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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 B112.
	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	Fujitsu	1/10/99
FULL NAME	COMPANY	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™ B112 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.

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 exigence du Réglement sur le matérial 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 B112 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 2.7.

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 LifeBook™ B112 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 2.7.

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 péri-phériques de sorte que le total de numéros de charge de tous les périphériques n'excède 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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PREFACE

Compact convenience for maximum performance, the Fujitsu LifeBook B112 is the ultimate road companion. It provides a streamlined link to your e-mail, the internet and all your business documents. You can also maintain the desktop productivity you are accustomed to back in the office. Simply connect a full sized monitor and an external keyboard to the LifeBook B112 and use your familiar Windows software. Now you can continue to perform at the office without compromise.

It is hard to believe a notebook so small and light can pack so much power. From a fast Intel 233 Pentium MMX processor to an easy to read 8.4" SVGA TFT touch screen and fast internal modem, all the latest technology is included.

The LifeBook B112 comes with the Windows 98 operating system pre-installed.

This manual explains how to operate your LifeBook B112's hardware and built-in system software. The LifeBook B112 is compatible with the IBM PC AT.

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 B112 appear in `Courier` type.
Example: `Shutdown the computer?`

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 B112 from Fujitsu

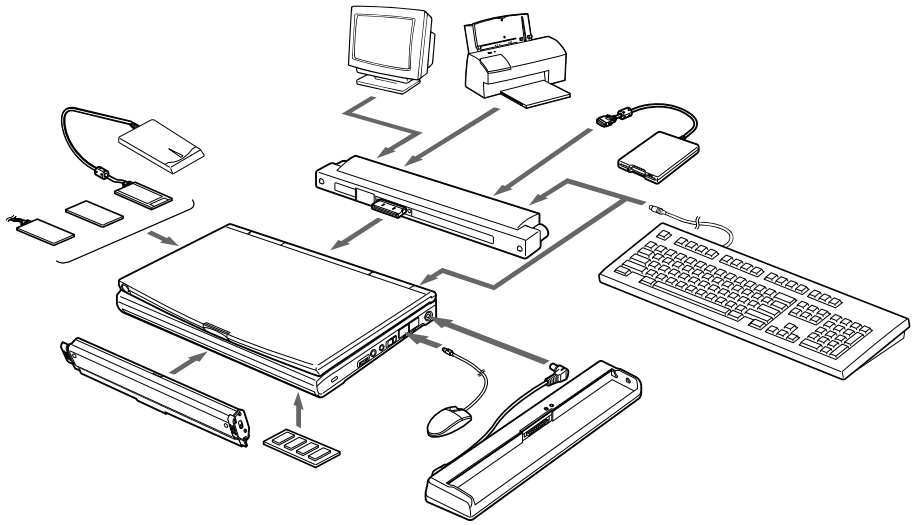

Figure P-1 LifeBook B112 with Samples of Fujitsu and Third Party Options and Accessories

Setting Up Your LifeBook B112

SECTION ONE

SETTING UP YOUR LIFEBOOK B112 FROM FUJITSU

This section describes how to set up your LifeBook B112 from Fujitsu. We strongly recommend that you read it before using your notebook – even if you are already familiar with notebook computers.

UNPACKING YOUR NOTEBOOK

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

- LifeBook B112 with stylus from Fujitsu *(Figure 1-1.)*
- Port Replicator *(Figure 1-2.)*
- AC adapter with AC power cord (located in the accessories compartment) *(Figure 1-3.)*
- Lithium ion Battery (installed in your notebook.)
- External Floppy Disk Drive *(Figure 1-4.)*
- RJ-11 cable (located in the accessories compartment.)
- Getting Started Guide with Accessories listing.
- Accessories Flyer.
- User's Guide.
- Microsoft Windows Manual and Certificate of Authenticity.
- Registration card and customer information pack.
- Recovery CD-ROM (located in the accessories compartment.)
- Bootable floppy diskette for use with Recovery CD-ROM (located in the accessories compartment.)

Once you have checked and confirmed that your notebook system is complete, read through the following sections to learn about all of the components and features.

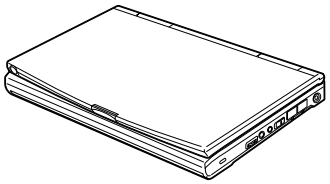

Figure 1-1 LifeBook B112 Notebook

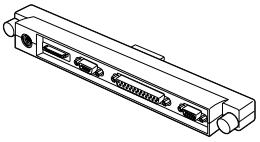

Figure 1-2 Port Replicator

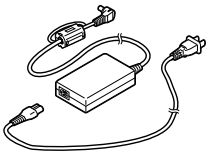

Figure 1-3 AC Adapter Unit

Figure 1-4 External Floppy Disk Drive

OVERVIEW OF LIFEBOOK B112 FEATURES

The LifeBook B112 is a compact, yet powerful notebook computer available with standard features including: *(See Appendix A, page 140, for detailed information.)*

- 233 MHz Intel Pentium processor with MMX technology.
- 32MB SDRAM standard, expandable to 96MB.
- Built-in 3.2 GB hard drive.
- 8.4" active-matrix (TFT) touch screen color display with SVGA.
- 2MB EDO video RAM on video chip.
- Internal Lithium ion battery.
- PS/2 connection for an external keyboard.
- Built-in 56K V.90 modem.
- Integrated QuickPoint™ pointing device for easy cursor control.
- Two USB ports for connecting devices like a USB mouse, USB scanner, USB hubs, etc.
- Compact size: 9" x 6.7" x 1.2".
- Weighs less than 2.65 lbs.

CAUTION

Your internal modem is designed to allow faster downloads from V.90 compliant digital sources. Maximum achievable download transmission rates may not reach 56 Kbps and will vary.

CAUTION

The internal modems on all Fujitsu notebooks from Fujitsu PC Corporation are not qualified for use with telephone systems outside the United States and Canada and may not operate in other countries.

- External 3.5" floppy disk drive
- Full audio and video features:
  - 16-bit SoundBlaster Pro-compatible sound chip.
  - Zoomed Video support for full motion video acceleration.
  - Two built-in stereo speakers.
  - Stereo Headphone jack.
  - Microphone jack.
- One Type II PC Card slot.
- Fast IrDA (4Mbps) compatible infrared port for wireless data transfer.
- External monitor support (with port replicator) for simultaneous display capability.
- 84-key keyboard with three dedicated Windows keys.
- Standard pre-installed software:
  - Microsoft Windows 98 operating system.
  - LapLink from Traveling Software for file transfers via modem, cable or infrared port.
  - ESS AudioRack.
  - PC-Doctor for system diagnostics.
  - McAfee VirusScan for virus protection.
  - Adobe Acrobat Reader.
  - PMSet 98 for system power management.
- Standard user-install software.
  - Netscape Communicator.
  - America Online 4.0 Free Trial
  - CompuServe
  - AT&T WorldNet Service.

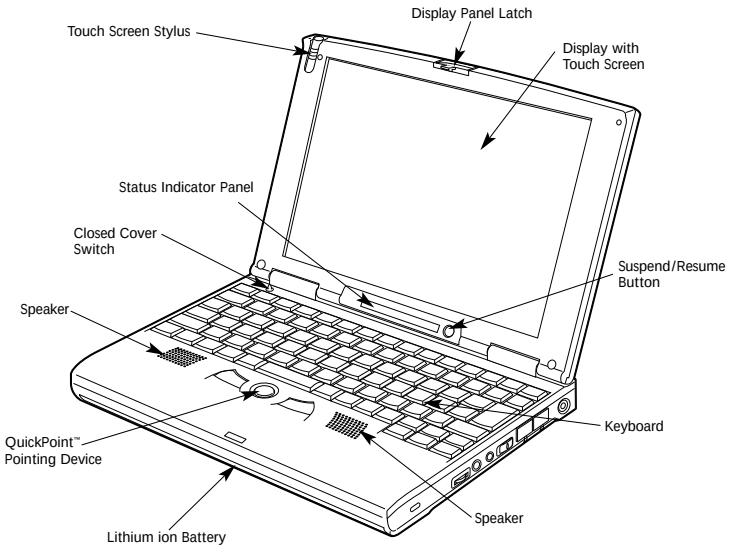

Figure 1-5 LifeBook B112 with Display Open

COMPONENT IDENTIFICATION

For detailed specifications refer to *Appendix A on page 140.*

TOP AND FRONT COMPONENTS

Display Panel

This is a color LCD panel with back lighting for the display of text and graphics. *(Figure 1-5.)*

Status Indicator Panel

LCD display of the status of the power state and source, Suspend mode, AC connected/disconnected, battery charge for primary battery, hard drive activity, PC Card activity, CapsLock, NumLk and Scr Lk. *(Figure 1-5.)*

Suspend/Resume Button

The Suspend/Resume button allows you to suspend notebook activity without turning off the notebook power, and to return it to an active state. This feature saves power, and is particularly useful when the notebook is running only on battery power. *(See pages 35-37 and 86-90 for more information.)*

CAUTION

Be sure you know what settings are active for your Suspend/Resume button before you use it as misuse can result in data loss. *(See the Power Menu of the BIOS setup utility, pages 86-90, for more information.)*

Stereo Speakers
The built-in speakers output sound from the notebook. *(Figure 1-5.)*

Closed Cover Switch
The closed cover switch turns off the LCD back lighting when the display panel is closed, thus saving power. It can also be set as a Suspend/Resume switch in the BIOS Setup utility. (*see pages 89-90.*) *(Figure 1-5.)*

Keyboard
An 84-key keyboard with 3 dedicated Windows keys for easy operation. *(Figure 1-5.)*

QuickPoint™ Pointing Device
The QuickPoint pointing device is a finger contact cursor control system with two click buttons. *(Figure 1-5.)*

Display Panel Latch
This latch locks and releases the display panel. *(Figure 1-5.)*

Touch Screen Stylus
The stylus is used as the pointing device for the touch screen. *(Figure 1-5.)*

Lithium ion Battery
See full description under Bottom Panel Components, page 7. *(Figure 1-5.)*

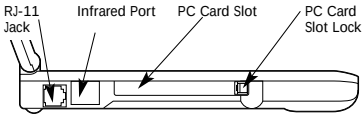

Figure 1-6 LifeBook B112 Left-side Panel

LEFT-SIDE PANEL COMPONENTS

RJ-11 Jack
This is the jack for attaching a telephone line to the internal modem. *(Figure 1-6.)*

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.

Infrared Port
The fast IrDA 1.1 (4Mbps) compatible port allows you to communicate with another IrDA compatible infrared device without a cable. *(Figure 1-6.)*

PC Card Slot
The PC Card Slot allows you to install one type II PC Card. *(See pages 106-108 for more information on PC Cards.) (Figure 1-6.)*

POINT
If you want to add an external CD-ROM drive to your notebook, we recommend purchasing an optional external CD-ROM that connects to your notebook via a PC Card. Please check Fujitsu's accessories web site, http://accessories.fujitsu.com, for more information.

PC Card Slot Lock
This button locks a PC card in place or ejects a card from the slot. *(Figure 1-6.)*

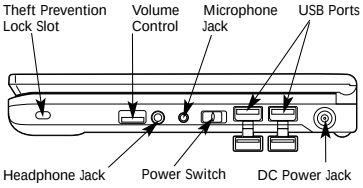

Figure 1-7 LifeBook B112 Right-side Panel

RIGHT-SIDE PANEL COMPONENTS

Theft Prevention Lock Slot
This is a slot that allows you to attach a physical lock down device. *(Figure 1-7.)*

Volume Control
The volume control is a wheel which provides manual control of the sound level of all audio output from your notebook. *(Figure 1-7.)*

CAUTION
There are software volume controls. The knob setting and the software settings will interact. Software volume off will override the knob setting and the software volume setting will control the maximum knob setting. (See Volume Control on pages 28-29 for more information.)

Headphone Jack
You can connect headphones or powered external speakers to the stereo headphone jack. *(Figure 1-7.)*

Microphone Jack
The microphone jack allows you to connect an external mono microphone. *(Figure 1-7.)*

Power Switch
This switch is the main power switch for your notebook. *(Figure 1-7.)*

USB Ports
These ports allow you to connect Universal Serial Bus devices, such as external mouse, game pads, pointing devices, keyboards and speakers. *(Figure 1-7.)*

DC Power Jack
The DC power jack allows you to plug in the AC adapter or the optional battery charger. *(Figure 1-7.)*

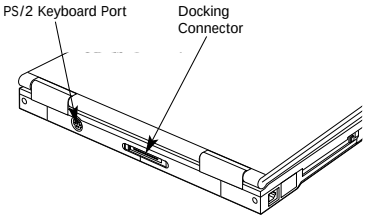

Figure 1-8 LifeBook B112 Rear Panel

REAR PANEL COMPONENTS

PS/2 Keyboard Port
This port allows you to connect an external PS/2 keyboard. To connect an external mouse, please use a USB mouse with the USB ports on the right side of your notebook. *(Figure 1-8.)*

Docking Connector Port
Allows you to connect a Port Replicator to your notebook. *(Figure 1-8.)*

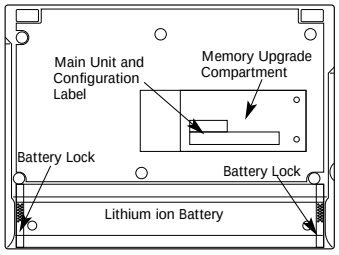

Figure 1-9 LifeBook B112 Bottom

BOTTOM COMPONENTS

Memory Upgrade Compartment
This compartment allows you access to the memory upgrade socket by which expansion of the system memory capacity is achieved. *(See pages 110-112 for more information on installing memory.) (Figure 1-9.)*

Main Unit and Configuration Label
This label shows the model number and other information about your notebook. In addition, the configuration portion of the label has the serial number and manufacturer information that you will need to give your support representative so that he or she can help you. *(Figure 1-9.)*

Battery Lock
These sliding locks hold the Lithium ion battery securely in place. *(Figure 1-9.)*

Lithium ion Battery
This battery acts as your notebook's main source of power when the AC adapter is not being used. This primary battery can be replaced, when discharged, with a charged battery for additional run time. *(Figure 1-9.)*

PORT REPLICATOR

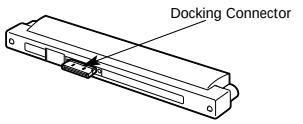

Figure 1-10 Port Replicator Front Panel

FRONT COMPONENTS

Docking Connector

Allows you to connect the Port Replicator to your notebook. *(Figure 1-10.)*

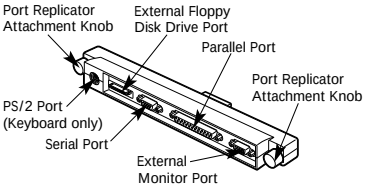

Figure 1-11 Port Replicator Rear Panel

REAR COMPONENTS

Port Replicator Attachment Knobs

These two knobs secure the connection between the Port Replicator and your notebook. *(Figure 1-11.)*

PS/2 Keyboard Port

This port allows you to connect an external PS/2 keyboard only. *(Figure 1-11.)*

External Floppy Disk Drive Port

A port for attaching the external floppy disk drive. *(Figure 1-11.)*

Serial Port

The serial port allows you to connect serial RS-232C devices, such as serial printers or scanners. *(Figure 1-11.)*

Parallel Port

The parallel port allows you to connect parallel devices, such as a parallel printer to your notebook. *(Figure 1-11.)*

External Monitor Port

This port allows you to connect an external VGA or SVGA CRT monitor. *(Figure 1-11.)*

Starting Your LifeBook B112 from Fujitsu

SECTION TWO

STARTING YOUR LIFEBOOK B112 FROM FUJITSU

This section describes the processes of starting your LifeBook for the first time, initial software setup and registration.

POWER SOURCES

Your notebook has four possible power sources: the primary Lithium ion battery; the AC adapter; an optional auto/airline adapter; or an optional dual Lithium ion battery configuration.

CAUTION

The primary Lithium ion battery is not fully charged when you purchase your notebook. Initially you will need to connect the AC adapter or the auto/airline adapter to use your notebook. 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 four (4) hours to charge a single battery if your notebook is turned off or is in Suspend mode. If your notebook is in use it can take up to nine (9) hours or more to charge a single battery in your notebook.

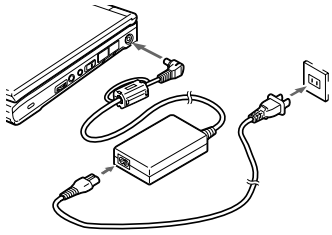

Figure 2-1 Connecting the AC Adapter

Connecting the Power Adapters

The AC adapter or an optional auto/airline adapter provides power for operating your notebook and charging the batteries. *(Figure 2-1.)*

To Connect the AC Adapter

1. Plug the DC Output cable of the AC adapter into the DC Power jack on the right side 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 jack on the right side 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 into the DC Power jack on an 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 or auto/airline adapter.

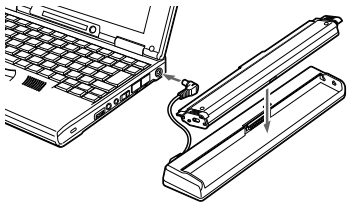

Figure 2-2 Optional Dual Lithium ion Battery Setup

Optional Dual Battery Configuration

You can configure your notebook to run in a dual battery configuration by using an additional charged Lithium ion battery installed in the optional battery charger. The primary battery must be installed for this power configuration to work; your notebook cannot be run from a secondary battery alone.

To Set Up the Dual Battery Configuration

1. Make sure you have two fully charged Lithium ion batteries.
2. Install one battery in your notebook and install the other in the optional battery charger. *(Figure 2-2.)*
3. Connect the battery charger to the DC power jack of your notebook. *(Figure 2-2.)*

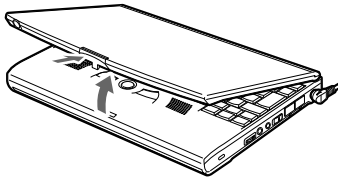

Figure 2-3 Opening the Display Panel

DISPLAY PANEL

Opening the Display Panel

Pressing the latch releases the top of the display panel from the front of the notebook body. Tilt the display panel backward until the screen is at a comfortable viewing angle. *(Figure 2-3.)*

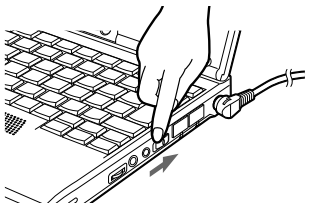

Figure 2-4 Power On

STARTING YOUR NOTEBOOK FOR THE FIRST TIME

Power On

The power switch is located on the right side of your notebook. This switch is used to turn On the computer from its Off state. Once you have connected your AC adapter or have charged the internal Lithium ion Battery, you can power On your notebook.

Facing the keyboard and display panel, move the power switch towards the rear of your notebook. This is the On position. *(See Figure 2-4.)* When you are done working you can leave your notebook in Suspend mode, *(see pages 36 and 86)*, 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 16, for the recommended shutoff procedures.)*

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 your notebook. 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.

CAUTION

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/airline 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.

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 130-132)* Depending on the nature of the problem you may be able to continue by starting the operating system or by entering the BIOS setup utility and revising the settings.

After satisfactory completion of the Power On Self Test (POST) your notebook will load your operating system. *(See Boot Menu on pages 91-94 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 130-132.)*

Booting the System with Windows 98

We strongly recommend that you do 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 98 Setup Wizard Screen will appear. 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 BIOS setup utility before you go through the condition of use process you must press the **F2** key while the Fujitsu logo is still visible. If you press the **Esc** key while the Fujitsu logo is still present you will get a boot menudialog box which will allow you to select which drive is to be used for finding the operating system.) 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.

Condition 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 QuickPoint™ 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 98 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 QuickPoint 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 98 or to shut down your notebook.

Product Key

Look in the box that your notebook came in and you will find a Windows 98 Certificate of Authenticity shrink wrapped with the Windows 98 Users manual. On the certificate you will find a bar-code with a number above it. This is your product key and the number you should enter on the Product Key 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 key. When you click on the Finish button the display will flash various screens as the system identifies what hardware is installed.

Time Zone

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

Printer Setup

When the time zone setup 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.

Welcome to Windows 98

When you boot into Windows 98 for the first time you will see a Welcome to Windows 98 dialog box with several options. Select the first option, Register Now, to register your LifeBook B112 notebook. *(See below for details on registering your notebook with Windows 98.)*

REGISTERING YOUR LIFEBOOK

What are the benefits of registering?

You will receive an identification label for your LifeBook, which, if your LifeBook is ever lost, may help in getting it returned to you. You also receive priority Personal Identification Number (PIN) technical support access and useful product mailings. Proof of purchase is not required if you register within 30 days of your purchase.

How do I register?

You can access the E-Registration program by selecting the Register Now option in the Welcome to Windows 98 wizard menu. This menu appears the first time you start Windows 98 after completing the Condition of Use process. To access the Welcome to Windows 98

wizard anytime, double-click on the Welcome to Windows 98 icon on your desktop. You can send your registration through modem or Ethernet line.

You may also print your completed registration form and fax it to
1-949-450-9140
or mail it to:
Fujitsu PC Corporation
15355 Barranca Pkwy
Irvine, CA 92618-9520

Alternately you may call:
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 a similar product.

Manuals

In the accessories compartment you will find manuals for your installed operating system and other pre-installed software.

Software manuals of pre-installed software that are not in the accessories compartment 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.

Links to Fujitsu On-line

You can go directly to the on-line Fujitsu Accessories catalog for your notebook by clicking on the LifeBook Accessories website URL link in the Windows Start menu. This will take you to the Web site for Fujitsu Lifebook accessories.

You can also reach Fujitsu Service and support on-line by clicking on the Fujitsu Service and Support Web site URL link in the Service and Support Software folder in the windows start menu.

POINT

You must have an active internet connection to use the on-line URL links described above.

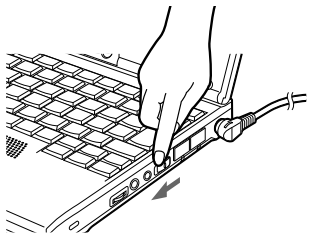

Figure 2-5 Power Off

POWER OFF

Before turning off the power by putting the power switch in the Off position, check that the Hard Drive and PC Card Access indicators are all Off. *(See Figure 3-1, page 20.)* 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 shut down procedure.

CAUTION

Never turn your notebook off while an application is running. Be sure to close all files, exit all applications and shut down 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 disk errors.

Shutting down your notebook from Windows lets your notebook shut down 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 `Shut Down.`
3. Verify that `Shut Down` is selected and click on `Yes`.

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

1. After shutting down from Windows turn off your notebook using the power switch.
2. Close your notebook display panel.
3. Disconnect the AC adapter.
4. Remove the batteries and store them separately in a cool dry place.

POINT

When your notebook has been shut down from Windows, 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.

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 `Shut Down.`
3. Click on `Restart`
4. Verify that `Restart` is selected and click on `Yes.`

Windows will shut down and restart your notebook.

POINT

You may also select `Shut Down` and once the power is off for 10 seconds or more you can restart your notebook with the Suspend/Resume button, or once the power is off, turn the power switch to Off for 10 seconds and then switch it to On. These alternative methods are not recommended.

CAUTION

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

Using Your LifeBook B112 from Fujitsu

SECTION THREE

USING YOUR LIFEBOOK B112 FROM FUJITSU

This section describes the indicators, buttons, connections and operating modes of your LifeBook B112 and their use.

STATUS INDICATOR PANEL

The Status Indicator panel is located in the recess just above the keyboard. (*Figure 3-1)* The appropriate indicators become visible as you use your notebook.

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, or the power is turned off from the power switch.

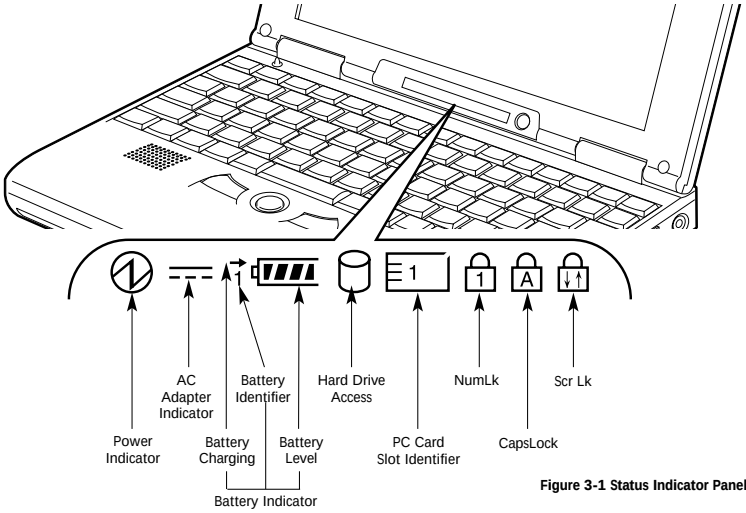

Figure 3-1 Status Indicator Panel

POINT

When your notebook has been shut down from Windows, 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's power switch must be turned off to prevent all current draw.

AC Adapter Indicator

The AC Adapter indicator tells you whether the system is operating on an AC or auto/airline adapter, or 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 indicator is active regardless of the setting of the power switch. The AC Adapter indicator is also active if you have shut down from Windows but have not turned the power switch to Off. If there is no battery charging, and the power switch is Off, then the AC Adapter indicator and the Battery indicator will be Off.

Battery Indicator

The battery indicator shows whether or not the primary Lithium ion battery is installed, and indicates its condition. *(Figure 3-2.)* Battery 1 is the primary Lithium ion battery which is installed in your notebook. The battery indicator is displayed only when the primary battery is installed.

POINT

The status panel of your notebook will not display information for a second battery when using a dual-battery configuration. Since the battery charger is connected to the DC power jack of the notebook, the notebook does not treat it as a battery.

A small arrow icon (Battery Charging indicator) appears to the left of the Battery Level indicator and above the number (Battery Identifier) if the primary battery is charging. The Battery Charging indicator flashes if the battery is too hot or too cold to charge. *(Figure 3-2.)* The Battery Charging indicator operates whether the power switch is Off or On.

The symbols inside the battery outline of the Battery Level indicator show the operating level available in the primary battery. *(Figure 3-2.)* If there is no battery charging and the power switch is Off then the AC Adapter indicator and the Battery indicator will be off.

CAUTION

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

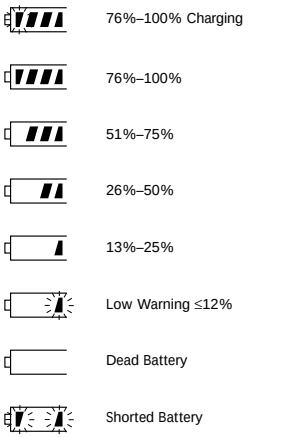

Figure 3-2 Battery Level Indicator

CAUTION

A shorted battery is damaged and must be replaced. (*See Figure 3-2.*)

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.

Hard Drive Access Indicator

The Hard Drive Access indicator tells you when the internal hard drive is being accessed.

PC Card Access Indicators

The PC Card Access indicators tell you when an installed PC Card is being accessed. Card 1 is the connector inside the slot on the left side of your notebook. The PC Card Access indicator will flash if your software tries to access a PC Card even if none are installed.

NumLk Indicator

The NumLk indicator tells you the internal keyboard is set in ten-key numeric keypad mode. *(See page 27 for more information on the numeric keypad.)* You can activate the NumLk mode by pressing the **NumLk/Scr Lk** key. Deactivate the setting the same way that you activated it.

CapsLock Indicator

The CapsLock indicator tells you when the keyboard is set for all capital letters. Activate the all capital letters setting by pressing the **CapsLock** key on the keyboard. Deactivate the setting the same way that you activated it.

Scr Lk Indicator

The Scr Lk indicator tells you when scroll lock is active. You can activate the scroll lock by pressing the **NumLk/Scr Lk** key while holding down the **Fn** key. Deactivate the setting the same way that you activated it.

INTEGRATED QUICKPOINT™ POINTING DEVICE

The QuickPoint pointing device is composed of a small joystick-like disc pointer control and two buttons located in front of the keyboard. The QuickPoint pointing device functions like 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 QuickPoint. The more pressure you use the faster the cursor will move. The second part of the QuickPoint pointing device – the buttons – function as mouse buttons, and the functions they perform depend on the application you are using. Figure 3-3 shows the position of the QuickPoint and buttons.

POINT

An external USB mouse can be connected to the USB port on the right side of the notebook, and used at the same time as the QuickPoint pointing device. Do not use a PS/2 mouse with your notebook.

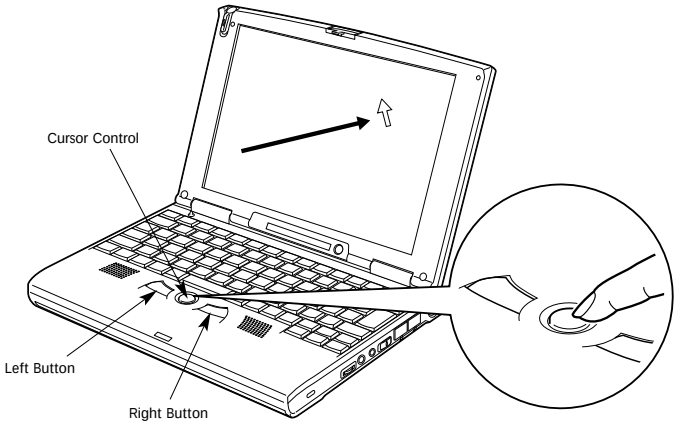

Figure 3-3 QuickPoint Pointing Device

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 pointing device button once, and then immediately release it. To right-click, move the mouse cursor to the item you wish to select, press the right pointing device button once, and then immediately release it. *(Figure 3-4.)*

Double-Clicking

Double-clicking means following the preceding Clicking procedure, but pressing the pointing device button twice in rapid succession. Double-clicking works with either the left or the right button.

CAUTION

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

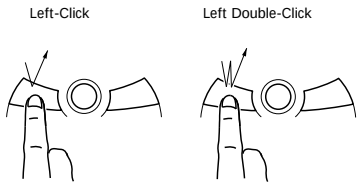

Figure 3-4 Clicking

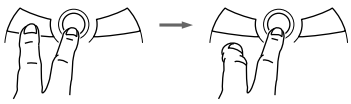

Figure 3-5 Dragging

POINT

The interval between clicks for double clicking, and other parameters of pointing and selecting, can be adjusted with the selections in the dialog box of the mouse icon in your Windows Control panel.

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 new location, then releasing the button. *(Figure 3-5.)*

INTEGRATED TOUCH SCREEN

The Lifebook B112 comes with an integrated touch screen, which allows you to use the included stylus as an additional pointing device *(Figure 3-6.)*You can also use your finger in place of the stylus, but the stylus will provide the most accurate results. You can use the stylus to click, double-click, or drag items and icons, or to draw like a pen or pencil, in applications that support this behavior, such as drawing or painting programs. See the documentation that came with your application for details.

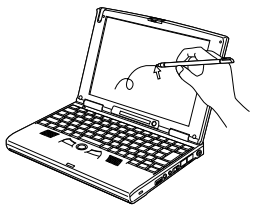

Figure 3-6 Using the Stylus with the Touch Screen

CAUTION

To avoid potential scratching and damage, never use anything but the included stylus or your finger with the touch screen.

POINT

To purchase additional or replacement styluses, visit Fujitsu's accessories web site, http://accessories.fujitsu.com.

Calibrating the Touch Screen

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

To run the calibration utility:

1. Choose Start: Service & Support Software: Touch Panel Calibration Utility: Calibration.
2. Adjust the display of your notebook to a comfortable angle and find the red "+" symbol in the upper-left corner of the display.
3. Using the stylus, touch the screen near the "+" symbol and, without lifting the tip, move the stylus to the center of the symbol. When the stylus tip is in the center of the symbol, lift the tip of the stylus off the touch screen.
4. Once the tip of the stylus is no longer touching the screen, the "+" symbol will disappear and another will appear in a different place on the monitor. Continue until you have selected a total of nine "+" symbols. This is the minimum number of points necessary to calibrate your touch screen.
5. When you have selected nine symbols, press the **Enter** key. If you see an error message at this point, you selected fewer than nine symbols. Click OK to begin again at Step 2.

6. Touch the stylus to various points on the screen to be sure you are satisfied with the cursor's response. If you are not satisfied, press the **Home** key to begin again at Step 2. If you are satisfied with the screen's calibration, press the **Enter** key.

CAUTION

If you do not press the Enter key to exit the calibration utility, the information for the points you selected will not be saved and the screen will not be calibrated.

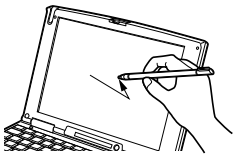

Figure 3-7 Clicking the Touch Screen

Using the Integrated Touch Screen

Clicking

To left-click, touch the intended item once and lift the stylus tip immediately. The touch screen does not support a right-click. *(Figure 3-7.)*

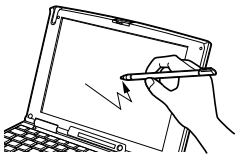

Figure 3-8 Double-Clicking the Touch Screen

Double-Clicking

To double-click, follow the preceding Clicking procedure, but touch the intended item twice. *(Figure 3-8.)*

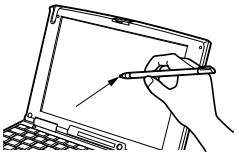

Figure 3-9 Dragging on the Touch Screen

Dragging

To drag, touch the intended item and move the stylus tip over the screen without lifting the tip until the item is where you want to drop it; then lift the stylus tip. *(Figure 3-9.)*

USING THE KEYBOARD

Your notebook has an integral 84-key keyboard. *(Figure 3-10.)* The keys perform all the standard functions of a 101-key keyboard and also include Windows 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 keys.

Numeric Keypad

Certain keys on the keyboard perform dual functions as both standard character keys and numeric keypad keys. Figure 3-10 highlights these keys. To switch into numeric keypad mode, press the **NumLk/Scr Lk**. 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 function keys. The keys in the numeric keypad are marked on the lower right of the key to indicate their secondary functions.

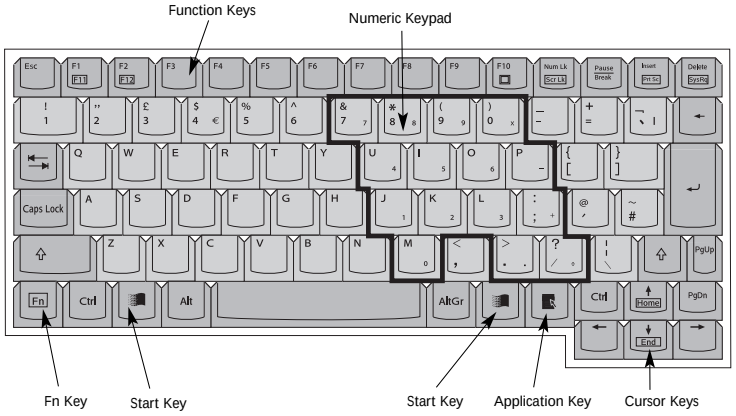

Figure 3-10 Keyboard

To return these keys to their normal character function, press the **NumLk/Scr Lk** key again.

POINT

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

Cursor Keys

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

POINT

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

Function Keys

Your notebook has 12 function keys, **F1** through **F12**. The functions assigned to these keys differ for each application. You should refer to your software documentation to find out how these keys are used. *(See Figure 3-10.)*

Fn Key

The **Fn** key provides extended functions for the notebook and is always used in conjunction with another key. *(See Figure 3-10.)*

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 800 x 600 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, or both built-in display panel and external monitor.

Windows Keys

Your notebook has three Windows keys, two Start keys and an Application key. The Start key displays the Start menu. This is the same as the button on the toolbar which is typically at the bottom of your Windows desktop. The Application key has the same function in Windows as the right mouse button, it displays the Shortcut menu for whatever item is selected. See your Windows documentation for additional information. *(See Figure 3-10.)*

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, a volume control in the ESS AudioRack application, 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 control settings have no effect. By the same token, if the ESS AudioRack has the sound turned off, adjusting the hardware or other application software volume settings 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 with other application software.

CAUTION

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

BATTERIES

The Lithium ion battery is rechargeable with an operating time of up to four (4) hours depending on active power management features and user activity levels. Your notebook can be operated on the primary Lithium ion battery alone or in a dual battery configuration with an optional external second Lithium ion battery installed in the optional battery charger.

The Lithium ion 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, an external 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, an external 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

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.

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).

Shorted Batteries

If your Status Indicator panel shows a shorted battery, check the installation for the battery by removing and re-installing 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 Battery

If you want to check the condition of the primary Lithium ion battery, check the Battery Level indicator located on the Status Indicator panel. The indicator changes as the battery levels change. *(Figure 3-2 on page 22.)*

POINT

The status panel of your notebook will not display information for a second battery when using a dual-battery configuration. Since the battery charger is connected to the DC power jack of the notebook, the notebook does not treat it as a battery.

The Lithium ion battery is recharged internally using the AC adapter or auto/airline adapter, or you can use the optional external battery charger. To recharge a battery internally:

- Make sure the battery to be charged is installed in your notebook and connect the AC or auto/airline adapter.
- Make sure that the Battery Charging indicator to the left of the Battery Level indicator of the battery to be charged is visible on the Status Indicator panel.
- Make sure the percentage charge is shown inside the Battery Level icon. *(Figure 3-2 on page 22.)*

Consult the documentation that comes with the optional external battery charger for instructions on using it to charge batteries.

There is no memory effect on the Lithium ion batteries, which means that you do not need to discharge them completely before recharging. A single fully discharged Lithium ion battery will charge in approximately 3 hours when your notebook is Off or in Suspend mode. Of course partially charged batteries will not take as long to charge. The charge time will be significantly longer if your notebook is in use while the batteries are charging (approximately eight (8) hours for one battery 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 flashes. If you do not respond to the low battery alarm, the battery will continue to discharge until it is 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 what happens at the dead battery alarm level. Your notebook will go to Suspend mode. *(Figure 3-1 on page 20.)*

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 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/airline.

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, battery, AC adapter or auto/airline adapter, while your notebook is in Suspend mode any data which has not been saved to the hard drive 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/airline 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 some time. If a power source is not provided promptly, the Power indicator will stop 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 16 for shutdown procedures.)*

CAUTION

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

EXTERNAL FLOPPY DISK DRIVE

The external 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, and External Installation of a Floppy Disk Drive on page 106.)

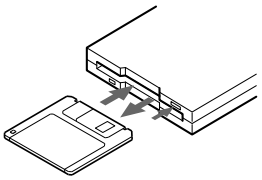

Figure 3-11 Loading/Ejecting a Floppy Disk

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 3-11.)*

Ejecting a Floppy Disk

To eject a disk, check that the Floppy Disk Drive Access indicator is Off, *(see page 20)* and press the Eject button. *(Figure 3-11.)*

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 disk drive.

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 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.

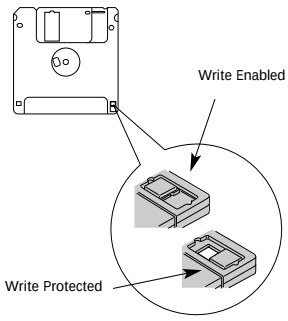

Figure 3-12 Floppy Disk Write Protect

Care of Floppy Disk Drives and Disks

- Avoid storing the floppy disk drive and disks in extremely hot and cold locations, or in locations subject to severe temperature changes.
- Keep the floppy disk drive and disks out of direct sunlight and away from heat.
- Avoid storing the floppy disk drive in locations subject to shock and vibration.
- Avoid using the floppy disk drive and 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 disk.
- Never store a floppy disk near a magnet or 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.

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.

CAUTION

If you reformat the internal hard drive ALL data including the operating system, applications software and user data will be erased. Unless data is copied to floppy disks or other data storage media it will be permanently lost. All software will need to be re-installed and data files restored from your back-up disks. See the operating system manual for more information on backing-up your data files. The factory installed software, including the operating system, can be restored from the Recovery CD-ROM which came in the accessories compartment when you purchased your notebook. *(See Restoring Your Pre-installed Software from CD-ROM on page 133 for more information.)* Any application software which you have purchased and installed will have to be re-installed 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 100-101 for more information.)*

INTERNAL MODEM

Your LifeBook B112 is configured with a 56K fax/data/voice modem with V.90 support.

CAUTION

The internal modems on all Fujitsu notebooks from Fujitsu PC Corporation are not qualified for use with telephone systems outside the United States and Canada and may not operate in other countries.

INFRARED PORT

Infrared IrDA-compatible communication is a function that allows for wireless data transfer between your notebook 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 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 your notebook or the other device will degrade performance. With Windows 98, you can use the Infrared Recipient program for infrared file transfers. LapLink software can also 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. 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.

POWER MANAGEMENT

Your LifeBook B112 has many features for conserving battery power. Some power savings features are automatic and have no user control, such as those for the internal modem, while others depend on the parameters you set to best suit your operating conditions. Other power saving features turn the display brightness down, limit the use of high power devices, activate an appropriate power savings profile, and 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 may be controlled from settings made in the BIOS setup utility, or from settings made in your operating system.

Figure 3-13 Suspend/Resume Button

Using the Suspend/Resume Button

When your notebook is active, the Suspend/Resume button, *(Figure 1-5 on page 4)*, can be used to manually put your notebook into Suspend mode. The Suspend/Resume button is located next to the Status Indicator panel above the keyboard of your notebook. *(Figure 3-13.)* Push the Suspend/Resume button, when your notebook is active but no Access indicators are on and release the button (immediately). You will hear two short beeps and then your system will enter suspend mode.

If your notebook is suspended, pushing the Suspend/Resume button will return your notebook to active operation at the point where it went into suspension. You can tell whether or not your system is in Suspend mode by looking at the Power indicator. *(See page 20.)* If it is visible and not flashing, your notebook is fully operational. If it is visible and flashing, your notebook is in Suspend mode. If it is not visible, the power is Off or your notebook is in Save-to-Disk mode. *(See pages 37-38.)* When you receive your LifeBook B112 it will be set to the default, which is Suspend mode.

CAUTION

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

Suspend Mode

The Suspend mode, or Standby mode in Windows 98, 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 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 when your system is in the On state.
- Selecting Standby from the Windows Shut down menu.
- Timing out from lack of activity.
- Battery level reaching the Dead Battery Warning condition.

Your notebook's RAM 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. 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.

Using the Suspend/Resume Button to Perform Save-to-Disk

When your notebook is active, the Suspend/Resume button, *(Figure 3-13)*, can be used to manually put your notebook into Save-To-Disk mode. However, you must first enable Save-to-Disk mode:

- For Windows 98 you must enable Save-to-Disk mode in the BIOS Setup utility Power menu. *(See pages 83-90 for more information on the Power menu of the BIOS Setup utility.)*

Push the Suspend/Resume button, when your notebook is active but no Access indicators are on and release the button (immediately). You will hear two short beeps and then your system will flash the Save-to-Disk screen, and enter Save-to-Disk mode.

If your notebook is in Save-to-Disk mode, pushing the Suspend/Resume button will return your notebook to active operation at the point where it went into Save-to-Disk mode. You can tell whether or not your system is in Save-to-Disk mode by looking at the Power indicator. *(See page 20.)* If it is visible and not flashing, your notebook is fully operational. If it is visible and flashing, your notebook is in Suspend mode. If it is not visible, the power is Off or your notebook is in Save-to-Disk mode.

Save-to-Disk Mode

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

- Press the Suspend/Resume button until acknowledged with Save-to-Disk mode enabled from the Power menu of the BIOS setup utility.
- Select Standby from the Windows Shut down menu with Save-to-Disk enabled by the BIOS setup utility.
- 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. 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.

CAUTION

Be sure you know which settings are active for the Suspend/Resume button before you use it; misuse can result in data loss. *(See the Power Menu of the BIOS setup utility, pages 83-90, for more information.)*

CAUTION

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

POINT

Disabling the Suspend/Resume button prevents it from being used to put your notebook in Suspend or Save-to-Disk mode. The resume function of the button cannot be disabled. *(See the Power Menu of the BIOS setup utility, pages 83-90, for more information.)*

POINT

If your notebook is active when you enter the Suspend 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.

POINT

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

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 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 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 100-101 for more information.)*
If you need help contact your support representative for recommendations.

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 page 85.)*

Hard Disk Timeout

The Hard Disk 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 page 85.)* 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.

Windows Power Management Control Panels

The Power Management icon in the Windows 98 Control Panel allows you to configure some of the power management settings that are normally controlled by the BIOS. For instance, you can set timeout values in the Power Management Control Panel for turning off the display and for turning off hard disks. You can specify these timeout values based on whether you are running on batteries or AC.

ACPI and Windows 98

Short for Advanced Configuration & Power Interface, a power management specification developed by Intel, Microsoft, and Toshiba. ACPI, which is part of the Windows 98 operating system, enables the operating system to control the amount of power given to each device attached to the computer. With ACPI, the operating system can turn off peripheral devices, such as CD-ROM players, when they are not in use.

Your Windows 98 LifeBook B112 notebook is configured in APM (Advanced Power Management) mode. Due to ongoing industry development of ACPI technology, it is not recommended that you re-configure your notebook for ACPI mode.

PRE-INSTALLED SOFTWARE

Your LifeBook B112 comes with pre-installed software for playing audio and video files of various formats. In addition there is file transfer software, virus protection software, and Power Management software.

All of the pre-installed software can be accessed from the Program folder of the Windows 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.

POINT

You can modify the setup of certain audio parameters in the BIOS setup utility, Advanced Menu – Multimedia Device Configuration Submenu.
(See page 68.)

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. Online help screens are accessible from the AudioDrive panel of AudioRack32, click on the Help button for more information.

In AudioRack32 the AudioDrive panel lets you 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.

POINT

Do not launch the AudioRack program if there is no CD in the external CD-ROM drive or the system will run very slowly. To avoid this problem, turn off the "CD" button on the AudioRack control panel, or insert a CD into the CD-ROM drive before launching AudioRack.

LapLink

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

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 or online manual for information on how and when to run this program.

PMSet 98

PMSet 98 is a power management application which allows you to monitor battery status and configure your LCD display to conserve power. See your online help screens for information on how to use the program.

POINT

Due to the fact that the LifeBook B112 hardware does not support 'CPU Clock Control' this option is not selectable in the 'Power Control' tab of the PMSet 98 application.

Adobe® Acrobat® Reader

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

PC Doctor

PC Doctor by Watergate Software is primarily for use by your support representative when helping you with troubleshooting.

DATA SECURITY

Your LifeBook B112 has a built-in hardware control password security feature that allows you to protect the data stored in the notebook from unauthorized access. Your operating system and some applications have software control password security features that allow you to protect all or portions of the data stored in the notebook from unauthorized access.

Hardware Data Security Features

When you are using your notebook built-in hardware control password to gain access to the 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 79-82 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 the notebook, and you will have to contact your service provider and arrange to have them reset the hardware system password. See your software documentation 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.

Configuring Your LifeBook B112

SECTION FOUR

CONFIGURING YOUR LIFEBOOK B112 FROM FUJITSU

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

BOOT SEQUENCE

Each time you power up or restart your LifeBook B112, 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 access the ability to change the drive that will be used for finding the operating system, press the **Esc** key anytime while the Fujitsu logo is displayed. To enter the BIOS setup utility press the **F2** key anytime while the Fujitsu logo is displayed. When the boot sequence is completed without a failure and without a request for the setup utility, the system displays the Windows opening screen. 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 2-4 on page 12.)*
- You restart your computer from the 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 twice in a row. This method is not recommended since it can result in loss of data.

POINT

The BIOS setup utility is entered by pressing the **F2** key during the boot while the Fujitsu logo is on the screen.

POINT

When error messages occur see Section Six *(pages 130-132)* 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 designators.

Drive Designators

A: Floppy disk drive.
Used with the external floppy disk drive.

C: Hard drive.
Installed inside your notebook.

D: CD-ROM drive.
Used with the optional external CD-ROM drive.

BIOS SETUP UTILITY

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

The setup utility 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 saving parameter settings. *(For a more convenient process, see the PowerPanel section on page 39.)*
- Change a port address or other parameter.
- Change an audio parameter setting.
- Change the selection of whether to use the built-in display, an external monitor or both. *(For a more convenient process, see the* **Fn** *Key description on page 28.)*
- 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 **F2** key.
3. The Main Menu of the setup utility appears with the current settings 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:

   ```
   Press <F1> key to resume,
   <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.

POINT

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

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 126-127.)* The Troubleshooting Section includes a list of error messages and their meanings. *(See pages 130-132.)*

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 an error message:

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

NAVIGATING THROUGH THE SETUP UTILITY

The BIOS setup utility consists of seven menus; MAIN, ADVANCED, SECURITY, POWER BOOT, INFO and EXIT. The remainder of Section Four explains each menu in turn including all submenus and setup 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: ↑, ↓.
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.

7. Pressing the **F9** key resets all items in the BIOS setup utility to the default values. You will be asked to verify this action before it is executed.
8. Pressing the **F10** key saves the current BIOS configuration and exits the BIOS setup utility. You will be asked to verify this action before it is executed.
9. Pressing the **F1** key will give you a general help screen.

POINT

The BIOS Setup screens on the following pages are only a representation of the actual BIOS Setup screens. Your setup screens may vary.

MAIN MENU – SETTING STANDARD SYSTEM PARAMETERS

The Main Menu allows you to set or view the current System Parameters. Follow the preceding instructions for Navigating Through The Setup Utility to make any changes.

Table 4-1 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 System Date can also be set from your operating system without using the setup utility. Use the calendar and time icon on your Windows Control panel or type time or date from the MS-DOS prompt.

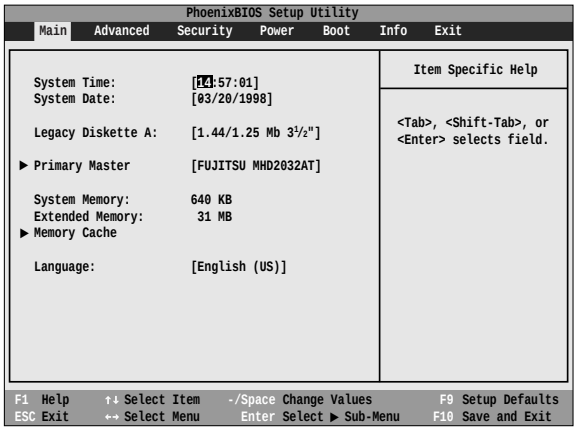

Figure 4-1 Main Menu

Table 4-1 Fields, Options and Defaults for the Main Menu

Menu Field	Options	Default	Description
System Time:	—	—	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.
System Date:	—	—	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: 03/20/1997. You may change each segment of the date separately. Move between the segments with the **Tab** key and/or **Shift** + **Tab** keys.
Legacy Diskette A:	1.44/1.25 MB, 3½"; Disabled.	1.44/1.25 MB, 3½"	Sets the format for floppy disk drive A if it is installed.
Primary Master:	Selects the Primary Master Adapter submenu.	[FUJITSU MHD2032AT]	Displays the type of internal hard drive the BIOS believes is in use. The internal hard drive is connected to the Primary Master Adapter. When this field is selected it opens the Master Adapter submenu. You can then change hard drive parameters to suit your particular drive.

Table 4-1 Fields, Options and Defaults for the Main Menu

Menu Field	Options	Default	Description
System Memory:	—	640 KB	Displays the size of system memory, which is detected automatically and cannot be changed by the setup utility.
Extended Memory:	—	31 MB	Displays the size of extended memory which is detected automatically and cannot be changed by the setup utility.
Memory Cache:	Selects the Memory Cache Submenu.	-	Allows you to set your system to use external memory cache.
Language:	English (US); Japanese (JP).	[English (US)]	The language selection controls the language in the BIOS screens and the power up screen. It does not change the operating system display so the desktop is not affected.

Primary Master Submenu of the Main Menu

The Primary Master Adapter is connected to the internal hard drive. The type of drive is shown at the top of the Menu. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-2 shows the names of the menu fields for the Primary Master Adapter 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.

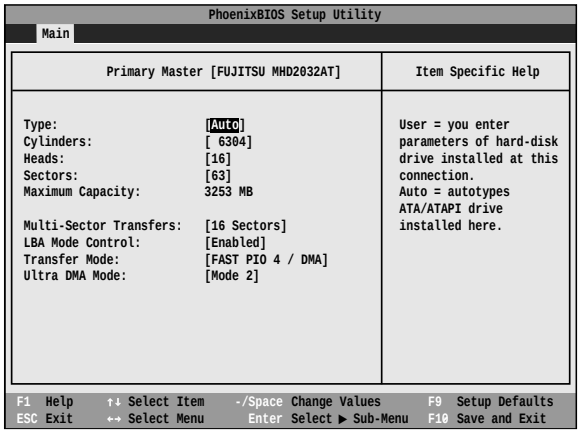

Figure 4-2 Master Adapter Submenu

Table 4-2 Fields, Options and Defaults for the Master Adapter Submenu

Menu Field	Options	Default	Description
Type:	Auto; None; User.	[Auto]	Allows you to configure the interface for almost any drive. When Auto is selected the BIOS detects the control parameters from the drive itself and displays them. The user can not change any of the other menu items when Auto is selected. The None selection is to use if there is no drive connected to that Adapter. No parameters are displayed. The User selection lets you set the parameters that are displayed except the total capacity which is detected and displayed.
Cylinders: (Available to change only when Type = User. Displayed when Type =Auto and a hard drive is detected. Not displayed for other selections.)	A number between 0 and 65,535.	—	Sets the number of cylinders for the drive. This field can be changed by incrementing (pressing the **Spacebar or Hyphen key**) or by typing in the number.

Table 4-2 Fields, Options and Defaults for the Master Adapter Submenu

Menu Field	Options	Default	Description
Head: (Available to change only when Type = User. Displayed when Type = Auto and a hard drive is detected Not displayed for other selections.)	A number between 1 and 16.	—	Sets the number of sectors on the drive. This field can be changed by incrementing (pressing the **Spacebar or Hyphen key**) or by typing in the number.
Sectors: (Available to change only when Type =User. Displayed when Type = Auto and a hard drive is detected. Not displayed for other sections.)	A number between 0 and 63.	—	Sets the number of cylinders for the drive. This field can be changed by incrementing (pressing the **Spacebar or Hyphen key**) or by typing in the number.
Maximum Capacity: (Displayed for Type = User and for Type = Auto and a hard drive is detected. Not displayed for other selections.)	Display only.	—	

Table 4-2 Fields, Options and Defaults for the Master Adapter Submenu

Menu Field	Options	Default	Description
Multi-Sector Transfers: (Available to change only when Type = User. Displayed when Type = Auto and a hard drive is detected. Not displayed for other selections.)	Disabled; 2 Sectors; 4 Sectors; 8 Sectors; 16 Sectors; MAX 32; MAX 64; MAX 128.	—	Sets the number of sectors allowed in a block transfer.
LBA Mode Control: (Available to change only when Type = User. Displayed when Type =Auto and a hard drive is detected. Not displayed for other selections.)	Enabled; Disabled.	—	Enables or disables Logical Block Addressing in place of Cylinder, Head, Sector addressing.

Table 4-2 Fields, Options and Defaults for the Master Adapter Submenu

Menu Field	Options	Default	Description
Transfer Mode: (Available to change only when Type = User. Displayed when Type = Auto and a hard drive is detected. Not displayed for other selections.)	Standard, Fast PIO 1; Fast PIO 2; Fast PIO 3; Fast PIO 4; Fast PIO 3/DMA; Fast PIO 4/DMA.	—	Selects the data movement method for the drive.
Ultra DMA Mode: (Available to change only when Type = User. Displayed when Type = Auto and a hard drive is detected. Not displayed for other selections.)	Disabled; Mode 0; Mode 1; Mode 2.	—	Selects the DMA transfer mode for the drive.

Memory Cache – Submenu

The Memory Cache submenu provides the ability to enable or disable external cache memory for your processor. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-3 shows the names of the menu fields for the Memory Cache submenu, all 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.

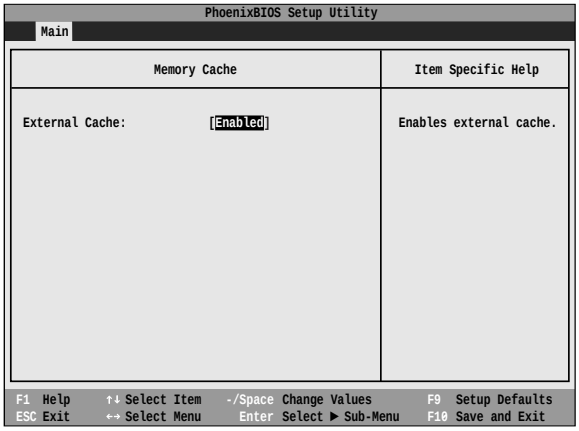

Figure 4-3 Memory Cache Submenu of the Main Menu

Table 4-3 Fields, Options and Defaults for the Memory Cache Submenu

Menu Field	Options	Default	Description
External Cache:	Enabled; Disabled.	[Enabled]	Turns external memory cache on and off.

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 page 47 for more information.)*

ADVANCED MENU – SETTING DEVICE FEATURE CONTROLS

The Advanced Menu allows you to:

- Set the I/O addresses for the ports.
- Set the communication modes.
- Set audio function I/O address, interrupt level and DMA channel.
- Select between the display panel and an external CRT display.
- Enable or disable compensation for your display.
- Set keyboard and mouse features.

Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-4 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.

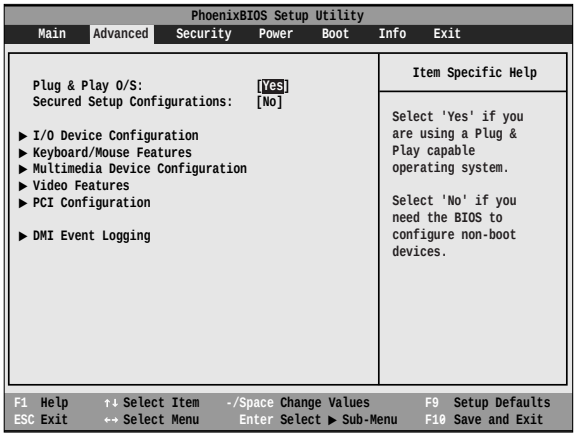

Figure 4-4 Advanced Menu

Table 4-4 Field Names, Options and Defaults for the Advanced Menu

Menu Field	Options	Default	Description
Plug & Play O/S:	Yes; No.	[Yes]	Allows you to inform the BIOS whether your operating system is capable of plug and play operation.
Secured Setup Configurations:	Yes; No.	[No]	Allows you to prevent plug and play operations from changing system settings.
I/O Device Configuration:	Selects the I/O Device. Configuration submenu.	—	This menu allows you to set I/O addresses and interrupt levels for most input/output devices.
Keyboard/Mouse Features:	Selects the Keyboard/ Mouse Features submenu.	—	This menu allows changing some of the mouse and keyboard parameters.
Multimedia Device Configuration:	Selects the Multimedia Device Configuration submenu.	—	This menu allows setting of address and interrupts for multimedia devices.
Video Features:	Selects the Video Features submenu.	—	This menu allows setting up the display.
PCI Configuration:	Selects the PCI Configuration submenu.	—	This menu provides access to an additional submenu and allows enabling and disabling of the internal modem.
DMI Event Logging:	Selects the DMI Event Logging submenu.	—	This menu allows setting of the Desktop Management Interface (DMI) parameters.

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. See your hardware and software documentation as well as the setup utility to determine settings, limitations, etc.

I/O Device Configuration Submenu of the Advanced Menu

The I/O Device Configuration submenu provides the ability to set the I/O addresses and interrupt levels for ports of your notebook. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-5 shows the names of the menu fields for the I/O Device 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.

POINT

To prevent IRQ and address conflicts, avoid changing the default settings. If you must change the settings, you can call 1-800-8FUJITSU for technical assistance.

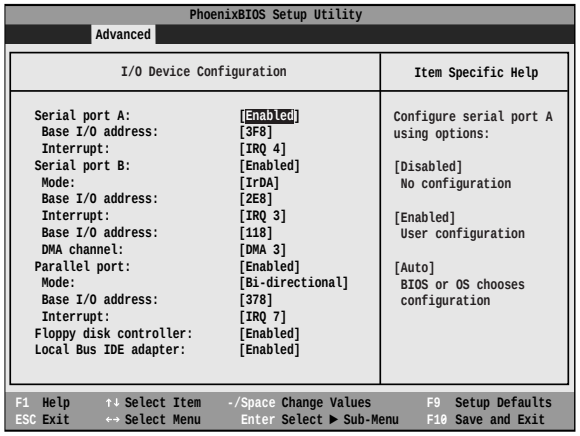

Figure 4-5 I/O Device Configuration

POINT

All I/O addresses in Table 4-5 are in hexadecimal.

Table 4-5 Fields, Options and Defaults for the I/O Device Configuration Submenu

Menu Field	Options	Default	Description
Serial port A:	Auto; Disabled; Enabled.	[Enabled]	Selects configuration method for serial port A. Serial port A is the external serial port. The selection Auto makes the BIOS or operating system choose the configuration. The Disabled selection means that serial port A is not configured for use. The Enabled selection provides for configuration setup by the user. When Enabled is selected the choices for setting Base I/O address and Interrupt level are displayed.
Base I/O address: (Displayed only when serial port A is set to Enabled.)	3F8; 2F8; 3E8; 2E8.	[3F8]	Sets the Base I/O address for serial port A.
Interrupt: (Displayed only when serial port A is set to Enabled.)	IRQ 3; IRQ 4; IRQ 10; IRQ 11.	[IRQ 4]	Sets the interrupt level for serial port A.

CAUTION

The BIOS will warn you that there is a resource conflict by placing a yellow asterisk next to the device(s) in conflict.

Table 4-5 Fields, Options and Defaults for the I/O Device Configuration Submenu

Menu Field	Options	Default	Description
Serial port B:	Auto; Disabled; Enabled.	[Enabled]	Selects configuration method for serial port B. Serial port B is the serial port which is the infrared port. The selection Auto makes the BIOS or operating system choose the configuration except for mode. The Disabled selection means that serial port B is not configured for use. The Enabled selection provides for configuration setup by the user. When Enabled is selected the choices for setting Base I/O address and interrupt level are displayed.
Mode: (Displayed if serial port B is not disabled.)	FIR; IrDA.	[FIR]	Selects the speed and format of the infrared port.
Base I/O address: (Displayed only when serial port B is set to Enabled.)	3F8; 2F8; 3E8; 2E8.	[2E8]	Selects the Base I/O address for serial port B.
Interrupt: (Displayed only when serial port B is set to Enabled.)	IRQ 3; IRQ 4; IRQ 10; IRQ 11.	[IRQ 3]	Sets the interrupt level for serial port B.
Base I/O address: (Displayed only when serial port B is set to Enabled and Mode is set to FIR.)	100; 108; 110; 118.	[118]	Sets the Base I/O address for the FIR mode operation.

Table 4-5 Fields, Options and Defaults for the I/O Device Configuration Submenu

Menu Field	Options	Default	Description
DMA channel: (Displayed only when serial port B is set to Enabled and Mode is set to FIR.)	DMA 1; DMA 3.	[DMA 3]	Sets the DMA channel for the FIR mode of operation.
Parallel port:	Auto; Disabled; Enabled.	[Enabled]	Selects configuration method for parallel port. The selection Auto makes the BIOS or operating system choose the configuration. The Disabled selection means that the parallel port is not configured for use. The Enabled selection provides for configurtion setup by the user. When Enabled is selected the choices for setting Base I/O address and Interrupt level are displayed.
Mode: (Displayed if the parallel port is not disabled.)	Output only; Bi-directional; ECP.	[Bi-directional]	Selects the mode for the parallel port. Bi-directional (Full Duplex) is two way transfer of information between your note book 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 receive status and error inform tion from the printer. Output only (Half Duplex) is information transfer in one direction only, it can transfer data and control information to the printer but CANNOT receive status and error information from the printer. ECP allows communication with ECP class devices.

Table 4-5 Fields, Options and Defaults for the I/O Device Configuration Submenu

Menu Field	Options	Default	Description
Base I/O address: (Displayed only when the parallel port is set to Enabled.)	378; 278; 3BC.	[378]	Selects the Base I/O address for the parallel port.
Interrupt: (Displayed only when the parallel port is set to Enabled.)	IRQ 5; IRQ 7.	[IRQ 7]	Sets the interrupt level for the parallel port.
Floppy disk controller:	Enabled; Disabled.	[Enabled]	Turns on and off the floppy disk drive controller.
Local Bus IDE adapter:	Enabled; Disabled.	[Enabled]	Turns on and off the IDE adapter

Keyboard/Mouse Features Submenu of the Advanced Menu

The Keyboard/Mouse Features submenu is for setting the parameters of the integrated and external mouse and keyboard. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-6 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.

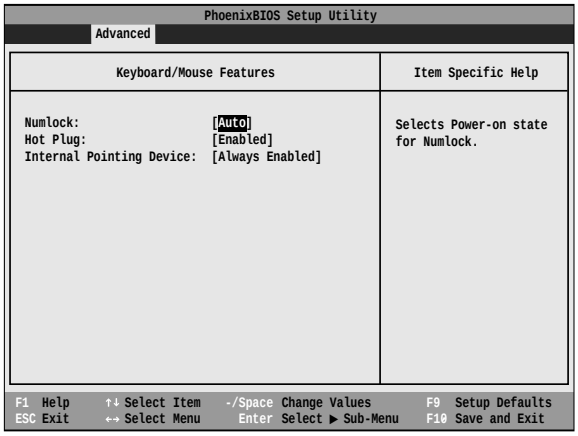

Figure 4-6 Keyboard/Mouse Features Submenu

Table 4-6 Fields, Options and Defaults of the Keyboard/Mouse Submenu

Menu Field	Options	Default	Description
Numlock:	Off; On; Auto.	[Auto]	Sets the NumLock function state when the computer completes booting.
Hot Plug:	Enabled; Disabled.	[Enabled]	Enables and disables the ability to plug a mouse or keyboard into the PS/2 port and have it immediately recognized and active.
Internal Pointing Device:	Auto Disabled; Always Enabled.	[Always Enabled]	Sets the device controlling the mouse cursor on the screen. Always Enabled makes the touchpad pointing device always enabled whether there is an external mouse or not. Auto Disabled makes the touchpad pointing device turn off when an external pointing device is connected to the USB port.

Multimedia Device Submenu of the Advanced Menu

The Multimedia Device submenu is for setting the features of the built-in audio, game and other multimedia functions. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-7 shows the names of the menu fields for the Multimedia Device 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.

POINT

All I/O addresses in Table 4-7 are in hexadecimal.

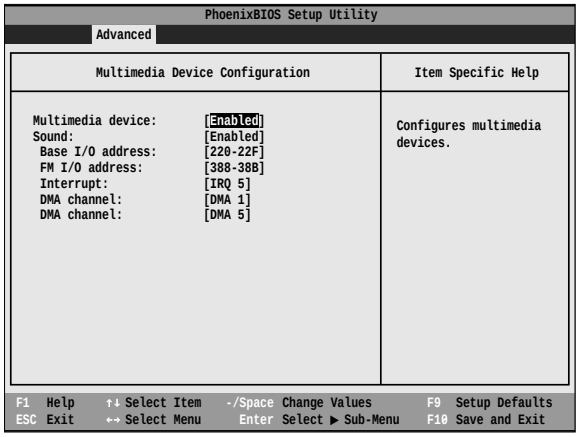

Figure 4-7 Multimedia Device Configuration Submenu

Table 4-7 Fields, Options and Defaults of the Multimedia Device Configuration Submenu

Menu Field	Options	Default	Description
Multimedia device:	Enabled; Disabled.	[Enabled]	Turn sound and game equipment on and off.
Sound: (Displayed only when multimedia is enabled.)	Enabled; Auto; Disabled.	[Enabled]	The selection Auto makes the BIOS or operating system choose the configuration. The Disabled selection means that sound equipment is not configured for use. The Enabled selection provides for configuration setup by the user. When Enabled is selected the choices for setting Base I/O address and Interrupt level are displayed.
Base I/O address: (Displayed only when multimedia and sound are both enabled.)	220 – 22F; 240 – 24F; 260 – 26F; 280 – 28F.	[220 – 22F]	Sets the base addresses for sound equipment.
FM I/O address: (Displayed only when multimedia and sound are both enabled.)	388 – 38B; 38C – 38F; 390 – 393; 394 – 397.	[388 – 38B]	Sets the base addresses for the FM synthesizer functions.

Table 4-7 Fields, Options and Defaults of the Multimedia Device Configuration Submenu

Menu Field	Options	Default	Description
Interrupt: (Displayed only when multimedia and sound are both enabled.)	IRQ 5; IRQ 7; IRQ 9; IRQ 10; IRQ 11.	[IRQ 5]	Sets the interrupt level for sound equipment.
DMA channel: (Displayed only when multimedia and sound are both enabled.)	DMA 0; DMA 1; DMA 3; DMA 5.	[DMA 1]	Sets the DMA channel for the FM synthesizer functions.
DMA channel: (Displayed only when multimedia and sound are both enabled.)	DMA 0; DMA 1; DMA 3; DMA 5.	[DMA 5]	Sets the DMA channel for the MIDI functions.

Video Features Submenu of the Advanced Menu

The Video Features Submenu is for setting the display parameters. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-8 shows the names of the menu fields for the Video 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.

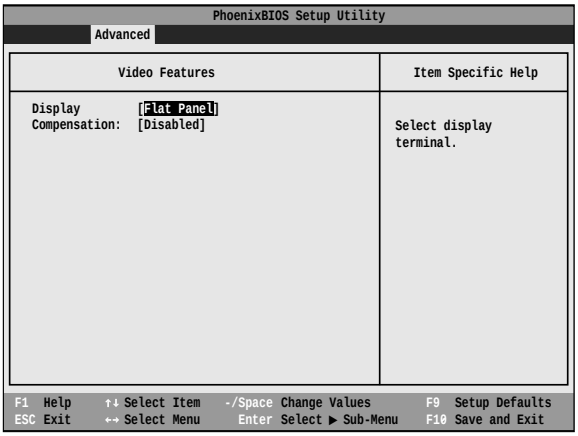

Figure 4-8 Video Features Submenu

Table 4-8 Fields, Options and Defaults for the Video Features Submenu

Menu Field	Options	Default	Description
Display:	Flat-Panel; CRT; Simultaneous.	[Flat-Panel]	Selects where the video signal will be routed.
Compensation:	Enabled; Disabled.	[Disabled]	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.

PCI Configuration Submenu of the Advanced Menu

The PCI Configuration Submenu is for enabling and disabling the internal modem and setting the interrupt options for legacy ISA devices. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-9 shows the names of the menu fields for the PCI Configuration submenu, all 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.

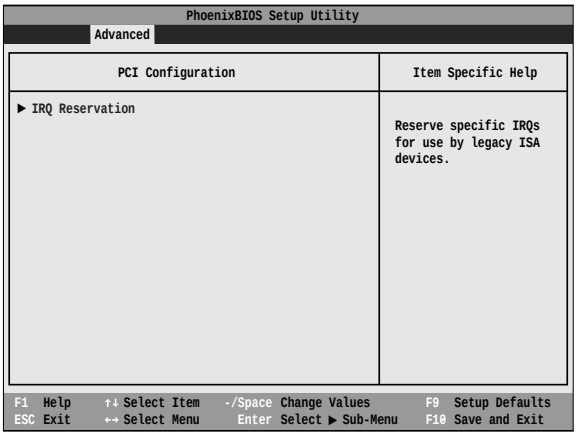

Figure 4-9 PCI Configuration Submenu

Table 4-9 Fields, options and Defaults for the PCI Configuration Submenu

Menu Field	Options	Default	Description
IRQ Reservation:	Selects the IRQ Reservation Submenu.	—	This menu allows you to set aside interrupt levels for legacy ISA devices.

IRQ Reservation Submenu of the PCI Configuration Submenu

The IRQ Reservation Submenu is for reserving interrupts for legacy ISA devices. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-10 shows the names of the menu fields for the IRQ Reservation submenu, all 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.

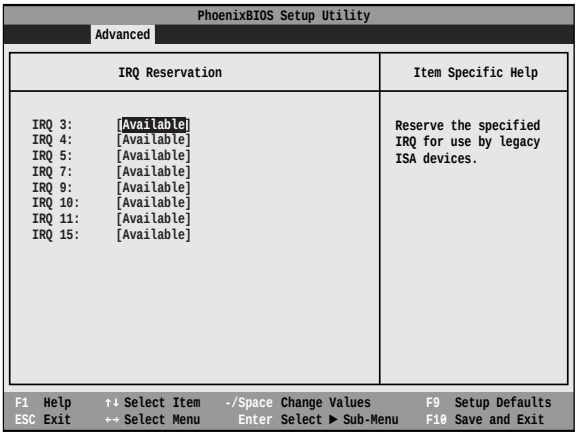

Figure 4-10 IRQ Reservation Submenu

Table 4-10 Fields, options and Defaults for the IRQ Reservation Submenu

Menu Field	Options	Default	Description
IRQ 3:	Available; Reserved.	[Available]	Turns on or off the reservation for that IRQ for legacy ISA devices.
IRQ 4:	Available; Reserved.	[Available]	Turns on or off the reservation for that IRQ for legacy ISA devices.
IRQ 5:	Available; Reserved.	[Available]	Turns on or off the reservation for that IRQ for legacy ISA devices.
IRQ 7:	Available; Reserved.	[Available]	Turns on or off the reservation for that IRQ for legacy ISA devices.
IRQ 9:	Available; Reserved.	[Available]	Turns on or off the reservation for that IRQ for legacy ISA devices.
IRQ 10:	Available; Reserved.	[Available]	Turns on or off the reservation for that IRQ for legacy ISA devices.
IRQ 11:	Available; Reserved.	[Available]	Turns on or off the reservation for that IRQ for legacy ISA devices.
IRQ 15:	Available; Reserved.	[Available]	Turns on or off the reservation for that IRQ for legacy ISA devices.

CAUTION

Only IRQs 9, 10 & 11 can be reserved without conflict.

DMI Event Logging Submenu of the Advanced Menu

The DMI Event Logging Submenu is for setting up the logs DMI event logging. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-11 shows the names of the menu fields for the DMI Event Logging submenu, all 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.

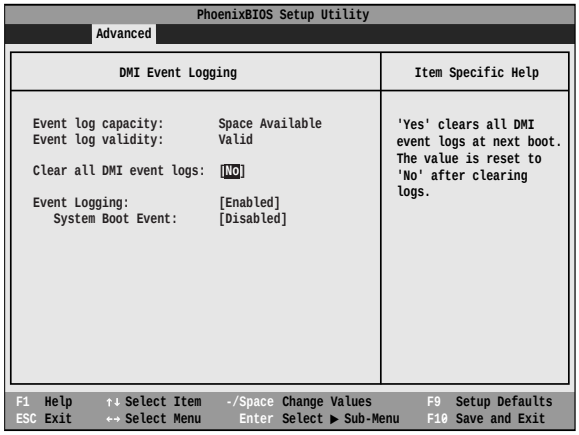

Figure 4-11 DMI Event Logging Submenu

Table 4-11 Fields, options and Defaults for the DMI Event Logging Submenu

Menu Field	Options	Default	Description
Event log capacity:	Display only.	[Space Available]	
Event log validity:	Display only.	[Valid]	
Clear all DMI event logs:	Yes; No.	[No]	A Yes selection causes the event logs to clear at the next boot. Once the logs are cleared this automatically sets to No until reset to yes by selecting yes here.
Event Logging:	Enabled; Disabled.	[Enabled]	Turns event logging on and off for all DMI events.
System Boot Event: (Available to change only when Event Logging is Enabled.)	Enabled; Disabled.	[Disabled]	Turns event logging on and off for DMI system boot events.

SECURITY MENU – SETTING THE SECURITY FEATURES

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 page 47.)*

Table 4-12 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.

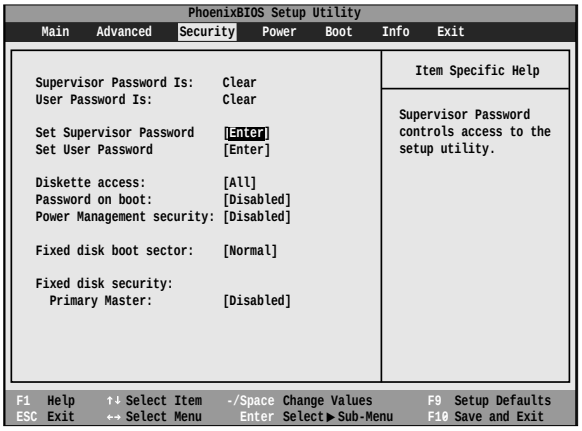

Figure 4-12 Security Menu

Table 4-12 Fields, Options and Defaults for the Security Menu

Menu Field	Options	Default	Description
Supervisor Password is:	—	Clear	A display-only field. Set is displayed when the system supervisor password is set and Clear when it is not.
User Password is:	—	Clear	A display-only field. Set is displayed when the general user password is set, and Clear when it is not.
Set Supervisor Password:	[Enter]	—	Sets, changes or cancels the Supervisor Password. The Supervisor Password may be up to seven characters long and must include only 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 BIOS setup utility.
Set User Password: (This field can only be accessed if the Supervisor Password is set.)	[Enter]	—	Sets, changes or cancels the User Password. 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 and Re-enter New Password fields. When a User Password is set it must be used to access the BIOS setup utility.
Diskette access:	All; Supervisor Only.	[All]	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 all users with a password.

Table 4-12 Fields, Options and Defaults for the Security Menu

Menu Field	Options	Default	Description
Password on boot:	Enabled; Disabled.	[Disabled]	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.
Power Management Security:	Enabled; Disabled.	[Disabled]	When set to Enabled, a password (User or Supervisor) is required to resume from Suspend or Save-to-Disk mode. The password required is the same one required by the Password on Boot function.
Fixed disk boot sector:	Normal; Write Protect.	[Normal]	Sets write protection for the sector of the boot disk which contains the operating system. When set to Write Protect, the 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.
Fixed disk security:	—	—	—
Primary Master:	Enabled; Disabled.	[Disabled]	When set to Enabled , a password (User or Supervisor) is required to access data on the disk drive on the Primary Master interface.

CAUTION

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 regain 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 re-entering 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.

POINT

Boot sector protection must be set to [Normal] to install or upgrade an operating system.

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 MENU – SETTING POWER MANAGEMENT FEATURE CONTROLS

The Power 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 page 47.)

Table 4-13 shows the names of the menu fields for the Power 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

Most power management parameters can also be set from the Windows 98 desktop without entering the setup utility, using PowerPanel by Phoenix Technologies. Changing the settings with PowerPanel does not change what is stored in the CMOS memory. *(See page 39.)*

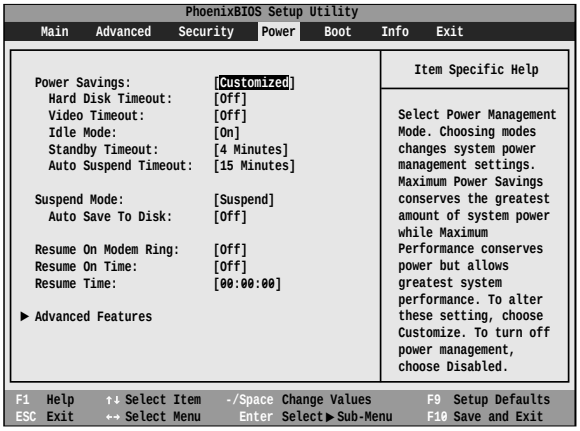

Figure 4-13 Power Menu

POINT

In Windows 98 Auto-Suspend Timeout, Hard Disk Timeout, and Video TImeout features are available exclusively through the operating system.

Table 4-13 Fields, Options and Defaults for the Power Menu.

Menu Field	Options	Default	Description
Power Savings:	Disabled; Customized; Maximum Power Savings; Maximum Performance.	[Customized]	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.

Factory Installed Values for Power Saving Profiles

Profile	**Hard Disk Timeout**	**Video Timeout**	**Idle Mode**	**Standby Mode**	**Auto Suspend Mode**
Customized:	Off.	Off.	On.	4 Minutes.	15 Minute.
Maximum Power Savings:	30 seconds.	2 Minutes.	On.	1 Minute.	5 Minutes.
Maximum Performance:	Off.	Off.	Off.	Off.	15 Minutes.
Disabled:	Off.	Off.	Off.	Off.	Off.
Sample Customized Profile: (To get even better battery life keep the display and volume settings as low as possible by using this custom setting.)	2 Minutes.	1 Minute.	On.	1 Minute.	5 Minutes.

Table 4-13 Fields, Options and Defaults for the Power Menu.

Menu Field	Options	Default	Description
Hard Disk Timeout:	30 seconds to 20 minutes; Off.	[Off]	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 shutoff, to 20 minutes.
Video Timeout:	2 minutes to 20 minutes; Off.	[Off]	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 shutoff.
Idle Mode:	On; Off.	[On]	Turns on and off the slow down of the CPU during periods of inactivity. When this is turned on the CPU clock slows by the amount set in the Advanced Features submenu when there is no activity for 16 seconds or more. Normal speed resumes automatically as soon as there is any activity.

Table 4-13 Fields, Options and Defaults for the Power Menu.

Menu Field	Options	Default	Description
Standby Timeout:	1 minute to 16 minutes; Off.	[4 Minutes]	Sets the length of time without any user input device activity before the CPU is set to half speed 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.
Auto Suspend Timeout:	5 to 60 minutes; Off.	[15 Minutes]	Sets the length of time without any I/O activity before your not book 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.
Suspend Mode:	Suspend; Save-to-Disk.	[Suspend]	Sets the form of suspension state. 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 your notebook will save all of system memory and the operating parameters to the hard drive before turning your notebook to the pseudo-off condition.

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 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 habit of always trying the Suspend/Resume button before using the power switch.

Table 4-13 Fields, Options and Defaults for the Power Menu.

Menu Field	Options	Default	Description
Auto Save to Disk:	Off; After 1 Hour.	[Off]	When set to `After 1 Hour` your notebook will automatically save all of system memory and the operating parameters to the hard drive and go to the pseudo-off if you leave your notebook in Suspend mode for an hour.
Resume On Modem Ring:	On; Off.	[Off]	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.
Resume On Time:	On; Off.	[Off]	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.
Resume Time:	—	—	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.
Advanced Features:	—	—	When selected, opens the Advanced Features submenu which allows setting additional power saving parameters.

Advanced Features Submenu of the Power Menu

The Advanced Features submenu is for setting some non-time related power saving parameters. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-14 shows the names of the menu fields for the Advanced 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.

Exiting from the Power Menu

When you have finished setting the parameters on the Power 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.

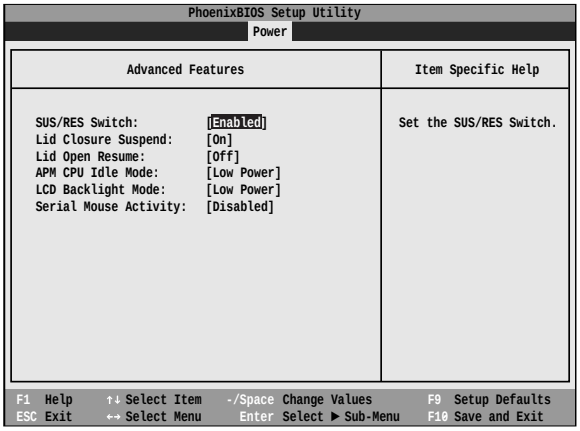

Figure 4-14 Advanced Features Submenu

Table 4-14 Fields, Options and Defaults for the Advanced Features Submenu of the Power Menu

Menu Field	Options	Default	Description
SUS/RES Switch:	Enabled; Disabled.	[Enabled]	Sets the suspend function of the Suspend/Resume button when your notebook is in an active state. The resume function can not be disabled as it works regardless of any other settings.
Lid Closure Suspend:	On; Off.	[On]	Enables or disables having closure of the Display panel put your notebook in Suspend mode.
Lid Open Resume:	On; Off.	[Off]	Enables or disables having the opening of the Display panel acting as an automatic resume.
APM CPU Idle Mode:	Low Power; Standard.	[Low Power]	Sets the CPU speed during Idle mode.
LCD Backlight Mode:	Low Power; Standard.	[Low Power]	Selects the LCD Backlight mode for the display.
Serial Mouse Activity:	Disabled; Enabled.	[Disabled]	Enables/disables having activity on the serial port cause the system to reactivate from inactivity timeouts.

BOOT MENU – SELECTING THE OPERATING SYSTEM SOURCE

The Boot Menu is used to select the order in which the BIOS searches sources for the operating system.

Table 4-15 shows the names of the menu fields for the Boot 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.

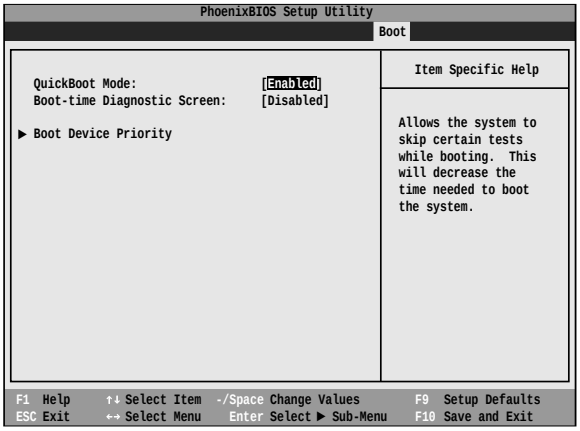

Figure 4-15 Boot Menu

Table 4-15 Fields, Options and Defaults for the Boot Menu

Menu Field	Options	Default	Description
QuickBoot Mode:	Disabled; Enabled; Auto.	[Enabled]	Turns on/off booting with a truncated set of Power On Self Test. (Fewer tests mean faster turn on.)
Boot-time Diagnostic Screen:	Enabled; Disabled.	[Disabled]	Turns on/ off display of test results instead of Fujitsu logo screen during Power On Self Test.
Boot Device Priority:	Selects the Boot Device Priority submenu.	—	This menu allows setting up the source for the operating system.

The Boot Device Priority Submenu of the Boot Menu

The Boot Device Priority Submenu is for setting the order of checking of sources for the operating system. Follow the instructions for Navigating Through the Setup Utility to make any changes. *(See page 47.)*

Table 4-16 shows the names of the drives for the Boot Device Priority submenu, the default settings and a description of the field's function and any special information needed to help understand the field's use.

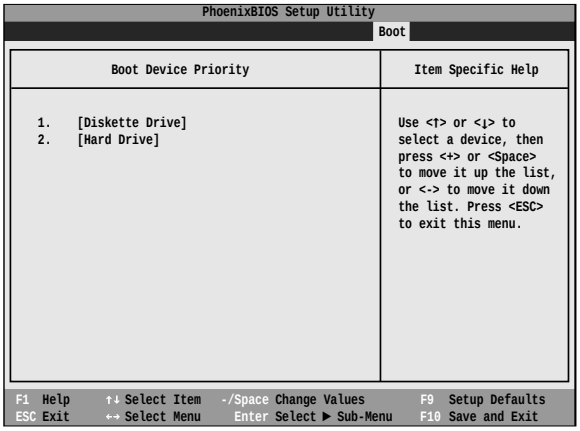

Figure 4-16 Boot Device Priority Submenu

Table 4-16 Fields, Options and Defaults for the Boot Device Priority Submenu

Menu Field	Options	Default	Description
1. Diskette Drive:	—	—	The boot selections determine the order in which the BIOS searches for the operating system during a startup sequence. To change the order highlight one source by using the up ↑, down ↓ cursor keys and then press the **+** or **-** key to change the order number for that source. Be sure to save your changed order when you exit the BIOS setup utility.
2. Hard Drive:	—	—	

Exiting from Boot Menu

When you have finished setting the boot parameters with the Boot 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 to go to the Exit menu. If you wish to move to another menu, use the cursor keys.

INFO MENU

The Info menu is a display only menu that provides the configuration information for your notebook.

Table 4-17 shows the names of the menu fields for the Info menu and a description of the special information needed to help understand the field.

POINT

The Asset Number is an optional user-entered field. An Asset Number can be entered through the use of a 3rd party software, such as LANdesk Client manager.

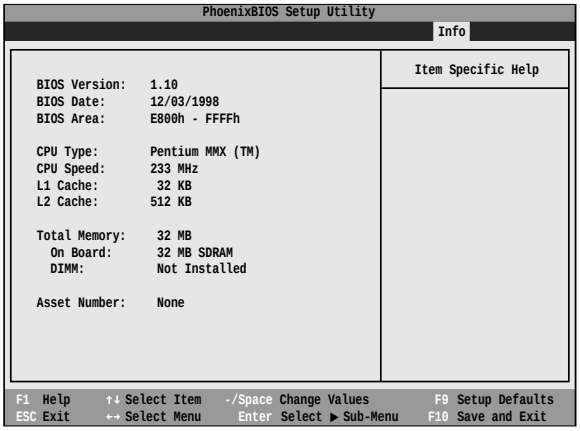

Figure 4-17 Info Menu

Table 4-17 Fields, Options and Defaults for the Info Menu

Menu Field	Options	Default	Description
BIOS Version:	—	1.10	—
BIOS Date:	—	12/03/1998	—
BIOS Area:	—	E800h – FFFFh	—
CPU Type:	—	Pentium MMX (TM)	—
CPU Speed:	—	233 MHz	—
L1 Cache:	—	32 KB	—
L2 Cache:	—	512 KB	—
Total Memory:	—	32 MB	—
On Board:	—	32 MB SDRAM	—
DIMM:	—	Not Installed	—
Asset Number:	—	None	—

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 page 47.)*

Table 4-18 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.

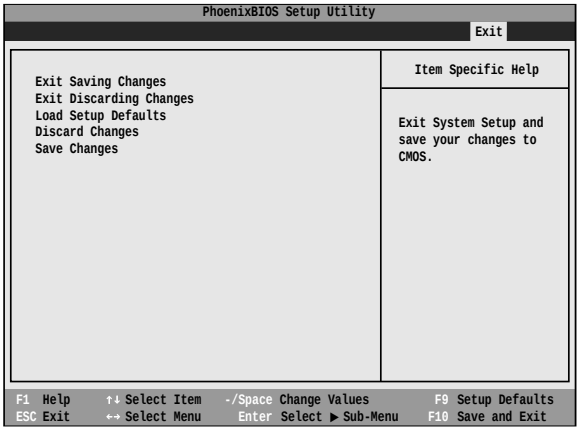

Figure 4-18 Exit Menu

Table 4-18 Fields, Options and Defaults for the Exit Menu

Menu Field	Options	Default	Description
Exit Saving Changes:	—	—	Selecting Exit Saving Changes 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 `Setup Confirmation Save Configuration Changes and Exit Now? [Yes] [No]` will be displayed.
Exit Discarding Changes:	—	—	Selecting Exit Discarding Changes will exit the setup utility with out writing to the BIOS memory. When the BIOS recognizes this selection it will load the operating system and begin operation. A message `Setup Warning Configuration has not been saved! Save before exiting? [Yes] [No]` will be displayed.
Load Setup Defaults:	—	—	Selecting Load Setup Defaults will load the factory preset default values for all menu fields, then display the message `Setup Confirmation Load default configuration? [Yes] [No]` When confirmed the setup utility will return to Exit Menu. To return to another menu follow the directions in the Navigating Through the Setup Utility Section. *(See page 47.)*

Table 4-18 Fields, Options and Defaults for the Exit Menu

Menu Field	Options	Default	Description
Discard Changes:	—	—	Selecting Discard Changes will load the previous values in BIOS memory for all menu fields. `Setup Confirmation Load Previous Configuration now? [Yes] [No]` 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 page 47.)*
Save Changes:	—	—	Selecting Save Changes will cause the new settings in all menus to be written to the BIOS memory. `Setup Confirmation Save Configuration changes now? [Yes] [No]` 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 page 47.)*

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.
2. At the DOS prompt type
   `CD C:\Fujitsu`
3. Type `PHDISK`
4. Press the **Enter** key.

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.
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. Go to the Start Menu and select MS-DOS Prompt.
2. Type `CD C:\Fujitsu`
3. Type `PHDISK /DELETE /FILE`
4. Press the **Enter** key.

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.
2. Type `CD C:\Fujitsu`
3. Type `PHDISK /CREATE /FILE`
4. Press the **Enter** key.
5. 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 by doing the following:

1.Follow steps 1-4 to remove all space allocation for the Save-to-Disk function.

2. Follow steps 1-4 to create a new space allocation for the Save-to-Disk function.

3. The utility will create a Save-to-Disk file called SAVE2DSK.BIN with the same usable size and any bad blocks marked.

CAUTION

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

User Installable Features

SECTION FIVE

USER INSTALLABLE FEATURES

Your LifeBook B112 has a number of user installable features. This section describes how to install and remove equipment for each of the expansion features. The features are:

- A PC Card slot in the left side panel of your notebook allows you to install an external CD-ROM drive, PC Cards, IC memory cards (SRAM card) or Zoomed Video cards.
- A compartment in the bottom of your notebook allows you to install a memory upgrade module.
- A Microphone jack on the right side of your notebook allows you to connect a mono microphone.
- A Headphone jack on the right side of your notebook allows you to connect headphones or powered speakers.
- A PS/2 keyboard port on the rear panel of your notebook and on the Port Replicator allows you to connect an external keyboard or numeric keypad.
- An External Floppy Disk Drive port on the Port Replicator allows you to connect the external floppy disk drive.
- Two USB ports in the right panel of your notebook allows you to connect a Universal Serial Bus device, like a mouse and/or image scanner.
- An RJ-11 jack in the left side panel of your notebook allows you to connect a telephone line to the internal modem.
- A Docking port in the rear of your notebook allows the connection of the Port Replicator.
- A Parallel port in the Port Replicator allows you to connect a parallel printer, a parallel photo or image scanner, etc.
- A Serial port in the Port Replicator allows you to connect serial RS-232C devices, such as serial printers, serial scanners, or certain digital cameras or other handheld organizer devices.
- An External Monitor port in the Port Replicator allows you to connect an external monitor.

PORT REPLICATOR

The Port Replicator extends the functionality of your notebook by providing ports to connect a PS/2 keyboard, external floppy disk drive, a serial device, a parallel device, and an external monitor. The Port Replicator connects to the rear panel of your notebook.

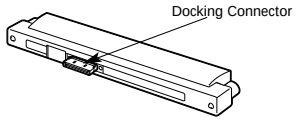

Figure 5-1 Port Replicator Front Panel

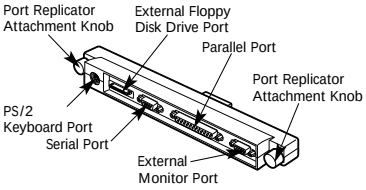

Figure 5-2 Port Replicator Rear Panel

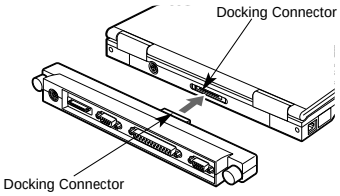

Figure 5-3 Connecting the Port Replicator

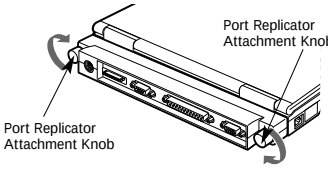

Figure 5-4 Securing the Connection

To Install the Port Replicator:

The Port Replicator can be installed on your notebook while the power is on, while in Suspend mode, or while the power is off.

1. Open the Docking Connector cover on the rear panel of your notebook to expose the Docking Connector.
2. Align the Docking Connector on the rear panel of your notebook with the Docking Connector on the front panel of the Port Replicator. *(Figure 5-3.)*
3. Push the Port Replicator and the notebook together until the docking connectors are fully engaged. *(Figure 5-3.)*
4. Turn the Port Replicator Attachment Knobs clockwise to secure the connection between the Port Replicator and the notebook. You may have to push the knob in slightly to engage the threads. *(Figure 5-4.)*

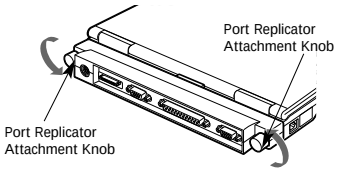

Figure 5-5 Releasing the Connection

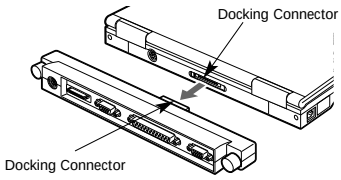

Figure 5-6 Removing the Port Replicator

To Uninstall the Port Replicator:

1. Shut down any files open on any devices attached to the Port Replicator and remove all connected devices.
2. Turn the Port Replicator Attachment Knobs counter-clockwise until the threads disengage and the knobs spin freely. *(Figure 5-5.)*
3. Pull the Port Replicator away from the notebook until the Docking Connectors are clear. *(Figure 5-6.)*

EXTERNAL INSTALLATION OF A FLOPPY DISK DRIVE

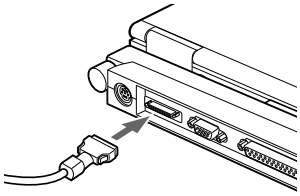

Figure 5-7 Installation of an External Floppy Disk Drive

To Connect An External Floppy Disk Drive:

1. Align the connector of the external floppy disk drive with the connector towards the rear of your Port Replicator with the wide side of the connector down. *(Figure 5-7.)*
2. Insert the connector of the modular floppy disk drive firmly into the port on your Port Replicator until it clicks.

To Disconnect An External Floppy Disk Drive:

1. Squeeze the releases on the sides of the external floppy disk drive connector next to the Port Replicator together. *(Figure 5-7.)*
2. Pull the connector free.

PC CARDS

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

Some examples of PC Cards are:

- Fax/data modem cards (Type II).
- Local area network (LAN) cards (Type II).
- Wireless LAN cards (Type II).
- 1MB/2MB static RAM (SRAM) cards (Type I).
- IDE solid-state disk cards (Type II).
- SCSI card (Type II).
- Zoomed Video cards (Type II).
- Other PC cards that conform to PCMCIA 2.1 or PC 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 right side panel of your notebook. Some PC Cards will not work when all possible devices are enabled. If a PC Card is not recognized, you will need to use the Control Panel, System and then Device Manager and choose a system to disable some device so that the resources can be used by the PC Card.

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.

POINT

The B112 internal PC Card slot is a Zoom Video slot.

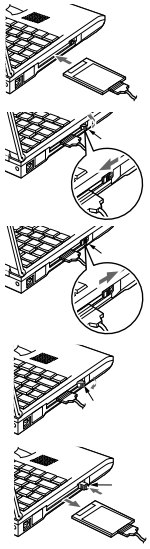

Figure 5-8 Installation and Removal of a PC Card

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 a PC Card.

CAUTION

Installing or removing a 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.

3. Insert the PC Card in the card slot, with the product name label facing up. *(See Figure 5-8.)*
4. The PC Card is fully inserted when the eject button pops 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 to the right. *(See Figure 5-8.)*

Removing a PC Card

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 Window:

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 98 and then shutoff the power with the power switch. *(See Power Off on page 16.)*
6. Slide the lock toward the rear of your notebook to release the card.
7. Flip the eject button toward the rear of your notebook until it is fully extended.
8. Press the eject button in until it is flush with the side of your notebook.
9. Grasp the card and pull it clear of your notebook. *(See Figure 5-8.)*

CAUTION

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

PARALLEL PORT DEVICES

To connect a parallel interface device to the parallel port, be sure that the connector is the right size and aligned, then push in until it is fully seated. When it is seated tighten the hold-down screws, one on each end of the connector. *(See Figure 1-11 on page 8.)*

SERIAL PORT DEVICES

To connect an RS-232C device to the serial port, be sure that the connector is the right size and aligned, then push in until it is fully seated. When it is seated tighten the hold-down screws, one on each end of the connector. *(See Figure 1-11 on page 8.)*

USB MOUSE & DEVICES

Make sure the USB connector on the mouse is the correct type. Align the arrow on the connector to point to the bottom of your notebook and push it in until the connector seats. A mouse may be installed and automatically recognized by your notebook without restarting or changing setups. *(See Figure 1-7 on page 6.)*

When installing a device on the USB Port, be sure that the connector is the right size, aligned, and fully seated. *(See Figure 1-7 on page 6.)*

MICROPHONE

Make sure that your mono microphone is equipped with an 1/8" (3.5 mm) mono mini-plug. Make sure the plug is aligned and push it into the jack until fully seated. *(See Figure 1-7 on page 6.)*

HEADPHONES

Make sure that your stereo headphones are equipped with an 1/8" (3.5 mm) stereo mini-plug. Make sure the plug is aligned and push it into the jack until fully seated. *(See Figure 1-7 on page 6.)*

POINT

Plugging in headphones disables the built-in stereo speakers.

TELEPHONE LINES

To attach a telephone line to the internal modem, locate the RJ-11 jack on the left side of your notebook. Plug one end of the telephone cable into the telephone line outlet. Orient the telephone cable with the release latch on the connector up. Push it into the jack until it clicks and latches. *(See Figure 1-6 on page 5.)*

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.

PS/2 KEYBOARD

Make sure the connector on your device is the correct PS/2 type. Align the arrow on the connector to point to the bottom of your notebook and push it in until the connector seats. A keyboard or keypad may be installed and automatically recognized by your notebook without restarting or changing setups. *(See Figure 1-8 on page 7.)*

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 1-11 on page 8.)*

CAUTION

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, or both built-in display panel and external monitor.

THEFT PREVENTION LOCK

A physical security system lock can be installed on the right side of your notebook. *(See Figure 1-7 on page 6 for the location of the lock slot.)* Simply insert the key end of your security system in the slot, rotate 90 degrees and lock. *(See Figure 1-7 on page 6.)*

MEMORY UPGRADE MODULE

Your notebook has 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. A memory upgrade module is a dual-in-line memory module (DIMM). You may add a module of different capacity. SDRAM memory upgrade modules are required.

CAUTION

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

POINT

For further information about memory modules for upgrades please visit our web site at www.fujitsu-pc.com.

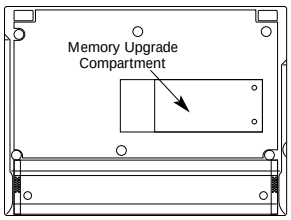

Figure 5-9 B112 Memory Upgrade Compartment

To Install a Memory Upgrade Module

1. Turn off power to your notebook using the power switch, *(see Power Off on page 16)*, and remove any power adapter (AC or auto/airline.)

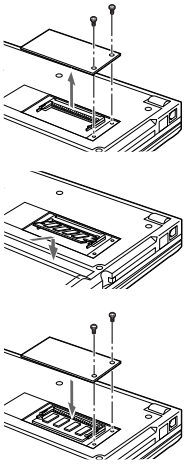

Figure 5-10 Memory Upgrade Installation

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 screw of the memory upgrade compartment. *(See Figure 5-10.)*
5. Remove the cover by lifting it by the notch in the right edge and pulling it toward the left of the notebook.

CAUTION

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

6. Remove the memory upgrade module from its static guarded sleeve.
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 connector inside the compartment. *(See Figure 5-21.)*
8. Insert the memory upgrade module at a 45° angle. *(See Figure 5-21.)* Press the connector edge of the module firmly down and into the connector.
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 by sliding the tabs on the left edge of the cover in the slots in the left edge of the compartment and pushing the cover gently down.
11. Replace the screws.

Memory upgrade modules are not something you routinely remove from your notebook. Once it is installed, leave it in place unless you want to increase system memory capacity.

CAUTION

Before you install or remove a memory upgrade module, save changes, close all files and turn power off to your notebook. *(See Power Off on page 16.)*

To Remove a Memory Upgrade Module

1. Perform steps 1 through 5 of To Install a Memory Upgrade Module.
2. Pull clips sideways from each side of the memory upgrade module.
3. While holding clips out, remove the module from the slot by lifting it up and pulling towards the front 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 through 11 of the instructions of To Install a Memory Upgrade Module, or install new memory upgrade modules and then replace the cover by following the instructions in steps 6 through 11 of the instructions of To Install a Memory Upgrade Module.

Checking the Computer Recognition of New Memory Capacity

When you have changed system memory capacity by adding or removing memory upgrade modules, be sure to check that your notebook has recognized all of the active memory. You can check memory capacity by looking at the Main Menu of the setup utility:

1. Turn on power using the power switch.
2. Enter the setup utility by pressing the **F2** key as soon as the Fujitsu logo appears on the screen. *(See page 45.)*
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.

Example: A system with 32MB of memory will display 640K System Memory, 31M Extended Memory.

When you have installed additional memory, the display should change. For example for:

Total RAM Installed	System Memory	Extended Memory
32MB	640 K	31M
48 MB	640 K	47M
64 MB	640 K	63M
96 MB	640 K	95M

If the total memory displayed is not what you believe it should be, check that your memory upgrade module is properly installed. If properly installed and the capacity is not correctly recognized, see the Troubleshooting Section starting on page 118.

Section Six

Toubleshooting

SECTION SIX

TROUBLESHOOTING

The LifeBook B112 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 isolate and resolve some of these straightforward problems, and identify failures that require service.

IDENTIFYING THE PROBLEM

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

1. Turn off your notebook using the power switch on the left 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 115 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 1-901-259-5700, e-mail 8fujitsu@fpc.fujitsu.com, Web Site http://www.8fujitsu.com. Phone and fax support is available 8:30am to 5:00pm PST.

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

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

- Conditions under which the problem occurred.
- Any error messages that have occurred.
- Hardware configuration.
- Type of printer connected, if any. See the Unit Label on the bottom of your notebook for configuration and serial numbers. *(See Figure 1-9 on page 7.)*

SPECIFIC PROBLEMS

Using PC-Doctor

PC-Doctor is a diagnostic program by Watergate Software, Inc. which comes pre-installed on your notebook. If your 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 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 Symptom 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.

Symptom	Possible Cause	Possible Solution
Floppy Disk Drive Problems		
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 Diskette Controller: Disabled 4. 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 pages 32-33.)* 3. Revise the setup utility Main menu settings. *(See Main Menu on page 48.)* 4. Eject the floppy disk and set it to write enabled. *(See page 33.)*
Hard Drive Problems		
You can not access your hard drive.	1. The setup utility is set to something other than the characteristics of your internal hard drive. 2. Security is set so operating system can not be started without a password.	1. Revise BIOS settings to set the Primary Master correctly. *(See Main Menu and Primary Master Submenu pages 48-55 for more information.)* 2. Verify your password and security settings. *(See Security menu on pages 79-82.)*

Symptom	Possible Cause	Possible Solution
Keyboard or Mouse Problems		
The built-in keyboard does not seem to work.	1. The notebook has gone into Suspend mode. 2. Your application has locked out your keyboard.	1. Push the Suspend/Resume button. 2. Try to use the touchpad pointing device to access the Start menu and then the ShutDown 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.	1. Re-install your device. *(See USB Mouse on page 108 or Keyboard on page 109.)* 2. Check your device and operating system documentation and activate the proper driver.
You have connected an external keyboard or a mouse and it seems to be locking up the system.	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, waiting at least 10 seconds and then turning the power on again.

Symptom	Possible Cause	Possible Solution
Memory Problems		
Your power on screen or Main menu of the BIOS setup utility information does not show the correct amount of installed memory.	1. Your memory upgrade module is not properly installed. 2. You have a memory failure.	1. Remove and re-install your memory upgrade module. *(See Memory Upgrade Module on pages 110-112.)* 2. Make sure display of error messages is enabled *(see Boot Options Submenu on page 91)*, and check for Power On Self Test (POST) messages. *(See pages 130-132 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's there.	1. Remove and re-install the device. *(See Parallel Port Devices on page 108, Serial Port on Devices on page 108, or USB Devices on page 108.)* 2. Close your application and restart your notebook.

Symptom	Possible Cause	Possible Solution
	3. Your software may not have the correct software driver active. 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.	3. See your software documentation and activate the correct driver. 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.
PC Card Problems		
A card inserted in the PC Card slot does not work or is locking up the system.	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's 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 106-108.)* 2. Close your application and restart your notebook. 3. See your software documentation and activate the correct driver. 4. See your PC Card 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 make sure there are no duplications.

Symptom	Possible Cause	Possible Solution
Power Failures		
You turn on your notebook and nothing seems to happen.	1. The internal battery is completely discharged, and there is no power adapter (AC or auto/airline) installed.	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* 31-32.) Check the Status Indicator panel to determine the presence and condition of the batteries. *(See page 20.)* Install a power adapter if all batteries are dead or unavailable. *(See page 11.)*
	2. The internal battery is completely discharged and the Power adapter (AC or auto/airline) has no power from the AC outlet, airplane seat jack, or the car's cigarette lighter.	2. 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* 31-32.) Check the Status Indicator panel to determine the presence and condition of the batteries and adapter. *(See Figures 3-1 and 3-2 on pages 20 and 22.)* Move the AC cord to a different outlet, check for a line switch or tripped circuit breaker for the AC outlet, if you are using an auto/airline adapter in a car make sure the ignition switch is in the On or Accessories position.

Symptom	Possible Cause	Possible Solution
	3. The internal battery is completely discharged and the Power adapter (AC or auto/airline) is faulty.	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 31-32.)* Verify the cause using the Status Indicator panel to determine the presence and condition of the batteries and adapter. *(See Figures 3-1 and 3-2 on pages 20-22.)* Try a different Power adapter or install a charged optional second battery.
	4. Power switch is already in the On position.	4. 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 98, you are really in a pseudo-off state, there is some power on and you can restart with the Suspend/Resume button. *(See Power Off on page 16.)*

Symptom	Possible Cause	Possible Solution
	5. The internal battery is faulty and there is no Power adapter (AC or auto/airline) installed.	5. Use the Status Indicator panel to verify the presence and condition of the batteries. *(See Figure 3-1 on page 20.)* If a battery is indicating a short, remove that battery and operate from another power source or replace that battery.
	6. The battery or batteries are low.	6. 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 31-32.)* Check the Status Indicator panel to determine the presence and condition of the batteries. *(See Figure 3-1 on page 20.)* 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 needs.	1. Use the keyboard or pointer and if that does not restore operation, push the Suspend/ Resume button. Check the Power Management settings or close your applications and go to the BIOS Setup Utility Power Savings menu and adjust the timeout values to better suit your operation needs. *(See the PowerPanel on page 39 and Power Menu on pages 83-90.)*

Symptom	Possible Cause	Possible Solution
	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.	2. Install a Power adapter and then push the Suspend/Resume button. *(See Low Battery State on page 31.)*
	3. You have a battery failure.	3. Verify the condition of the batteries using the Status Indicator panel *(Figure 3-1 on page 20)*, and replace or remove any that are shorted.
	4. Your Power adapter has failed or lost its power source.	4. Make sure the adapter is plugged in outlet has power.
Your notebook won't work on battery alone.	1. The installed batteries are dead.	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 31-32.)* Replace the battery with a charged one or install a Power adapter.
	2. The batteries are improperly installed.	2. Verify that the batteries are properly connected by re-installing them.
	3. Your installed batteries are faulty.	3. Verify the condition of the batteries using the Status Indicator panel, *(Figure 3-1 on page 20)*, and replace or remove any that are shorted.

Symptom	Possible Cause	Possible Solution
The batteries seem to discharge too quickly.	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.	1. Use both the internal battery and secondary battery and/or use a Power adapter for this application when at all possible.
	2. The power savings features may be disabled.	2. Check the Windows 98 Power Management settings *(see page 39 and 85-90)*, and adjust according to your operating needs.
	3. The brightness is turned all the way up.	3. Turn down the brightness adjustment. The higher the brightness the more power your display uses.
	4. The batteries are very old.	4. Replace the batteries.
	5. The batteries have been exposed to high temperatures.	5. Replace the batteries.
	6. The batteries are too hot or too cold. *(See Batteries on page 29.)*	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.)
Shutdown and Startup Problems		
The Suspend/Resume button does not work.	1. The Suspend/Resume button is disabled from the Advanced submenu of the Power Savings menu of the setup utility.	1. Enable the button from the setup utility. *(See page 86.)*

Symptom	Possible Cause	Possible Solution
	2. You did not hold the button in long enough.	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. There may be a conflict with the application software.	3. Close all applications, and try the button again.
The system powers up, and displays the power on information, but fails to load operating system.	1. The boot sequence settings of the setup utility are not compatible with your configuration.	1. Set the operating source by pressing the **Esc** key while the Fujitsu logo is on screen or use the **F2** key and enter the setup utility and adjust the source settings from the Boot menu. *(See Boot Menu on page 91.)*
	2. You have a secured system requiring a password to load your operating system.	2. Make sure you have the right password. Enter the setup utility and verify the Security settings and modify them as appropriate. *(See Security Menu on pages 79-82.)*
	3. Internal hard drive was not detected.	3. Use the BIOS setup utility Main menu, Primary Adapter submenu to try to auto detect the internal hard drive.

Symptom	Possible Cause	Possible Solution
An error message is displayed on the screen during the notebook turn on (boot) sequence.	1. Power On Self Test (POST) has detected a problem.	1. See the Power On Self Test (POST) Messages *(pages 130-132)* to determine the meaning and severity of the problem. Not all messages are errors; some are simply status indicators.
Your notebook appears to change setup parameters when you start it.	1. BIOS setup changes were not saved when you made them and exited the BIOS setup utility thus returning to previous settings. 2. The BIOS CMOS hold-up battery has failed.	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.
Video Problems		
The built-in display is blank when you turn on your notebook.	1. Something is pushing on the Closed Cover switch. *(See Figure 1-5 on page 4.)* 2. The notebook is set for an external monitor only.	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 display only, external monitor only, both built-in display and external monitor.

Symptom	Possible Cause	Possible Solution
	3. The angle of the display and the brightness settings are not adequate for your lighting conditions.	3. Move the display and the brightness control until you have adequate visibility.
	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.	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 Standby mode, Auto Suspend, or Video Timeout.)
	5. The notebook turned on with a series of beeps.	5. Power On Self Test (POST) has detected a failure which does not allow the display to operate. Contact your support representative.
The display goes blank by itself after you have been using it.	1. The notebook has gone into Video timeout, Standby mode, Suspend mode or Save-to-Disk mode because you have not used it for a period of time.	1. Use the keyboard or pointer and if that does not restore operation, push the Suspend/Resume button. You may want to change your PowerPanel settings *(page 39)* or close your application and go to the setup utility Power Savings menu *(pages 83-90)* and adjust the timeout values to better suit your needs.

Symptom	Possible Cause	Possible Solution
	2. Something is pushing on the Closed Cover switch. *(See Figure 1-5 on page 4.)*	2. Clear the Closed Cover switch.
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 needs.	1. This is normal; do nothing. 2. Display is faulty; contact your support representative.
The application display uses only a portion of your screen and is surrounded by a dark band.	1. You are running an application that does not support 800 x 600 pixel resolution display and display compensation is displayed.	1. Display compression gives a clearer but smaller display for applications that do not support 800 x 600 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 71-72.)*
You have connected an external monitor and it does not come on.	1. Your BIOS setup is not set to enable your external monitor.	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 71-72.)*
	2. Your external monitor is not properly installed.	2. Reinstall your device. *(See External Monitor on page 109.)*

Symptom	Possible Cause	Possible Solution
	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.	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 142.
Miscellaneous Problems		
An error message is displayed on the screen during the operation of an application.	1. Application software often has its own set of error message displays.	1. See your application manual and help displays screens for more information. Not all messages are errors; some may simply be status.

POWER ON SELF TEST MESSAGES

The following is an alphabetic list of error-and-status messages which Phoenix BIOS and/or your operating system can generate and an explanation of each message. Error messages are marked with an *. Comments in *italic type* 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 44,) and that the diskette drive is installed correctly, (see page 106). If the disk drive is properly defined and installed avoid using it and contact your support representative.*

*Extended RAM Failed at offset: nnnn – Extended memory not working or not configured properly. *If you have an installed a memory upgrade 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 memory in kilobytes successfully tested.

*Failing Bits: nnnn – The hex number nnnn is a map of the bits at the memory address (in System, Extended, or Shadow memory) which failed the memory test. Each 1 (one) in the map indicates a failed bit. *This is a serious fault 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 with the type detected by the Power On Self Test (POST). *Run the Setup Utility to correct the inconsistency.*

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

*Keyboard controller error -– The keyboard controller 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 92)*, 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 successful 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 memory failed at offset nnnn of in the 64k block at which the error was detected. *This means that there is a fault in your built-in memory. If you continue to operate you risk corrupting your data. Contact your support representative for repairs.*

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

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

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

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

MODEM 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 56000
(Connection complete at 56,000 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.

RECOVERING YOUR WINDOWS 98 SYSTEM

Included with your notebook (in the Accessories compartment) is a bootable floppy diskette and an Emergency Recovery CD-ROM with the following content:

A backup copy of the software originally installed on your new Fujitsu LifeBook (can only be used on the listed LifeBook models).

Sets of device drivers and utilities (in specific directories) that are unique to your notebook configuration for use as documented below.

Read-me files that provide additional use information for items on this CD-ROM.

If you have access to the internet, visit the Fujitsu PC Corporation Web Site at www.8fujitsu.com to check for the most current information and hints on how to perform recovery and system updates.

Restoring Your Pre-installed Software from CD-ROM

The Emergency Recovery CD-ROM enables restoration of your notebook disk drive contents as they were originally shipped from the factory. Most often this is necessary if files or software programs (only those files/programs that came pre-installed) become corrupt or accidentally erased.

You have two options available when performing recovery:

1. Recover Hard Drive without Format. This choice replaces all the original factory installed files and program structures without eliminating your data files. You will have to re-install any software that was not included with the computer when you bought it (but

your data will be intact as long as the installation of the additional programs is performed in the same manner).

2. Format and Recover Hard Drive. This choice removes all the information on the hard disk. If you choose this option, you will lose any software you have installed and any other files you created since you setup your computer. You will have to re-install any software that was not included with the computer when you bought it.

POINT

It is recommended that you back-up all data files prior to performing either of the recovery options.

CAUTION

User data and user installed software CAN NOT be recovered from the Emergency Recovery CD

POINT

Make certain you have your Operating System Product ID # available (from the Certificate of Authenticity) prior to performing recovery. Once the process is complete and you re-start your notebook, you will be required to perform all the setup steps as when the computer was first bought. *(see the section Starting Your LifeBook for the First Time).*

To Run the Emergency Recovery Program

To use this portion of the CD-ROM, your notebook must BOOT (upon power up or full system reset/restart) from the provided bootable floppy disk.

1. Make sure that the external floppy disk drive is attached and that an external CD-ROM drive is attached, and that your notebook and the CD-ROM drive are both using their AC adapters for power..
2. Insert the bootable floppy disk in the floppy drive and insert the Emergency Recovery CD in the CD-ROM drive.
3. If your notebook is running when you insert the disks, exit your operating system and power down the notebook.
4. Start (power up) your notebook. Your notebook will automatically boot from the floppy disk.
5. You will notice your system run a full virus scan of the hard drive and then reach the Emergency Recovery Welcome screen. If this is not what is displayed, check to see that the Recovery CD is installed in the CD-ROM drive and repeat the previous steps.

   If you received a message “This program may not be used on your computer” you are using the wrong Recovery CD for the model of notebook.
6. Read the information displayed on the Welcome screen, then Click OK.

7. Select one of the two icons displayed in the Emergency Recovery menu and follow the instructions that follow.
8. When recovery is complete, remove the Recovery CD, replace it in its sleeve and store it in a safe location (with your Operating System Manual/Certificate of Authenticity).
9. Power down your notebook. Remove the CD-ROM drive and the floppy disk drive.
10. Restart your notebook.

Your notebook now has all of the software installed that was included when you received it from the factory. You must now load any programs which you purchased and installed after you got your notebook. If you chose the Format and Recover option, you should now restore your data files. If you performed Recovery without format, your data files will still exist (within their original directory structures).

POINT

As long as there is no bootable disk in the floppy disk drive, your notebook will boot from the hard drive regardless of the BIOS Boot Device Priority setting.

Device Drivers, Utilities and Read-me Files

The Emergency Recovery CD also includes a section for providing device driver files/directories and specific Lifebook model utilities that give you additional flexibility and functionality for using your Fujitsu notebook.

This section of the CD is only available if your notebook is already functioning from either your hard drive boot/operating system or as a result of using a bootable floppy disk that is configured to recognize the CD-ROM drive.

Please locate and read any of the Read-Me files that are included on the CD. These files will provide information that pertains specifically to the additional files and utilities that are provided on the Recovery CD for your particular Lifebook model.

POINT

Look for and open files with the extensions .DOC and .TXT

Section Seven

Care and Maintenance

SECTION SEVEN

CARE AND MAINTENANCE

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

CARING FOR YOUR NOTEBOOK

* The LifeBook is a durable but sensitive electronic device. Treat it with respect and care.

- Make a habit of transporting it in a suitable carrying case.
- 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.

PROTECTING AND CLEANING THE TOUCH SCREEN

- Avoid scratching the screen surface.
- Never use anything except the included stylus or your finger as a pointing device.
- Use only computer screen cleaning products to clean the touch screen.
- Use a soft cloth when cleaning 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. Your notebook automatically adjusts the brightness depending on the power source you are using at the time; the screen will be brighter when using the AC adapter and dimmer when using battery power. To manually change the brightness setting:

   Double-click the Task Tray icon on the Taskbar and select the Power Control tab.

   Adjust the backlighting as desired. Lower (darker) settings save more power.
4. Keep the volume level as low as possible for comfortable operation.
5. Set the power management for the maximum Power Savings profile of the PowerPanel settings or set an even longer life combination with the BIOS setup utility. *(See pages 83-84 for instruction on these settings.)*
6. Put your notebook in Suspend mode when it is turned on and you are not actually using it.
7. Disable the parallel and serial ports using the SETUP utility if no devices are connected.
8. Keep APM enabled.
9. Disconnect USB devices when you do not need them.
10. 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 all Lithium ion batteries. 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.

Specifications and Glossary

APPENDIX A SPECIFICATIONS

Appendix A provides the hardware and environmental specifications and the model and part numbers for your LifeBook B112 and its peripherals.

WARRANTY

Your notebook is backed by a one year * International 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 B112 SPECIFICATIONS

Microprocessor

Intel Pentium 233 MHz with MMX technology, PCI bus and CardBus architectures.

Memory

System Memory (on-board)
32 MB standard /96 MB total maximum, (1 upgrade slot.)

L2 Cache Memory
512KB.

Expansion Memory Options
16MB, 32MB, and 64MB SDRAM Modules extend system memory up to 96MB maximum; installable in a single DIMM (dual-in-line memory module) socket in a compartment in the bottom of the notebook.

BIOS Memory
512KB Flash ROM.
256 Bytes CMOS-RAM with back-up battery.

Video RAM
2MB EDO RAM.

Display

Built-in color flat-panel 8.4" TFT active matrix LCD display with touch screen and simultaneous display capability.

Recommended Video Color and Resolution

Internal
Diagonal dimension: 8.4."
800 x 600 pixel resolution, 16M colors.

External
1024 x 768 pixel resolution, 64K colors
or
800 x 600 pixel resolution, 16M colors.
Simultaneous Video = Yes
800 x 600 pixels.
SVGA, and VGA compatible.

Mass Storage Device

Floppy Disk Drive
One external 3.5" floppy disk drive which accomodates a 1.44MB or a 720KB floppy disk, External FDD, Fujitsu Model FPCFDD02

Hard Drive
One factory installed 3.2GB fixed hard drive unit.

CD-ROM Drive
Optional external 20x CD-ROM drive.

Audio

SoundBlaster Pro-compatible 16-bit stereo PCM/FM sound chip.

*Service and warranty turnaround time may vary by country and product.

Stereo headphone jack, 1 Vrms, or less, minimum impedance 32 Ohms.
Mono microphone jack, 125 mVp-p or less, minimum impedance 10K Ohms.
Two built-in speakers (stereo).

Integrated Pointing Device

QuickPoint™ pointing device and Touch/Stylus

Communication Options

Internal V.90 standard 56K fax/modem (ITU V.90, 56K data, 14.4K fax.) *(See page 3 for caution on modem.)*
IrDA 1.1 compatible fast infrared port (4 Mbps).

Video

Zoomed Video support via PC Card Slot.

Input/Output Connections

On the B112 LifeBook:
One Type II PC Card slot: PCMCIA Standard 2.1 with CardBus support; Zoomed Video support.
One 6-pin mini DIN PS/2 compatible connector, for external keyboard.
Two connectors for USB (Universal Serial Bus) input/output devices.
One 80-pin Docking Connector (for Port Replicator)
One modular RJ-11 communications connector.
One stereo headphone jack. (*See Audio specifications.*)
One mono microphone jack. (*See Audio specifications.*)

On the Port Replicator:
One 80-pin Docking Connector (for B112 LifeBook)
One 6-pin mini DIN PS/2 compatible connector, for external keyboard.
One 25-pin D-SUB two-way Centronics type connector for parallel input/output devices; Bi-directional, output only or ECP.
One 15-pin D-SUB connector for SVGA or VGA external monitor (*see Display specifications*).
One 9-pin D-SUB connector for RS-232C serial input/output devices.
One 25-pin special connector for external floppy disk drive connection.

Keyboard

Built-in keyboard with all functions of 101 key PS/2 compatible keyboards.
Total number of keys: 84.
Function keys: 12, **F1** through **F12**.
Feature extension key: **Fn**.
Windows keys: 3, two **Start** keys and one **Application** key.
Key pitch: 15 mm.
Key stroke: 2 mm.
Built-in QuickPoint™ 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
USB compatible.

Power

Batteries
One modular Lithium ion battery, Fujitsu Model FPCBP17. Rechargeable, 10.8V, 3200 mAh. Operating time of up to 4 hours. 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 eight (8) 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.

Optional Dual Battery Configuration with optional Battery Charger
Operating time of up to 7 hours. Rapid charge (notebook off or in Suspend Mode) in about five (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, which includes an AC cable.

Optional Auto/Airline Adapter
Autosensing 12/24V DC, 43W supplying 16V DC to the Notebook.

Power Management
Conforms to ACPI (Advanced Configuration and Power Interface) version 1.0.

Dimensions and Weight

Overall Dimensions
Approximately 9" x 6.7" x 1.2" (notebook only)
(229 mm x 170 mm x 30 mm).

Weights
Approximately 2.65 lbs (without Port Replicator).
Approximately 2.9 lbs (with Port Replicator).

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.

Pre-Installed Software
Windows 98:
Microsoft Windows 98
Audio Rack 32 by ESS Technology, Inc.
PMSet 98 by Fujitsu Limited.
Communicator by Netscape
Internet Explorer by Microsoft
McAfee VirusScan by Network Associates, Inc.
LapLink by Traveling Software.
PC-Doctor by Watergate Software, Inc.
Adobe Acrobat Reader by Adobe, Inc.

APPROVALS

Emissions
FCC Part 15.

Safety
UL, C-UL, TUV.

FCC Telecom Part 68 and DOC (Industry Canada) CS-03
See statements at the front of this User's Guide.

POPULAR ACCESSORIES

Power
Lithium ion Battery, Fujitsu Model FPCBP17
Small AC Adapter, Fujitsu Model FPCAC06
Auto Airline Adapter, Fujitsu Model FPCAA02
Battery Charger, Fujitsu Model FPCBC03

Memory
16MB SDRAM, Fujitsu Model FPCEM05
32MB SDRAM, Fujitsu Model FPCEM06
64MB SDRAM, Fujitsu Model FPCEM07

Storage and Multimedia
External CD-ROM Drive,
Fujitsu Model FPCCD11
External Zip Drive, Fujitsu Model FPCZIP01

Desktop Expansion
Port Replicator, Fujitsu Model FPCPR08
External Keyboard, Fujitsu Model FPCKB01
Stylus Multi-pack, Fujitsu Model FPCPN01

Carrying Case
Duo Carrying Case, Fujitsu Model FPCCC16

Security
Notebook Guardian, Fujitsu Model FPCLCK02

APPENDIX B GLOSSARY

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

ACPI 1.0
Advanced Configuration and Power Interface specification version 1.0. Conforming systems contain BIOS support to allow the Windows 98 operating systems to manage power consumption of system components.

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 aircraft DC power outlet 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 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 much faster to access than your system RAM and used in specially structured ways to make your overall data handling time faster.

CardBus
A faster, 32-bit version of the PC Card interface which offers performance similar to the 32-bit PCI architecture.

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

CHS Translation
Cylinder, head and sector translation. Conversion of hard drive access addressing to the cylinder, head and sector form. The terminology is historical left from the days when data was stored on a series of cylindrical drums. The head designates the reading device, similar to the head on a 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.

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 drive, if it is highly flexible it is a floppy disk, if it is a floppy disk in a hard housing with a shutter it is commonly called a diskette.

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

Diskette
A floppy disk in a hard housing with a shutter.

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

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

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.

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

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 drive which is inside the hard 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.

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 has a high power-time life for its size and is not subject to the memory effect as Nickel Cadmium batteries.

LPT Port
Line Printer Port. A way of referring to parallel interface ports because historically line printers were the first and later 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 drive which is set aside and made to appear to the operating system as if it were a separate disk, and addressed by the operating system accordingly.

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

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

PIO
Parallel Input/Output.

Pitch (keyboard)
The distance between the centers of the letter keys of a keyboard.

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

POST
Power On Self Test. A program which is part of the BIOS which checks the configuration and operating condition of your hardware whenever power is applied to your Computer. Status and error messages may be displayed before the operating system is loaded. If the self test detects failures that are so serious that operation can not continue, the operating system will not be loaded.

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 notebook 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.

TUV
TUVRheinland of North America, Inc. – An independent organization that tests and certifies the electrical safety of devices.

UL
Underwriters Laboratories Incorporated – 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 drive; a file or directory of floppy diskette or hard drive.

XGA
Extended VGA.

Zip Drive
A read/write removable media disk drive.

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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