Doctor™ for system diagnostics.
    - SoftPEG® from CompCore, an MPEG-1 video player.
    - McAfee VirusScan for virus protection.
    - ESS AudioRack® for 3D-Stereo, audio CD, and other audio controls.
    - MegaPhone® for telephone applications including fax, dialing, speakerphone and Caller-ID.
    - Some models may include additional software.

#### COMPONENT IDENTIFICATION

For detailed specifications refer to Appendix A on pages 144–151.

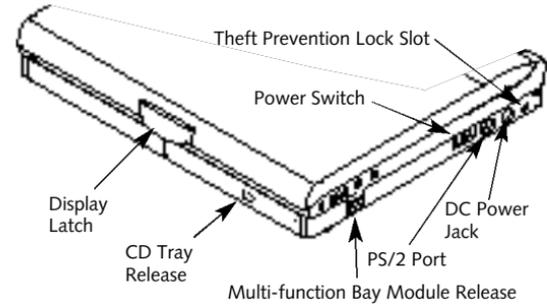


Figure 1-6 Top and Front Panel

#### TOP AND FRONT COMPONENTS

##### Display Panel Latch

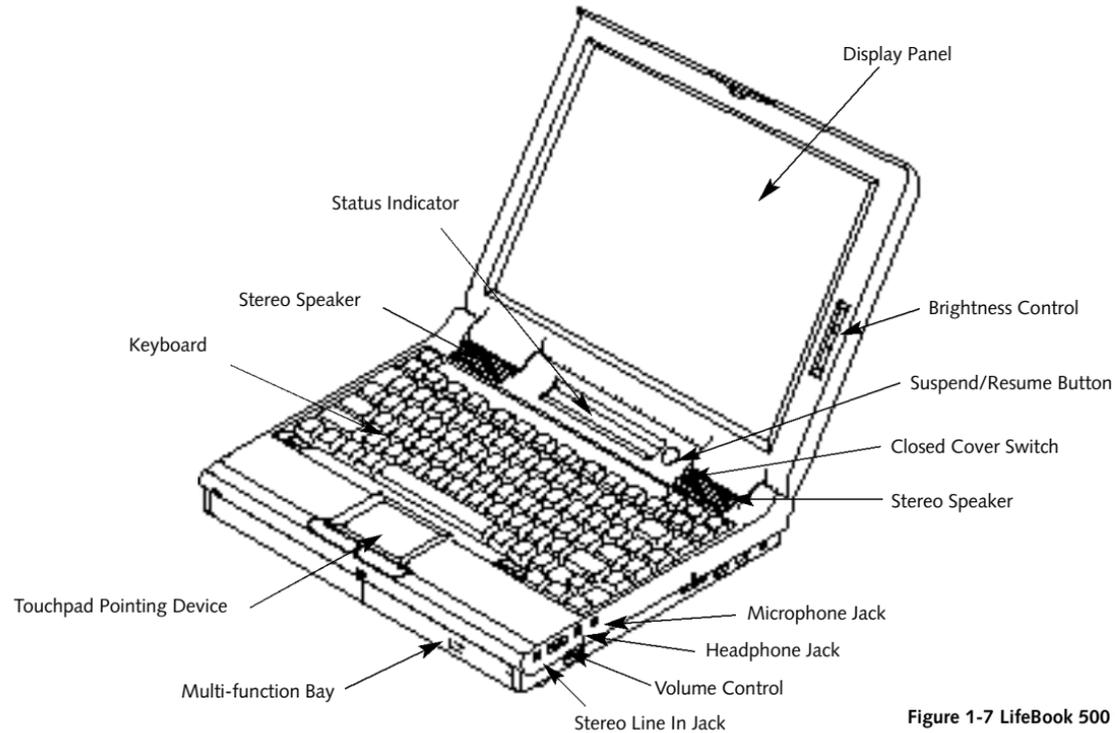
This latch locks and releases the display panel. (Figure 1-6.)

##### Display Panel

This is a color LCD panel with back lighting for the display of text and graphics. (Figure 1-7.)

##### Brightness Control

The brightness control adjusts the overall intensity of the display screen back lighting. (Figure 1-7.)

**Setting Up Your LifeBook 500 Series****Figure 1-7 LifeBook 500 Series with Display Open**

### Status Indicator

LCD display of the status of the power and power source, Suspend mode, battery charge (both main and optional second), floppy disk drive activity, hard drive activity, CD-ROM drive activity, PC Card activity, CapsLock, Num Lk and Scr Lk. (Figure 1-7.)

### Suspend/Resume Button

The Suspend/Resume button allows you to suspend computer activity without turning off your notebook power, and to return it to an active state. This feature saves power, and is particularly useful when your notebook is running only on battery power. (See pages 39–40 for more information on Power Management. (Figure 1-7.)



### CAUTION

Be sure you know what settings are active for your Suspend/Resume button before you use it because misuse can result in data loss. (See the Power Savings Menu of the BIOS setup utility, pages 77–79, for more information.)

### Closed Cover Switch

This switch turns off the LCD back lighting when the display panel is closed, thus saving power. (Figure 1-7.)

### Speakers

The built-in dual speakers output stereo sound from your notebook. (Figure 1-7.)

### Keyboard

A full size keyboard with dedicated Windows® 95 keys for input into your notebook.

### Touchpad Pointing Device

A touch sensitive cursor control system with two click buttons.

### Multi-function Bay

This bay accommodates:

- 20-speed maximum CD-ROM drive.
- 3.5" floppy disk drive.
- Optional second Lithium ion battery (which must be purchased separately).
- Optional second 1.3GB hard drive (which must be purchased separately).

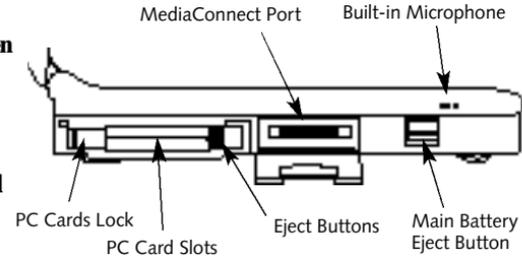


Figure 1-8 LifeBook™ 500 Series Left Side Panel

### LEFT SIDE PANEL COMPONENTS

#### PC Card Slots

The PC Card slots allow you to install two Type I or Type II PC Cards or one Type III PC Card. (See pages 97–99 for more information on PC Cards.) The button to the left of the card slots locks the card(s) in place, and the buttons to the right of the slot eject the card(s) from the slot. (Figure 1-8.)

#### MediaConnect Port

A port for attaching the MediaConnect, your notebook's port expansion module. The MediaConnect gives you access to the serial port, the NTSC/PAL jack, the S-Video jack, the

## Setting Up Your LifeBook 500 Series

**infrared port, the MIDI/joystick port and the external floppy disk drive port.** (See page 9–11 for more information on the MediaConnect and its connectors.) (Figure 1-8.)

### Built-in Microphone

The built-in microphone allows mono audio input to your notebook. (Figure 1-8.)

### Main Battery Eject Button

This releases the main Lithium ion battery for removal and installation. (Figure 1-8.)

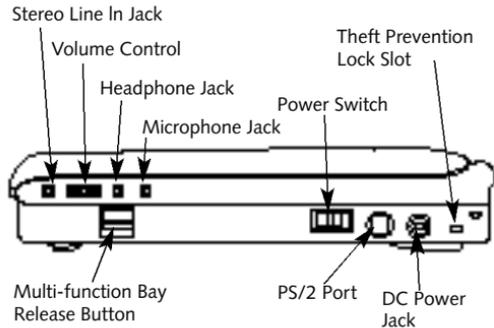


Figure 1-9 LifeBook 500 Series Right Side Panel

## RIGHT SIDE PANEL COMPONENTS

### Theft Prevention Lock Slot

This is a slot that allows you to attach a physical lock down device. (Figure 1-9.)

### DC Power Jack

The DC power jack allows you to plug in the AC adapter or the optional auto/airline adapter. (Figure 1-9.)

### PS/2 Port

This port allows you to connect an external PS/2 keyboard, mouse, or numeric keypad. (Figure 1-9.)

### Power Switch

This is the switch for turning on and off power to your notebook. (Figure 1-9.)

### Multi-function Bay Release Button

This is the release to allow removal and installation of devices in the Multi-function bay. (Figure 1-9.)

### Microphone Jack

The microphone jack allows you to connect an external mono microphone. (Figure 1-9.)

### Headphone Jack

You can connect headphones or powered external speakers via the headphone jack. (Figure 1-9.)

### Volume Control

The volume control is a knob which provides manual control of the sound level of all audio output from your notebook. (Figure 1-9.)



## CAUTION

There are software volume controls. The knob setting and the software settings will interact. Software volume turned off will override the knob setting, in addition the software volume setting will control the maximum knob setting and vice versa. (See *Volume Control* on page 33 for more information.)

### Stereo Line In Jack

The stereo line in jack allows you to connect an external audio source, like an audio cassette player, to your notebook. This jack will not support an external microphone. (Figure 1-9.)

## REAR PANEL COMPONENTS

### RJ-11 Jack

This is the jack for attaching a telephone line to the internal modem. This jack can be used with the sliding panel in the connector cover slightly opened and the cover closed for added convenience. (Figure 1-10.)

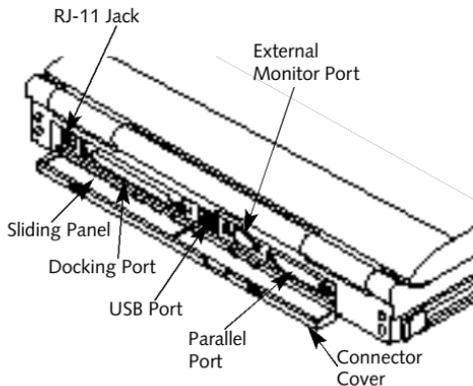


Figure 1-10 LifeBook™ 500 Series Rear Panel

### Docking Port

This port is for connection to an optional port replicator or docking station. The connector cover must be closed and the sliding panel opened all the way when connecting a port replicator or docking station. (Figure 1-10.)

### Universal Serial Bus (USB) Port

This connector allows you to connect USB devices, such as external game pads, pointing devices, keyboards and speakers. (Figure 1-10.)



### CAUTION

Due to ongoing changes in USB technology and standards, not all USB devices and/or drivers are guaranteed to work.

### External Monitor Port

This port allows you to connect an external VGA, SVGA or XGA CRT monitor. (Figure 1-10.)

### Parallel Port

The parallel port allows you to connect parallel devices, such as a parallel printer to your notebook. This is sometimes known as an LPT port. (Figure 1-10.)



### CAUTION

The cover – which closes over the connectors on the rear of your notebook – can be damaged if it is left open when your notebook is moved around.



### CAUTION

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

## Setting Up Your LifeBook 500 Series

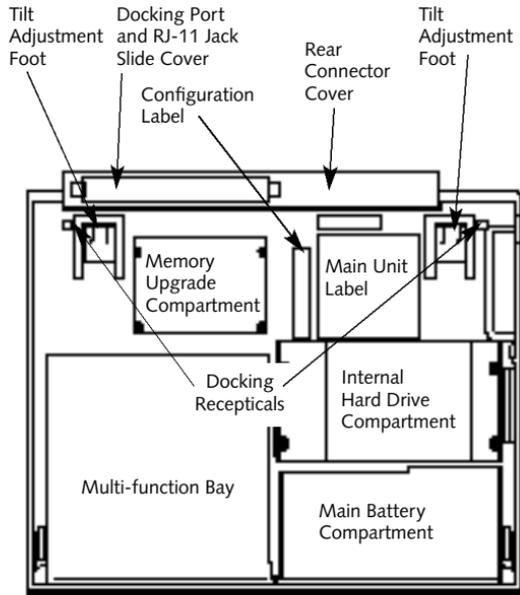


Figure 1-11 LifeBook 500 Series Bottom

### BOTTOM COMPONENTS

#### Tilt Adjustment Feet

These are a pair of feet which flip down and hold the back of the keyboard approximately 6° higher than the front when resting on a flat surface. They are designed to make using your notebook keyboard more comfortable.

(Figure 1-11.)

#### Main Unit Label

This label has the model number, serial number and other information about your notebook.

(Figure 1-11.)

#### Configuration Label

This label has manufacturer information that you will need to give your support representative so that he or she can help you. It exactly identifies the version of various component parts of your notebook.

(Figure 1-11.)

#### Memory Upgrade Compartment

This compartment houses the memory module which allows you to expand the system memory capacity of your notebook. (See pages 106–108 for more information on installing added memory capacity.) (Figure 1-11.)

#### Internal Hard Drive Compartment

This compartment houses the internal hard drive. It should only be accessed for maintenance by an authorized maintenance provider. (Figure 1-11.)

#### Battery Compartment

This compartment houses the main Lithium ion battery. (Figure 1-11.)

#### Multi-Function Bay

This compartment is accessed from the front of your notebook. (See page 5 and Figure 1-7)

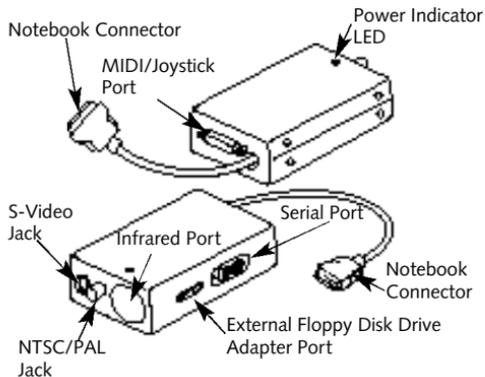


Figure 1-12 MediaConnect Ports

## MEDIACONNECT

### S-Video Jack

**This jack allows you to connect, and use directly, any S-Video device, such as a VCR or TV. (The S-Video standard provides for a higher quality picture than NTSC or PAL.)** (Figure 1-12.)

### NTSC/PAL Jack

**This connector allows you to connect, and use directly, any TV which meets the American TV standard (NTSC) or the European TV standard (PAL).** (Figure 1-12.)



## CAUTION

NTSC and S-Video TV outputs only operate in 640 x 480 resolution mode. PAL TV outputs only operate in 800 x 600 resolution mode. TV modes are disabled until the resolution is set properly. Access to resolution settings is via the Windows® 95 Control Panel, Display, then Settings. If different resolutions are set for the built-in display and an external monitor the resolution for both will be set to that of the built-in display whenever your notebook is restarted.

### Infrared Port

**The fast IrDA 1.1-compatible communication port allows you to communicate with another IrDA compatible device without a cable.** (See pages 46–47 for more information.) (Figure 1-12.)

### External Floppy Disk Drive Port

**A connector for attaching an external floppy disk drive adapter. The adapter allows you to use your modular floppy disk drive when the Multi-function bay is being used for another purpose.** (Figure 1-12.)

### Serial Port

**The serial port allows you to connect serial RS-232C devices, such as serial printers or serial scanners.** (Figure 1-12.)

### MIDI/Joystick Port (MPU-401)

**The MIDI/joystick port allows you to connect and use MIDI and game devices to your notebook. See your MIDI or game documentation for information on their installation and use.** (Figure 1-12.)

## Setting Up Your LifeBook 500 Series

### Notebook Connector

A connector for attaching the MediaConnect to the MediaConnect port on the left side of your notebook. (Figure 1-12.)

### Power Indicator LED

This LED is On when the MediaConnect is properly attached to your notebook and your notebook is turned on. (Figure 1-12.)

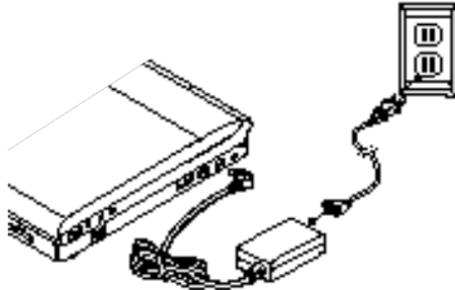


Figure 1-13 Connecting the AC Adapter

## POWER SOURCES

Your notebook has four possible power sources: the main Lithium ion battery; the optional second Lithium ion battery; the AC adapter; or the optional auto/airline adapter.

### Connecting the Power Adapters

The AC adapter or the auto adapter provides power for operating your notebook and charging the batteries. (Figure 1-13.)

#### To Connect the AC Adapter

1. Plug the DC Output cable of the AC adapter into the DC Power jack on the right side panel of your notebook.
2. Plug the AC adapter into an AC electrical outlet.

#### To Connect the Optional Auto/Airline Adapter

1. Plug the DC Output cable into the DC Power port on the right side panel of your notebook
2. Plug the auto/airline adapter plug into the cigarette lighter of a car or other vehicle with

the ignition key in the On or the Accessories position, or the DC power jack on the airplane seat.

#### To Switch From AC Adapter Power To Battery Power

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



## CAUTION

The main Lithium ion battery is not charged when you purchase your notebook. Initially you will need to connect the AC adapter or the auto adapter to use it. If you purchase a second Lithium ion battery it will not be charged when you get it. You will need to charge it prior to use. It can take up to 3 hours to charge a battery if your notebook is Off or in Suspend mode. If your notebook is in use it can take up to 9 hours or more to charge a single battery.

## DATA SECURITY

Your LifeBook™ 500 Series has a built-in hardware control password security feature that allows you to protect the data stored in your notebook from unauthorized access. Your operating system and some applications have software control password security features that allows you to protect all or portions of the data stored in your notebook from unauthorized access.

### Hardware Data Security Features

When you are using your notebook built-in hardware control password to gain access to your notebook the actual password will not appear on the screen. This is a safety precaution. The hardware control security parameters are set from the BIOS setup utility. (See *Security Menu on pages 75–76 for more information on setting and clearing passwords and enabling and disabling built-in security features.*)

### Software Data Security Features

The operating system and some applications have security features that are independent of the built-in hardware protection features that are controlled from the BIOS. See your software documentation for more information about these features.



### CAUTION

Make sure you memorize your passwords, both hardware and software. If you forget, you may not be able to use your notebook, and you will have to contact your service provider and arrange to have them reset the hardware system password. See your software manuals for what to do if you forget your software security password(s).



### CAUTION

Software security feature passwords may not be the same as the hardware security passwords. Be sure you know which features are controlled from software and which from hardware or you may lock yourself out of your own data or lock up your hardware and not be able to operate your notebook.

## Setting Up Your LifeBook 500 Series

### STARTING YOUR NOTEBOOK FOR THE FIRST TIME

#### Booting the System

The first time that you turn on your notebook you will need to attach your AC adapter because the battery is not charged when you get your machine. We strongly recommend that you not attach any other external devices and do not put any CD or floppy disk in your drives until you have gone through the initial power on sequence.

When you turn on your notebook for the first time it will display a Fujitsu logo on the screen. If you do nothing the system will read the hard drive for the operating system software, flash the notebook configuration information on the screen, and then the Windows® 95 Setup Wizard Screen will appear. (See *Power On* on page 23 for additional help.) You will then be stepped through the condition of use process. You must complete this initial process before you will be able to use your notebook. (If you wish to access the BIOSsetup utility before you go through the condition of use process you must

press the Esc key followed by the F2 key while the Fujitsu Logo is still visible.) If you turn off the power without using the on screen **Cancel** button you will get an error message when you start your notebook again.

#### Conditions of Use Process

The first time you start your notebook you must confirm your acceptance of the copyright limitations for your pre-installed software. After you complete the condition of use process these screens will not appear again. There are 6 screens to read carefully and respond to.

You cannot use your notebook until this condition of use process is completed. The bottom of each screen has a **<Back** button, a **Next>** Button and a **Cancel** button which are activated by the integrated touchpad cursor control and button click. The **<Back** button will return you to the previous screen. The **Next>** button activates any choices or information you have entered and takes you on to the next screen.

The **Cancel** button allows you to stop the setup process.

If you stop the process your notebook will start up at the beginning of the Windows 95 Setup Wizard.

The screens you will be required to respond to are described with the required action.

#### User Information

Fill in your name and your company name as you want the software licensed. To step from the name blank to the company blank press the Tab key. When the information has been entered click on the **Next>** button. You will not be allowed to continue until you make an entry.

#### License Agreement

Read the agreement carefully. You can scroll through the text using the integrated touchpad pointing device to activate the scroll bar or use the up arrow ↑ and down arrow ↓ keys to move up and down the text one line at a time, or use the Page Up and Page Down keys to move the text one screen at a time. When you finish reading you must point and click to accept or reject the terms of the agreement and then click on the **Next>** button.



### POINT

If you reject the terms of the license agreement you will be asked to review the license agreement for information on returning Windows® 95 or to shutdown your notebook.

### Certificate of Authenticity

Look in the box that your notebook came in and you will find a Windows 95 Certificate of Authenticity and a Windows 95 Users manual. On the certificate and also on the back of the manual you will find a bar-code with a number above it. These numbers should be the same, they are your product code and the number you should enter on the Certificate of Authenticity screen. When you have entered the number exactly as shown then click on the **Next>** button.

### Start Wizard

The Start Wizard screen will appear if you have entered a valid product code. When you click on the **Finish** button the display will flash various screens as the system identifies what hardware is installed and runs a virus check.

### Time Zone

When your notebook has completed identifying all of the installed hardware it will display a dialog box for entering which time zone you wish to set in the clock.

### Windows Messaging

Once you have selected a time zone you will see a screen announcing that Windows messaging is being set up.

### Printer Setup

When the messaging set up is complete a dialog box will appear for selecting which printer is to be attached to your notebook. You do not have to select a printer at this time. If you do not wish to select a printer, click on the **Cancel** button. If you do wish to select a printer click on the **Next** button and answer the questions.



### CAUTION

If you have a LifeBook™ 565Tx you must click on the Click on Me First icon to complete the startup, read the screen which appears, hit any key and then restart your notebook from the Start menu. You are now ready for normal operation. If you fail to do this some of your pre-installed application software may not operate correctly.



### POINT

You will find a Recovery CD-ROM packet in your accessories box. Please store the packet in a safe place in case there is a loss of data and it becomes necessary to re-install your operating system and and/or application programs. (See Restoring Your Pre-installed Software from the Recovery CD-ROM on page 138.)

**Setting Up Your LifeBook 500 Series****Welcome to Windows® 95**

Once you have completed the printer setup or chosen not to set up a printer at this time you will see the Welcome screen for Windows 95.

You can choose: Windows Tour; What's New; Online Registration; or Close.

You are now in the Windows 95 operating system and the Condition of Use process will not be repeated.

**USER REGISTRATION**

There are three ways to register your notebook.

1. The registration card provided in the box with your LifeBook 500 Series which can be filled out and mailed.
2. A registration form in the Fujitsu Welcome Center which can be filled out on your notebook and sent in a variety of ways, including printing and mailing, faxing or e-mailing.
3. Telephone registration by calling the Fujitsu PC service and support line at 1-800-8FUJITSU (1-800-838-5487).

**LEARNING ABOUT YOUR OPERATING SYSTEM AND APPLICATION SOFTWARE****Tutorials**

All operating systems and most application software have tutorials built-in. We highly recommend that you step through your tutorial before you use an application even if you are familiar with the same application on a different machine, an earlier version of the application, or with a similar product.

**Manuals**

In the accessories box you will find manuals for Windows 95 and other pre-installed software.

Software manuals of pre-installed software that are not in the accessories box are available online. See the help screens of your pre-installed software. We recommend that you review these manuals for general information on the use of these applications and to get a basic understanding of what is covered in the manual, and how it is organized, should questions arise as you use the applications.

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## SECTION TWO

### USING YOUR LIFEBOOK™ 500 SERIES FROM FUJITSU™

This section describes the indicators, buttons, connections and operating modes of your LifeBook 500 Series from Fujitsu and their use.

#### BUILT-IN DISPLAY

##### Opening the Display Panel

Lifting the latch releases the top of the display panel from the front of the notebook body. Lift the display panel backward until the screen is at a comfortable viewing angle. (Figure 2-1.)

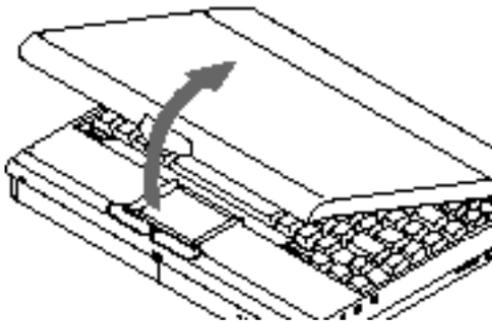


Figure 2-1 Opening the Display Panel

##### Adjusting the Display

When you turn on your notebook, you may want to adjust the brightness level of the screen for best visibility. To do this, adjust the brightness slider on the right side of the built-in display screen. (Figure 2-2.) You may need to adjust the brightness periodically for different operating environments.



#### POINT

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

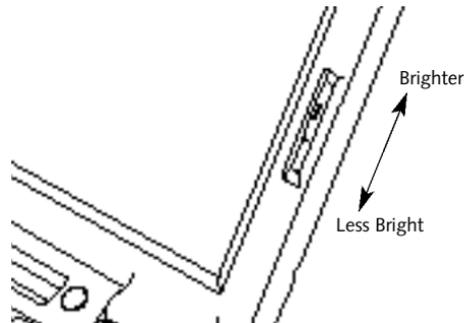


Figure 2-2 Display Adjustments

##### ADJUSTING THE KEYBOARD ANGLE

On the bottom of your notebook, near the back, are a pair of feet which flip down and hold the back of the keyboard about 6° higher than the front when resting on a flat surface. They are designed to make using your notebook more comfortable when using the keyboard. The feet must be folded flat against the bottom of the notebook when opening or using the CD-ROM drive or it will not open or operate properly. (Figure 1-11 on page 9.)

## Using Your LifeBook 500 Series

**CAUTION**

Do not operate your CD-ROM drive or attempt to open the tray unless your notebook is sitting on a flat surface and the adjustment feet are folded against the bottom of the notebook. Using a CD-ROM drive when it is not level may damage the drive or prevent proper operation.

**CAUTION**

When you are not using the adjustment feet be sure that they are folded flat against the bottom of the notebook. They could be broken off or injure someone if not used properly.

**STATUS INDICATOR PANEL**

The **Status Indicator Panel** is located in the recess just above the keyboard. (Figure 2-3.) The appropriate indicators become visible as you use your notebook.

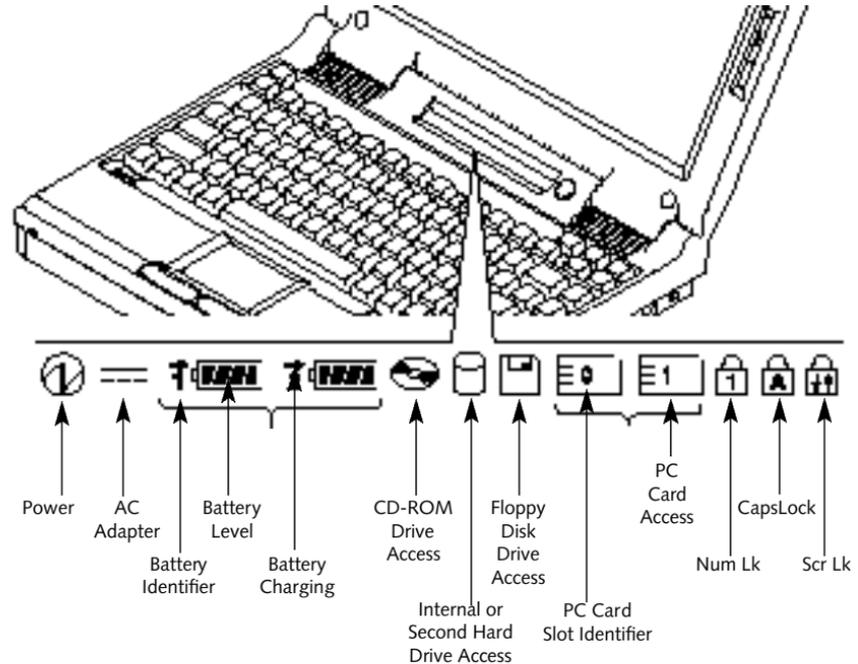


Figure 2-3 Status Indicators

### Power Indicator

The Power indicator tells you when the system is operational. It is on steady when there is power to your notebook, and blinks when the system is in Suspend mode. It goes off when the system has entered Save-to-Disk mode, has entered the Windows® 95 shutdown state, or the power is turned off from the power switch.



#### POINT

When your notebook has been shut-down from Windows 95, it is not the same as turned off from the power switch. It is in a pseudo-off state, with all applications closed, but can be turned on by pressing the Suspend/Resume button. It is drawing some current in the pseudo-off state.



#### CAUTION

Your notebook must be turned off with the power switch to prevent all current draw.

### AC Adapter Indicator

The AC adapter indicator tells you whether the system is operating on the AC or optional auto/airline adapter, or running on batteries alone. The indicator is On when either of the adapters is active and Off when power comes from the batteries alone. If a battery is charging, the power adapter is active regardless of the setting of the power switch. The AC adapter is also active in Windows in the shutdown state, regardless of the battery status. If there is no battery charging, and the power switch is Off, then the AC adapter indicator and the battery indicators will all be Off.

### Battery Level Indicators

These two indicators show whether or not the main Lithium ion battery and/or the optional second Lithium ion battery are installed, and indicates the condition of each. (Figure 2-3.) Battery 1 is the main Lithium ion battery and Battery 2 is the optional second Lithium ion battery. The Battery Level indicator is displayed only if that battery is installed.

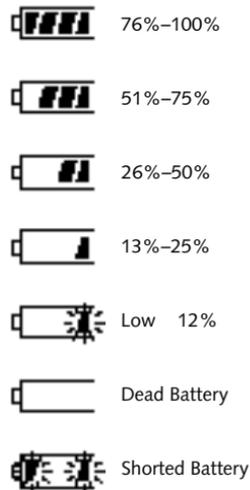


Figure 2-4 Battery Level Indicator

## Using Your LifeBook 500 Series

A small arrow icon appears to the left of the battery symbol and above the number if that battery is charging. The charging indicator flashes if the battery is too hot or too cold to charge. (Figure 2-3.) The charging indicators operate whether the power switch is Off or On. The symbols inside the battery outline indicate operating level available for that battery. (Figure 2-4.) If there is no battery charging and the power switch is Off then the AC adapter indicator and the Battery indicators will all be Off.



### CAUTION

A shorted battery is damaged and must be replaced.



### CAUTION

Turning off the power with the power switch or using the Suspend/Resume button when any of the Access indicators are On may cause loss of data and/or system errors.

**CD-ROM Drive Access Indicator**  
The CD-ROM Access indicator tells you the CD-ROM is being accessed.



### POINT

The Windows® 95 CD automatic insertion function will periodically check for a CD installed in the CD-ROM drive, causing the CD-ROM Access indicator to flash. The CD automatic insertion function allows your system to automatically start a CD as soon as it is inserted in the drive and the tray is closed. It will begin playing an audio CD or will start an application if the CD has an auto run file on it.



### POINT

If you do not wish to have the CD automatic insertion function you can disable it.

To disable the CD automatic insertion function do as follows:

1. Save all data and close all applications.
2. Click on the **Start** button.
3. **Point to Settings.**
4. **Click on the Control Panel. The Control Panel window will be displayed.**
5. **Double click on the System icon. The System Properties dialogue box will be displayed.**
6. **Click on the Device Manager tab. The device list will be displayed.**
7. **Click on the + to the left of the CD-ROM icon. The CD-ROM drive manufacturer's name and model will be displayed.**
8. **Click on The CD-ROM drive manufacturer's name and model.**
9. **Click on Properties. The CD-ROM drive manufacturer's name and model Properties dialogue box will be displayed.**
10. **Click on the Settings tab.**

11. Click on the automatic insertion notification box to toggle it Off.
12. Click on OK.
13. Click on OK in the System Properties dialogue box.
14. Restart your notebook according to the message displayed.

You can re-enable the function by repeating the process except in step 11 change the setting to On.



### CAUTION

If you switch off power using the power switch or operate the Suspend/Resume button while any of the Access indicators are on you may cause data to be lost and/or a system error to occur.

#### Hard Drive Access Indicator

The Hard Drive Access indicator tells you when either the internal hard drive or the optional second hard drive is being accessed. There is, however, no indicator to tell which one is in use.

#### Floppy Disk Drive Access Indicator

The Floppy Disk Drive Access indicator tells you a floppy disk is being accessed.

#### PC Card Access Indicators

The PC Card Access indicator tells you an installed PC Card is being accessed. Card 0 is the bottom connector and Card 1 is the upper connector in the card slot. Type III cards are always Card 0 only.



### POINT

Windows® 95 displays of PC Card slot numbers may be different than the Status Indicator slot numbers.

#### Num Lk Indicator

The Num Lk indicator tells you the internal keyboard is set in ten-key numeric mode. (See page 32 for more information on the Numeric Keypad.) You can activate the Num Lk mode by pressing the Scr Lk/Num Lk key while holding down the Shift key. Deactivate the mode the same way that you activated it. This indicator is inactive if you are using an external keyboard.

#### CapsLock Indicator

The CapsLock indicator tells you when the keyboard is set for all capital letters. Activate the CapsLock mode by pressing the CapsLock key on the keyboard. Deactivate the mode the same way that you activated it. This indicator is inactive if you are using an external keyboard.

#### Scr Lk Indicator

The Scr Lk indicator tells you when scroll lock is active. You can activate or deactivate the scroll lock by pressing the Scr Lk/Num Lk key. Deactivate the scroll lock the same way that you activated it. This indicator is inactive if you are using an external keyboard.

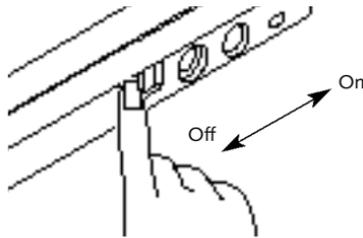


Figure 2-5 Power Switch

## POWER ON

Facing the keyboard and display panel, move the power switch towards the rear of your notebook. This is the On position. (See Figure 2-5.) When you are done working you can leave your notebook in Suspend mode, (see pages 39–40, 43 and 84), or you can turn it off. The power switch moved toward the front of your notebook is in the Off position. (See the section Power Off, page 24, for the recommended shutdown procedures.)



### CAUTION

After turning your notebook off, make sure that it has been Off at least 10 seconds before turning the power switch to On. If you do not you could cause a system error.

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



### CAUTION

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



### CAUTION

The main Lithium ion battery is not charged when you purchase your notebook. Initially you will need to connect the AC adapter to use it. If you purchase an optional second Lithium ion battery, it will not be charged when you get it, you will need to charge it prior to use.

**When the power switch is turned on, your notebook carries out a Power On Self Test (POST) to check the internal parts and configuration. If a fault is found a beep will sound and/or an error message will be displayed. (See Troubleshooting on pages 133–135) Depending on the nature of the problem you may be able to continue by starting the operating system or by entering the setup utility and revising the settings.**

**After satisfactory completion of the Power On Self Test (POST) your notebook will load your operating system. (See Boot Option's Submenu on pages 63–64 to see which kind of disk will be the source.)**

**CAUTION**

Never turn off your notebook during Power On Self Test (POST) or it will cause an error message to be displayed when you turn your notebook on the next time. (See the *Troubleshooting information on pages 133–135.*)

**POWER OFF**

**Before turning off the power by putting the power switch in the Off position, check that the Hard Drive, CD-ROM, PC Card and the Floppy Disk Drive Access indicators are all Off.** (See *Figure 2-3, page 19.*) **If you turn off the power while accessing a disk or PC Card there is a risk of loss of data.** The Off position is reached by facing the keyboard and display panel, and moving the switch toward the front of your notebook. **To assure that your notebook shuts down without error, use the Windows® 95 shutdown procedure.**

**CAUTION**

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

**Shutting down your notebook from Windows 95 lets your notebook shutdown operations, and turn off the power in the proper sequence to prevent errors. The sequence is:**

1. Go to the Start button menu.
2. Click on ShutDown .
3. Verify that Shut down the computer? is selected and click on Yes .

**If you are going to store your notebook for a month or more, take the following precautions:**

- Remove any CD and/or floppy disk.
- Turn off your notebook using the power switch.
- Close your notebook lid.
- Disconnect the AC adapter.
- Remove the batteries and store them separately in a cool dry place.

**POINT**

When your notebook has been shutdown from Windows 95, it is not the same as being turned off from the power switch. It is in a pseudo-off state, with all applications closed, but can and must be turned on by pressing the Suspend/Resume button. It is drawing some current in the pseudo-off state.

## Using Your LifeBook 500 Series

### RESTARTING THE SYSTEM

When you wish to restart your system be sure that you follow the proper procedure. The procedure is as follows:

1. Go to the Start button menu.
2. Click on ShutDown .
3. Click on Restart the computer?
4. Verify that Restart the computer? is selected and click on Yes .

Windows® 95 will shutdown and restart your notebook.

**NOTE:** You may also select Shut down the computer? and once the power is off for 10 seconds or more you can restart your notebook with the Suspend/Resume button. You may also select Shut down the computer and once the power is off turn the power switch to Off for 10 seconds or more and then turn the power switch to On. These alternative methods are not recommended.



#### POINT

In Windows 95 pressing the **Ctrl+Alt+Del** keys simultaneously triggers the ShutDown submenu of the Start menu.



#### CAUTION

Turning off the power switch without exiting Windows 95 may cause an error when you start the next time. Turning the power to On when it has been Off for less than 10 seconds may also cause an error when you start the next time.

### FUJITSU WELCOME CENTER

The Fujitsu Welcome Center is an icon on your Windows 95 desktop. Clicking on it gives you access to product registration forms and instructions, change of address information and forms, contact information including telephone numbers and e-mail addresses, and an accessory catalog with the information for ordering accessories for your notebook. Double click on the icon and then on the appropriate button for the information selection you wish.

### BATTERIES

The main Lithium ion battery and the optional second Lithium ion battery are rechargeable batteries with an operating time of up to 1 hour each, depending on active power management features and user activity levels. Your notebook can be operated on either the main Lithium ion battery or the optional second Lithium ion battery alone. You can warm swap batteries by putting your notebook in Suspend mode. There will be no loss of data if you do this quickly since there is a built-in NiCd bridge battery which will keep the system alive long enough to swap in

another charged battery. The bridge battery can support the system for about 3 minutes.

The battery operating time may become shorter than the reference value 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. High 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.)
- 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.
- When using a high current device such as a modem, a LAN card, the CD-ROM drive, or the hard drive frequently.

Using the AC adapter will conserve your battery when using a high current device such as a modem, a LAN card, the CD-ROM drive, or the hard drive frequently.



### CAUTION

Actual battery life will vary based on screen brightness, applications, features, power management settings, battery condition, and other customer preferences. CD-ROM drive or hard drive usage may also have a significant impact on battery life.



### CAUTION

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).



### CAUTION

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

#### Bridge Battery

The bridge battery is a NiCd battery that is built-in your notebook and is constantly being recharged. A bridge battery allows a charged main Lithium ion battery to be exchanged for a discharged one by “warm-swapping”. To warm-swapping have a charged battery ready, put your notebook in Suspend mode, remove the low battery and quickly insert a charged battery. The NiCd bridge battery is built-in your notebook and is constantly being charged. The bridge battery capacity is not large, about 3 minutes, and can vary with the condition of your notebook.

## Using Your LifeBook 500 Series

**CAUTION**

Data may be lost and/or system errors introduced if the warm swap is not performed quickly or a power adapter installed.

**CAUTION**

The bridge battery can not support an operating notebook. The notebook must be in Suspend mode.

**Shorted Batteries**

If your Status Indicator shows a shorted battery, check the installation for that battery by removing and reinstalling it. If it still shows that it is shorted, replace it with a new battery.

**CAUTION**

A shorted battery is damaged and must be replaced so that it does not damage anything else.

**Recharging the Batteries**

If you want to check the condition of either the main Lithium ion battery or the optional second Lithium ion battery, check the Battery Level indicators located on the Status Indicator Panel. These indicators change as the battery levels change. Battery 1 is the main Lithium ion battery and Battery 2 is the optional second Lithium ion battery. (Figure 2-3 on page 19.) You can also check the PowerPanel toolbar.

Both batteries are recharged internally using the AC adapter or auto/airline adapter. To recharge the batteries:

- Make sure the battery to be charged is installed in your notebook and connect the AC adapter or auto/airline adapter.
- During charging, an Arrow icon is displayed just to the left of the Battery Level icon on the Status Indicator.
- The percentage charge is shown inside the Battery Level icon. (Figure 2-4 on page 20.)

When an optional second Lithium ion battery is installed, the charge/discharge rate of the main and optional second Lithium ion batteries are the same, as they are connected in parallel, and are

both charging and/or discharging at the same time. Since the rates are the same, one may finish charging or discharging before the other, if they were not at the same charge level when they were installed, and/or the AC or auto/airline adapter was connected.

There is no memory effect on the Lithium ion batteries, which means that you do not need to discharge them completely before recharging. The charging time from fully discharged, for the main Lithium ion battery and the optional second Lithium ion battery together, is approximately 5 hours when your notebook is Off or in Suspend mode. Of course partially charged batteries will not take as long to charge. The main Lithium ion battery or the optional Second Lithium ion battery alone will charge in approximately 3 hours when your notebook is Off or in Suspend mode. The charge times will be significantly longer if your notebook is in use while the batteries are charging (from approximately 9 hours for one battery to approximately 15 hours for two batteries with normal operating levels).

**CAUTION**

Using heavy current devices such as LAN cards or frequent CD-ROM accesses may prevent charging completely.

**Low Battery State**

**When the battery is running low, your notebook beeps about every 15 seconds and the Battery Level indicator(s) will flash. If you do not respond to the low battery alarm, the batteries will continue to discharge until they are too low to operate. When this happens there will be a multiple beep alarm, the Battery Level indicator will show dead battery, and your notebook will go into Suspend mode to try and protect your data as long as possible. Your power management settings do not affect whether the dead battery alarm level will send your notebook into Suspend mode.**

*(Figure 2-3 on page 19.)*

**CAUTION**

You may not be able to hear the audio alarms if the volume control is set too low or is turned off by either hardware or software but you will still be able to see the Battery Level indicator(s) flash.

**When the low battery alarm occurs you need to save all your active data and put your notebook into Suspend mode until you can provide a new power source. You should provide this power as soon as possible. The new power source can be a charged battery or a power adapter, either AC or auto.**

**CAUTION**

When you are in Suspend mode there must always be at least one power source active. If you turn off the power with the power switch, or remove all power sources, main battery, optional second battery, AC adapter or auto adapter, while your notebook is in Suspend mode any data which has not been saved to disk will be lost.

**Once your notebook goes into Dead Battery Suspend mode you will be unable to resume operation until you provide a source of power either from an AC adapter, an optional auto adapter, or a charged battery. Dead Battery Suspend mode shows on the Status Indicator just like the normal Suspend mode. Once you have provided power, you will need to press the Suspend/Resume button to resume operation. In the Suspend mode, your data can be maintained for sometime. If a power source is not provided promptly, the Power indicator will stop**

## Using Your LifeBook 500 Series

flashing and go out, and you will have lost the data that was not stored.

Once you provide power you can continue to use your notebook while an adapter is charging the battery, but the battery trickle charges under these conditions. If you want to charge the battery more quickly, put your notebook into Suspend mode, or turn off your notebook, while the adapter is charging the battery. (See *Power Off on page 24 for shutdown procedures.*)

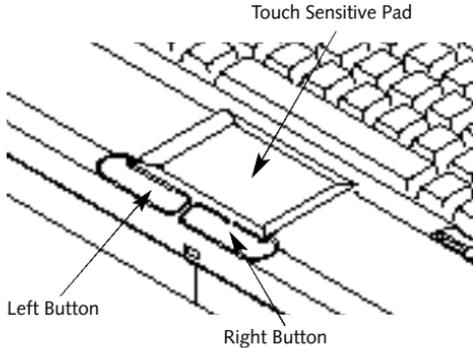


Figure 2-6 Touchpad Pointing Device

### INTEGRATED TOUCHPAD POINTING DEVICE

The touchpad pointing device is composed of a small rectangular touch sensitive pad and two buttons located in front of the keyboard. The touchpad pointing device has the function of a mouse, and moves the cursor around on the screen – up, down, left and right. A light pressure with the tip of your finger is all that is required to operate the pad. Pencil erasers, etc.

do not work. The faster you move your finger the faster the cursor will move. The second part of the touchpad pointing device – the buttons – function as mouse buttons, and the functions they perform depend on the application you are running. Figure 2-6 shows the position of the pointing device and mouse buttons.



#### POINT

An external mouse can be connected to the PS/2 port on the right side of your notebook, and used at the same time as the integrated touchpad pointing device.



#### CAUTION

There is no guarantee that data will not be lost once your notebook enters the Dead Battery Suspend mode.



#### POINT

The left mouse button functions can also be performed with your finger on the touchpad. (See *Clicking and Dragging.*) (See *Touchpad Pointing Device Adjustments on page 31.*)

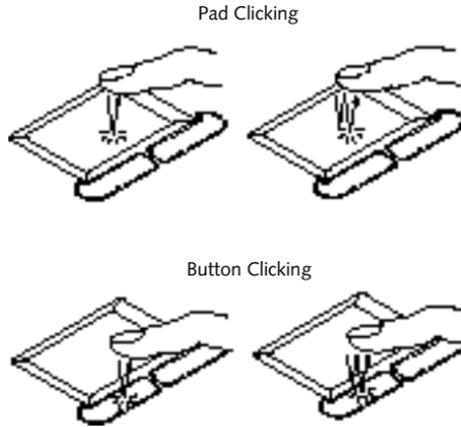


Figure 2-7 Clipping

### Clicking

**Clicking** means pushing and releasing a button. To left-click move the screen 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 can also left click by a light tap on the touchpad ending with the finger off the pad, instead of using the button. (Figure 2-7.)

### Double-Clicking

**Double-clicking** means following the clicking procedure above, but pressing the pointing device button twice in rapid succession. Double click works with either the left or the right button. Double left clicking can be done on the touchpad, instead of using the button. It is similar to single left clicking using the touch pad – two light taps ending with the finger on the pad.



### CAUTION

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



### POINT

The interval between taps for double clicking, and other parameters of pointing and selecting, can be adjusted with the selections in the menu of the Mouse icon in your Windows® Control Panel.

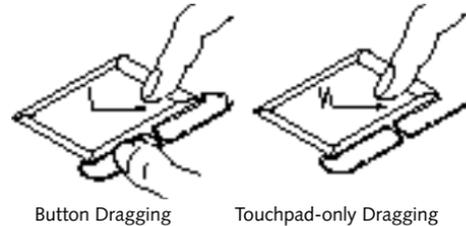


Figure 2-8 Dragging

### Dragging

**Dragging** means selecting an item with the pointing cursor, and while keeping the left pointing device button depressed, moving the cursor to the desired location, then releasing the button. (Figure 2-8.) Dragging can also be done on the touchpad – two light taps ending with your finger on the pad and then moving your finger.

## Using Your LifeBook 500 Series

### Touchpad Pointing Device Control Adjustment

The Windows® Control Panel provides customizing of your touchpad pointing device from the mouse icon. There are 4 aspects of the touchpad pointing device operation which you can adjust.

- **Buttons** – This lets you set up the touchpad for right or left handed operation and set the time interval for double clicking.
- **Pointers** – This lets you set up the size and shape of the cursor for different functions.
- **Motion** – This lets you set up the relation of the speed of motion of your finger to the motion of the cursor and to enable a trailing tail for the cursor arrow.
- **General** – Allows you to choose the type of mouse being used. It is already set for your integrated touchpad. You may need to change it for an external mouse.

You may want to try practicing with different adjustments until you find a combination that is comfortable for you.

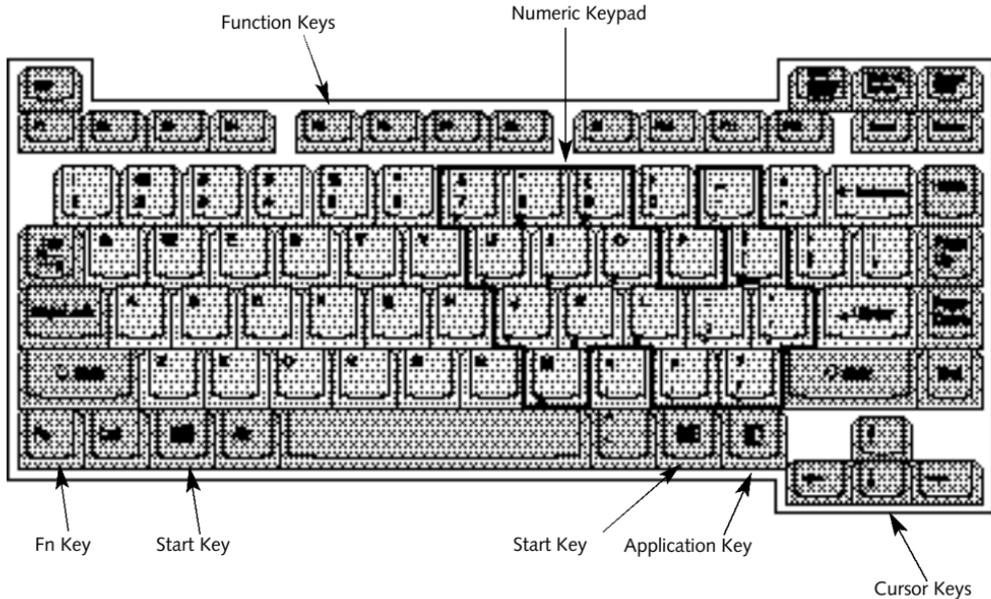


Figure 2-9 Keyboard

## USING THE KEYBOARD

Your notebook has an integral 86-key keyboard. (Figure 2-9.) The keys perform all the standard functions of a 101-key keyboard and also include Windows® 95 keys and other special function keys. This section describes only those items specific to your notebook. They are the numeric keypad, the cursor keys, the function keys, the function extension key (Fn) and the Windows 95 keys.

### Numeric Keypad

Certain keys on the keyboard perform dual functions as both standard character keys and also as a numeric keypad. Figure 2-9 has these keys outlined.

To switch into numeric keypad mode, press the Num Lk/Scr Lk key while holding down the Shift key. You can now enter numerals 0 through 9, perform addition (+), subtraction (-), multiplication (\*), or division (/), and enter decimal points (.) using the keys designated as ten-key functions. The keys in the numeric keypad are marked in the lower right

corner of each of the keys to identify their secondary functions.

To return these keys to their normal character function, press the Num Lk/Scr Lk key while holding down the Shift key again.



### POINT

When an external keypad is connected to your notebook the Num Lk mode enables the external keypad and disables the built-in keyboard numeric keypad.

### Cursor Keys

The cursor keys are the four arrow keys in the lower right corner of the keyboard which allow you to move the cursor up ↑, down ↓, left ← and right → as your application allows.



### POINT

The integrated touchpad pointing device and/or an external mouse are also used for moving the cursor around the screen.

### Function Keys

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

### Fn Key

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

Pressing F5 while holding down the Fn key allows you to toggle between video compensation and no compensation. (Video compensation controls spacing on the display. When it is enabled, displays with less than 1024 x 768 pixel resolution will still cover the entire screen.)

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

## Using Your LifeBook 500 Series

built-in display panel and external monitor, or TV output (NTSC/PAL or S-Video). The TV output will be skipped if the resolution is not set correctly. NTSC and S-Video TV outputs only operate in 640 x 480 resolution mode. PAL TV outputs only operate in 800 x 600 resolution mode. Access to resolution settings is via



### CAUTION

When using the **Fn** key with the **F10** key to select the video source, the NTSC and S-Video TV outputs only operate in 640 x 480 resolution mode. PAL TV outputs only operate in 800 x 600 resolution mode. TV modes are disabled until the resolution is set properly. Access to resolution settings is via the Windows® 95 Control Panel, Display, then Settings. If different resolutions are set for the built-in display and an external monitor the resolution for both will be set to that of the built-in display whenever your notebook is restarted.

the Windows® 95 Control Panel, Display, then Settings. If different resolutions are set for the built-in display panel and an external monitor the resolution for both will be set to that of the built-in display panel whenever your notebook is restarted.

### Windows 95 Keys

Your notebook has three Windows 95 keys, two Start keys and an Application key. The Start key displays the Start Menu, when in Windows 95. This is the same as the button on the taskbar which is typically at the bottom of your Windows 95 screens. The Application key has the same function in Windows 95 as the right mouse button, it displays the Shortcut Menu for whatever item is selected. See your Windows 95 documentation for additional information.

### USING THE VOLUME CONTROL

All system and application functions have multiple volume controls which interact with each other. There is the hardware volume control on the right side panel of your notebook. There is a volume control in the ESS AudioRack, your operating system Sound Control panel and any other application with sound.

Each setting source puts an upper limit on the volume which can be set by the other sources.

For example if the hardware volume control is turned all the way down, your software volume controls will not make your sound loud no matter how high you make the settings. By the same token, if the ESS AudioRack has the sound turned off, adjusting the hardware or the application software volume setting will not produce sound.

One easy operating method is to use the hardware and ESS AudioRack volume controls to set an upper limit on sound level and then make fine adjustments at the application software.

## FLOPPY DISK DRIVE

The removable floppy disk drive is a 3.5" drive which can read and write on 1.44MB and 720KB memory capacity floppy disks. Floppy disk format is controlled from your operating system. (See your software documentation for more information.) The removable floppy disk drive can be used externally with the external floppy disk drive adapter via the MediaConnect. (See Figure 1-12 on page 10 and MediaConnect on page 9-11 for connection information.) The system will treat the drive in exactly the same way regardless of where it is installed. (For floppy disk drive installation and removal instructions see Multi-function Bay Devices on pages 95-96 and External Installation of Floppy Disk Drive on pages 105-106.) When your system boots it will always look first for a floppy disk drive in the Multi-function bay and then look at the external floppy disk drive port.



### CAUTION

To get your system to recognize a newly installed floppy disk drive requires restarting your notebook.



### CAUTION

The external floppy disk adapter is for use with the modular floppy disk drive only. Installing any other module in the adapter may damage the module, your notebook or the adapter.

### Loading a Floppy Disk

To load, insert a floppy disk into the floppy disk drive, shutter side first and label up, until the Eject button above the floppy disk drive opening pops out. (Figure 2-10.)



### POINT

When there is no floppy disk in the drive, the Eject button is flush with the front of your notebook.

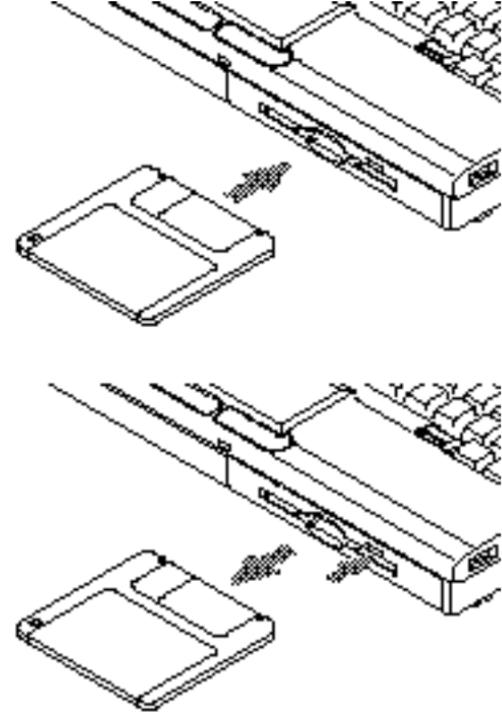


Figure 2-10 Loading/Ejecting a Floppy Disk

## Using Your LifeBook 500 Series

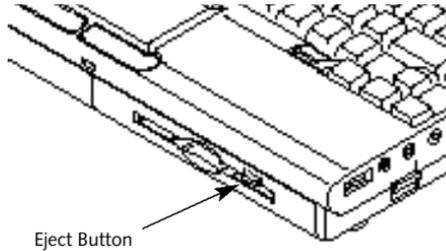


Figure 2-11 Floppy Disk Drive Eject Button

### Ejecting a Floppy Disk

To eject a disk, check that the Floppy Disk Drive Access indicator is Off (see pages 19 and 22), and press the Eject button. (See Figure 2-11).



#### CAUTION

If you eject the disk while the Floppy Disk Drive Access indicator is On, there is a risk of damaging the data on the disk or the floppy disk drive.

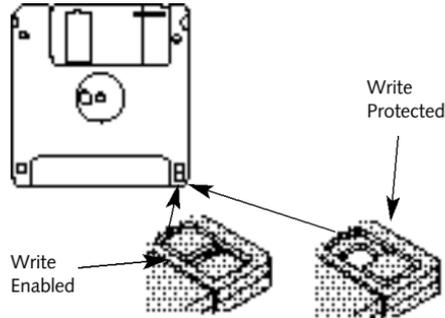


Figure 2-12 Floppy Disk Write Protect

### Preparing a Floppy Disk for Use

Before you can use a new floppy disk, you need to prepare it so your notebook knows where to store information. This preparation is called formatting or initializing a disk. You need to format new 3.5" floppy disks, unless you purchase preformatted disks. You will use your notebook's operating system software to format a floppy disk. Please refer to the operating system manual or online help for step-by-step instructions.

To prevent data stored on a floppy disk from being erased, slide the Write Protect tab on the floppy disk to open up the small hole. This makes the disk write protected. When you want to write data to that disk, slide the Write Protect tab the other way to close the small hole.



#### CAUTION

Formatting a previously used floppy disk is an effective method of clearing a disk as long as you realize that ALL the information on the disk will be erased.

### Care of Floppy Disk Drives and Disks

- Avoid storing the floppy disk drive and/or floppy disks in extremely hot or cold locations, or in locations subject to severe temperature changes.
- Keep the floppy disk drive and floppy disks out of direct sunlight and away from heating equipment.

- Avoid storing the floppy disk drive in locations subject to shock and vibration.
- Avoid using the floppy disk drive and floppy disks in damp and dusty locations.
- Never use the floppy disk drive with any liquid, metal, or other foreign matter inside the floppy disk drive or floppy disk.
- Never store a floppy disk near a magnet or other magnetic field.
- To clean, wipe the floppy disk drive clean with a dry soft cloth or with a soft cloth dampened with water or a solution of neutral detergent. Never use benzene, paint thinner, or other volatile material.
- Never disassemble or dismantle your floppy disk drive.

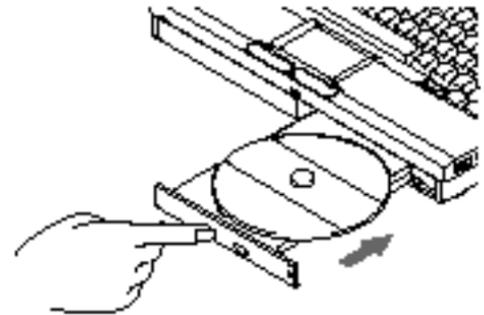
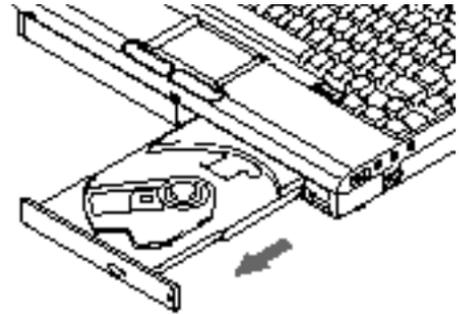
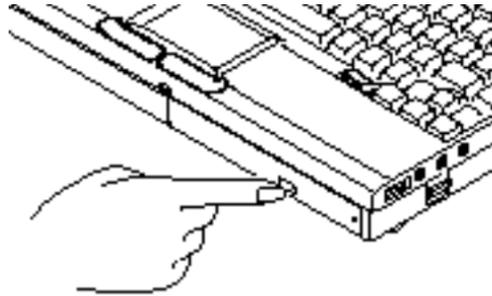


Figure 2-13 Loading CD-ROM Tray

**Using Your LifeBook 500 Series****CAUTION**

Do not operate your CD-ROM drive unless your notebook is sitting on a flat surface and the adjustment feet are folded against the bottom of the notebook. Using a CD when the drive is not level may damage the drive or prevent proper operation.

**CD-ROM DRIVE**

The modular CD-ROM drive is a 20-speed maximum modular reader.

**Loading a CD**

- Make sure that the angle adjustment feet on the bottom of your notebook are folded against the bottom of casing and your notebook is on a flat, level surface.
- Make sure there is power to your notebook.

- Push, gently but firmly on the Eject button on the front of the CD-ROM drive to open the CD-ROM holder tray, the tray will come out a short distance.
- Gently pull the tray out until a CD-ROM can be easily placed in the tray.
- If there was a protective sheet in the tray when it was shipped, make sure it has been removed.
- Place the CD into the tray, label side up, with the hole in the center of the CD snapped onto the raised circle in the center of the tray.
- Close the tray.
- After the CD is loaded, it will take a short time for your notebook to recognize it.

**POINT**

If you have disabled your Windows® 95 CD automatic insertion function you will have to start the CD from your desktop, as your notebook will not automatically recognize that the CD has been loaded.

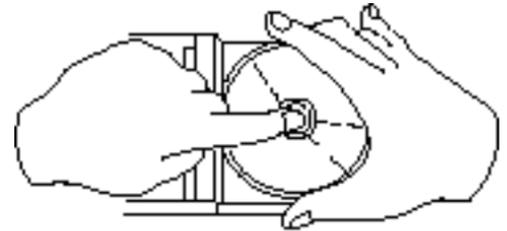


Figure 2-14 CD-ROM Handling

### Care of CD-ROMs

CD-ROMs are precision devices and will function reliably if given reasonable care.

- Always store your CD-ROM in its case when it is not in use.
- When removing the CD-ROM from its case, press down on the holder's center while lifting out the CD-ROM by its edges.
- Always handle a CD-ROM by the edges and avoid touching the surface.
- Avoid storing any CD-ROM where there are temperature extremes.
- Do not bend CD-ROMs or set heavy objects on them.
- Never write on the label surface with a ball point pen, pencil or similar device.
- If a CD-ROM is subjected to a sudden change from cold to warm condensation may form on the surface. Wipe the moisture off with a clean, soft, lint free cloth and then let

it dry at room temperature. **DO NOT** use a hair dryer or heater to dry a CD-ROM.

- If a CD-ROM is dirty, use only a CD-ROM cleaner or wipe it with a clean, soft, lint free cloth starting from the inner edge and wiping to the outer edge.

### HARD DRIVE

The internal hard drive capacity is dependent on which model you are using. See Appendix A for model information. If you are using the optional second hard drive for the first time since you installed it, you can get your notebook to recognize it by opening the Control Panel in Windows® 95 and open Add New Hardware which will step you through having Windows 95 look for your newly installed device.

#### Formatting the Hard Drive

The hard drive inside your notebook is formatted (initialized) at the factory. You do not need to format it under normal circumstances. If you purchase an optional second hard drive you will need to format it. Check your operating system documentation for information on initializing a hard drive.



### CAUTION

If you reformat the internal hard drive ALL data including the operating system, applications software and data will be erased. Unless data is copied to floppy disks or other data storage media it will be permanently lost. All software will be need to be re-installed and data files restored from your back-up disks. See the operating system instructions for more information on backing-up your data files. The factory pre-installed software, including the operating system can be restored from the Recovery CD-ROM which came in the accessories box when you purchased your notebook. (See *Restoring Your Pre-installed Software from CD-ROM* on page 129 for more information.) Any application software which you have purchased and installed will have to be reinstalled from the original source. When doing a recovery remember that you must allocate space for the Save-to-Disk function if you have it enabled. (See *Setting Up Your Save-to-Disk File Allocation* on pages 91–92 for more information.)

## Using Your LifeBook 500 Series

### POWER MANAGEMENT

Your LifeBook 500 Series has many features for conserving power. Some power savings features are automatic and have no user control, such as those for the internal modem, while others depend on the user setting the parameter to best suit their operating conditions. One power saving feature is to turn the display brightness down, another is to limit the use of high power devices, another is to activate an appropriate power savings profile, another is to put your notebook in Suspend mode when not actually performing an operation. As with all mobile, battery-powered computers, there is a trade-off between performance and power savings.

Internal power management for your notebook is controlled from settings made in the BIOS setup utility, the PowerPanel by Phoenix® Technologies, and the Windows® 95 Control panel. If no settings have been made in the PowerPanel or Windows 95 Control panel then the BIOS settings will be used. The PowerPanel and Windows 95 Control panel have pre-set at

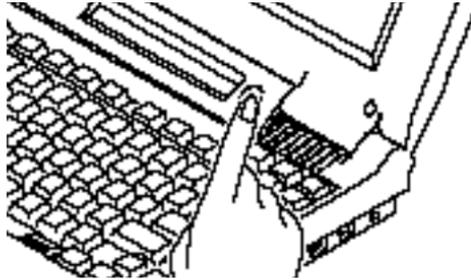


Figure 2-15 Suspend/Resume Button

the factory and will be active unless you disable them. Complete descriptions of the BIOS setup utility parameters are found in Section Three of this guide. Power management parameters are covered under the Power Savings menu. (See pages 83–88.)

Some particular power parameters are only available for setup from one of these places, others can be changed in any one of them.

**Using the Suspend/Resume Button**  
When your notebook is active, the Suspend/Resume button, (Figure 1-7 on page 5), can be used to manually put your notebook into Suspend mode, or into the Save-to-Disk mode. Push the Suspend/Resume button, when your notebook is active but no Access indicators are On, and hold it in until it is acknowledged by activation of the selected mode. Which mode is activated depends on the settings of the BIOS setup utility Power Savings menu. The default is Suspend mode. (See page 84 for how to select Save-to-Disk mode.)

If your notebook is suspended, pushing the Suspend/Resume button will return your notebook to active operation at the point it went into suspension. The Suspend/Resume button is located next to the Status Indicator panel above the keyboard of your notebook. (Figure 1-7 on page 5.) You can tell whether or not your system is in Suspend mode by looking at the Power indicator. (See page 19.) If it is visible and not flashing, your notebook is fully operational. If it is visible and flashing, your note-

**book is in Suspend mode. If it is not visible, the power is Off, the power is in the Windows® 95 pseudo-off state, or your notebook is in the Save-to-Disk mode. (See page 44.) When you receive your LifeBook™ 500 Series it will be set for the default which is Suspend mode.**

**CAUTION**

Be sure you know what settings are active for the Suspend/Resume button before you use it as misuse can result in data loss. (See the *Power Savings Menu of the BIOS setup utility*, pages 83–88, for more information.)

**POINT**

Disabling the Suspend/Resume button prevents it from being used to put your notebook in suspend mode or Save-to-Disk mode. The resume function of the button cannot be disabled. (See the *Power Savings Menu of the BIOS setup utility*, page 84, for more information.)

**CAUTION**

The Suspend mode or Save-to-Disk mode should not be used with certain PC Cards. Check your PC Card documentation for more information.

**POINT**

If your notebook is active when you enter the Suspend mode or Save-to-Disk mode, changes to open files are not lost. The files are left open and memory is kept active during Suspend mode or the memory is transferred to the internal hard drive during Save-to-Disk mode.

**CAUTION**

If you are running your notebook on battery power, be aware that the battery continues to discharge while your notebook is in suspend mode, though not as fast as when fully operational. With a fully charged internal Lithium ion battery the suspend mode will maintain your status for 24 hours or more.

## PowerPanel

The PowerPanel by Phoenix® Technologies provides Windows® 95 desktop access to a comprehensive combination of power management settings without entering the BIOS setup utility.

The PowerPanel icon looks like an atom with its cloud of electrons. This icon will open the PowerPanel menu. You can view the menu in icon format along the edge of your desktop by moving the cursor against the edge where you have chosen to keep your PowerPanel toolbar and letting it sit there until the toolbar appears. (The default position for the toolbar is the left side of the screen, but you can move it to whichever edge you like by dragging.)

The power management toolbar has ten power profile choices and six activation choices. When you switch to AC powered operation the PowerPanel toolbar will change to indicate AC power operation and will show the AC Power profile as active.

The profiles are groups of system settings designed to fit power operation to specific user operating conditions. The activations are shortcut ways to turn on specific features of your notebook.

The profile choices are:

- Maximum Battery Life.
- Maximum Performance.
- Presentation.
- Green PC.
- Power Management Off.
- AC Power.
- Word Processing.
- Communication.
- Games.
- Custom Settings.

The activation choices are:

- System Suspend.
- System Save-to-Disk.
- System Standby.
- Hard Disk Standby.
- Modem Power Toggle.
- Video Standby.



## POINT

The AC Power profile is activated automatically when a power adapter is being used, unless it is overridden by another selection made after the adapter became active. It can be reactivated by selecting it or it can be activated by selection, even when operating only on battery power.

PowerPanel Online Help

**To access help with your power management settings, move your cursor to the PowerPanel toolbar and right click. (See *Clicking on page 30.*) From the menu that appears select PowerPanel Help Topics**

PowerPanel Customizing

**To modify your PowerPanel toolbar or create a custom toolbar, move your cursor to the PowerPanel toolbar and right click. From the menu that appears select *Customize*. Within the Customize dialog box you can choose to have the toolbar display at all times or to use your custom toolbar. You can also select from**

the same menu to Hide the toolbar. If you hide the toolbar you will have to double click on the edge where the toolbar was located to display it.

If you select **Exit** from the PowerPanel menu you will turn off the PowerPanel completely. To turn it back on go to the Program folder of the Start menu, select PowerPanel and click on it.

#### Maximum Battery Life Profile

The Maximum Battery Life profile is a factory installed combination of timeouts and other power savings parameters chosen as settings that will produce the longest possible battery life.

#### Maximum Performance Profile

The Maximum Performance profile is a factory installed combination of timeouts and other power savings parameters chosen as the settings that will produce superior performance with reasonable battery life.

#### Presentation Profile

The Presentation profile is the same combination of timeouts and other power savings parameters as the Maximum Battery Life profile

except that the display is never turned off. (This profile was designed to enhance the use of your notebook for slide show style presentations.)

#### Green PC Profile

The Green PC profile has the Video timeout and the Hard Drive timeout enabled but no standby or suspension modes enabled.

#### AC Power Profile

The AC power profile has all timeouts disabled and no other power management features enabled. This profile is activated automatically by plugging in a power adapter.

#### Custom Settings Profile

The Custom Settings profile has those power saving parameters that you set by right clicking on the Custom Settings icon and selecting **Run** from the menu which appears. You will then get a dialog box for setting the parameters.

#### Power Management Off

Turns off power management control from Windows® 95 and PowerPanel. They are turned off from the Start menu, Control panel for the

Windows 95 management and the Program folder for the PowerPanel management.

#### Word Processing Profile

The Word Processing profile is a factory installed combination of timeouts and other power savings parameters chosen as the settings that will produce superior performance with reasonable battery life when using your notebook for doing word processing.

#### Communication Profile

The Communication profile is a factory installed combination of timeouts and other power savings parameters chosen as the settings that will produce superior performance with reasonable battery life when using your notebook with the modem active such as during Internet, fax or speakerphone activities.

#### Games Profile

The Games profile is a factory installed combination of timeouts and other power savings parameters chosen as the settings that will produce superior performance with reasonable battery life when playing games on your notebook.

## Using Your LifeBook 500 Series

### System Suspend Activation

**Clicking on the Suspend button or selecting System Suspend on the PowerPanel menu will put your notebook in Suspend mode. Pressing the Suspend/Resume button turns the power back on and lets you begin where you left off. (See Figure 2-15 on page 39, and Suspend Mode on pages 43–44.)**

### System Save-to-Disk Activation

**Clicking on the Save-to-Disk button or selecting System Save to Disk on the PowerPanel menu will put your notebook in the Save-to-Disk mode. Your notebook will be left in the Windows® 95 pseudo-off state. If the power switch is not turned off your notebook can be restarted by pressing the Suspend/Resume button which will cause the system memory to be reloaded from the hard drive and let you begin where you left off. (See Figure 2-15 on page 39, and Save-to-Disk Mode on pages 44–45.)**

### System Standby Activation

**Clicking on the System Standby button or selecting System Standby on the PowerPanel menu will put your notebook in Standby mode. You can return your notebook to normal operation by performing any activity such as pressing a key or touching the touchpad.**

### Hard Disk Standby Activation

**Clicking on the Hard Disk Standby button or selecting Hard Disk Standby on the PowerPanel menu will turn off your internal hard drive. You can return your notebook to normal operation by performing any hard drive operation.**

### Modem Power Toggle

**Clicking on the Modem Power Toggle button or selecting Modem Power Toggle on the PowerPanel menu will turn the power to your modem on or off. To turn it to the other condition select Modem Power Toggle again.**

### Video Standby Activation

**Clicking on the Video Standby button or selecting Video Standby on the PowerPanel menu turns off the power to the display. You can return your notebook to normal operation by performing any activity such as pressing a key or touching the touchpad.**

### Suspend Mode

**The Suspend mode saves the contents of your notebook's system memory during periods of inactivity by maintaining power to critical parts while turning off the CPU, the display, the hard drive and all of the other internal components except those necessary to maintain system memory, recognize the Suspend/Resume button and restart. Your notebook can be put in Suspend mode by:**

- Pressing the Suspend/Resume button until acknowledged.
- Selecting Suspend from the Windows 95 Start Menu.
- Selecting System Suspend from the PowerPanel toolbar or menu.

- Timing out from lack of activity.
- Battery level reaching the Dead Battery Warning condition.

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



### CAUTION

Loss of all power sources, including batteries, while in the Suspend mode will cause lost data and inability to return to operation with the Suspend/Resume button.

### Save-to-Disk Mode

The Save-to-Disk function saves the contents of your notebook's system memory to the hard drive whenever you:

- Press the Suspend/Resume button until acknowledged with Save-to-Disk mode enabled from the Power Savings menu of the BIOS setup utility.
- Select Suspend from the Windows® 95 Start menu with Save-to-Disk mode enabled by the BIOS setup utility.
- Select Save-to-Disk activation from the PowerPanel toolbar or menu.
- Time out from lack of activity with Save-To-Disk mode enabled from the Power Savings menu of the BIOS setup utility.

Your notebook's system memory typically stores the file(s) on which you are working, the open application(s) and any other data required to support the operation(s) in progress. When the Save-to-Disk function is activated your notebook saves the contents of the system memory to a file on the internal hard drive, and then automatically shuts off power to your notebook.

This is the same pseudo-off state as the Windows 95 power off. When you resume operation by pressing the Suspend/Resume button, you return to the point in the operation where you left off, before going into Save-to-Disk mode.



### POINT

If power is lost during Save-to-Disk mode the data will be retrieved automatically as soon as power is returned.



### POINT

When PC Cards or external devices are in use, Save-to-Disk mode cannot return you to the exact state prior to suspension because all of the peripheral devices will be re-initialized when the system restarts.

**Using Your LifeBook 500 Series****POINT**

The main advantage of using the Save-to-Disk function is that power is not required to maintain your data. This is particularly important if you will be leaving your notebook in a suspended state for a prolonged period of time. The drawback of using Save-to-Disk mode is that it lengthens the power down and power up sequences and resets peripheral devices.

**POINT**

Save-to-Disk mode requires allocating a significant amount of hard drive capacity for saving all of system memory, which reduces your usable disk space. When you purchase your notebook it will have space allocated for the memory installed. If you upgrade the original system by adding a memory upgrade module without changing the size of your Save-to-Disk allocation you will get an error message when you try to activate the Save-to-Disk mode and it will not work. Use the PHDISK Utility to increase the size of the Save-to-Disk file, SAVE2DSK.BIN. (Refer to *Setting Up Your Save-to-Disk File Allocation* on pages 81–82 for more information.) If you need help contact your support representative for recommendations.

**Idle Mode**

**Idle mode is one of the power management parameters. When Idle mode is enabled the CPU is put into low-speed operation when there is no activity (keystroke, pointer action, sound generation, video display change, modem transmission or reception, etc.) on your notebook for 16 seconds. Any activity will cause the normal operation to restart automatically. This feature is independent of the Suspend/Resume button. This parameter is enabled and disabled in the BIOS setup utility. (See pages 83–84.)**

**Standby Mode**

**Standby mode is one of the power management parameters. When Standby mode is activated, your notebook puts the CPU in low-speed operation, shuts off the display and turns off the hard drive when there is no activity (keystroke, pointer action, sound generation, video display change, modem transmission or reception, etc.) on your notebook for the user selected time-out period. (See pages 83 and 85.) Any activity will cause your notebook to return to**

normal operation automatically. This feature is independent of the Suspend/Resume button. This parameter is enabled and disabled in the BIOS setup utility. (See pages 83 and 85.)

#### Video Timeout

The Video Timeout is one of the power management parameters which saves power by turning off the display if there is no keyboard or pointer activity for the user selected timeout period. Any keyboard or pointer activity will cause the display to restart automatically. This feature is independent of the Suspend/Resume button. This parameter is enabled and disabled in the BIOS setup utility. (See pages 83 and 85.)

#### Hard Drive Timeout

The Hard Drive Timeout is one of the power management parameters which saves power by turning off the hard drive if there is no hard drive access for the timeout period which has been set in the BIOS setup utility. (See pages 83 and 84.) Any attempt to access the hard drive will cause the hard drive to restart automatically. This feature is independent of

the Suspend/Resume button. This parameter is enabled and disabled in the BIOS setup utility. (See pages 83 and 84.)

#### Windows® 95 Control Panel

The Power icon in the Windows 95 Control panel allows you access to enable or disable all the power management settings which can be made from the desktop. Selecting **Allow Windows to manage power use on this computer** enables the PowerPanel by Phoenix® Technologies as well as those settings made from the Windows 95 Control panel. When Windows 95 power management is disabled the BIOS setup utility settings will control your power saving parameters. (See pages 83–88 for the BIOS setup utility Power Savings menu.)

The Windows 95 Control panel power management dialog box lets you set different hard drive timeouts for battery and AC power operation and to set PC Card modem power parameters.



#### POINT

You must restart your notebook for Windows 95 Control panel setting changes to take affect.

#### INTERNAL MODEM

Your internal modem is a fax/data/voice modem controlled by Windows® 95, LapLink®, MegaPhone® or other software. The voice functions of the modem include speakerphone, caller ID and answering machine capabilities. The answering machine capabilities require the use of third party software not included with your notebook. The other features are accessible via Windows 95, LapLink or MegaPhone.

#### INFRARED PORT

Infrared IrDA-compatible communication is a function that allows for wireless data transfer between your notebook via the MediaConnect and other IrDA-compatible devices. Examples of IrDA-compatible devices are another computer or a printer. When carrying out this kind of communication, both devices must be set so

## Using Your LifeBook 500 Series

their infrared ports are directly facing each other without obstructions. A distance of 6" to 36" between the device ports is ideal. Dirt or scratches on the lens of the MediaConnect or the other device will degrade performance. This is especially true for Fast IrDA applications such as a transfer to an Ethernet. Before you can use the Infrared Communication Port, you must set it up in the Advanced Menu, Peripheral Configuration submenu, in the BIOS setup utility. Since your notebook supports both IrDA 1.0 (115 Kbps) and IrDA 1.1 (4 Mbps) transfers you must select the standard which is compatible with the other device in the transfer. (See the *BIOS Setup Utility on pages 67–70 for more information.*) The infrared port is on your MediaConnect, which must be installed according to the instructions on pages 102–104. (Figure 1-3 on page 3 and 1-12 on page 10 shows the MediaConnect, Figure 1-8 on page 6 shows the MediaConnect port, Figure 1-12 shows the location of the infrared port on the MediaConnect.) LapLink software can be used for Infrared file transfers. See your online help for more information.

**CAUTION**

Do not move either device during communication as it may interrupt data transmission.

**CAUTION**

Be careful not to scratch the infrared port lens on the MediaConnect. Scratches, dirt or other surface marks can effect operation.

The following conditions may interfere with infrared communications:

- When the infrared communication ports are not directly facing each other, or some obstacle is between them.
- When the infrared communication ports are too far apart.
- When a television or radio remote control unit, or a wireless headphone is being used nearby.

- When a strong light such as direct sunlight, fluorescent light, or incandescent light shines on the port.

**PRE-INSTALLED SOFTWARE**

Your LifeBook™ 500 Series comes with pre-installed software for playing audio and video files of various formats. In addition there is file transfer software, telephony software and virus protection software. Some models come with additional application software.

All of the pre-installed software can be accessed from the Program folder of the Windows 95 Start menu. If you aren't sure what software is pre-installed check the Program folder. If you need assistance with an individual application use their online help.

**CAUTION**

If you have a LifeBook 565Tx you must click on the Click on Me First icon when you setup your notebook for the first time or your pre-installed application software may not operate correctly.

**SoftPEG MPEG File Player**

The MPEG file player displays a screen to find the file which you wish to play. You can have the list to select from limited to particular types of files or display all files. Opening the desired file will play it. On-line help screens are available for more information.

**SoftPEG CD Player**

This control resembles a CD player front panel and is operated in the same way. When you point to a button, a small explanation of the use of the button will appear. When you left-click on the button it will activate. On-line help screens are available for more information.

**POINT**

You can modify the set up of certain audio parameters in the BIOS setup utility, Advanced Menu – Audio Features Submenu. (See page 72.)

**ESS AudioRack**

The control of the AudioRack player software (AudioRack32) resembles the front panels of a rack of stereo equipment and is operated in much the same way. There is also AudioRack record software (AudioRecorder). Online help screens are accessible from the AudioDrive panel of AudioRack32, click on the Help button for more information. In the AudioRecorder dialog box, click on Help in the top taskbar.

In AudioRack32 the AudioDrive panel lets turn on and off the available functions. When you left-click on a button it will activate. When a function is active its button on the AudioDrive shows a green dot and its control panel is in the equipment rack. When it is off the dot on the button is black and the control panel is not in the rack. You activate a slider or knob on a control panel by dragging it. The functions available are DAT (Digital Audio Tape player), 3D (3D-Stereo sound control), MIDI, Mixer and CD (Audio CD player).

**POINT**

For maximum frequency response and bandwidth, leave the graphic equalizer levels at the mid-point (zero level). To customize the frequency response to your personal taste, adjust accordingly.

**CAUTION**

The ESS AudioRack volume settings sets the maximum volume level of the hardware volume control knob for that function.

**CAUTION**

If you use a speakerphone function, be sure that the microphone setting in the ESS AudioRack is disabled.

**Using Your LifeBook 500 Series****LapLink®**

The LapLink by Traveling Software file transfer software provides direct file transfers to other computers. Data transfers can be via internal modem, a PC Card modem, the infrared port on the MediaConnect, a serial cable, or a parallel cable (cables are not included). See the LapLink online help screens for operating instructions for the LapLink application.

**MegaPhone®**

MegaPhone by Cypress Research Corporation is telephony software which provides access to the voice and fax features of your notebook's internal modem. It features dialing, speakerphone and caller ID, and fax functions. See your MegaPhone online help screens for guidance in operating the MegaPhone software.

**POINT**

For optimum speakerphone performance:

- Speak clearly.
- Limit background noise.
- Speak facing the keyboard from about one (1) foot away.

**McAfee VirusScan**

Running your McAfee VirusScan program after loading data or programs from a floppy disk, CD-ROM, modem data transfer, or infrared data transfer is a precaution that will protect the data on your hard drive from contamination or destruction. See your VirusScan online help screens for information on how and when to run this program.

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## SECTION THREE

### CONFIGURING YOUR LIFEBOOK™ 500 SERIES FROM FUJITSU™

This section explains the BIOS setup utility. The BIOS setup utility is used to set and store the date, time, power management modes, data security passwords and other operating parameters of your notebook.

#### BOOT SEQUENCE

Each time you power up or restart your LifeBook 500 Series, it goes through a quiet boot sequence that displays a Fujitsu logo until your operating system is loaded. During quiet boot, your notebook is performing a standard boot sequence including a Power On Self Test (POST). To see details on the screen during the boot process, press the Esc key anytime while the Fujitsu logo is displayed. To enter the BIOS setup utility press the F2 key after you have pressed the Esc key. When the boot sequence is completed without a failure and without a request to enter the setup utility the system

displays the opening screen of the operating system. The boot sequence is executed when:

- You turn on power to the system using the Power switch on the right side panel of your notebook. (Figure 2-5 on page 23.)
- You restart your computer from the Windows® 95 Shutdown menu of the Start menu.
- The software initiates a system restart.  
Example: When you install a new application.
- You reset the system by pressing the three keys Ctrl+Alt+Del at the same time. This method is not recommended since it can result in loss of data.
- You use the Suspend/Resume button to restart your notebook from Save-to-Disk mode.



#### POINT

The BIOS setup utility is entered by pressing the Esc key and then the F2 key during the quiet boot process.



#### POINT

When error messages occur see Section Five, pages 133–135, for help in understanding the meaning and required actions to be taken.

#### IDENTIFYING THE DRIVES

Your notebook uses drive letters (Example A:, B:, C:, D:, E:) to identify internal and external devices such as hard drives, floppy disk drives, CD-ROM drives and PC Cards. The most commonly assigned drive designators are listed below. If you add other devices, the drive designators may be different. See your operating system manual for setting drive designations.

Drive Designators

A: Floppy disk drive.

Installable in the Multi-function (right front) bay of your notebook, or in the External Floppy Disk Drive adapter.

B: Not used with your notebook.

**Configuring Your LifeBook 500 Series****C: Hard drive.**

Installed in a compartment in the bottom of your notebook.

**D:CD-ROM drive or second hard drive.**

Installable in the Multi-function (right front) bay of your notebook.

**CAUTION**

A bootable CD-ROM may have either a floppy disk format or a hard drive format. When using a bootable CD-ROM, drive designations will automatically change according to which format is used. (See page 63 for more information.)

**BIOS SETUP UTILITY**

The BIOS setup utility is a program that sets the operating environment for your notebook. It is often referred to in this publication as the setup utility. There is no need to set or change the environment to operate as it is set at the factory for normal operating conditions. If your

usages are different you can change those parameters available through the setup utility which configures:

- Standard system parameters, such as date and time.
- Device control features parameters, such as I/O addresses, and boot device.
- Power Management parameters that help to conserve your notebook's batteries.
- System Data Security feature parameters, such as passwords.

You will only have to change the utility settings if you want to:

- Change the date or time. (You can also do this without entering the setup utility, through your operating system. See your operating system manual.)
- Change the primary boot device.
- Change the power management parameter settings. You can change most of these from your desktop. (See the Power Management on pages 39–46.)

- Change a port address or other parameter.
- Change an audio parameter setting.
- Change the selection of whether to use the built-in display panel, an external monitor or both. (For a more convenient process, see the Fn key on page 32.)
- Change the system data security settings.

Routinely Entering the Setup Utility  
You can enter the setup utility whenever you turn on or reset the system. To do this:

1. Allow the system to start booting.
2. As soon as the Fujitsu logo appears on the screen, press the Esc key and then the F2 key.
3. The Main Menu of the setup utility then appears with the current settings of the parameters displayed.
4. If you wish to go to one of the other setup menus, press the ← or the → key to find the menu you require.

**POINT**

If your data security settings require it, you may be asked for a password before the Main Menu will appear.

**Entering the Setup Utility After a Configuration Change or System Failure**  
**If there has been a change in the system configuration that does not agree with the parameter settings stored in your BIOS memory, or there is a failure in the system, the system beeps and/or displays an error message after the Power On Self Test (POST). If the failure is not too severe, it will give you the opportunity to modify the settings of the setup utility, as described in the following steps:**

**1. When you turn on or restart the computer there is a beep and/or the following message appears on the screen:**

```
Error message - please run SETUP
program
Press <F1> key to continue, <F2>
to run SETUP
```

**2. If an error message is displayed on the screen, and you want to continue with the boot process and start the operating system anyway, press the F1 key.**

**CAUTION**

If your notebook beeps a series of beeps that sounds like a code and the display is blank, please refer to the Troubleshooting Section. (See pages 133–135.) The Troubleshooting Section includes a list of error messages and their meanings.

**POINT**

If your data security settings require it, you may be asked for a password before the operating system will be opened.

**3. If an error message is displayed on the screen, and you want to enter the setup utility, press the F2 key.**

**4. When the setup utility starts with a fault present, the system displays the following message:**

```
Warning!
Error message
[Continue]
```

**5. Press any key to enter the setup utility. The system will then display the Main Menu with current parameters values.**

## NAVIGATING THROUGH THE SETUP UTILITY

The BIOS setup utility consists of 5 menus; MAIN, ADVANCED, SECURITY, POWER SAVINGS and EXIT. The remainder of Section Three explains each menu in turn including all submenus and setting items.

The following procedures allow you to navigate the setup utility menus:

1. To select a menu, use the cursor keys: ←, →.
2. To select a field within a menu or a submenu, use the cursor keys: ↑, ↓.

**Configuring Your LifeBook 500 Series**

3. To select the different values for each field, press the Spacebar or + to change to the next higher selection and F5 or – to go to the next lower selection.
4. To activate a submenu press the Enter key.
5. To return to a menu from a submenu, press the Esc key.
6. To go to the Exit Menu from any other menu, press the Esc key.

**POINT**

Selecting a field causes a help message about that field to be displayed on the right-hand side of the screen.

**POINT**

Pressing the **Enter** key with the highlight on a selection that is not a submenu or auto selection will cause a list of all options for that item to be displayed. Pressing the **Esc** key or the **Enter** key will select the highlighted choice and remove the list.

7. Pressing the F9 key resets all items in the current menu to the default values.
8. Pressing the F10 key resets all items in the current menu to the value which was set when the setup utility parameters were last saved.
9. Pressing the F1 key will give you a general help screen.

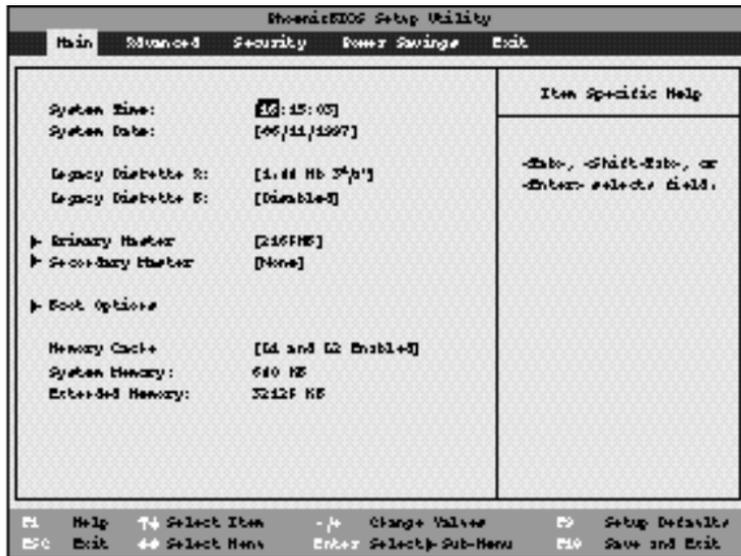


Figure 3-1 Main Menu

## MAIN MENU – SETTING STANDARD SYSTEM PARAMETERS

The Main Menu allows you to set or view the current system parameters. Follow the instructions for **Navigating Through The Setup Utility** to make any changes. (See pages 54–55.)

Table 3-1 shows the names of the menu fields for the Main menu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.



### POINT

System Time and Date can also be set from your operating system without using the setup utility. Use the calendar and time icon on your Control Panel for Windows or type time or date from the MS-DOS prompt.

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Table 3-1 Fields, Options and Defaults for the Main Menu

Menu Field	Options	Default	Description
<b>System Time</b>	—	—	<b>Sets and displays the current time. Time is in a 24 hour format of hours:minutes:seconds with 2 digits for each. (HH:MM:SS). Example: 16:45:57. You may change each segment of the time separately. Move between the segments with the Tab key and/or Shift + Tab keys.</b>
<b>System Date</b>	—	—	<b>Sets and displays the current date. Date is in a month/day/year numeric format with 2 digits each for month and day and 4 digits for year. (MM/DD/YYYY) for example:03/20/1996. You may change each segment of the date separately. Move between the segments with the Tab key and/or Shift + Tab keys.</b>
<b>Legacy Diskette A</b>	<b>720Kb, 3½"; 1.44Mb, 3½"; Disabled</b>	<b>1.44Mb, 3½"</b>	<b>Sets the format for Floppy Disk Drive A if it is installed.</b>
<b>Legacy Diskette B</b>	<b>Same as Legacy Diskette A</b>	<b>Disabled</b>	<b>The LifeBook 500 Series from Fujitsu does not accommodate a second floppy disk drive.</b>
<b>Primary Master</b>	<b>Selects the Primary Master Submenu.</b>	<b>[2168MB]</b>	<b>Displays the capacity of the internal hard drive which is on this interface and when selected opens the submenu which allows you to change the interface specifications to suit your particular hard drive.</b>

Menu Field	Options	Default	Description
<b>Secondary Master</b>	<b>Selects the Secondary Master Submenu</b>	<b>[None]</b>	<b>Displays the capacity of the drive on this interface and when selected opens the submenu which allows you to change the interface specifications to suit your particular disk drive. (This is the CD-ROM Drive or the Removable Hard Drive if either is installed in the Multi-function Bay.)</b>
<b>Boot Options</b>	<b>Selects the Boot Options Submenu</b>		<b>Pressing the Enter key selects the Boot Options Submenu.</b>
<b>Memory Cache</b>	<b>[Disabled]; [L1 Enabled] [L1 and L2 Enabled]</b>	<b>[L1 and L2 Enabled]</b>	<b>Enables/Disables the L1 and L2 Memory Cache.</b>
<b>System Memory</b>		<b>640 KB</b>	<b>Displays the size of system memory, which is detected automatically and cannot be changed by the Setup Utility.</b>
<b>Extended Memory</b>		<b>32128 KB</b>	<b>Displays the size of extended memory which is detected automatically and cannot be changed by the setup utility.</b>

## Configuring Your LifeBook 500 Series

### Primary Master or Secondary Master – Submenu

The Primary Master and Secondary Master submenus are identical and in the case of hard drives have the capacity displayed at the top of the screen as well as on Main Menu. Follow the instructions for Navigating Through The Setup Utility to make any changes. (See pages 54–55.)

Table 3-2 shows the names of the menu fields for the Master submenu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

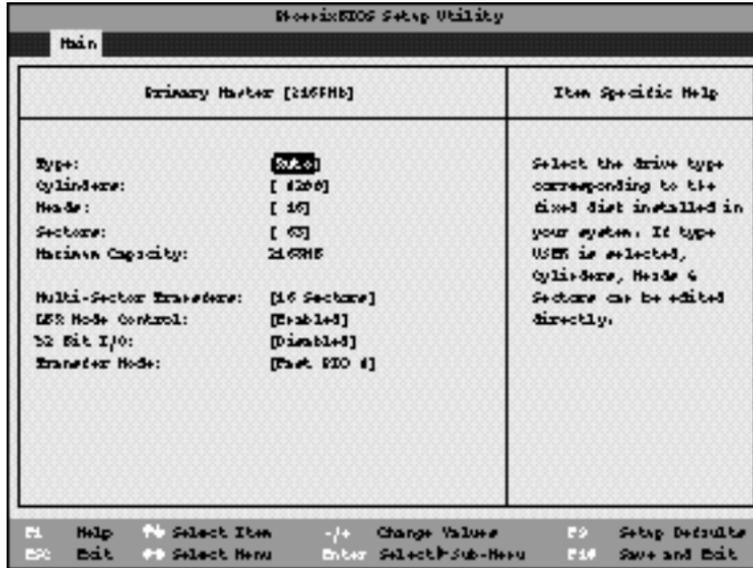


Figure 3-2 Primary Master or Secondary Master Submenu

Table 3-2 Fields, Options and Defaults for the Primary Master or Secondary Master Submenu

Menu Field	Options	Default	Description
<b>Type:</b> (No other parameters are displayed when = None.)	<b>Auto, None, CD-ROM, User.</b>	<b>Auto</b>	<b>Allows you to configure the interface for almost any drive. Additional fields are displayed only if they can be changed by the utility.</b>
<b>Cylinders:</b> (Available to change only when Type = User. May be displayed for Type = Auto when hard drive has been detected.)	<b>A number between 0 and 65,535.</b>	<b>0</b>	<b>Sets the number of cylinders for the drive. This field can be changed by incrementing (pressing the Spacebar) or by typing in the number.</b>
<b>Head:</b> (Available to change only when Type = User. May be displayed for Type = Auto when hard drive has been detected.)	<b>A number between 1 and 16.</b>	<b>1</b>	<b>Sets the number of sectors on the drive. This field can be changed by incrementing (pressing the Spacebar) or by typing in the number.</b>
<b>Sectors:</b> (Available to change only when Type =User. May be displayed for Type = Auto when hard drive has been detected.)	<b>A number. between 0 and 63.</b>	<b>0</b>	<b>Sets the number of cylinders for the drive. This field can be changed by incrementing (pressing the Spacebar) or by typing in the number.</b>

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Menu Field	Options	Default	Description
<b>Maximum Capacity:</b>	—	—	<b>This is a display only parameter based on the other choices.</b>
<b>Multi-Sector Transfers:</b> (Available to change only when Type = User. May be displayed for Type = Auto when hard drive has been detected.)	<b>Disabled; 2; 4; 8; 16.</b>	<b>Disabled</b>	<b>Sets the number of sectors allowed in a block transfer.</b>
<b>LBA Mode Control:</b> (Available to change only when Type = User.)	<b>Enabled; Disabled.</b>	<b>Disabled</b>	<b>Enables or disables logical Block Addressing in place of Cylinder, Head, Sector addressing.</b>
<b>32 Bit I/O:</b>	<b>Enabled; Disabled.</b>	<b>Disabled</b>	<b>Enables or disables 32 bit data transfers.</b>
<b>Transfer Mode:</b> (Available to change only when Type = User. May be displayed for Type = Auto when hard drive has been detected.)	<b>Standard, Fast PIO 1 – Fast PIO 4.</b>	<b>Standard</b>	<b>Selects the data movement method for the drive.</b>



**CAUTION**

A bootable CD-ROM may have either a floppy disk format or a hard drive format. When the bootable CD-ROM is used the drive allocations change automatically, without changing the BIOS setup. If a floppy disk format CD-ROM is used the CD-ROM becomes Drive A. If a hard drive format CD-ROM is used the internal hard drive becomes Drive D and the CD-ROM becomes Drive C and all other drive designations shift as necessary. The boot sequence ignores the new drive designations, however your application software will use the new designations.



**CAUTION**

Be careful of the operating environment when booting from a CD-ROM or you may overwrite files by mistake.

## Configuring Your LifeBook 500 Series

### Boot Options Submenu

The Boot Options submenu provides the ability to set process which your notebook follows when turning on or restarting. Follow the instructions for Navigating Through The Setup Utility to make any changes. (See pages 54–55.)

Table 3-3 shows the names of the menu fields for the Boot Options submenu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

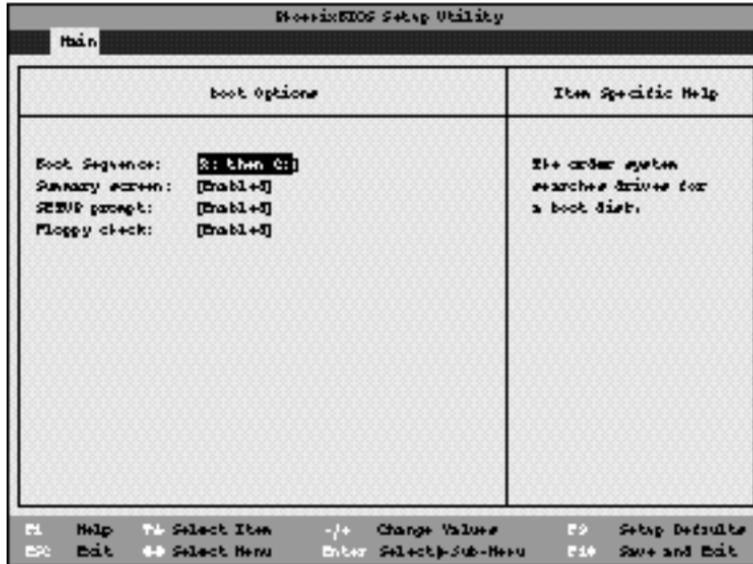


Figure 3-3 Boot Option Submenu

Table 3-3 Fields, Options and Defaults for the Boot Options Submenu

Menu Field	Options	Default	Description
<b>Boot Sequence</b>	<b>A: then C;; CD-ROM then A: then C;;  C: only</b>	<b>A: then C:</b>	<b>Read drive C only if no operating system is found on drive A. Read drive C only if no operating system is found on drive A and drive A only if no operating system is found on the CD-ROM drive. Read drive C only, even if no operating system is found.</b>
<b>Summary screen</b>	<b>Disabled; Enabled</b>	<b>Enabled</b>	<b>Enables and disables the display of a screen containing a summary of the configuration of the system. When enabled this screen appears after the completion of Power On Self Test (POST) and before the operating system is loaded.</b>
<b>SETUP prompt</b>	<b>Disabled; Enabled</b>	<b>Enabled</b>	<b>Enables and disables the screen prompt <code>Press &lt;F2&gt; to enter SETUP</code>. The F2 key will still start the setup utility if this field is set to Disabled but no screen prompt will be displayed.</b>
<b>Floppy check</b>	—	—	<b>Enables or disables the system from checking what kind of floppy disk drive is installed every time it boots up. Disabling this makes the boot a little bit faster.</b>

## Configuring Your LifeBook 500 Series

### Exiting from the Main Menu

When you have finished setting the parameters on this menu, you can either exit from the setup utility, or move to another menu. If you wish to exit from the setup utility, press the Esc key or use the cursor keys to go to the Exit Menu. If you wish to move to another menu, use the cursor keys. See *Navigating Through The setup utility on pages 54–55 for more information.*

### ADVANCED MENU – SETTING DEVICE FEATURE CONTROLS

The Advanced Menu allows you to set or view the current I/O addresses, interrupt levels, port modes and related parameters. Follow the instructions for *Navigating Through The Setup Utility* to make any changes. (See pages 54–55.)

Table 3-4 shows the names of the menu fields for the Advanced menu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

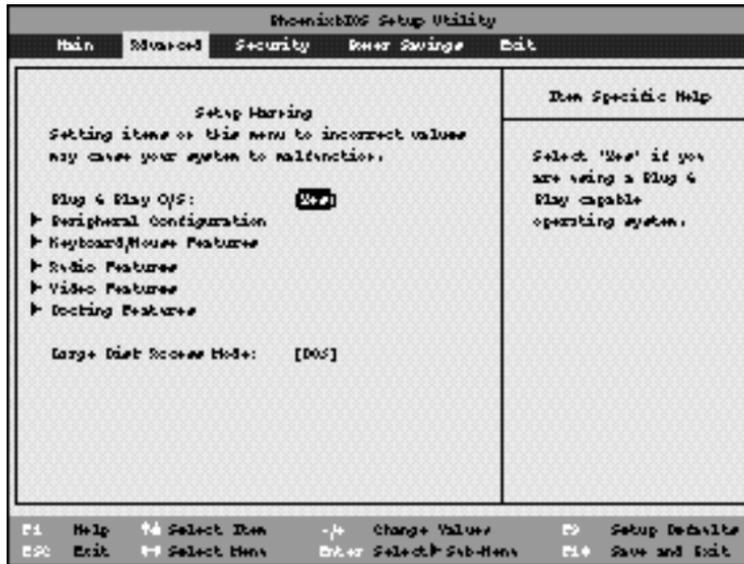


Figure 3-4 Advanced Menu

Table 3-4 Fields, Options and Defaults for the Advanced Menu

Menu Field	Options	Default	Description
<b>Plug &amp;Play O/S:</b>	<b>Yes; No</b>	<b>Yes</b>	<b>Sets the notebook know if your operating system does or does not support plug and play operation of new peripherals. Plug &amp; Play means the new device is recognized without restarting your notebook.</b>
<b>Peripheral Configuration</b>	—	—	<b>This is a submenu which allows changing of addresses, interrupt levels, etc.</b>
<b>Keyboard/Mouse Features</b>	—	—	<b>This is a submenu which allows setting external and internal keyboard and mouse parameters.</b>
<b>Audio Features</b>	—	—	<b>This is a submenu which allows setting the hardware address and interrupt levels of audio functions and enabling or disabling the MIDI/joystick port.</b>
<b>Video Features</b>	—	—	<b>This is a submenu which allows setting of the display parameters, including routing of video signals to different displays.</b>
<b>Docking Features</b>	—	—	<b>This is a submenu which allows setting the parameters for interfacing to a docking station.</b>
<b>Large Disk Access Mode:</b>	<b>DOS; Other</b>	<b>DOS</b>	<b>Selects DOS or Other as your operating system. All Windows operating systems are DOS; UNIX, Novell Netware, etc. are Other.</b>

## Configuring Your LifeBook 500 Series

**CAUTION**

I/O addresses, DMA channels and Interrupt levels can be entered in various ways, including via the BIOS setup utility, the control software for the I/O device, or the hardware. If any two ports or devices, serial or parallel, have the same I/O address assigned your notebook will not function normally. Please keep a record of original settings before making any changes in the event that a restoration is required. Be sure you know all the addresses and levels in use and any limitations on settings before making any changes.

### Peripheral Configuration Submenu of the Advanced Menu

The Peripheral Configuration submenu is for setting the parameters of the notebook ports. Follow the instructions for Navigating Through The Setup Utility to make any changes. (See pages 54–55.)

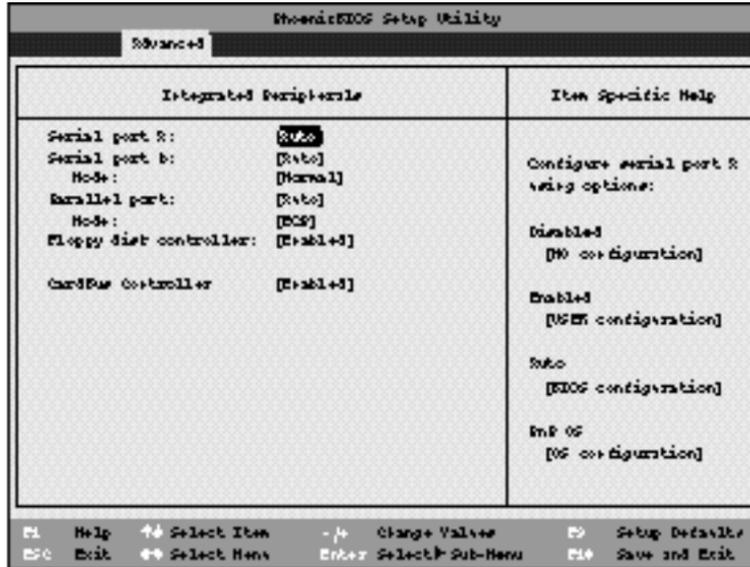


Figure 3-5 Peripheral Configuration Submenu

Table 3-5 shows the names of the menu fields for the Peripherals Configuration submenu, all of the options for each field, the default settings and a description of the field's function and any

special information needed to help understand the field's use. All of the I/O addresses in the table are in hexadecimal.

Table 3-5 – Default Settings for the Peripheral Configuration Submenu of the Advanced Menu.

Menu Field	Options	Default	Description
<b>Serial port A</b>	<b>Auto; OS Controlled; Disabled; Enabled</b>	<b>Auto</b>	<b>Sets the configuration of the external serial port. Auto sets the port to whatever is set in the BIOS settings. OS Controlled sets the port to whatever is set by the operating system. Disabled sets your notebook to have no external serial port. Enabled lets you set the external serial port to whatever configuration you wish.</b>
<b>Base I/O Address (Only displayed when Serial port A selected as Enabled.)</b>	<b>3F8, IRQ 4; 2F8, IRQ 3; 3E8, IRQ 4; 2E8, IRQ 3; 3F8, IRQ 4; 2F8, IRQ 3; 3E8, IRQ 4; 2E8, IRQ 3</b>	<b>3F8 IRQ 4</b>	<b>Sets the I/O address and interrupt level for the external serial port.</b>
<b>Serial port B</b>	<b>Auto; OS Controlled; Disabled; Enabled</b>	<b>Auto</b>	<b>Sets the configuration of the internal serial port. Auto sets the port to whatever is set in the BIOS settings. OS Controlled sets the port to whatever is set by the operating system. Disabled sets your notebook to have no internal serial port. Enabled lets you set the internal serial port to whatever configuration you wish.</b>
<b>Base I/O Address (Only displayed when Serial port B selected as Enabled.)</b>	<b>3F8, IRQ 4; 2F8, IRQ 3; 3E8, IRQ 4; 2E8, IRQ 3; 3F8, IRQ 4; 2F8, IRQ 3; 3E8, IRQ 4; 2E8, IRQ 3</b>	<b>2F8, IRQ 3</b>	<b>Sets the I/O address and interrupt level for the internal serial port.</b>

## Configuring Your LifeBook 500 Series

Menu Field	Options	Default	Description
<b>Mode</b> (Not displayed when Serial port B is Disabled.)	<b>IrDA;ASK-IR; FIR</b>	<b>IrDA</b>	<b>Selects the operating mode of the internal serial port.</b>
<b>DMA channel</b> (Displayed only when FIR selected and enabled for Serial port B mode.)	<b>DMA 3; DMA 1</b>	<b>DMA 3</b>	<b>Sets the DMA channel for fast infrared communication mode on the internal serial port.</b>
<b>Parallel port</b>	<b>Auto; OS Controlled; Disabled; Enabled</b>	<b>Auto</b>	<b>Sets the configuration of the parallel port. Auto sets the port to whatever is set in the BIOS settings.OS Controlled sets the port to whatever is set by the operating system. Disabled sets your notebook to have no parallel port.Enabled lets you set the parallel port to whatever configuration you wish.</b>

Menu Field	Options	Default	Description
<b>Mode</b> (Not displayed when Parallel Port set to Disabled.)	<b>Output Only; Bi-Directional; ECP; EPP</b>	<b>Output Only</b>	<b>Sets the communication mode of the parallel port: Bi-directional (Full Duplex); two-way transfer of information between your notebook and a connected parallel device. Example: if your notebook is connected to a parallel printer, it can transfer data and control information to the printer, and the printer can transfer back status and error information to your notebook; Output Only (Half Duplex); information transferred in only one direction, from your notebook to the printer or similar device; ECP Mode allows communication with the ECP class of parallel I/O devices; EPP Mode allows communication with the EPP class of parallel I/O devices.</b>
<b>Base I/O address</b> (Only displayed when Parallel Port Mode selected as Enabled.)	<b>378/IRQ 7; 378/IRQ 5; 278/IRQ 7; 278/IRQ 5</b>	<b>378/IRQ 7</b>	<b>Sets the I/O addresses and interrupt level for the parallel port.</b>
<b>Floppy disk controller</b>	<b>Enabled; Disabled</b>	<b>Enabled</b>	<b>Activates or deactivates the floppy disk controller for the Multi-function Bay and the MediaConnect.</b>
<b>CardBus Controller</b>	<b>Enabled; Disabled</b>	<b>Enabled</b>	<b>Activates or deactivates the PC CardBus controller for the PC Card slots in the left side of your notebook.</b>

## Configuring Your LifeBook 500 Series

### Keyboard/Mouse Features Submenu

The Keyboard/Mouse Features submenu is for setting the parameters of the integrated and the external mouse and keyboard. Follow the instructions for Navigating Through The Setup Utility to make any changes. (See pages 54–55.)

Table 3-6 shows the names of the menu fields for the Keyboard/Mouse submenu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

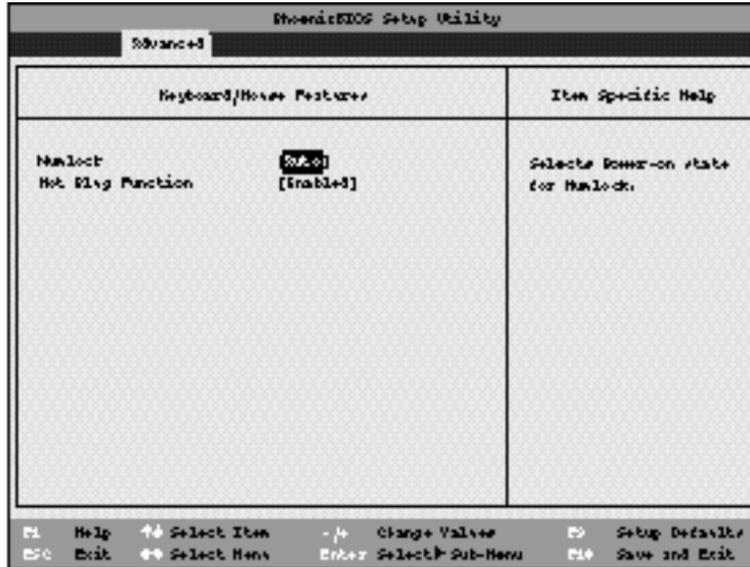


Figure 3-6 Keyboard/Mouse Features Submenu

Table 3-6 – Fields, Options and Defaults for the Keyboard/Mouse Features Submenu of the Advanced Menu.

Menu Field	Options	Default	Description
<b>NumLock</b>	<b>Off; On; Auto</b>	<b>Auto</b>	<b>Sets whether or not the NumLock function is automatically set when the computer completes booting</b>
<b>Hot Plug Function</b>	<b>Disabled; Enabled</b>	<b>Enabled</b>	<b>Enables or disables the ability to plug a mouse or keyboard into the PS/2 port and have it immediately recognized and active.</b>

## Configuring Your LifeBook 500 Series

### Audio Features Submenu

The Audio Features Submenu is for setting the features of the built-in audio functions. Follow the instructions for Navigating Through The Setup Utility to make any changes. (See pages 54–55.)

Table 3-7 shows the names of the menu fields for the Audio submenu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

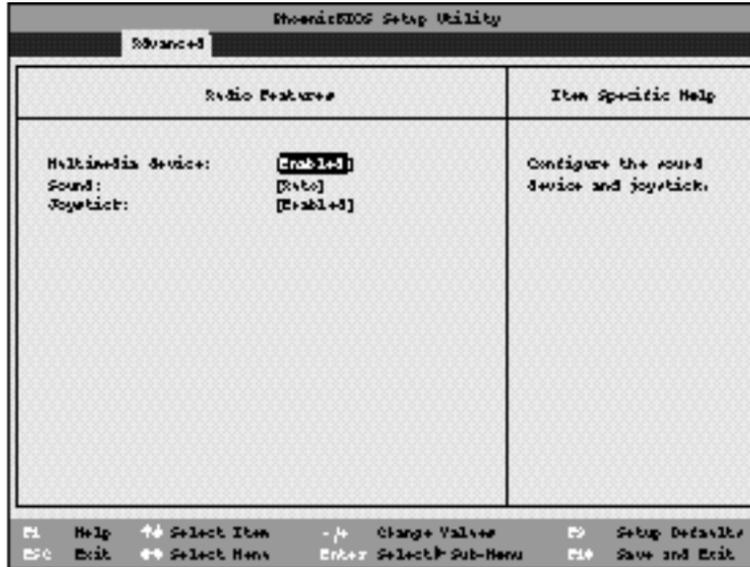


Figure 3-7 Audio Features Submenu

Table 3-7 – Fields, Options and Defaults for the Audio Features Submenu of the Advanced Menu.

Menu Field	Options	Default	Description
<b>Multimedia device:</b>	Enabled; Disabled	Enabled	<b>Enables or disables the MIDI/joystick port. When the MIDI/joystick port is enabled the additional fields Sound : and Joystick : are displayed.</b>
<b>Sound:</b>	<b>Auto; OS Controlled; Disabled; Enabled</b>	<b>Auto</b>	<b>When the Sound function is enabled the additional fields DMA channel :, DMA channel:, Interrupt:, Base I/O address, and MPU I/O address: are displayed.</b>
<b>DMA channel:</b>	<b>DMA 0; DMA 1; DMA 3</b>	<b>DMA 1</b>	
<b>DMA channel:</b>	<b>DMA 0; DMA 1; DMA 3</b>	<b>DMA 3</b>	
<b>Interrupt:</b>	<b>IRQ 5; IRQ 7; IRQ 9; IRQ 10; IRQ 11</b>	<b>IRQ 5</b>	
<b>Base I/O address:</b>	<b>220–22F; 240–24F; 260–26F; 280–28F</b>	<b>220–22F</b>	
<b>MPU I/O address:</b>	<b>330–331; 300–301</b>	<b>330–331</b>	
<b>Joystick:</b>	<b>Enabled and Disabled</b>	<b>Enabled.</b>	

## Configuring Your LifeBook 500 Series

### Video Features Submenu

The Video Features Submenu is for setting the display parameters. Follow the instructions for Navigating Through The Setup Utility to make any changes. (See pages 54–55.)

Table 3-8 shows the names of the menu fields for the Video submenu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

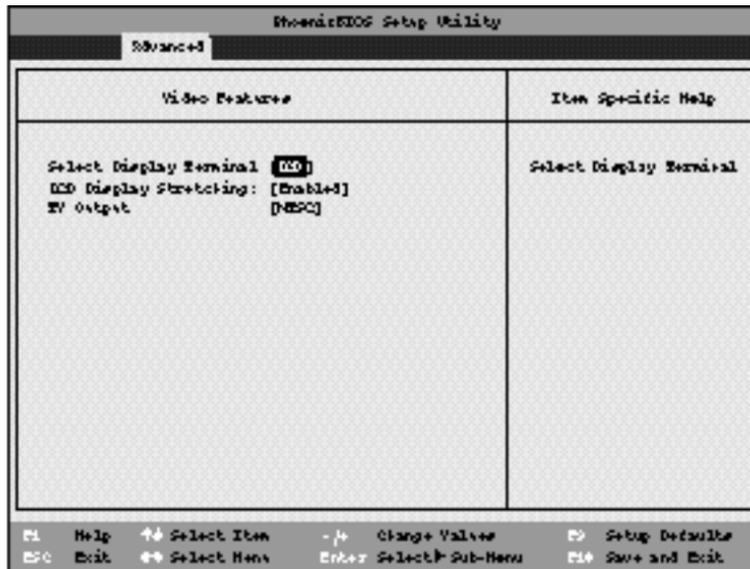


Figure 3-8 Video Features Submenu

Table 3-8 – Fields, Options and Defaults for the Video Features Submenu of the Advanced Menu.

Menu Field	Options	Default	Description
<b>Select Display Terminal</b>	<b>LCD;CRT; LCD &amp; CRT; TV</b>	<b>LCD</b>	<b>Selects where the video signal will be routed.</b>
<b>LCD Display Stretching:</b>	<b>Enabled; Disabled</b>	<b>Enabled</b>	<b>Enables or disables compensation which controls spacing on the display. When it is enabled displays with less than 1024 x 768 pixel resolution will still cover the entire screen.</b>
<b>TV Output</b>	<b>NTSC; PAL</b>	<b>NTSC</b>	<b>Selects the NTSC (American) TV output format or the PAL (European) TV output format.</b>

## Configuring Your LifeBook 500 Series

### Docking Features Submenu

The Docking Features Submenu is for setting the parameters for operating your notebook in a docking device. Follow the instructions for Navigating Through The Setup Utility to make any changes. (See pages 54–55.)

Table 3-9 shows the names of the menu fields for the Docking Features submenu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

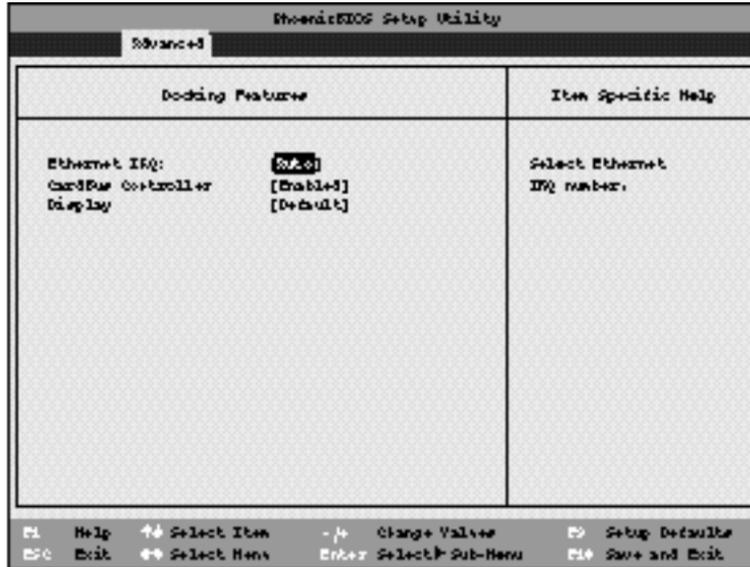


Figure 3-9 Docking Features Submenu

Table 3-9 – Fields, Options and Defaults for the Video Features Submenu of the Advanced Menu.

Menu Field	Options	Default	Description
<b>Ethernet IRQ:</b>	<b>Auto; 3; 4;5; 7; 9;10; 11</b>	<b>Auto</b>	<b>Selects the interrupt level for the Ethernet interface. If you select an interrupt level which creates a conflict a warning message will be displayed.</b>
<b>CardBus Controller</b>	<b>Enabled; Disabled</b>	<b>Enabled</b>	<b>Enables or disables the CardBus Controller for the docking device.</b>
<b>Display</b>	<b>CRT only; Default</b>	<b>Default</b>	<b>Default is whatever the notebook is set for, CRT only is the external monitor which is connected to the docking device.</b>

## Configuring Your LifeBook 500 Series

### Exiting from the Advanced Menu

When you have finished setting the parameters on the Advanced menu, you can either exit from setup utility or move to another menu. If you wish to exit from setup utility, press the Esc key to go to the Exit menu. If you wish to move to another menu, use the cursor keys.

### SECURITY MENU – SETTING PASSWORDS

The Security menu allows you to set up the data security features of your notebook to fit your operating needs and to view the current data security configuration. Follow the instructions for Navigating Through The Setup Utility to make any changes. (See pages 54–55.)

Table 3-10 shows the names of the menu fields for the Security menu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use. The default condition is no passwords required and no write protection.

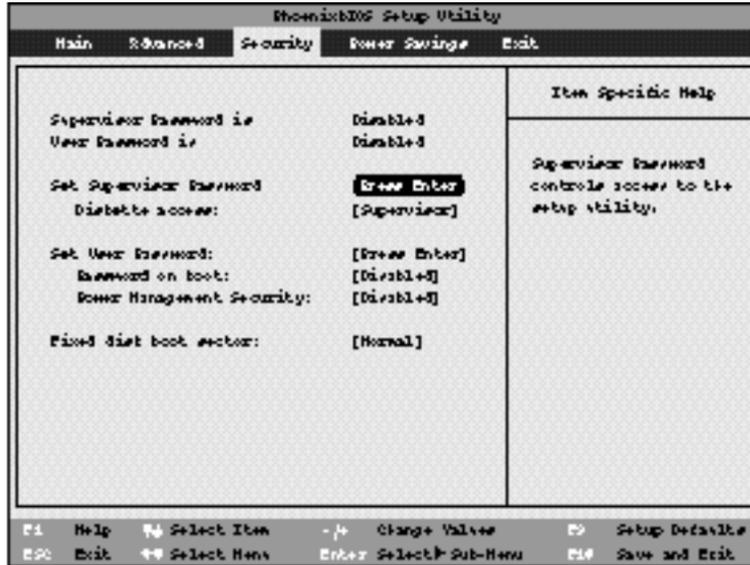


Figure 3-10 Security Menu



#### POINT

If you set a password, write it down and keep it in a safe place. If you forget the password you will have to contact your support representative to gain access to your secured functions and data.



#### CAUTION

Entering a password incorrectly 3 times in a row will cause the keyboard and mouse to be locked out and the warning [System Disabled] to be displayed. If this happens restart the computer by turning off and on the power with the Power Switch and use the correct password on reboot.



#### POINT

If you make an error when reentering the password a [Warning] will be displayed on the screen. To try again press the **Enter** key and then retype the password. Press the **Esc** key to abort the password setting process.



#### CAUTION

If the Power Management Security is Enabled and the Password on Boot is Disabled you will not be able to resume operation from the Suspend or Save-to-Disk modes.

**Configuring Your LifeBook 500 Series**

Table 3-10 – Fields, Options and Defaults for the Security Menu.

Menu Field	Options	Default	Description
<b>Supervisor Password is:</b>	—	<b>Disabled</b>	<b>A display-only field. Enabled is displayed when the system supervisor password is set and Disabled when it is not.</b>
<b>User Password is:</b>	—	<b>Disabled</b>	<b>A display-only field. Enabled is displayed when the general user password is set, and Disabled when it is not.</b>
<b>Set Supervisor Password:</b>	<b>[Press Enter]</b>	—	<b>Sets, changes or cancels the Supervisor Password. The Supervisor Password may be up to seven characters long and must include only lower-case letters or numbers. To cancel a password press the Enter key instead of entering characters in the Enter New Password field and in the Re-enter New Password field. When a Supervisor Password is set it must be used to access the BIOSsetup utility.</b>
<b>Diskette access:</b>	<b>All; Supervisor</b>	<b>All</b>	<b>Sets the floppy disk access to be secured for access only with Supervisor's password or by all users with a password. The default is Supervisor but if no Supervisor password is set it will not be secured at all.</b>
<b>Set User Password:</b>	<b>[Press Enter]</b>	—	<b>Sets, changes or cancels the User Password if the Supervisor Password is set. The User Password may be up to seven characters long and must include only lower-case letters or numbers. To cancel a password press the Enter key instead of entering characters in the Enter New Password field and in the Re-enter New Password field. When a User Password is set it must be used to access the BIOS setup utility.</b>

Menu Field	Options	Default	Description
<b>Password on Boot:</b>	<b>Enabled; Disabled</b>	<b>Disabled</b>	<b>When set to Enabled a password (User or Supervisor) is required after the Power On Self Test (POST) before the operating system will be read from a disk. When set to Disabled no password is required. If no Supervisor Password is set this feature is not available and no password is required.</b>
<b>Fixed Disk Boot Sector:</b>	<b>Normal; Write Protect</b>	<b>Normal</b>	<b>Sets write protection for the sector of the boot disk which contains the operating system. When set to Write Protect, BIOS will prevent any application from writing into the sector of the internal hard drive containing the operating system. When set to Normal there is no BIOS protection of the operating system.</b>

**POINT**

Boot Sector Protection must be set to Normal to load or upgrade an operating system.

## Configuring Your LifeBook 500 Series

### Exiting from the Security Menu

When you have finished setting the parameters on the Security Menu, you can either exit from setup utility or move to another menu. If you wish to exit from setup utility, press the Esc key to go to the Exit Menu. If you wish to move to another menu, use the cursor keys.

### POWER SAVINGS MENU – SETTING POWER MANAGEMENT FEATURE CONTROLS

The Power Savings menu allows you to set and change the power management parameters. Follow the instructions for Navigating Through The Setup Utility to make any changes. (See pages 54–55.)

Table 3-11 shows the names of the menu fields for the Power Savings menu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

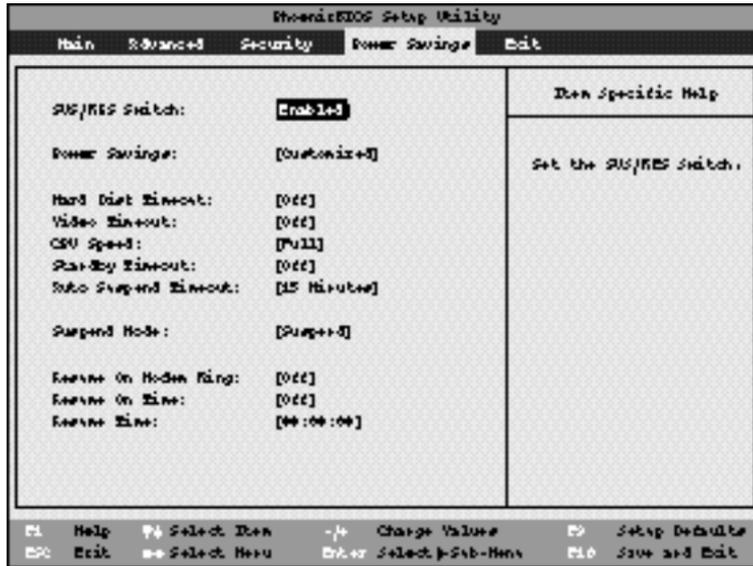


Figure 3-11 Power Savings Menu

**POINT**

Most power management parameters can also be set from the Windows® 95 desktop without entering the setup utility, using PowerPanel by Phoenix® Technologies.

Table 3-11 – Fields, Options and Defaults for the Power Savings Menu.

Menu Field	Options	Default	Description
<b>SUS/RES Switch:</b>	<b>Enabled; Disabled</b>	<b>Enabled</b>	<b>Turns off and on the suspend function of the Suspend/Resume button. The resume function can not be disabled.</b>
<b>Power Savings:</b>	<b>Customized; Maximum Battery Life; Maximum Performance; Off</b>	<b>Customized</b>	<b>Sets the power savings parameters to a factory installed combination of parameters, a custom set of parameters set by you or no power saving features.</b>
<b>Hard Disk Timeout:</b>	<b>30 seconds to 20 minutes; Off</b>	<b>Off</b>	<b>Sets the length of time that the hard drive can be inactive before your notebook automatically turns off the power to the hard drive controller and drive motor. If you choose a factory installed combination of parameters this field will display the setting. If you choose to customize the parameters you will be able to set this yourself. The options available vary from Off, which has no inactivity shutdown.</b>

**Configuring Your LifeBook 500 Series**

Menu Field	Options	Default	Description
<b>Video Timeout:</b>	<b>30 seconds to 20 minutes; Off</b>	<b>Off</b>	<b>Sets the length of time without any user input device activity before the display is turned off. If you choose a factory combination of parameters, this field will display the setting. If you choose to customize the parameters, you will be able to set this yourself. Off, has no inactivity shutdown.</b>
<b>CPU Speed:</b>	<b>Full; Idle; Half</b>	<b>Full</b>	<b>Sets the state of the CPU during periods of inactivity on your notebook. Any activity will cause the CPU to resume full speed automatically. This reduces power usage during periods of inactivity.</b>
<b>Standby Timeout:</b>	<b>1 minute to 16 minutes; Off</b>	<b>Off</b>	<b>Sets the length of time without any user input device activity before the CPU Speed is set to the level selected in the CPU Speed: field and the display and the hard drive are turned off. If you choose a factory combination of parameters this field will display the setting. If you choose to customize the parameters you will be able to set this yourself.</b>
<b>Auto Suspend Timeout:</b>	<b>15 to 60 minutes; Off</b>	<b>Off</b>	<b>Sets the length of time without any I/O activity before your notebook goes into Suspend mode. If you choose a factory combination of parameters this field will display that setting. If you choose to customize the parameters you will be able to set this yourself. Off, has no inactivity suspension.</b>

Menu Field	Options	Default	Description
<b>Suspend Mode:</b>	<b>Suspend; Save-to-Disk</b>	<b>Suspend</b>	<b>Sets the the form of suspension state you wish. If you choose Suspend, you will suspend operation with power to system memory, and everything else powered down or in a very low power state. If you choose Save-to-Disk the computer will save all of system memory and the operating parameters to the hard drive before turning your notebook to the pseudo-off condition.</b>

**POINT**

When resuming from a Save-to-Disk suspension there will be a delay while the contents of system memory and operating parameters are loaded from the hard drive.

**CAUTION**

In the Save-to-Disk mode there is no indication on the Status Indicator to let you know you are suspended rather than shut off from the power switch. You may want to make a practice of always trying the Suspend/Resume button before using the power switch.

**Configuring Your LifeBook 500 Series**

Menu Field	Options	Default	Description
<b>Resume On Modem Ring:</b>	<b>On; Off</b>	<b>Off</b>	<b>Sets whether or not to Resume from a suspension state when a message is received by telephone line. This feature is not available if the Save-to-Disk mode is enabled. This feature applies to internal, external and PC Card modems.</b>
<b>Resume On Time:</b>	<b>On; Off</b>	<b>Off</b>	<b>Sets whether or not to resume from a suspension state at a designated time. This feature is available from either the Suspend mode or the Save-to-Disk mode.</b>
<b>Resume Time:</b>	—	—	<b>Sets the designated time, on a 24-hour clock, when the notebook is to automatically resume operation from the Suspend state. The format of the clock setting is hours:minutes:seconds. Each segment of the time is set separately, either by incrementing or by typing in the numbers. You move between the segments with the Tab key or the Shift+Tab keys. This only applies when Resume on Time is set to On.</b>

### Exiting from the Power Savings Menu

When you have finished setting the parameters on the Power Savings Menu, you can either exit from the setup utility or move to another menu. If you wish to exit from setup utility press the Esc key to go to the Exit Menu. If you wish to move to another menu, use the cursor keys.

### EXIT MENU – LEAVING THE SETUP UTILITY

The Exit Menu is used to leave the setup utility. Follow the instructions for Navigating Through The Setup Utility to make any changes. (See pages 54–55.)

Table 3-12 shows the names of the menu fields for the Exit menu, all of the options for each field, the default settings and a description of the field's function and any special information needed to help understand the field's use.

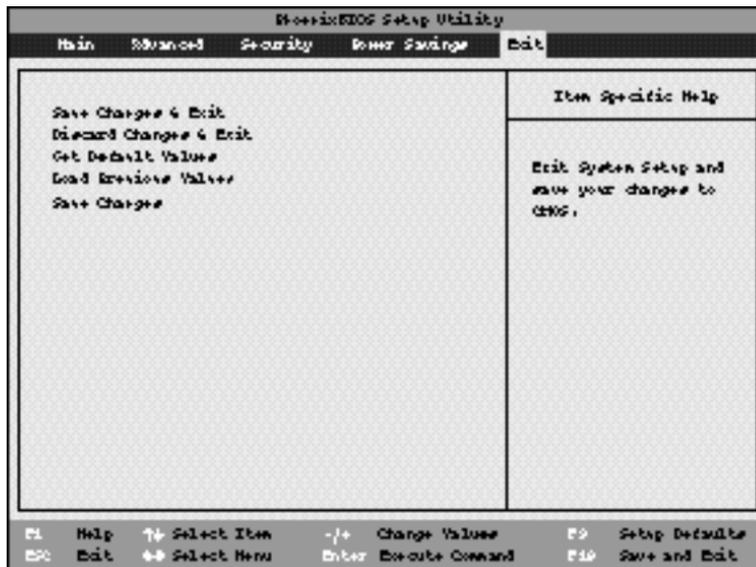


Figure 3-12 Exit Menu

## Configuring Your LifeBook 500 Series

Table 3-12 – Fields, Options and Defaults for the Exit Menu.

Menu Field	Options	Default	Description
<b>Save Changes and Exit:</b>	—	—	<p><b>Selecting Save Changes and Exit will store all the entries on every menu of the setup utility to the BIOS memory and then exit the setup utility. A confirmation message</b></p> <p>Save Configuration Changes and Exit Now?            [Yes]      [No]</p> <p><b>will be displayed.</b></p>
<b>Discard Changes and Exit:</b>	—	—	<p><b>Selecting Discard Changes and Exit will exit the setup utility without writing to the BIOS memory. When BIOS recognizes this selection it will load the operating system and begin operation. A message</b></p> <p>Setup Warning            Configuration Changes have not been saved.            Save before exiting?            [Yes]      [No]</p> <p><b>will be displayed.</b></p>

Menu Field	Options	Default	Description
<b>Get Default Values:</b>	—	—	<p><b>Selecting Get Default Values will load the factory preset default values for all menu fields. Then display the message</b></p> <p>Setup Confirmation Load Default values now? [Yes] [No]</p> <p><b>When confirmed the setup utility will return to the Exit Menu. To return to another menu follow the directions in the Navigating Through The Setup Utility Section. (See pages 54–55.)</b></p>
<b>Load Previous Values:</b>	—	—	<p><b>Selecting Load Previous Values will load the BIOS memory values for all menu fields. Setup Confirmation</b></p> <p>Load Previous values now? [Yes] [No]</p> <p><b>When confirmed the setup utility will return to the Exit Menu. To return to another menu, follow the directions in the Navigating Through The Setup Utility Section. (See pages 54–55.)</b></p>
<b>Save Changes:</b>	—	—	<p><b>Selecting Save Changes will cause the new settings in all menus to be written to the BIOS memory.</b></p> <p>Setup Confirmation Save Changes now? [Yes] [No]</p> <p><b>When confirmed the setup utility will return to the Exit Menu. To return to another menu, follow the directions in the Navigating Through The Setup Utility Section. (See pages 54–55.)</b></p>

**Configuring Your LifeBook 500 Series****SETTING UP YOUR  
SAVE-TO-DISK FILE ALLOCATION**

Your notebook comes with an allocation of space on the internal hard drive adequate to operate the Save-to-Disk function for the amount of memory installed at the factory. If you add a memory upgrade module or do not use the Save-to-Disk function and wish to free up the disk space you will need to change your allocation. The utility to change the allocations is PHDISK.EXE and is activated from the MS-DOS prompt.

PHDISK allows you to perform five different functions related to the Save-to-Disk space on your internal hard drive. They are:

1. Allocate a space for the Save-to-Disk function.
2. Remove all space allocation for the Save-to-Disk function.
3. Find out details about the hard drive and the current Save-to-Disk space allocation.
4. Re-allocate space and mark bad blocks in the space allocated to the Save-to-Disk function when a disk error has occurred.

5. Find out how much space is needed to perform the Save-to-Disk function with the current memory configuration and how much unused space is available on the internal hard drive.

To find out how much space is needed to perform the Save-to-Disk function with the current memory configuration and how much unused space is available on the internal hard drive, do the following:

1. Restart your notebook in MS-DOS mode (DO NOT go to the MS-DOS prompt inside Windows 95).
2. At the DOS prompt type `CD C:\Fujitsu`
3. Type `PHDISK .`
4. Press the Enter key.
5. The screen will display the amount disk space needed to perform the Save-to-Disk function with the current memory configuration and how much unused space is available on the internal hard drive.

To find out details about the hard drive and

the current Save-to-Disk space allocation, do the following:

1. Restart your notebook in MS-DOS mode (DO NOT go to the MS-DOS prompt inside Windows 95).
2. At the DOS prompt type `CD C:\Fujitsu`
3. Type `PHDISK/INFO .`
4. Press the Enter key.
5. The screen will display the size of the space currently allocated to the Save-to-Disk function and other parameters about the space and the hard drive.

To remove all space allocation for the Save-to-Disk function, do the following:

1. Restart your notebook in MS-DOS mode (DO NOT go to the MS-DOS prompt inside Windows® 95).
2. Type `CD C:\Fujitsu`
3. Type `PHDISK /DELETE/FILE .`
4. Press the Enter key.

5. The utility will remove the space allocation for the Save-to-Disk function and free that space for other use.

To create a space allocation for the Save-to-Disk function, do the following:

1. Restart your notebook in MS-DOS mode (DO NOT go to the MS-DOS prompt inside Windows 95).
2. At the DOS prompt type `PHDISK/  
CREATE/FILE` .
3. Press the Enter key.
4. The utility will create a Save-to-Disk file called `SAVE2DSK.BIN` in the root directory. It will be of the minimum size needed to support the Save-to-Disk function with the current memory configuration.

If you have had a read or write error when you tried to perform a Save-to-Disk operation you can re-allocate space to compensate for bad blocks on your drive. To do this:

1. Restart your notebook in MS-DOS mode (DO NOT go to the MS-DOS prompt inside Windows 95).
2. Type `PHDISK/REFORMAT/FILE`.
3. Press the Enter key.
4. The utility will re-create the Save-to-Disk file called `SAVE2DSK.BIN` with the same usable size and any bad blocks marked.



#### CAUTION

Never use PARTITION instead of FILE with the PHDISK Utility or you will reformat your internal hard drive and all data, applications and operating system will be destroyed.

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## SECTION FOUR

### USER INSTALLABLE FEATURES

Your LifeBook™ 500 Series has a number of user installable features:

- A Multi-function bay in the right front of your notebook allows you to install the CD-ROM drive, the floppy disk drive, an optional second hard drive, or an optional second Lithium ion battery.
- PC Card slots in the left side panel of your notebook allow you to install PC Cards, IC memory cards (SRAM card) or Zoomed Video cards (Slot 0).
- A bay in the left side of your notebook allows you to easily install and remove the main Lithium ion battery.
- A parallel port in the back of your notebook allows you to connect a printer, a photo or text scanner, etc.
- A PS/2 port on the right side of your notebook allows you to connect an external mouse, keyboard or numeric keypad.
- A microphone jack on the right side of your notebook allows you to connect a mono microphone.
- A stereo line in jack on the right side of your notebook allows you to connect a sound source such as cassette recorder.
- A headphone jack on the right side of your notebook allows you to connect headphones or powered speakers.
- An RJ-11 jack in the back of your notebook allows you to connect a telephone line to the internal modem.
- A USB connector in the back of your notebook allows you to connect a Universal Serial Bus Device.
- An external monitor port in the back of your notebook allows you to connect an external monitor.
- A MediaConnect port on the left side panel of your notebook allows you to install the MediaConnect which is a port expansion module for your notebook.  
  
The MediaConnect lets you perform Infrared data transfers and connect additional types of devices to your notebook besides those accessible from the ports and jacks on it.  
  
The additional device types include S-Video, NTSC/PAL video equipment, serial devices, MIDI or game devices and external installation of the modular floppy disk drive.
- A compartment in the bottom of your notebook allows you to install a memory upgrade module.
- A port on the back of your notebook allows the connection of a Mini-Docking Station.

This section describes how to install and remove equipment for each of the expansion features.

## User Installable Features

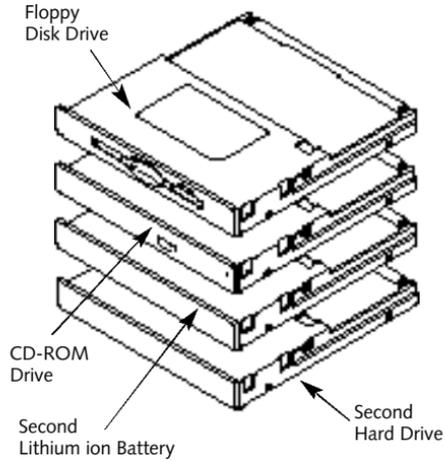


Figure 4-1 Multi-function Bay Modules

### MULTI-FUNCTION BAY DEVICES

The bay on the right front panel of your notebook accommodates the floppy disk drive, the CD-ROM drive, an optional second Lithium ion battery, or an optional second hard drive. (See Figure 1-7 on page 5.)



### CAUTION

All Multi-function bay devices except the optional second Lithium ion battery must be installed and removed with the power switch in the Off position. The optional second Lithium ion battery may be warm swapped (power On but unit in Suspend mode).

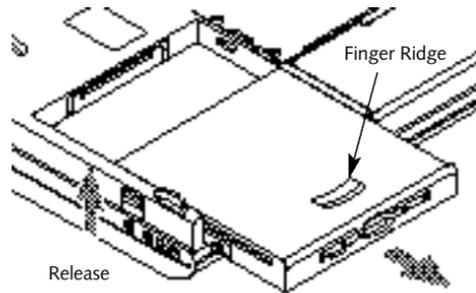


Figure 4-2 Removing a Module from the Multi-function Bay

### To Remove or Install a Module in the Multi-function Bay

1. Close all files and exit all applications.
2. Turn off power to your notebook, close the display and remove the AC adapter. (See Power Off on pages 24.)

To Remove

3. Slide the release latch on the right side toward the bottom of your notebook.
4. Slide the module forward until it is clear of the bay.

To Install

3. Orient the module to be installed with the finger ridge away from the body of your notebook and the connector toward the body of your notebook.
4. With the module connector toward the back of your notebook align the grooves on the side of the module with the tracks in the side of the bay. (Figure 4-2.)
5. Slide the module toward the back of your notebook until it clicks into place.

**CAUTION**

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

**Floppy Disk Drive**

Your floppy disk drive is durable, however, you must treat it with care. For information on the care and use of your floppy disk drive and on loading and using floppy disks see Floppy Disk Drive in Section Two.

(Pages 34–36.)

**CAUTION**

The floppy disk drive must be installed or removed with the power turned off.

**CD-ROM Drive**

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

- The drive rotates the compact disk at very high speed. Always operate it in a flat, level position. Do not carry it around or subject it to shock or vibration with the power on.
- Avoid using or storing the drive or CDs where they will be exposed to extreme temperatures.
- Avoid using or storing the drive or CDs where it is damp or dusty.
- Avoid using or storing the drive near magnets or devices that generate strong magnetic fields.
- Avoid storing the drive where it will be subjected to shock or vibration.
- Do not disassemble or dismantle the CD-ROM drive.

For instructions on loading and caring for CD-ROMs see Section Two (pages 37–38).

**CAUTION**

The modular CD-ROM Drive must be installed or removed with the power off.

**Optional Second Lithium ion Battery**

Your optional second Lithium ion battery is durable and long lasting but should not be exposed to extreme temperatures, high voltages, chemicals or other hazards. This battery should be removed and stored separately in a cool dry place if your notebook is not going to be used for an extended period of time.

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 your old battery, or contact your support representative at 1-800-8FUJITSU (1-800-838-5487).

## User Installable Features



### POINT

The optional second Lithium ion battery can safely be installed or removed with the power turned off or with the notebook in Suspend mode.

### Optional Second Hard Drive

The optional second hard drive is durable, however, you must treat it with care. Please pay attention to the following points:

- The drive rotates the disk at 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 storing the drive where it will be subjected to shock or vibration.

- Do not disassemble or dismantle the hard disk drive.

After the optional second hard drive is installed it will take a short time for your notebook to recognize it.



### CAUTION

The optional second hard drive must be installed or removed with the power off.

### PC CARDS

PC Cards perform a wide variety of functions, and are ideal for mobile computers.

Some available PC Cards:

- Fax/data modem cards (Type II).
- Local area network (LAN) cards (Type II).
- Wireless LAN cards (Type II).
- 1MB and 2MB static RAM (SRAM) cards (Type I).
- IDE solid-state disk cards (Type II).

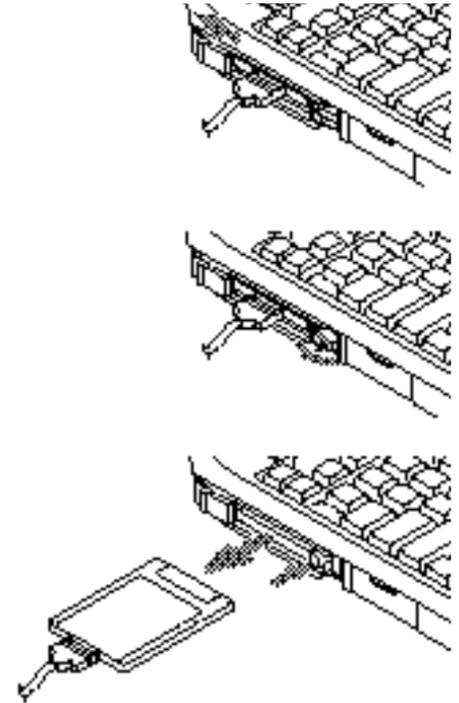


Figure 4-3 Installing and Removing a PC Card

- SCSI cards (Type II).
- Zoomed Video cards (Type II, Slot 0 only).
- ATA cards (Type III).
- Other PC Cards that conform to PCMCIA 2.1 or CardBus standards.

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

#### Caring for PC Cards

PC Cards are durable; however, you must treat them with care. The documentation supplied with your PC Card will provide specific information; however, you should pay attention to the following points:

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

- Do not force cards into the slot.
- Avoid dropping cards, or subjecting them to excessive vibration.

Installing PC Cards in Your Notebook  
PC cards are installed in the PC Card slot in the left side panel of your notebook. (See Figure 1-8 on page 6.)

Some PC Cards will not work when all possible options are enabled. If a PC Card is not recognized and you think that system overload may be the problem you will need to use the Control Panel, System and then Device Manager and choose an option to disable so that the resources can be used by the PC Card. See your operating system documentation for additional help.



#### CAUTION

Do not insert a PC Card into a slot if there is water or any other substance on the card. If you do, you may permanently damage the card, your notebook, or both.

To install a PC Card:

1. See your PC Card manual for instructions on installation of that specific card.
2. Make sure that there is not already a PC Card in the slot. If there is, eject it, as described in Removing PC Cards on page 99.



#### CAUTION

Some PC Cards can only be installed or removed with the power in Suspend mode, some only with power Off. Please check the PC Card documentation for safe installation and removal guidance. When in doubt always turn the power off.



#### CAUTION

Installing or removing a PC Card while your notebook is in the process of going through the power on or power off sequence may damage the card and/or your notebook.

## User Installable Features

3. Insert the PC Card in the card slot, with the product name label facing up. (Figure 4-3.)
4. When the PC Card is fully inserted, the Eject button will pop out.
5. Flip this button toward the front of your notebook to fold it out of the way.
6. When the card is installed, lock it in place by sliding the Lock button toward the front of your notebook. (Figure 4-3.)



### CAUTION

Windows® 95 has a shutdown procedure for PC Cards that must be followed before beginning to remove a card.



### CAUTION

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

### Removing PC Cards

If you wish to remove or replace the PC Card, use the following procedure:

1. Shutdown operation of the card.
2. Click on the PC Card indicator on the Windows taskbar.

From the PC Card Properties dialog box:

3. Select the card to be removed and click on the Stop button.

4. Verify that the

You can safely remove your card message appears.

5. If the

device cannot be removed message appears, save all files, close all applications, and exit Windows 95. Then shutoff the power with the power switch before continuing the card removal.

(See Power Off on page 24.)

6. Flip the Eject button for the card you wish to remove into position perpendicular to the body of your notebook.

7. Press the Eject button firmly.

8. When the card pops part way out of the slot grasp it by the card edge and pull it free. (The Eject button will recede until it is flush with the body of your notebook.)

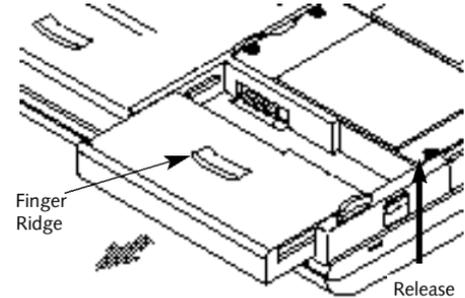


Figure 4-4 Removing the Main Battery

### MAIN LITHIUM ION BATTERY

There is a compartment in the bottom of your notebook which contains the main Lithium ion battery. Additional main Lithium ion batteries are available as an option. A bridge battery allows a charged main Lithium ion battery to be

exchanged for a discharged one by “warm-swapping”. To warm-swap, have a charged battery ready, put your notebook in Suspend mode, remove the low battery and quickly insert a charged battery. The NiCd bridge battery is built-in your notebook and is constantly being charged. The bridge battery capacity is not large, about 3 minutes, and can vary with the condition of your notebook. (See page 26.)



#### CAUTION

Data may be lost and/or system errors introduced if the warm swap is not performed quickly or a power adapter installed.



#### CAUTION

The bridge battery can not support an operating notebook. The notebook must be in Suspend mode.

**The main Lithium ion battery should be removed if your notebook is not going to be used for an extended period of time.**

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 your old battery, or contact your support representative at 1-800-8FUJITSU (1-800-838-5487).



#### CAUTION

Removing or installing the main Lithium ion battery with the notebook operating may cause data loss, electric shock and/or damage to the notebook or the battery.

**To Remove the Main Lithium ion Battery**

1. Put your notebook in Suspend mode or save all files, shutdown your notebook from the Start menu and turn off the power switch.
2. Remove the AC adapter.
3. Slide the Battery Eject button on the left side of the notebook toward the bottom of the notebook. (Figure 4-5.)

4. Slide the battery towards the front of your notebook until it clears the compartment.

**To Install the Main Lithium ion Battery**

1. Put your notebook in Suspend mode or save all files, shutdown your notebook from the Start menu and turn off the power switch.
2. Remove the AC adapter.
2. With the battery connector toward the back of the notebook align the tracks on the side of the battery with the groves in the side of the compartment.
3. Slide the battery toward the back of your notebook until it clicks into place.
4. Plug in the AC adapter and charge the battery.



#### CAUTION

If the main Lithium ion battery connector is not fully seated, you may not be able to use your notebook or to charge your battery.

## User Installable Features



### CAUTION

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 your old battery, or contact your service representative at 1-800-8FUJITSU. (1-800-838-5487)

### PARALLEL PORT DEVICES

When installing a device on the parallel port which is on the rear panel of your notebook, be sure that the connector is the right size, aligned, and fully seated. Then tighten the hold-down screw on each end of the connector. (See Figure 1-10 on page 8.)

### MOUSE, KEYBOARD OR KEYPAD

When installing a mouse, external keyboard or keypad use the PS/2 port on the right side of your notebook and make sure the connector on your device is the correct size. Align the arrow on the connector to point to the bottom of your notebook and push in until the connector seats in the port. A mouse or keyboard or keypad may be installed in this port and will be automatically recognized by your notebook without restarting or changing setups. (See Figure 1-9 on page 7.)



### CAUTION

The stereo line in jack is not designed for use with microphones.

### MICROPHONES

You may install a mono microphone which is equipped with an 1/8" (3.5 mm) mono mini-plug. Install it in the microphone jack on the right side panel of your notebook. Make sure the plug is aligned and push in until fully seated. (See Figure 1-9 on page 7.)

### STEREO LINE IN DEVICES

You may install stereo audio devices such as cassette recorders which are equipped with an 1/8" (3.5 mm) stereo mini-plug. This kind of device is connected via the stereo line in jack on the right side panel of your notebook. Make sure the plug is aligned and push it in until fully seated. (See Figure 1-9 on page 7.)

### AUDIO OUTPUT DEVICES

Stereo headphones or powered speakers which are equipped with an 1/8" (3.5 mm) stereo mini-plug may be installed in the headphone jack on the right side panel of your notebook. Make sure the plug is aligned and push in until fully seated. (See Figure 1-9 on page 7.)

## TELEPHONE LINES

Connect a telephone line to the internal modem by plugging in to the RJ-11 jack on the rear panel of your notebook. Be sure that the connector is aligned correctly and pressed in until it clicks into place. (See Figure 1-10 on page 8.)



### CAUTION

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

## USB DEVICES

When installing a device on the USB Port, be sure that the connector is the right size, aligned, and fully seated. The USB port is on the rear panel of your notebook. (See Figure 1-10 on page 8.)



### CAUTION

Due to ongoing changes in USB technology and standards, not all USB devices and/or drivers are guaranteed to work.

## EXTERNAL MONITOR

You may install an external monitor on the External Monitor port on the rear panel of your notebook. Make sure that the wide side of the connector is up and attach it to the port by pushing in until it is seated. Then tighten the hold-down screw on each end of the connector. (See Figure 1-10 on page 8.)

## THEFT PREVENTION LOCK

A physical security system lock can be installed on the right side of your notebook. (See Figure 1-9 on page 7 for the location of the lock slot.) Simply insert the key end of your security system in the slot, rotate 90 degrees and lock.

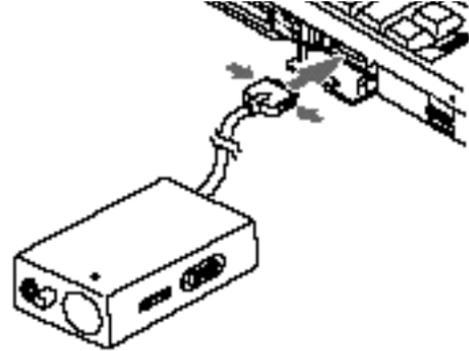


Figure 4-5 Installing the MediaConnect

## MEDIACONNECT

The MediaConnect has been designed to provide a compact, flexible means of adding media functions to your notebook. It is very important to check for lint and other debris before using any of the connectors on the MediaConnect. Even if the MediaConnect Power Indicator LED is On, dirty contacts can still affect operations.

## User Installable Features



### POINT

Your MediaConnect can be “hot plugged”. You do not need to turn off power or put your notebook in Suspend mode.

### Installing and Removing the MediaConnect

To Connect Your MediaConnect to the MediaConnect Port on the Left Side Panel of your Notebook:

1. **Open the MediaConnect port cover,** (see Figure 1-8 on page 6), by gently pulling on the top of the cover and tilting it down.
2. **Align the connector of the MediaConnect with the connector towards your notebook and with the wide side up.** (See Figure 4-5.)
3. **Insert the Notebook connector of your MediaConnect into the MediaConnect port on your notebook and push in firmly until it clicks.**

To disconnect your MediaConnect from your notebook:

1. **Squeeze together firmly on the release buttons on either side of the Notebook connector of the MediaConnect next to the body of your notebook.**
2. **Pull the connector free.**
3. **Close the port cover on your notebook by tilting up and pressing until it latches.**



### CAUTION

Do not place the MediaConnect on hot surfaces or set hot things on it.



### POINT

The Power Indicator LED on the MediaConnect is lighted when the MediaConnect is properly attached to your notebook and the power is turned on.

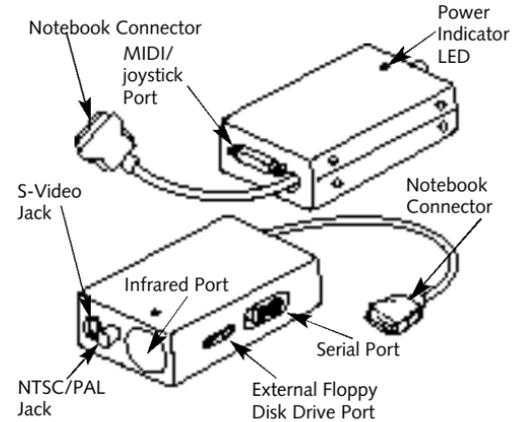


Figure 4-6 MediaConnect Ports



### CAUTION

Do not put undue stress on the MediaConnect or its cable or connections. It may damage the MediaConnect and effect performance or cause failures.

**CAUTION**

Check connectors for dirt before plugging any device into your notebook or your MediaConnect. Also ensure that the Infrared port lens on your MediaConnect does not get scratched or marred.

**SERIAL PORT DEVICES**

After connecting the MediaConnect to your notebook, you can connect an RS-232C device to the Serial port. Be sure that the RS-232C device connector is the right size, aligned, and fully seated. Then tighten the hold-down screw on each end of the connector.

**TVS**

After connecting the MediaConnect to your notebook, you can connect a TV or VCR to either the NTSC/PAL or the S-Video port depending on the selected output mode. Use either a standard RCA cable for NTSC (American TV Standard) or PAL (European TV Standard) output, or use a standard S-Video

cable for S-Video output. Make sure the connectors are the right size, aligned and fully seated. After connecting the cable, switch the notebook to the proper resolution: 640 x 480 for NTSC or S-Video, 800 x 600 for PAL. Then use the Fn/F10 key combination (see page 32) to switch the display mode to TV output or set the display mode to TV with the BIOS setup utility. (See Video Features submenu of the Advanced menu, pages 75–76.) S-Video generally provides better picture quality, but is only available on better TVs and VCRs.

**POINT**

Pressing the F10 key while holding down the Fn key allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are: built-in display panel only, external monitor only, both display panel and external monitor, or TV output (NTSC/PAL or S-Video).

**CAUTION**

NTSC and S-Video TV outputs only operate in 640 x 480 resolution mode. PAL TV outputs only operate in 800 x 600 resolution mode. TV modes are disabled until the resolution is set properly. Set this from the Display Device tab of the Display dialog box from the Windows® 95 Control panel.

**MIDI OR GAME DEVICES**

After connecting the MediaConnect to your notebook, connect a MIDI or game device to the MediaConnect MIDI/joystick port. Be sure that the connector is the right size, aligned, and fully seated. (See Figure 4-6 on page 103.)

**CAUTION**

Not all devices which connect to the Serial port, Parallel port, USB ports, or MIDI/joystick port are “plug and play” compatible. You may have to restart your notebook to have these devices recognized. (See *Restarting the System*, page 25.)

## User Installable Features

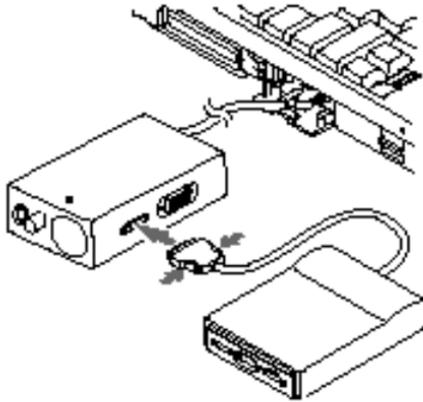


Figure 4-7 Installing an External Floppy Disk Drive

### EXTERNAL INSTALLATION OF THE FLOPPY DISK DRIVE

To connect your floppy disk drive externally:

1. Close all files and exit all applications.
2. Turn off power to your notebook, close the display and remove the AC adapter. (See page 24 for more information.)
3. Connect the MediaConnect to your notebook. (See *Installing and Removing the MediaConnect* on pages 102–103.)
4. Align the external floppy disk drive adapter with the connector towards the MediaConnect external floppy disk drive port with the wide side of the connector up. (Figure 4-7)
5. Insert the connector of your adapter into the port on the MediaConnect and push in firmly until it clicks.
6. Orient the modular floppy disk drive with the finger ridge away from the adapter and the connector toward the adapter.
7. With the module connector toward the back of the adapter align the grooves on the side of the floppy disk drive with the tracks in the side of the adapter. This is the same as installing the floppy disk drive in the Multi-function bay.
8. Slide the floppy disk drive toward the back of the adapter and push firmly until it clicks into place.



### CAUTION

Be careful aligning and seating the floppy disk drive in the adapter. If the fit is incorrect you may damage the floppy disk drive or the external floppy disk drive adapter. If the module does not move easily, remove it and check for dirt or foreign objects. It will require a firm push to latch the drive in place.

### To Remove your Floppy Disk Drive:

1. Close all files and exit all applications
2. Turn off power to your notebook, close the display and remove the AC adapter. (See page 24 for more information.)
3. Squeeze together firmly on the release buttons on either side of the adapter connector next to the body of the MediaConnect.
4. Pull the connector free.

5. Slide the release latch on the side of the external floppy disk drive adapter toward the bottom of the adapter. Note Finger ridges are on the bottom.
6. Slide the floppy disk drive out of the adapter.

**CAUTION**

The external floppy disk drive adapter is designed only for use with a floppy disk drive. Do not connect any other device or you could damage the device or your notebook.

**POINT**

Disconnecting and storing the Media-Connect when it is not in use protects it and your notebook's MediaConnect port from potential damage from accidental tugging on the cable and connector.

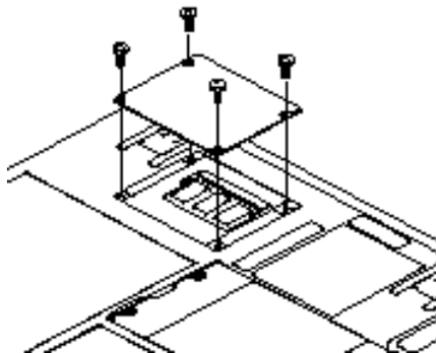


Figure 4-8 Opening the Memory Upgrade Compartment

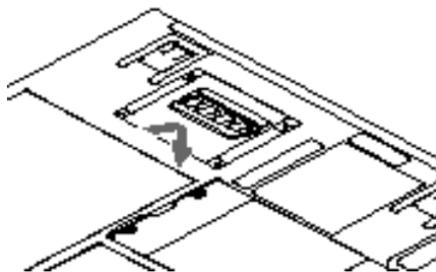


Figure 4-9 Installing a Memory Upgrade Module

**MEMORY UPGRADE MODULE**

**Installing a Memory Upgrade Module**  
**Your notebook comes with 32MB of installed SDRAM. To increase your memory capacity you may install a memory upgrade module in the memory upgrade compartment in the bottom of your notebook. The memory upgrade module is a dual-in-line memory module (DIMM). You may add modules of different capacity. SDRAM modules are recommended but EDO RAM modules will work. Installing an EDO RAM module will cause your entire system to operate at the much slower EDO timing.**

**CAUTION**

Never remove screws except the ones specifically shown in the directions for installing and removing the memory upgrade module.

## User Installable Features

To Install the Memory Upgrade Module:

1. Turn off power to your notebook using the Windows® 95 shutdown procedure and then the power switch, (see *Power Off on pages 24*). Remove any power adapter (AC or auto/airline).
2. Make sure that all the connector covers are closed.
3. Turn the notebook bottom side up, with the front panel toward you.
4. Remove the screws in the four corners of the memory upgrade compartment. (See *Figure 4-8*.)
5. Remove the cover. (See *Figure 4-8*.)
6. Remove the memory upgrade module from the static guarded sleeve.



### CAUTION

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

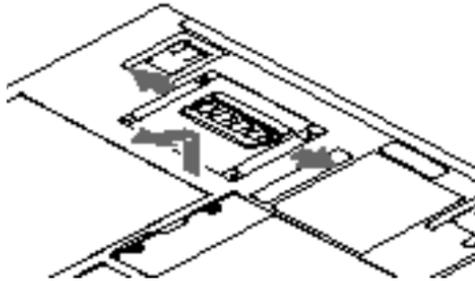


Figure 4-10 Removing a RAM Module

7. Align the connector edge of the memory upgrade module with the connector slot in the compartment. The notch on the module should be on the right with the part side up and the connector pointing towards the back of the notebook and aligned with the notch in the compartment connector. (*Figure 4-9*.)
8. Insert the memory upgrade module at a 45° angle. (*Figure 4-9*.) Press the connector edge of the module firmly down and into the connector in the compartment.
9. Press the memory upgrade module down into the compartment until it lodges under the retaining clip. You will hear a click when it is properly in place.
10. Replace the cover.
11. Replace the screws.

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

**CAUTION**

Before you install or remove the memory upgrade module, save changes and close all files. Turn power off to your notebook including turning off the power switch. (See *Power Off on Page 24.*)

**To Remove a Memory Upgrade Module:**

1. Perform steps 1 through 5 of **Installing a Memory Upgrade Module.**
2. Pull clips sideways from each side of the memory upgrade module. (Figure 4-10).
3. While holding clips out, remove the module from the slot by lifting it up and pulling towards the front edge of your notebook.
4. Store the memory upgrade module in a static guarded sleeve.
5. Replace the cover by following the instructions in steps 10 and 11 of the instructions for **Installing a Memory Upgrade Module**, or install a new memory upgrade module and then replace the cover by following the

instructions in steps 7 through 11 of the instructions for **Installing a Memory Upgrade Module.**

**CAUTION**

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

**Checking the Recognition of New Memory Capacity**

When you have changed memory capacity by adding or removing a memory upgrade module, be sure to check that your notebook has recognized all of the memory. When you turn the power on to your notebook for the first time after making the change check the memory capacity. It is displayed while the system is booting, but it will probably go by too fast for you to read. Instead check memory capacity by looking at the Main menu of the BIOS setup utility.

To do so:

1. Turn on power.
2. Enter the setup utility by pressing the Esc key and then the F2 key as soon as the Fujitsu logo appears on the screen. (See page 53.)
3. The system memory and the extended memory capacity, as detected by your notebook during the Power On Self Test (POST), are displayed at the bottom of the Main Menu screen.

Total RAM Installed	System Memory	Extended Memory
32 MB	640 KB	32128K
48 MB	640 KB	48512K
64 MB	640 KB	64896K
96 MB	640 KB	97664K

If the total memory displayed is not what you believe it should be, check that your memory upgrade module is properly installed. If it is properly installed and the capacity is not correctly recognized, see the Troubleshooting Section starting on page 114.

## User Installable Features

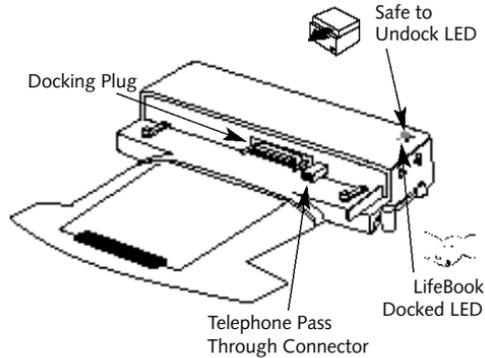


Figure 4-11 Mini-Docking Station Front View

### MINI-DOCKING STATION

The Mini-Docking Station is powered from AC power using its own power cord.

Install the Mini-Docking Station

1. To use the Mini-Docking Station with your notebook both must be on a flat surface.
2. Make sure your notebook is in Suspend mode, Save-to-Disk mode or the power is

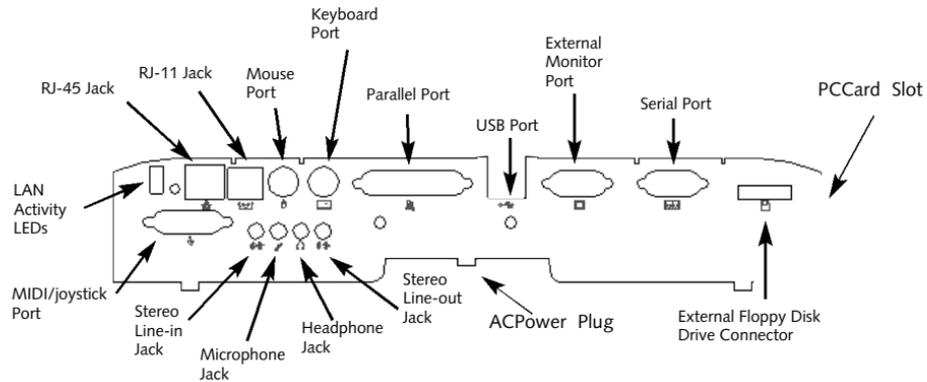


Figure 4-12 Mini-Docking Station Rear View

turned off at the power switch. (When setting up for the first time it must have the power turned off.)

3. Make sure that all devices, including power adapters, are disconnected from your notebook.
4. Make sure that the adjustment feet are flat against the bottom of your notebook, and that the covers of the connectors, both rear panel and left side panel, are closed.

5. Make sure that the slide cover in the rear panel is completely open. (See Figure 1-10 on page 8.)
6. If the Telephone Pass Through Connector is not already installed and you wish to use a modem while docked you must install the Telephone Pass Through Connector. (See Figure 4-13.) Listen for the click to be sure that the connector is properly seated.

7. Push the lever on the side of the docking device all the way toward the back so that the ejector guides are fully extended.
8. Make sure the Mini-Docking Station is plugged into AC power.
9. Carefully set your notebook on to the Mini-Docking Station, right side first, being careful to get the Telephone Pass Through Connector aligned with the slide cover opening, so that the guides gently push into the docking receptacles in the bottom of your notebook. (Be careful as you could damage the Telephone Pass Through Connector.)
10. Pull the lever forward until your notebook firmly latched in place.
11. Verify that docking is complete by checking that the LifeBook Docked LED  is illuminated. (See Figure 4-11.)
12. Return your notebook to operation using the Suspend/Resume button or power switch, as appropriate. (When setting up for the first time it must be the power switch.)

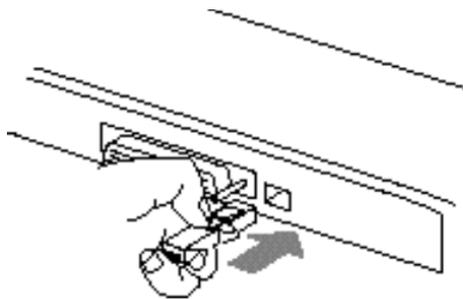


Figure 4-13 Installing the Telephone Pass Through Connector

#### Connecting Devices to the Mini-Docking Station

Connect devices to your Mini-Docking Station in exactly the same way you would to your notebook. Figure 4-12 shows the location of Mini-Docking Station ports and jacks. Remember that on the Mini-Docking Station there are separate ports for mouse and keyboard.

#### To Remove Your Notebook from the Mini-Docking Station

1. From the Start Menu click on Eject PC.
2. Wait for the Safe to Undock LED  to illuminate, even if a message appears on your screen saying that you may undock.



#### POINT

If the power is turned off at the notebook power switch it is always safe to undock. You do not have to turn on your notebook and use the Eject PC feature.

3. Push the lever on the side of the station backward until the Mini-Docking Station connectors are clear of your notebook.
4. Very carefully lift your notebook clear of the guide pins in the bottom, making sure not to damage the Telephone Pass Through Connector.

**User Installable Features****CAUTION**

When the Telephone Pass Through Connector is installed you must lift the left side first and be very careful not to bend or break the Telephone Pass Through Connector while lifting the notebook free of the Mini-Docking Station.

**CAUTION**

The RJ-11 connector on your Mini-Docking Station comes with a protective cover to keep the connector clean. Be careful to remove it before trying to make a connection. Save the cover and replace it when the connector is not in use.

**Using Your Notebook While It Is Installed In the Mini-Docking Station**  
**There are a few differences you will notice between using your notebook in and out of the Mini-Docking Station.**

**In the Mini-Docking Station you have added capabilities:**

- **Windows® 95 has the addition to the Start Menu of a PC Eject choice between the Suspend mode and Shutdown selections. (Use the PC Eject choice to enable the undocking of your LifeBook.)**
- **Standard AC power source (not the batteries or power adapter).**
- **Both an external mouse and an external keyboard can be connected at the same time. Be sure to plug them into the correct PS/2 ports.**
- **There is an additional PC Card slot.**
- **There is a stereo line out jack.**

**CAUTION**

When your notebook is mounted in the Mini-Docking Station it is essentially a desktop PC not a mobile notebook. DO NOT unplug the Mini-Docking Station with the operating system active. You may cause a loss of data and a system error when you restart your notebook.

**Creating the Windows 95 Mini-Docking Station Docked Configuration**  
**(This is only necessary if you change notebook configuration and the first time you dock your notebook.)**

- 1. Install your notebook in the Mini-Docking Station.**
- 2. Turn on the power. The operating system will automatically begin to configure itself for 'docked mode' operation.**
- 3. When the configuring is completes the screen will tell you to restart your system again.**

4. When the restart is complete a little box will appear indicating that you are in the docked configuration, however the display will not use the entire screen.
5. To use the entire screen:
  - a. Go to the Start Menu.
  - b. Select **Settings** by clicking on it.
  - c. Select **Control Panel**.
  - d. Select the **Display** icon by double-clicking on it.
  - e. Select the **<settings>** tab and change the resolution to 1024 x 768 pixels
  - f. Change the monitor setting to **Laptop Display Panel(1024 x 768)**
  - g. Click on the **<OK>** button to activate the new display settings. Your display should now occupy the entire screen.

Future docking with Windows® 95 can be done in Suspend mode, Save-to-Disk mode or with the power Off and the system will automatically detect whether you are docked, or not, when you resume operation. Undocking should only be done with power Off or in PC Ejected mode.

**T o u b l e s h o o t i n g**

Identifying the Problem . . . . . xx

Specific Problems . . . . . xx

    Using PC Doctor . . . . . xx

    User Problem Guides . . . . . xx

Power On Self Test Messages. . . . . xx

Emergency CD-ROM

    Tray Release . . . . . xx

Modem Setup and Commands . . . . . xx

Restoring Your Pre-installed Software

    from CD-ROM . . . . . xx

## Section Five

### Troubleshooting

The LifeBook™ 700 Series from Fujitsu™ is sturdy and subject to few problems in the field. However, you may encounter simple setup or operating problems that you can solve on the spot, or problems with peripheral devices, that you can solve by replacing the device. The information in this section helps you to isolate and resolve some of these straightforward problems, and to identify failures that require service.

### Identifying the Problem

If you encounter a problem, go through the following procedure before you get into more complex troubleshooting:

1. Turn off your notebook using the power switch on the right side panel.
2. Make sure the AC adapter is plugged into your notebook and to an active AC power source.
3. Make sure that any card installed in the PC Card slot is seated properly. You can also remove the card from the slot, thus eliminating it as a possible cause of failure.
4. Make sure that any devices connected to the external connectors are plugged in properly. You can also disconnect such devices, thus eliminating them as possible causes of failure.
5. Turn on your notebook using the power switch. Make sure it has been off at least 10 seconds before you turn it on.
6. Go through the boot sequence.
7. If the problem has not been resolved, refer to the problem guide table, which follows, for more detailed troubleshooting information. (Page xx has an index to the table.)



### POINT

If you keep notes about what you have tried your support representative may be able to help you more quickly by giving additional suggestions over the phone.



### CAUTION

Do not return a failed notebook to your supplier until you have talked to a support representative.

8. If you have tried the solutions suggested in Specific Problems without success, contact your support representative, toll free 1-800-8FUJITSU (1-800-838-5487), FAX 1-800-935-1789, e-mail [8fujitsu@fpc.fujitsu.com](mailto:8fujitsu@fpc.fujitsu.com), Web Site <http://www.8fujitsu.com>.

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.

## T r o u b l e s h o o t i n g

- Conditions under which the problem occurred.
- Any error messages that have occurred.
- Hardware configuration.
- Type of printer connected, if any.

See the Configuration Label on the bottom of your notebook for configuration and serial numbers. (Refer to Figure 1-10 on page xx.)

### Specific Problems

#### Using PC-Doctor

PC-Doctor is a diagnostic program by Watergate Software, Inc. which comes pre-installed on your notebook. If you are an experienced computer user you may find it useful. However, it is intended primarily to help your Fujitsu support representative better serve you. When you call for help your support representative may ask you to setup your notebook for modem operation. You will be told what to do step by step, and then to hang up the phone and plug your phone line into the back of your notebook. Your support representative will then use the service

computer to call your notebook and will perform diagnostic tests to find the nature of your problem. Messages will be displayed on the screen explaining what is being done and giving any instructions that you need.

#### User Problem Guides

When you have problems with your notebook, try to find the symptoms under the Problem column of the 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 Solution.

Remember that it helps to keep notes of what you have tried and the results when you are troubleshooting.

Problem	Page
Audio Problems .....	.xx
CD-ROM Drive Problems .....	.xx
Docking Problems .....	.xx
Floppy Disk Drive Problems .....	.xx
Hard Drive Problems .....	.xx
Keyboard or Mouse Problems .....	.xx
Memory Problems .....	.xx
Modem Problems .....	.xx
Parallel, Serial, and USB Device Problems ..	.xx
PC Card Problems .....	.xx
Power Failure .....	.xx
Shutdown and Startup Problems .....	.xx
Video Problems .....	.xx
Miscellaneous Problems .....	.xx

## Problem

## Possible Cause

## Possible Solution

## Audio Problems

**There is no sound coming from the built-in speakers.**

- |   |  |
|---|--|
| <ol style="list-style-type: none"><li>1. <b>The volume knob is turned too low.</b></li><li>2. <b>The software volume control is set too low.</b></li><li>3. <b>Headphones are plugged into your notebook.</b></li><li>4. <b>BIOS audio settings are incorrect.</b></li><li>5. <b>Software driver is not configured correctly.</b></li></ol> | <ol style="list-style-type: none"><li>1. <b>Adjust the volume control knob on the right side of your notebook.</b></li><li>2. <b>Adjust the sound volume control settings in your software, both operating system and applications.</b></li><li>3. <b>Plugging in headphones disables the built-in speakers, remove the headphones.</b></li><li>4. <b>Set the BIOS setup utility, Audio Features submenu of the Advanced menu to the default values. (See pages 73–74.)</b></li><li>5. <b>Refer to your application and operating system documentation for help.</b></li></ol> |
|---|--|

## CD-ROM Drive Problems

**Notebook fails to recognize CD-ROM.**

- |   |  |
|---|--|
| <ol style="list-style-type: none"><li>1. <b>Shipping card is still in the CD-ROM drive tray.</b></li><li>2. <b>CD-ROM is installed with label face down.</b></li><li>3. <b>CD-ROM is not pushed down onto raised center circle of drive.</b></li><li>4. <b>CD-ROM tray is not latched shut.</b></li></ol> | <ol style="list-style-type: none"><li>1. <b>Remove shipping card and replace CD in tray.</b></li><li>2. <b>Open CD-ROM tray and re-install CD with proper orientation.</b></li><li>3. <b>Open CD-ROM tray and re-install CD properly.</b></li><li>4. <b>Push on the front of the CD-ROM tray until it latches.</b></li></ol> |
|---|--|

## T r o u b l e s h o o t i n g

### Problem

The CD-ROM Access indicator on the Status Indicator panel blinks at regular intervals when no CD is in the tray or the CD-ROM drive is not installed.

### Docking Problems

Notebook does not turn on when installed in Mini-Docking Station.

### Possible Cause

5. Setup utility is set to something other than CD-ROM for the Secondary Master Controller.
6. Wrong drive designator was used for CD-ROM in the application.
7. Windows® CD auto insertion function is disabled.
1. The Windows® CD auto insertion function is active and is checking to see if a CD is ready to run.

1. Mini-Docking Station AC power is not plugged in.

### Possible Solution

5. **Revise BIOS settings to set Secondary Master correctly.** (See *Main menu and Secondary Master submenu pages 56–64 for more information.*)
6. **Verify drive designator used by application is the same as in use by the operating system. When the operating system is booted from a CD-ROM drive designations are automatically adjusted.** (See *Boot Options submenu on pages 63–64.*)
7. **Start the CD from the desktop or application software or re-enable the Windows CD auto insertion function.** (See *CD-ROM Access Indicator on page 21 for more information.*)
1. **This is normal. You can disable this function if you wish.** (See *CD-ROM Access Indicator on page 21 for more information.*)

1. **Provide AC power to the Mini-Docking the Station.**

Problem

Possible Cause

Possible Solution

2. **Notebook is not properly seated in the Mini-Docking Station.**

2. **Remove and re-dock your notebook.**

Floppy Disk Drive

**You cannot access your floppy disk.**

1. **Security is set to protect access to floppy disk data.**
2. **Floppy disk is not loaded correctly.**
3. **BIOS setup utility has Floppy Disk Drive A: as Not Installed**
4. **The floppy disk drive may not be properly installed.**
5. **You tried to write to a write protected floppy disk.**

1. **Verify your password and security settings.**
2. **Eject floppy disk, check orientation and re-insert.** (See *Floppy Disk Drive* on page 34.)
3. **Revise the setup utility Main menu settings.** (See *Main Menu* on pages 56–65.)
4. **Remove and re-install your floppy disk drive.** (See *Multi-function Bay* on pages 95–96, or *External Installation of your Floppy Disk Drive* on pages 105–106.)
5. **Eject the floppy disk and set it to write enable.** (See page 35.)

**Troubleshooting**

## Problem

## Hard Drive Problems

**You can not access your hard drive.**

## Possible Cause

- 1. The setup utility is set to something other than the characteristics of your internal or optional second hard drive.**
- 2. Wrong drive designator was used by an application when a bootable CD-ROM was used to start the notebook.**
- 3. Security is set so operating system can not be started without a password.**

## Possible Solution

- 1. Revise BIOS settings to set both Primary and Secondary Master correctly. (See Main Menu and Secondary Master Submenu pages 56–62 for more information.) (Internal is Primary Master and optional second is Secondary Master.)**
- 2. Verify drive designator used by application is in use by the operating system. When the operating system is booted from a CD-ROM, drive designations are automatically adjusted. (See Boot Options Submenu on pages 63–64.)**
- 3. Verify your password and security settings.**

## Keyboard or Mouse Problems

**Your mouse cursor seems to move of its own accord.**

- 1. Your hand is coming too close to the touchpad when you are using the keyboard.**

- 1. Be careful not to drag your hand across the touchpad. A light skin contact can activate your cursor.**

Problem

**The built-in keyboard does not seem to work.**

Possible Cause

1. **The notebook has gone into Suspend mode.**
2. **Your application has locked out your keyboard.**

Possible Solution

1. **Push the Suspend/Resume button.**
2. **Try to use the touchpad pointing device to access the Start menu and then the Shut Down menu and restart the System. If this fails then turn your notebook off, wait 10 seconds or more, and then turn it on using the power switch.**

**You have installed an external keyboard or mouse, and it does not seem to work.**

1. **Your external device is not properly installed.**
2. **Your operating system software is not setup with the correct software driver for that device.**
3. **Your mouse or keyboard is connected to the wrong PS/2 port on the Mini-Docking Station.**

1. **Re-install your device. (See *Installing a Mouse or Keyboard on page 101.*)**
2. **Check your device and operating system documentation and activate the proper driver.**
3. **Plug the mouse into the PS/2 Mouse port and the external keyboard or numeric keypad into the PS/2 Keyboard port.**

**You have connected an external keyboard or a mouse and it seems to locking up the system.**

1. **Your operating system software is not setup with the correct software driver for that device.**
2. **Your system has crashed.**

1. **Check your device and operating system documentation and activate the proper driver.**
2. **Restart your system by shutting down and/or turning off the power and then turning the power on again.**

## T r o u b l e s h o o t i n g

### Problem

#### Memory Problems

**Your power on screen or Main menu of the BIOS setup utility information does not show the correct amount of installed memory.**

### Possible Cause

1. **Your memory upgrade module is not properly installed.**
2. **You have a memory failure.**

### Possible Solution

1. **Remove and re-install your memory upgrade module.** (See *Memory Upgrade Module* on pages 106–107.)
2. **Make sure display of error messages is enabled** (see *Boot Options Submenu* on pages 63–64), and check for **Power On Self Test (POST) messages.** (See on pages 134–136 for possible messages and their meanings.)

#### Modem Problems

**Messages about modem operation.**

1. **Messages about modem operation are generated by whichever modem application is in use.**

1. **See your application software documentation for additional information.**

#### Parallel, Serial, and USB Device Problems

**You have installed a parallel-port device, a serial-port device or a USB device. Your notebook does not recognize the device, or the device does not seem to work properly.**

1. **The device is not properly installed.**
2. **The device may have been installed with an application running and your notebook doesn't know it is there.**
3. **Your software may not have the correct software driver active.**

1. **Remove and re-install the device.** (See *Parallel Port Devices* on page 101, *Serial Port Devices* on page 104, or *USB Devices* on page 102.)
2. **Close your application and restart your notebook.**
3. **See your software documentation and activate the correct driver.**

## Problem

**CAUTION**

Due to ongoing changes in USB technology and standards, not all USB devices and/or drivers are guaranteed to work.

## PC Card Problems

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

## Possible Cause

4. **You may have the wrong I/O address selected for your device.**
5. **Your device and another device are assigned the same I/O address.**

## Possible Solution

4. **See your device documentation and software documentation to determine the required I/O address.**
5. **Check all I/O addresses in the BIOS Setup Utility and your other installed hardware and software and make sure there are no duplications.**

1. **The card is not properly installed.**
2. **The card may have been installed with an application running and your notebook doesn't know it is there.**
3. **Your software may not have the correct software driver active.**
4. **You may have the wrong I/O address selected for your PC Card device.**
5. **Your PC Card device and another device are assigned the same I/O address.**

1. **Remove and re-install the card.**  
*(See PC Cards on pages 87–89.)*
2. **Close your application and restart your notebook.**
3. **See your software documentation and activate the correct driver.**
4. **See your PC Card documentation and software documentation to determine the required I/O address.**
5. **Check all I/O addresses in the BIOS setup utility and your other installed hardware and software and make sure there are no duplications.**

**Troubleshooting**

## Problem

## Power Failures

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

## Possible Cause

1. The main battery is completely discharged, there is no optional second battery installed and there is no Power adapter (AC or auto/airline) installed.
2. The main battery is completely discharged, there is no optional second battery installed and the power adapter (AC or auto/airline) is not plugged in properly.

## Possible Solution

1. When all the batteries are dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode. (See pages 28–29.) Check the Status Indicator panel to determine the presence and condition of the batteries. (See page 19.) Install the main battery if it is missing or a power adapter if batteries are dead or unavailable. (See page 95–96.)
2. When the batteries are dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode. (See pages 28–29.) Check the Status Indicator panel to determine the presence and condition of the batteries and adapter. (See Figures 2-3 and 2-4 on pages 19–20.) Verify that your adapter is connected correctly. (See page 11.)

## Problem

## Possible Cause

- 3. The main battery is completely discharged, there is no optional second battery installed and the power adapter (AC or auto/airline) has no power from the AC outlet or the car's cigarette lighter.**
- 4. The main battery is completely discharged, there is no Second Battery installed and the power adapter (AC or Auto) is faulty.**

## Possible Solution

- 3. When the battery is dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode. (See pages 28–29.) Check the Status Indicator panel to determine the presence and condition of the batteries and adapter. (See Figures 2-3 and 2-4 on pages 19–20.) Move the AC cord to a different outlet or check for a line switch or tripped circuit breaker for the AC outlet or if you are using an auto/airline adapter in a car make sure the ignition switch is in the On or Accessories position.**
- 4. When the battery is dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode. (See pages 28–29.) Verify the cause using the Status Indicator panel to determine the presence and condition of the batteries and adapter. (See Figures 2-3 and 2-4 on pages 19–20.) Try a different power adapter or install a charged optional second battery.**

**Troubleshooting**

## Problem

## Possible Cause

5. **Power switch is already in the On position.**
6. **The Main battery is missing, there is no optional second battery installed and there is no power adapter (AC or auto/airline) installed.**

## Possible Solution

5. **Try the Suspend/Resume button. If that doesn't work, slide your power switch firmly to the front, pause 10 seconds or more and then firmly to the rear. If you shut down your notebook from Windows® 95 you are really in a pseudo-off state, there is some power on and you can restart with the Suspend/Resume button. (See Save-to-Disk Mode on page 44–45.)**
6. **When the battery is dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode. (See pages 28–29.) Use the Status Indicator panel to verify the presence and condition of the batteries. (See Figure 2-3 on page 19.) Install a battery in the main Battery bay in the front of your notebook. (See Main Lithium ion Battery on pages 99–101.) If it is not charged use a power adapter until it is charged.**

Problem

Possible Cause

Possible Solution

7. **The main battery is faulty, there is no optional second battery installed and there is no power adapter (AC or auto/airline) installed.**
8. **The battery or batteries are low.**

7. **Use the Status Indicator panel to verify the presence and condition of the batteries. (See Figure 2-3 on page 19.) If either battery is indicating a short remove that battery and operate from another power source or replace that battery.**
8. **If the batteries are dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode. (See pages 28–29.) Check the Status Indicator panel to determine the presence and condition of the batteries. (See Figure 2-3 on page 19.) Use a power adapter to operate until a battery is charged or install a charged battery.**

Your notebook turns off all by itself.

1. **The power management parameters are set for auto timeouts which are too short for your operating style.**

1. **Use the keyboard or pointer and if that does not restore operation, push the Suspend/Resume button. You may want to close your application and go to the setup utility Power Savings menu and adjust the timeout values to better suit your operation. (See the Power Savings Menu on pages 83–88.)**

## T r o u b l e s h o o t i n g

### Problem

**Your notebook won't work on battery alone.**

### Possible Cause

2. **You are operating on battery only and have ignored a low battery alarm until the batteries are all at the dead battery state and your machine has gone into Dead Battery Suspend mode.**
  3. **You have a failure of a battery.**
  4. **Your power adapter has failed or lost it's power source.**
1. **The installed batteries are dead.**
  2. **No batteries are installed.**
  3. **The batteries are improperly installed.**

### Possible Solution

2. **Install a power adapter and then push the Suspend/Resume button.** (See *Low Battery State* on pages 28–29.)
  3. **Verify the condition of the batteries using the Status Indicator Panel** (Figure 2-3 on page 19), and replace or remove any that are shorted.
  4. **Make sure the adapter is plugged in and the outlet has power.**
1. **When the batteries are dead there will be a beep when the power switch is turned on and the notebook will immediately go into Dead Battery Suspend mode.** (See pages 28–29.) **Replace the battery with a charged one or install a power adapter.**
  2. **Install a charged battery.** (See *Main Lithium ion Battery* on page 99 and *Multi-function Bay Devices* on page 95.)
  3. **Verify that the batteries are properly connected by re-installing them.** (See *Main Lithium ion Battery* on page 99 and *Multi-function Bay Devices* on page 95.)

## Problem

**CAUTION**

Shorted batteries may use power from good batteries and are a possible risk to the other circuitry in your notebook.

## Possible Cause

- 4. Your installed batteries are faulty.**
- 1. You are running an application which uses a great deal of power because of frequent hard drive access or CD-ROM access, use of a modem PC Card or of a LAN PC Card.**
- 2. The Power Savings features may be disabled.**
- 3. The brightness is turned all the way up.**
- 4. The batteries are very old.**
- 5. The batteries have been exposed to too high temperatures.**
- 6. The batteries are too hot or too cold. (See Batteries on page 25.)**

## Possible Solution

- 4. Verify the condition of the batteries using the Status Indicator Panel, (Figure 2-3 on page 19.), and replace or remove any that are shorted.**
- 1. Use both the Main battery and an optional second battery and/or use a power adapter for this application when at all possible.**
- 2. Check the setup utility settings in the Power Savings menu (see pages 83–88), and adjust according to your operating needs.**
- 3. Turn down the brightness adjustment. The higher the brightness the more power your display uses.**
- 4. Replace the batteries.**
- 5. Replace the batteries.**
- 6. Restore the notebook to normal operating temperature. (The charging icon on the Status Indicator panel will flash when the battery is outside its operating range.)**

## Troubleshooting

### Problem

#### Shutdown and Startup Problems

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

### Possible Cause

1. The Suspend/Resume button is disabled from the Power Savings menu of the setup utility.
2. You did not hold the button in long enough.
3. There may be a conflict with the application software.

### Possible Solution

1. Enable the button from the Power Savings menu of the setup utility. *(See pages 83–88.)*
2. Hold the button longer. This may need to be a very long time if your application is preventing the CPU from checking for button pushes.
3. Close all applications, and try the button again.

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

1. The boot sequence settings of the setup utility are not compatible with your configuration.
2. You have a secured system requiring a password to load your operating system.
3. Hard Drive was not detected.

1. Enter the setup utility and adjust the Boot Sequence settings from the Boot Options submenu on pages 63–64.
2. Make sure you have the right password. Enter the setup utility and verify the Security settings and the Boot Sequence settings and modify them as appropriate. *(See Security Menu on pages 79–83 and Boot Options Submenu on pages 63–64.)*
3. Use the BIOS setup utility Main menu, Primary Master submenu to try to auto detect the hard drive.

Problem

**An error message is displayed on the screen during the notebook turn on (boot) sequence.**

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

Possible Cause

- 1. Power On Self Test (POST) has detected a problem.**
- 1. BIOS setup changes were not saved when you made them and exited the BIOS setup utility and it returned to original settings.**
- 2. The BIOS CMOS hold-up battery has failed.**

Possible Solution

- 1. See the Power On Self Test Messages to determine the meaning and severity of the problem. Not all messages are errors some are simply status.**
- 1. Make sure you select `Save Changes And Exit` when exiting the BIOS setup utility.**
- 2. Contact your support representative for repairs. This is not a user serviceable part but has a normal life of 3 to 5 years.**

## T r o u b l e s h o o t i n g

### Problem

#### Video Problems

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

### Possible Cause

1. **Something is pushing on the Closed Cover switch. (See Figure 1-7 on page 5.)**
2. **The notebook is set for an external monitor only.**
3. **The angle of the display and the brightness settings are not adequate for your lighting conditions.**
4. **The power management timeouts may be set for very short intervals and you failed to notice the display come on and go off again.**
5. **The notebook turned on with a series of beeps.**

### Possible Solution

1. **Clear the Closed Cover switch.**
2. **Pressing F10 while holding down the Fn key allows you to change your selection of where to send your display video. Each time you press the combination of keys you will step to the next choice. The choices, in order, are: built-in LCD only, external CRT only, both LCD and CRT, or video output (NTSC/PAL or S-Video).**
3. **Move the display and the brightness control until you have adequate visibility.**
4. **Press any key or move the pointer, if this doesn't work press the Suspend/Resume button. (The display may be shut off by Idle mode, Standby mode, Auto Suspend, or Video Timeout.)**
5. **Power On Self Test (POST) has detected a failure which does not allow the display to operate. Contact your support representative.**

## Problem

**The display goes blank by itself after you have been using it.**

## Possible Cause

- 1. The notebook has gone into Idle mode, Standby mode, Suspend mode or Save-to-Disk mode because you have not used it for a period of time.**
- 2. Something is pushing on the Closed Cover switch. (See Figure 1-7 on page 5.)**
- 3. The power management timeouts may be set for very short intervals and you failed to notice the display come on and go off again.**

## Possible Solution

- 1. Use the keyboard or pointer and if that does not restore operation, push the Suspend/Resume button. You may want to close your application and go to the setup utility Power Savings menu and adjust the timeout values to better suit your operation. (See the Power Savings Menu on pages 83–88.)**
- 2. Clear the Closed Cover switch.**
- 3. Press any key or move the pointer, if this doesn't work press the Suspend/Resume button.**

**The Built-in Display does not close.**

- 1. A foreign object, such as a paper clip, is stuck between the display and the keyboard.**

- 1. Remove all foreign objects from the keyboard.**

**The Built-in Display has bright or dark spots.**

- 1. If the spots are very tiny and few in number this is normal for a large LCD display.**
- 2. If the spots are numerous or large enough to interfere with your operation.**

- 1. This is normal do nothing.**
- 2. Display is faulty contact your support representative.**

## T r o u b l e s h o o t i n g

### Problem

**The application display uses only a portion of your screen and is surrounded by a dark band.**

**You have connected an external monitor and it does not come on.**

### Miscellaneous Problems

**An error message is displayed on the screen during the operation of an application.**

### Possible Cause

**1. You are running an application that does not support 1024 x 768 pixel resolution display and display compression is enabled.**

**1. Your BIOS setup is not set to enable your external monitor.**

**2. Your external monitor is not properly installed.**

**3. Your operating system software is not setup with the correct software driver for that device.**

**4. Your external monitor is not compatible with your notebook.**

**1. Application software often has its own set of error message displays.**

### Possible Solution

**1. Display compression gives a clearer but smaller display for applications that do not support 1024 x 768 pixel resolution. You can fill the screen but have less resolution by changing your display compression setting. (See Video Features Submenu of the Advanced Menu on pages 75–76.)**

**1. Try toggling the video destination by pressing Fn and F10 together or check your BIOS setup and enable your external monitor. (See the Video Features Submenu of the Advanced Menu on pages 75–76.)**

**2. Reinstall your device. (See External Monitor on page 102.)**

**3. Check your device and operating system documentation and activate the proper driver.**

**4. See your monitor documentation and the External Monitor Support portions of Appendix A on page 144–150.**

**1. See your application manual and help 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 which Phoenix® BIOS and/or your operating system can generate and an explanation of each message. Error messages are marked with an \*. Comments in *italics* are suggestions of possible actions for you to consider or risks resulting from ignoring the message. The most common errors are marked with a #. If an error message is displayed that is not in this list, write it down and check your operating system documentation both on screen and in the manual. If you can find no reference to the message and its meaning is not clear, contact your support representative for assistance.

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

\*Diskette drive A error or Diskette drive B error – Drive A: or B: is present but fails the BIOS Power On Self Test (POST) diskette tests. *Check to see that the drive is defined with the*

*proper diskette type in the Utility Setup (see page 56–65), and that the diskette drive is installed correctly, (see page 86). If the disk drive is properly defined and installed a void using it and contact your support representative.*

\*Extended RAM Failed at offset: nnnn – **Extended memory not working or not configured properly.** *If you have an installed RAM Module verify that the module is properly installed. If it is properly installed you may want to check your Windows® Setup so it is not trying to use unavailable memory until you can contact your support representative.*

nnnn Extended RAM Passed – Where nnnn is the amount of RAM in kilobytes successfully tested.

\*Failing Bits: nnnn – **The hex number nnnn is a map of the bits at the RAM address (in System, Extended, or Shadow memory) which failed the memory test.** *Each 1 (one) in the map indicates a failed bit. This is a serious fault which might cause you to lose data if you continue. Contact your support representative.*

\*Fixed Disk x Failure or Fixed Disk Controller Failure – (where x = 1-4) **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 (POST).** *Run the Setup Utility to check for the hard disk 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 (POST).** *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**

## Troubleshooting

**with the type detected by the Power On Self Test (POST). Run the Setup Utility to correct the inconsistency.**

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

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

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

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

\*Monitor type does not match CMOS – Run SETUP – **Monitor type not correctly identified in Setup.** *This error probably means your BIOS is corrupted, run the Setup Utility and set all settings to the default conditions. If you still get this error, contact your support representative.*

##\*Operating system not found – **Operating system cannot be located on either drive A: or drive C:** *Enter the Setup Utility and see if 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 is probably corrupted and your system may have to be re-installed from your back up media.*

\*Parity Check 1 nnnn – **Parity error found in the system bus.** *BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????? . This is a potentially data destroying failure. Contact your support representative.*

\*Parity Check 2 nnnn – **Parity error found in the I/O bus.** *BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????? . This is a potentially data destroying failure. Contact your support representative.*

##\*Press <F1> to resume, <F2> to SETUP – **is 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.*

##\*Press <F2> to enter SETUP – **message is displayed during Power On Self Test (POST).** *The message can be turned off by the Setup Utility Boot Options Submenu, (see page 63), but the F2 key will still perform the same function.*

##\*Previous boot incomplete – **Default configuration used – Previous Power On Self Test (POST) did not complete successfully.** *Power On Self Test (POST) loads default values and offers to run Setup. If the 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 success-*

ful boot sequence you should turn off the power with the Power Switch and contact your support representative.

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

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

nnnn Shadow RAM Passed – **Where nnnn is the amount of shadow RAM in kilobytes successfully tested.**

\*System battery is dead – Replace and run SETUP – **The BIOS CMOS RAM memory hold up battery is dead. This is part of your BIOS and is a board mounted battery which requires a support representative to change.** You can continue operating but you will have to use Setup Utility default values or reconfigure your Setup Utility every time you turn off your notebook. This battery has an expected life of 2 to 3 years.

System BIOS shadowed – **System BIOS copied to shadow RAM.**

\*System CMOS checksum bad – run SETUP – **BIOS CMOS RAM has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in BIOS memory.** Run Setup and reconfigure the system.

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

nnnn System RAM Passed – **Where nnnn is the amount of system RAM in kilobytes successfully tested.**

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

UMB upper limit segment address: nnnn **Displays the address of the upper limit of**

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

Video BIOS shadowed – **Video BIOS successfully copied to shadow RAM.**

### EMERGENCY CD-ROM TRAY RELEASE

If for some reason the eject button fails, you can open the CD-ROM tray with a paper clip or similar tool inserted into the eject hole in the far right side of the front of the tray. Straighten one side of a paper clip and push it gently into the hole. The tray will pop out a short distance. (Figure 5-1.)

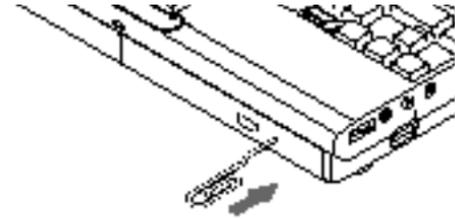


Figure 5-1 Emergency CD-ROM Tray Release

## Troubleshooting

### INSTALLING AND REMOVING THE INTERNAL HARD DRIVE

There is a compartment in the bottom of your notebook which contains the internal hard drive. The hard drive only needs to be changed if there is a serious drive failure. We recommend that you have a trained repair person replace the internal hard drive for you and re-install your pre-installed software.



#### CAUTION

Contact your support representative before making any hard drive replacement whether you or a trained technician is making the change. You may invalidate your warranty if you don't.

#### To Remove the Hard Drive:

1. Turn off your notebook using the Windows shutdown and the power switch and remove any power adapter.

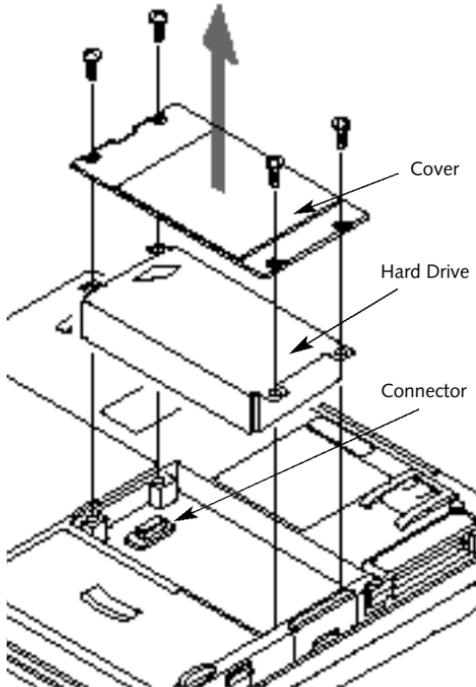


Figure 5-2 Installing and Removing the Internal Hard Drive

2. Remove the four screws from the hard drive compartment in the bottom of your notebook. (Figure 5-2.)
3. Carefully remove the cover.
4. Pull gently on the tab to tilt and lift out the hard drive being very careful not to damage the flexible circuit connection.
5. Disconnect the connector the very carefully or you will damage the connector pins.
6. Remove the hard drive.

#### To Install the Hard Drive

1. Carefully plug in the connector of the new hard drive being sure to align the connectors. (Figure 5-2.) Make sure the connectors seat completely.
2. Tilt and slide the hard drive gently into the chamber being careful not to kink the flat cable.
3. Push the hard drive down gently but firmly.
4. Align the cover with the screw holes.
5. Fit the cover tightly in place.
6. Replace the screws.



### CAUTION

Removing or installing the hard drive with the power on may damage the hard drive, the notebook or shock you.

## MODEM SETUP AND COMMANDS

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

**OK**  
**NO CARRIER**  
**NO DIALTONE**  
**CONNECT 33600**  
(Connection complete at 33,600 bps.)

### ERROR

#### FAX

**RING (This means an incoming call.)**

#### BUSY

#### NO ANSWER

When using the internal modem with applications which are not factory installed see the application documentation.

## RESTORING YOUR PRE-INSTALLED SOFTWARE FROM THE RECOVERY CD-ROM

To restore your pre-installed software from the Recovery CD-ROM follow the instructions with the CD-ROM.

Remember that you must set the **Boot Sequence in the Boot Options Submenu in the BIOS Setup Utility to CD-ROM** then **A:** then **C:** for the CD-ROM to be read for the operating system.



### CAUTION

User data and user installed applications can not be recovered from the CD-ROM.

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## SECTION SIX

### CARE AND MAINTENANCE

If you use your LifeBook™ 500 Series from Fujitsu™ carefully, you will increase its life and reliability. This section provides some tips for looking after the notebook and the battery packs.

#### CARING FOR YOUR NOTEBOOK

- The LifeBook 500 Series is a durable but sensitive electronic device. Treat it with respect and care.
- Make a habit of transporting it in a suitable carrying case.
- Keep it away from food and beverages.
- If you accidentally spill liquid on your notebook:
  1. Turn it off.
  2. Position it so that the liquid can run out.
  3. Let it dry out for 24 hours, or longer if needed.
  4. If your notebook will not boot after it has dried out, call your support representative.
- Avoid exposure to water, sand, dust, and other environmental hazards.
- Do not expose your notebook to direct sunlight for long periods of time as temperatures above 140° F (60° C) may damage your notebook.
- Keep the covers closed on the connectors and slots when they are not in use.
- Do not put heavy or sharp objects on the computer.
- If you are carrying your notebook in a briefcase, or any other carrying case, make sure that there are no objects in the case pressing on the lid of your notebook.
- Do not drop your notebook.
- Clean your notebook with a damp, lint-free cloth. Do not use abrasives or solvents.
- Use a soft cloth to remove dust from the screen.

## **INCREASING BATTERY LIFE**

To increase battery life:

- 1. Power your notebook through the AC or optional auto/airline adapter whenever possible.**
- 2. If your notebook is running on battery power all day, connect it to the AC adapter overnight to recharge the battery.**
- 3. Keep brightness to the lowest level comfortable.**
- 4. Set the power management for maximum battery life.**
- 5. Put your notebook in Suspend mode when it is turned on and you are not actually using it.**
- 6. Limit your CD-ROM access.**
- 7. Disable the Windows® 95 CD automatic insertion function. (See page 46.)**
- 8. Always use fully charged batteries.**

## **CARING FOR YOUR BATTERIES**

**If your notebook is to be stored for a month or longer, turn the machine off and remove the optional second Lithium ion battery and the main Lithium ion battery. Store your notebook and batteries separately in a cool, dry location. If you store your notebook with a battery installed, the battery will discharge, and battery life will be reduced. In addition a faulty battery might damage your notebook.**

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## APPENDIX A SPECIFICATIONS

Appendix A provides the hardware and environmental specifications and the model and part numbers for your LifeBook™ 500 Series and its peripherals.

### WARRANTY

Your notebook is backed by a limited warranty and includes toll-free technical support; call 1-800-8FUJITSU (1-800-838-5487.) Check the service kit that came with your notebook for warranty terms and conditions.

### LIFEBOOK 565TX SPECIFICATIONS

#### Microprocessor

Intel Pentium™ P55CSLM 166MHz with MMX technology, L1 and L2 cache, PCI bus architecture, and CardBus architecture.

#### Memory

System Memory  
32MB SDRAM.

L1 Cache Memory  
32KB within CPU.

L2 Cache Memory  
256KB Pipeline Burst SRAM.

Expansion Memory  
16MB, 32MB and 64MB SDRAM Modules extend system memory up to 96MB; installable in a DIMM (dual-in-line memory module) slot in a chamber in the bottom of the notebook. SDRAM Modules are recommended but EDO RAM Modules will work.  
Fujitsu product numbers:  
16MB SDRAM, FPCEM05.  
32MB SDRAM, FPCEM06.  
64MB SDRAM, FPCEM07.

Installing an EDO RAM Module will cause your entire system to operate at the slower EDO timing.

8MB EDO RAM, FPCEM01A.  
16MB EDO RAM, FPCEM02A.  
32MB EDO RAM, FPCEM03.  
64MB EDO RAM, Third party only.

BIOS Memory  
512KB Flash ROM.  
256 Bytes CMOS-RAM with back-up battery.

Video RAM  
2MB.

#### Mass Storage

Floppy Disk Drive  
One removable 3.5," 3 mode floppy disk drive which accommodates a 1.44MB or a 720KB floppy disk, Fujitsu™ Model FPCFDD01.

One external floppy disk drive adapter, Fujitsu Model FPCFDA01.

Hard Drive  
One factory installed 2.0GB, 2.5" (12.7 mm) fixed hard drive unit.

One optional removable 1.3GB, 2.5" (12.7 mm) fixed hard drive unit, Fujitsu Model FPCFDD01.

CD-ROM Drive  
One removable, factory installed, 20-speed maximum, 2.5" (12.7 mm) drive, Fujitsu Model FPCCD04 (also supports FPCCD03).

## Appendices

### Audio

SoundBlaster-compatible 16-bit stereo PCM/FM sound chip.

Spatializer 3D-Stereo multiple speaker effect support.

Stereo headphone jack, 1 Vrms, or less, minimum impedance 32 Ohms.

Stereo line in jack, 880 mVrms or less, minimum impedance 10K Ohms.

Mono microphone jack, 125 mV<sub>p-p</sub> or less, minimum impedance 10K Ohms.

NTSC/PAL jack, 75 ohm.

S-Video jack, 75 ohm.

Two built-in speakers – 28 mm diameter (stereo).

One built-in monaural microphone.

### Communication

Internal 33.6 Kbps fax/data/voice modem (33.6 Kbps data/voice transmission; 14.4 Kbps fax transmission).

One IrDA 1.1 compatible infrared port (4 Mbps).

### Video

MPEG-1 video data decompression software.

Zoomed video port via PC Card slot 0.

### Pre-Installed Software

Microsoft® Windows® 95.

LapLink® by Traveling Software.

MegaPhone® by Cypress Research

VirusScan by McAfee Associates.

AudioRack® 32 for Windows 95

by ESS Technology, Inc.

SoftPEG® by CompuCore Multimedia Inc.

Others dependent on options purchased.

### Input/Output Connections

(Connections may be located on the MediaConnect.)

Two Type I/II/one Type III/ PC Card slot: PCMCIA Standard 2.1 with CardBus support; Zoomed video port support via Slot 0.

One 6-pin mini DIN PS/2 compatible connector, for external keyboard, external mouse or external numeric keypad.

One 25-pin D-SUB two-way Centronics type connector for parallel input/output devices; bi-directional, output only or ECP.

One 240-pin connector for docking expansion.

One 15-pin D-SUB connector for VGA external monitor (see Displays specifications).

One 9-pin D-SUB connector for RS-232C serial input/output devices.

One connector for USB (Universal Serial Bus) input/output devices.

One 25-pin special connector for external floppy disk drive connection.

One modular RJ-11 telephone line connector.

One stereo headphone jack (see Audio specifications).

One mono microphone jack (see Audio specifications).

One stereo line in jack (see Audio specifications).

One RCA jack for NTSC/PAL compatible devices.

One 4-pin mini-DIN jack for S-Video compatible devices.

One 15-pin connector for MIDI/joystick devices (MPU-401 compatible).

### Displays

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

Diagonal dimension: 12.1.”

**1024 x 768 pixels resolution, 64K colors.  
800 x 600 pixels resolution, 16M colors.  
640 x 480 pixels resolution, 16M colors.  
XGA, SVGA, and VGA compatible.**

External Monitor Support.  
**XGA, SVGA, and VGA compatible  
CRT displays.**

**1600 x 1200 pixels resolution, 256 colors.  
1280 x 1024 pixels resolution, 256 colors.  
1024 x 768 pixels resolution, 64K colors.  
800 x 600 pixels resolution, 16M colors.  
640 x 480 pixels resolution, 16M colors.**

#### Keyboards

**Built-In Keyboard with all functions of 101-key  
PS/2 compatible keyboards.**

**Total number of keys: 86.**

**Function keys: 12, F1 through F12.**

**Feature extension key: Fn.**

**Windows 95 keys: 3, two Start keys and one  
Application key.**

**Key pitch: 19 mm.**

**Key stroke: 3 mm.**

**Built-in touchpad pointing device with left and  
right buttons.**

**Built-in palmrest.**

External Keyboard Support  
**PS/2 compatible.**

External Numeric Keypad Support  
**PS/2 compatible.**

External Mouse Support  
**PS/2 compatible.**

## POWER

### Batteries

**One main Lithium ion battery, Fujitsu™ Model  
FPCBP06. Rechargeable, 10.8V, 2250 mAh.  
Operating time of up to 1 hour. Rapid charge  
(notebook Off or in Suspend mode) in about  
three (3) hours. Standard charge (normal use  
with limited CD and hard disk access) in about  
nine (9) hours.**

**One optional second Lithium ion battery,  
Fujitsu Model FPCBP04. Rechargeable, 10.8V,  
2250 mAh. Operating time of up to 1 hour.  
Rapid charge (notebook Off or in Suspend  
mode) in about three (3) hours. Standard  
charge (normal use with limited CD and hard  
disk access) in about nine (9) hours.**



## CAUTION

Actual battery life will vary based on screen brightness, applications, features, power management settings, battery conditioning, and other customer preferences. CD-ROM or hard drive usage may also have a significant impact on battery life.

### Dual Battery Configuration

**Operating time of up to 2 hours. Rapid charge  
(notebook Off or in Suspend mode) in about  
5 hours. Standard charge (normal use with  
limited CD and hard drive access) in about  
fifteen (15) hours.**

### AC Adapter

**Autosensing 100-240V AC, 45W, supplying  
16V DC to the notebook, Fujitsu Model  
FPCAC01A which includes an AC cable  
(also supports FPCAC02).**

### Optional Auto Adapter

**Autosensing 12/24V DC supplying 16V DC  
to the notebook, Fujitsu Model FPCCBA01A.**

## Appendices

### Power Management

**Save-to-Disk, Suspend, Idle and Standby Power Savings modes and PowerPanel by Phoenix® Technologies. When the battery is fully charged the computer can remain in Suspend mode for approximately 24 hours or more.**

### Dimensions and Weight

#### Overall Dimensions

**Approximately 11.75" x 9.75" x 2.0."  
(298 mm x 248 mm x 51 mm.)**

#### Weight

**Approximately 7.4 lbs (3.4 Kg) with floppy disk drive installed.**

### Environmental Requirements

#### Temperature

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

#### 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.**

### Electro-Static Discharge (ESD)

**9 kV.**

### Theft Prevention Lock

**Lock slot on the right side panel for use with physical restraining security systems. The locking system by Kensington is recommended.**

## LIFEBOOK 585TX SPECIFICATIONS

### Microprocessor

**Intel Pentium® 233MHz with MMX technology, L1 and L2 cache, PCI bus architecture, and CardBus architecture.**

### Memory

#### System Memory

**32MB SDRAM.**

#### L1 Cache Memory

**32KB within CPU.**

#### L2 Cache Memory

**512KB Pipeline Burst SRAM.**

### Expansion Memory

**16MB, 32MB and 64MB SDRAM Modules extend system memory up to 96MB; installable in a DIMM (dual-in-line memory module) slot in a chamber in the bottom of the notebook. SDRAM Modules are recommended but EDO RAM Modules will work.**

#### Fujitsu product numbers:

**16MB SDRAM, FPCEM05.  
32MB SDRAM, FPCEM06.  
64MB SDRAM, FPCEM07.**

**Installing an EDO RAM Module will cause your entire system to operate at the slower EDO timing.**

**8MB EDO RAM, FPCEM01A.  
16MB EDO RAM, FPCEM02A.  
32MB EDO RAM, FPCEM03.  
64MB EDO RAM, third party only.**

### BIOS Memory

**512KB Flash ROM.  
256 Bytes CMOS-RAM with back-up battery.**

### Video RAM

**2MB.**

## Mass Storage

### Floppy Disk Drive

One removable 3.5," floppy disk drive which accommodates a 1.44MB or a 720KB floppy disk, Fujitsu™ Model FPCFDD01.

One External Floppy Disk Drive Adapter, Fujitsu Model FPCFDA01.

### Hard Drive

One factory installed 4.0GB, 2.5" (12.7 mm) fixed hard drive unit.

One optional removable 1.3GB, 2.5" (12.7 mm) hard drive unit, Fujitsu Model FPCHDD01.

### CD-ROM Drive

One removable, factory installed, 20-speed maximum, 2.5" (12.7 mm) drive, Fujitsu Model FPCCD04 (also supports FPCCD03).

### Audio

SoundBlaster-compatible 16-bit stereo PCM/FM sound chip.

Spatializer 3D-Stereo multiple speaker effect support.

Stereo headphone jack, 1 Vrms, or less, minimum impedance 32 Ohms.

Stereo line in jack, 880 mVrms or less, minimum impedance 10K Ohms.

Mono microphone jack, 125 mV<sub>p-p</sub> or less, minimum impedance 10K Ohms.

NTSC/PAL jack, 75 ohm.

S-Video jack, 75 ohm.

Two built-in speakers – 28 mm diameter (stereo).

One built-in monaural microphone.

### Communication

Internal 33.6 Kbps fax/data/voice modem (33.6 Kbps data/voice transmission; 14.4 Kbps fax transmission).

One IrDA 1.1 compatible infrared port (4 Mbps).

### Video

MPEG-1 video data decompression software.

Zoomed video port via PC Card slot 0.

### Pre-Installed Software

Microsoft® Windows® 95.

LapLink® by Traveling Software.

MegaPhone® by Cypress Research

VirusScan by McAfee Associates.

AudioRack® 32 for Windows 95

by ESS Technology, Inc.

SoftPEG® by CompuCore Multimedia Inc.

Others dependent on options purchased.

### Input/Output Connections

(Connections may be located on the MediaConnect.)

One Type III/two Type I/II PC Card slot: PCMCIA Standard 2.1 with PC CardBus support; Zoomed video port support via Slot 0.

One 6-pin mini DIN PS/2 compatible connector, for external keyboard, external mouse or external numeric keypad.

One 25-pin D-SUB two-way Centronics type connector for parallel input/output devices; bi-directional, output only or ECP.

One 240-pin connector for Bus Expansion, (Mini-Docking Station).

One 15-pin D-SUB connector for VGA external monitor (see Displays specifications).

One 9-pin D-SUB connector for RS-232C serial input/output devices.

One connector for USB (Universal Serial Bus) input/output devices.

## Appendices

- One 25-pin special connector for external floppy disk drive connection.**
- One modular RJ-11 telephone line connector.**
- One stereo headphone jack (see Audio specifications).**
- One mono microphone jack (see Audio specifications).**
- One stereo line in jack (see Audio specifications).**
- One RCA jack for NTSC/PAL compatible devices.**
- One 4-pin mini-DIN jack for S-Video compatible devices.**
- One 15-pin connector for MIDI/joystick devices (MPU-401 compatible).**

### Displays

- Built-in color flat-panel TFT active matrix LCD display.**
- Diagonal dimension: 12.1."**
- 1024 x 768 pixels resolution, 64K colors.**
- 800 x 600 pixels resolution, 16M colors.**
- 640 x 480 pixels resolution, 16M colors.**
- XGA, SVGA, and VGA compatible.**

- External Monitor Support.**
- XGA, SVGA, and VGA compatible**
- CRT displays.**

- 1600 x 1200 pixels resolution, 256 colors.**
- 1280 x 1024 pixels resolution, 256 colors.**
- 1024 x 768 pixels resolution, 64K colors.**
- 800 x 600 pixels resolution, 16M colors.**
- 640 x 480 pixels resolution, 16M colors.**

### Keyboards

- Built-In Keyboard with all functions of 101-key PS/2 compatible keyboards.**
- Total number of keys: 86.**
- Function keys: 12, F1 through F12.**
- Feature extension key: Fn.**
- Windows 95 keys: 3, two Start keys and one Application key.**
- Key pitch: 19 mm.**
- Key stroke: 3 mm.**
- Built-in touchpad pointing device with left and right buttons.**
- Built-in palmrest.**

- External Keyboard Support**
- PS/2 compatible.**

- External Numeric Keypad Support**
- PS/2 compatible.**

- External Mouse Support**
- PS/2 compatible.**

### POWER

#### Batteries

- One main Lithium ion battery, Fujitsu Model FPCBP06. Rechargeable, 10.8V, 2250 mAh.**
- Operating time of up to 1 hour. Rapid charge (notebook Off or in Suspend mode) in about three (3) hours. Standard charge (normal use with limited CD and hard drive access) in about nine (9) hours.**

- One optional second Lithium ion battery pack, Fujitsu Model FPCBP04. Rechargeable, 10.8V, 2250 mAh. Operating time of up to 1 hour. Rapid charge (notebook Off or in Suspend Mode) in about three (3) hours. Standard charge (normal use with limited CD and hard drive access) in about nine (9) hours.**



## CAUTION

Actual battery life will vary based on screen brightness, applications, features, power management settings, battery conditioning, and other customer preferences. CD-ROM or hard drive usage may also have a significant impact on battery life.

### Dual Battery Configuration

**Operating time of up to 2 hours. Rapid charge (notebook Off or in Suspend mode) in about 5 hours. Standard charge (normal use with limited CD and hard disk access) in about fifteen (15) hours.**

### AC Adapter

**Autosensing 100-240V AC, 45W, supplying 16V DC to the notebook, Fujitsu™ Model FPCAC01A which includes an AC cable.**

### Optional Auto/Airline Adapter

**Autosensing 12/24V DC supplying 16V DC to the Notebook, Fujitsu Model FPCCBA01A.**

### Power Management

**Save-to-Disk, Suspend, Idle and Standby Power Savings modes and PowerPanel by Phoenix® Technologies. When the battery is fully charged the computer can remain in Suspend mode for approximately 24 hours or more.**

### Dimensions and Weight

#### Overall Dimensions

**Approximately 11.75" x 9.75" x 2.0."  
(298 mm x 248 mm x 51 mm.)**

#### Weight

**Approximately 7.4 lbs (3.4 Kg) with floppy disk drive installed.**

### Environmental Requirements

#### Temperature

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

#### 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.**

**Electro-Static Discharge (ESD)  
9 kV.**

### Theft Prevention Lock

**Lock slot on the right side panel for use with physical restraining security systems. The locking system by Kensington is recommended.**

### Approvals

#### Emissions

**FCC Part 15, FCC Part 68, FTZ.**

#### Safety

**UL, C-UL, CSA.**

#### FCC Certification

**See statement at the front of the User's Guide.**

#### DOC (Industry Canada) Certification

**See statement at the front of the User's Guide.**

### Popular Accessories

**Other accessories are available, contact your authorized Fujitsu reseller.**

**A p p e n d i c e s**

**Additional main Lithium ion battery,  
Fujitsu model FPCBP06.**

**Optional second Lithium ion battery,  
Fujitsu model FPCBP04.**

**Optional modular 1.3GB hard drive,  
Fujitsu model FPCHDD01.**

**Mini-Docking Station, Fujitsu Model FPCDS08.**  
The Mini-Docking Station provides  
connections for:

**RS232 Serial Devices (COM Port).**

**Parallel Devices (LPT Port).**

**VGA/SVGA/XGA Monitor.**

**Mouse (PS/2).**

**Keyboard (PS/2).**

**Modem telephone line (RJ-11) (optional).**

**Two Type II/one Type III PC Cards.**

**10/100 Base-T Ethernet line (RJ-45).**

**MIDI/joystick devices.**

**Headphones.**

**Microphone.**

**Stereo Line Input.**

**Stereo Line Output.**

**The Mini-Docking Station is powered from AC  
power using the power cord.**

## APPENDIX B GLOSSARY

### 3D-Stereo

The control of sound output from stereo speakers to create the sensation of multiple sound sources from more than two directions.

### AC Adapter

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

### 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.

### Auto/airline Adapter

A device which converts the DC voltage from an automobile cigarette lighter or the seat plug of an airplane to the DC voltage needed to power your notebook.

### BIOS

**Basic Input-Output System.**A computer program and set of default parameters stored in ROM which tests and operates your computer 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 with at least as many wires as there are bits in your words which passes data between the CPU and the sub-assemblies inside your computer.

### Byte

8 bits of parallel binary information.

### Cache Memory

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

### CardBus

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

## Appendices

### CD-ROM

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

### CHS Translation

Cylinder, head and sector translation. Conversion of hard disk access addressing to the cylinder, head and sector form. The terminology is historical left from the days when data was stored on a series cylindrical drums. The head designates the reading device, similar to the head on your cassette recorder only mounted on a movable arm. Another addressing method is LBA.

### CMOS RAM

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

### COM Port

Abbreviation for communication port. This is your serial interface connection to other equipment.

### Command

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

### Configuration

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

### CRT

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

### Data

The information a system stores and processes.

### DC

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

### Default Value

A preprogrammed value to be used if you fail to set your own.

### DIMM

Dual-in-line memory module.

### Disk

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

### Disk Drive

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

### Diskette

A floppy disk in a hard housing with a shutter.

### DMA

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

## DOS

**Disk Operating System (MS-DOS® is a Microsoft® disk operating system).**

## Driver

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

## ECP

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

## ESD

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

## Extended Memory

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

## FCC

**Federal Communication Commission.**

## Floppy Disk

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

## GB

**Gigabyte.**

## Gigabyte

**1,073,741,824 bytes (2 raised to the thirtieth power).**

## Hard disk

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

## Hard drive

**The entire mechanism and electronics to contain and operate a hard disk.**

## Hexadecimal

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

## I/O

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

## I/O Port

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

## IDE

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

## Impedance

**The amount of resistance to the flow of electric current.**

## Infrared

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

## Appendices

### IR

An abbreviation for infrared.

### IrDA

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

### IRQ

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

### KB

Kilobyte.

### Kilobyte

1,024 bytes (2 raised to the tenth power).

### LAN

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

### LBA

Logical Block Addressing. A method of locating data stored on a disk.

### 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 is not subject to the memory effect that Nickel Cadmium batteries are and which have a high power-time life for their size.

### LPT Port

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

### MB

Megabyte.

### Megabyte

1,048,576 bytes (2 raised to the twentieth power).

### Megahertz

1,000,000 cycles per second.

### Memory

A repository for data and applications which is readily accessible to your computer CPU.

### MHz

Megahertz.

### MIDI

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

### Modem

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

### MMX Technology

MMX technology is an Intel processor enhancement that improves multimedia and communication applications. The Pentium processor with MMX technology boasts three primary architectural design enhancements: 57 powerful new instructions specifically designed to manipulate and process video, audio and graphical data efficiently; Single Instruction Multiple Data (SIMD) enabling one instruction to perform the same function on multiple pieces of data; and more L1 cache for a total of 32KB.

### Monaural

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

### MPU-401

A standard for MIDI interfaces and connectors.

### NTSC

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

### Operating System

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

### PAL

Phase Alternation by Line. The standard for color television in Western Europe and most of Asia and Africa.

### Parallel Port

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

### Partition

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

### PC Card

Personal Computer Card. A plug in card about the size of a credit card which provides expanded functions to a personal computer.

### 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.

### PIO

Parallel Input/Output.

### Pitch (keyboard)

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

**A p p e n d i c e s****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 Computer. Status and error messages may be displayed before the operating system is loaded. If failures so serious that operation can not continue are detected the operating system will not be loaded.

**Program**

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

**PS/2®**

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

**RAM**

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

**RAM Module**

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

**Reset**

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

**Restart**

See Reset.

**Resume**

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

**ROM**

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

**SCSI**

**Small Computer Systems Interface** (pronounced scuzzy). An American National Standards Institute (ANSI) standard for connecting multiple (up to 7) high speed parallel devices to a computer.

**SDRAM**

**Synchronous Dynamic Random Access Memory.**

**Serial Port**

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

### Shadow RAM

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

### SRAM

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

### Status Indicator

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

### Stereo (audio)

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

### Stroke (keyboard)

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

### Suspend

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

### SVGA

Super VGA.

### S-Video

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

### System Clock

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

### TFT

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

### UL

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

### VGA

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

### VRAM

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

### Write Protect

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

### XGA

Extended VGA.

### Zoomed Video

A PC Card port which allows notebook PCs to deliver full screen broadcast quality video through third party PC Cards, including TV tuners, video capture, and MPEG full-motion video.

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