FUJITSU

Stylistic 3400

**Technical
Reference
Guide**

58-701-00C

DECLARATION OF CONFORMITY
according to FCC Part 15

Responsible Party Name:	**Fujitsu PC Corp.**
Address:	**5200 Patrick Henry Drive**
	Santa Clara, CA 95054
Telephone:	**408-982-9500**
Declares that product:	**Model: Stylistic 3400**
	Complies with Part 15 of the FCC Rules

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

For more detailed information about the FCC rules and their applicability to the Stylistic 3400 pen tablet, refer to Appendix C of this document.

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About This Guide

This guide provides technical information on the Fujitsu Stylistic 3400 pen tablet computer for technicians, hardware developers, and software developers.

Organization

This guide is organized as follows:

- **Chapter 1: Pen Tablet Features**
  This chapter discusses some of the system's main features and technology.

- **Chapter 2: System Software**
  This chapter gives an overview of system software and utilities preinstalled on the Stylistic 3400 pen tablet.

- **Chapter 3: Configuring the Stylistic 3400 Pen Tablet System**
  This chapter provides details on using BIOS Setup and other configuration utilities for the Stylistic 3400 pen tablet. BIOS configuration options are explained in detail.

- **Chapter 4: Installing Hardware Options**
  This chapter gives detailed instructions on installing hardware options such as PCMCIA Cards and DIMM cards. (For instructions on replacing the internal hard disk drive, see "Replacing the IDE Hard Disk Drive" on page 83.)

- **Chapter 5: Hardware Specifications**
  This chapter gives hardware specifications on the pen tablet system. Industry standards supported by the Stylistic 3400 pen tablet are listed.

- **Chapter 6: Peripheral Interfaces**
  This chapter provides details on peripheral interfaces provided by the Stylistic 3400 pen tablet and the Stylistic 3400 port replicator and mini-dock.

- **Chapter 7: System Power**
  This chapter gives details on the pen tablet's power system and power management implementation.

- **Chapter 8: BIOS Configuration Application Programming Interfaces**
  This chapter gives details on using DLLs which allow you to configure the Stylistic 3400 BIOS.

- **Chapter 9: Programmable Hotpad Libraries for Windows Applications**
  This chapter provides information on using the programmable hotpad with 32-bit Windows applications.

- **Appendix A: Replacing the IDE Hard Disk Drive**
  This appendix provides instructions on removing and replacing the system's built-in IDE hard disk drive.

- **Appendix B: Enabling ACPI**
  This appendix provides information on enabling ACPI.

- **Appendix C: Agency Notices**
  This appendix states notices required by regulatory agencies in the United States and Canada that apply to the Stylistic 3400.

Related Documentation

Documentation relating to the Stylistic 3400 pen tablet system is listed below. Refer to these documents for details on topics not covered in this guide.

Stylistic 3400 User's Guide
This guide provides an introduction to the Stylistic 3400 pen tablet's basic functions for the end user.

Stylistic 3400 Mini-Dock User's Guide
This guide gives instructions on using the Stylistic 3400 mini-dock.

The following documents, available from retail book sellers, contain additional information about software preinstalled on the Stylistic 3400 pen tablet.

Microsoft Windows 98 Resource Kit (ISBN: 1-57231-644-6)
This manual is a technical guide for installing, configuring, and supporting Windows 98 and is published by Microsoft Press, 1-800-MSPRESS in the U.S. as well as from retail book sellers.

Microsoft Windows 2000 Professional Resource Kit (ISBN 1-57231-808-2)
This manual is a technical guide for installing, configuring, and supporting Windows 2000 Professional and is published by Microsoft Press, 1-800-MSPRESS in the U.S. as well as from retail book sellers.

Microsoft Windows NT: Workstation Resource Kit (ISBN 1-57231-343-9)
This manual is a technical guide for installing, configuring, and supporting Windows NT 4.0 Workstation and is published by Microsoft Press, 1-800-MSPRESS in the U.S. as well as from retail book sellers.

The following resources contain information on software development tools for Windows:

Microsoft Developer's Network
The Microsoft Developer's Network web site provides links to information on application programming interfaces (APIs) used with Microsoft Windows. The site address is <MSDN.Microsoft.com>.

The following documents provide information on industry standards supported by the Stylistic 3400 pen tablet system.

Advanced Power Management (APM) BIOS Interface Specification, Revision 1.2
The Stylistic 3400 pen tablet is an APM 1.2 compliant system as defined in this specification. Application developers should refer to this specification for details on designing APM compliant software. This specification is available as a free download from the Microsoft web site, http://www.microsoft.com/hwdev/busbios/amp_12.htm

Advanced Configuration and Power Interface (ACPI) Specification, Revision 1.0
The ACPI was developed by Microsoft, Intel, and Toshiba to manage device control in order to conserve power. The ACPI specification and additional detailed information is available at the ACPI web site, <http://www.teleport.com/~acpi/>.

PC Card Standards
The Stylistic 3400 pen tablet and supporting system software comply with PCMCIA and PC Card standards specifications up to and including the *PC Card Standard—February 1995* (also referred to as *PC Card Standard Release 3.0* in this document and other related documentation). PC Card standards are published by: Personal Computer Memory Card International Association, 2635 North First Street, Suite 209, San Jose, CA 95131, <http://www.pc-card.com/>, (408) 433-CARD (2273).

IrDA Standards
The IrDA port on the Stylistic 3400 pen tablet is compliant with *IrDA (Infrared Data Association) Standard Version 1.1* published by: Infrared Data Association, <http://www.irda.org>, (510) 943-6546.

Universal Serial Bus Specification
The Universal Serial Bus (USB) ports on the Stylistic 3400 pen tablet and docking peripherals are compliant with the *Universal Serial Bus Specification Version 1.0.* Refer to this specification for USB

details including: cable requirements, topology, and USB power distribution. This specification and other technical documents regarding USB are available on the Universal Serial Bus Implementer's Forum home page at <http://www.usb.org/>.

Desktop Management Interface (DMI) 2.0 Specification
The Stylistic 3400 BIOS supports DMI. The DMI specification and other information relating to DMI are available on the Desktop Management Task Force web site at <http://www.dmtf.org/>.

Technical Support

For technical support on the Stylistic 3400 pen tablet system, Fujitsu resellers (VARs) should contact your assigned Fujitsu PC Systems Engineer or contact Fujitsu PC Technical Support at 408-764-9388 during normal business days from 7:30 to 5:00 Pacific Time. (Voice mail is available at this number during nonbusiness hours.) Technical support can also be reached by Fax at 408-764-9418.

Chapter 1

Pen Tablet Features

This chapter provides an introduction to the Stylistic 3400 pen tablet system hardware and gives an overview of some of the pen tablet system's features. Detailed specifications on the features discussed in this chapter are given in other chapters of this guide.

The Stylistic 3400 pen tablet computer is designed for the Windows 98 Second Edition, Windows NT Workstation 4.0, and Windows 2000 Professional operating systems using IBM-AT compatible architecture. The system uses an resistive pen digitizer and is available with either an indoor color thin-film-transistor (TFT) display or an indoor/outdoor color TFT display.

The Stylistic 3400 pen tablet system has been tested by Windows Hardware Quality Labs (WHQL) at Microsoft Corporation and is compliant with PC 99 system design guidelines.

PC Card Support

The Stylistic 3400 pen tablet is equipped with a PC Card slot that allows you to install a Type II PC Card. The PC Card slot is compliant with PC CardBus Standard Release 3.0 and provides support for the following PC Card features:

- Multivoltage 3.3/5 V PC Cards (detected automatically)
- CardBus (PCI bridge) type PC Cards
- Supports PCIC (PC Card I/O Card) protocol
- Backward compatibility with previous PC Card Standard Release level PC Cards

Internal Modem

Stylistic 3400 pen tablet systems are equipped with an internal LAN/56 Kbps* modem. For details on the built-in LAN/modem, see "Internal LAN/Modem Specifications" on page 45.

ACPI Support

The Stylistic 3400 pen tablet supports the *Advanced Configuration and Power Interface (ACPI) Specification,* revision 1.0, in Windows 98 and Windows 2000 systems only. Due to limitations of ACPI, however, Advanced Power Management (APM) is the recommended setting and is the default setting for Windows 98 and Windows 2000 systems. Refer to "Enabling ACPI" on page B-87 for more information.

> *Note:* *All Stylistic 3400 pen tablet systems are ACPI-compliant; however, the Windows NT 4.0 operating system does not utilize the ACPI design specification.*

> * The 56 Kbps rate is nominal; due to FCC restrictions, actual rates are limited to 53 Kbps.

Chapter 2

System Software

This chapter outlines system software supported on the Stylistic 3400 pen tablet including operating system software, and drivers and utilities developed specifically for the Stylistic 3400 pen tablet system.

Supported Operating Systems

The Stylistic 3400 pen tablet is distributed with one of the following operating systems preinstalled:

- Windows 98
- Windows NT Workstation 4.0 (Build 1381, SP 6a)
- Windows 2000

Licensing and user documentation for the operating system installed on your system is also included with the pen tablet. For details on the operating system, refer to the documentation provided, or refer to the documents listed in "Related Documentation" in the About This Manual section of this guide.

> *Note:* *MS-DOS is not supported as an end-user operating environment. Support for MS-DOS is limited to the use of configuration and other support utilities designed for the Stylistic 3400 pen tablet system.*

Pen Support

Pen support for the Stylistic 3400 pen tablet is provided by the following three pen subsystems:

- Microsoft Pen Services 2.0 with CIC HRS 5.0.5 *(Windows 98 only)*

- CIC PenX 1.7 with CIC HRS 5.0.5 *(Windows 98 and Windows NT only)*

- Mouse Emulation

You can select one of these subsystems "on the fly" using the pen configuration control panel applet. See "Pen Configuration" on page 4 for details. (Software for all of these subsystems runs at the same time. Pen information is routed to the selected subsystem.)

Pen drivers (developed by Fujitsu PC Corp.) for the Stylistic 3400 support the pen digitizer system as a Plug and Play (PnP) device. To view information on these pen drivers, open Pen Configuration in Control Panel and choose the About tab. Select the desired file from the list and choose File Info.

PC Card Support

The Stylistic 3400 pen tablet fully supports the PC Card standard release 3.0. System resources for PC Cards are configured automatically by Windows 98 and Windows 2000.

Phoenix/Softex Card Executive 2.0 for Windows NT is preinstalled on Windows NT systems to provide PC Card support. Refer to the on-line help provided with Phoenix/Softex Card Executive for details on supported PC Cards.

Overview of System Configuration Tools and Utilities

The following system configuration tools and utilities are supported for use with the pen tablet. Unless otherwise noted, details on using these programs are given in Chapter 3 of this manual.

- BIOS Setup (Fujitsu BIOS Configuration)
  A BIOS configuration utility stored in the system's CMOS memory.

- Handwriter Settings
  A control panel applet that allows you to configure settings for handwriting recognition and inking.

- Pen Configuration
  A control panel applet that allows you to select the pen subsystem, calibrate the pen, and configure pen settings.

- PHDISK *(Windows 98 and Windows NT only)*
  A utility used to prepare your hard disk for using save-to-disk suspend mode.

Chapter 3

Configuring the Stylistic 3400 Pen Tablet System

This chapter provides instructions on how to use various configuration utilities to configure the Stylistic 3400 pen tablet BIOS.

Pen Configuration

Windows 98 and Windows 2000 systems include a pen configuration control panel applet which allows you to select the pen subsystem, configure pen buttons, and calibrate the pen. To use this applet, open Pen Configuration in Control Panel and select the desired tab as follows:

- **Pen Subsystem** *(Windows 98 only)*
  Allows you to choose the active pen subsystem and apply your changes "on the fly". See "Pen Subsystems" for more information.

- **Pen Buttons**
  Allows you to configure the functions and behavior of the pen. The Stylistic 3400 has a resistive digitizer, but the Pen Buttons tab allows you to emulate a pen tip button and pen barrel button, as used with an electromagnetic digitizer. The Pen Buttons tab is used in conjunction with the Right Mouse hotpad.

- **Calibration**
  Allows you to calibrate the pen digitizer system.

- **Sampling**
  Displays the resolution of the pen (sampling rate in point per second).

- **About**
  Allows you to view file information about the installed pen drivers.

For details on each of these features, tap the Help button for each tab.

Pen Subsystems

(Windows 98 only) The Stylistic 3400 supports the following pen subsystems: Pen X, Pen Windows, or Emulate Mouse. You choose one of these subsystems using the Pen Configuration Control Panel applet, as described earlier.

Note: Training utilities work only for the specific pen subsystem. Tutorials such as Handwriting Trainer for Pen Windows and Handwriter Tutorial for Pen X can only be used when the correct pen subsystem is selected.

Permanent and Current BIOS Settings

Some BIOS configuration utilities allow you to select permanent and/or current settings when configuring BIOS options. When you change a permanent setting, BIOS parameters stored in CMOS memory are changed and the new setting is applied *after* the system is restarted. When you change a current setting, BIOS parameters stored in dynamic memory are changed and the new setting is applied for the current session. Also, note that a change to the current setting only remains in effect until the system is restarted or shut down.

BIOS data resides in the system's CMOS memory. When the system is powered on, BIOS data is copied or "shadowed" into the system's dynamic memory and the system runs using BIOS parameters stored in dynamic memory.

BIOS Setup

BIOS Setup is a configuration utility that you can use to change your system's permanent BIOS settings. The BIOS Setup application is stored in the BIOS flash ROM. (BIOS Setup values or settings are stored in CMOS memory.) Instructions for starting and running BIOS Setup are given in the following discussions.

Starting BIOS Setup

To start BIOS Setup, restart your system and when the following message is displayed,

```
<F2>, Double: BIOS Setup
```

Double-tap the pen on the display screen or press F2 on your external keyboard.

The system starts BIOS Setup and the BIOS Setup **Main** menu is displayed. Note that the system can be configured to start without displaying the message above. If this is the case, you must attach an external keyboard and hold down the F2 key while you start your system until the BIOS Setup screen is displayed.

Options and settings for menus in BIOS Setup are described in tables appearing later in this chapter.

Using BIOS Setup

Once BIOS Setup is started, you can use BIOS Setup to change your system's BIOS settings. The BIOS Setup screen consists of a menu bar, menu items, a command bar, and a window for item-specific help as shown in Figure 3-1.
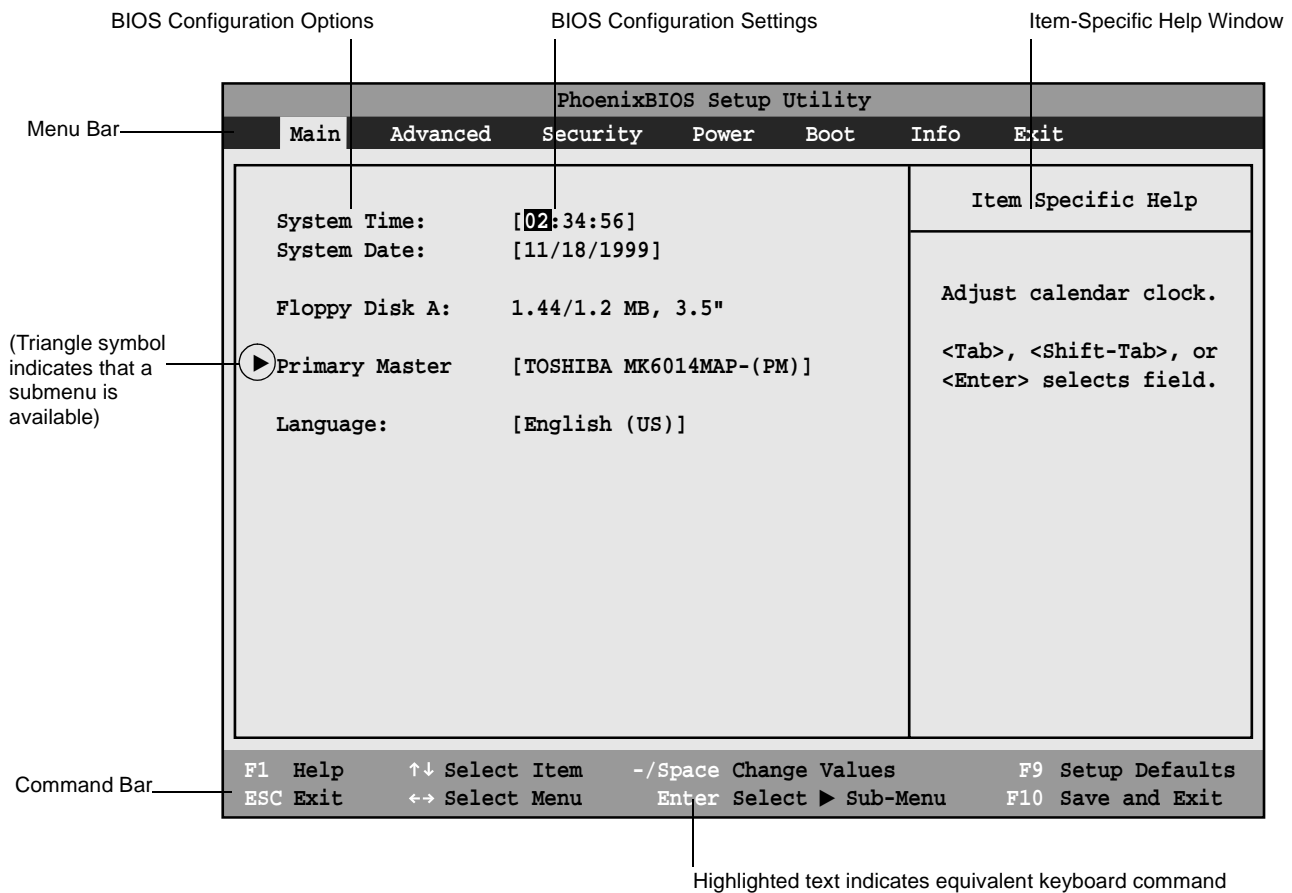
Figure 3-1 BIOS Setup Screen

Instructions for selecting and changing BIOS options and navigating BIOS Setup menus using a pen or external keyboard are given below:

- **To select a BIOS Setup menu from the menu bar**, tap on the menu name in the menu bar, tap on the right or left side of the Select Menu field in the command bar, or use the right or left arrow keys on an external keyboard to highlight the menu and display a list of menu options.

- **To select a BIOS option**, tap on the setting field for the option, tap on the right or left side of the Select Item field in the Command Bar, or use the up and down arrow keys on an external keyboard to highlight the option in the list of items for a given menu.

- **To change the setting of a selected BIOS option**, tap directly on the setting field, tap on the highlighted commands to the right or left of Change Values in the command bar, or use the -, +, /, and space keys on an external keyboard to cycle through the list of possible settings. (You can also change settings using a pop-up menu as described next.)

- **To access a pop-up menu with a list all possible settings for a given BIOS option**, first tap on the [option], then tap on the right mouse button hotpad. Tap on the setting once more to view the pop-up menu. Double-click on the setting of your choice to select it.

- **To select and enter a submenu**, tap twice on the submenu name or select the submenu using the up and down arrow keys on an external keyboard and press Enter. (The Main, Advanced, Security, Power, and Boot menus contain submenus.)

- **To view Item-Specific Help** for a BIOS option, select the option. Item specific help is displayed in the Item Specific Help panel on the right-hand side of the screen.

- **To view General Help for BIOS Setup**, tap on Help in the command bar or press F1 on your external keyboard. The BIOS Setup help screen is displayed giving general instructions for using BIOS Setup.

- **To exit BIOS Setup**, choose the appropriate option from the Exit menu, or tap Save and Exit in the command bar, or press F10 on an external keyboard. See "Exiting BIOS Setup" on page 6 for details.

- **To load factory default settings for all BIOS options**, select Load Defaults from the command bar.

Exiting BIOS Setup

Once you are finished making changes in BIOS Setup, you must exit BIOS Setup and allow the system to boot to apply your configuration changes. You can exit BIOS Setup by selecting options in the Exit menu. The Exit menu includes options that allow you to load default BIOS settings, load previous settings, discard your changes, save your changes, and exit BIOS Setup. For details on Exit menu options, see "Exit Menu Options" on page 26.

BIOS Setup Main Menu Options

> *Note:* *All details listed in this chapter reflect BIOS version 1.02.*

BIOS Setup Main menu options are given in Table 3-1. (Options and settings for other BIOS Setup menus are described in the tables that follow.) The default setting for each option is listed in bold type when applicable.

Table 3-1. BIOS Setup Main Menu Options

Option	Settings	Description
System Time	00:00:00 to 23:59:59	Real Time Clock (RTC) setting in hours, minutes, and seconds. Note that the system time option uses a 24 hour format.
System Date	01/01/1980 to 12/31/2099	RTC calendar setting in month/day/year format.
Floppy Disk A:	**1.44/1.2 MB, 3.5"** Disabled	Floppy disk drive type for external floppy drive. Selecting [Disabled] disables the floppy disk drive port.
Primary Master Submenu		Select this field to access the primary disk drive submenu. (See "Primary Master Options" later in this section.)
Language	**English** Japanese	Select the display language for the BIOS.

Primary Master Submenu Options

Options and settings for the Primary Master Submenu are given in Table 3-2.

Table 3-2. BIOS Setup Primary Master Configuration Options

Option	Settings	Description
Type	**Auto** None Hard Disk	IDE hard disk drive configuration method. Select [Auto] to load configuration parameters from the hard disk drive automatically. Selecting [None] disables the hard drive. Selecting [Hard Disk] allows you to manually enter parameter values for the remaining options listed in this table.
Cylinders*	0 to 65535	Number of cylinders.
Heads*	1 to 16	Number of read/write heads.
Sectors*	0 to 63	Number of sectors per track.
Maximum Capacity	xxxxMB	Display only.
Multi-Sector Transfers*	Disabled 2 Sectors 4 Sectors 8 Sectors **16 Sectors** 32 Sectors 64 Sectors 128 Sectors	Number of sectors used in multisector transfers. You can cycle through the settings for this option to select values up to the maximum 128 sectors allowable for the hard disk drive. (Selecting the maximum, or values larger than the default may degrade performance.)
LBA Mode Control*	Disabled **Enabled**	Logical Block Address (LBA) mode control. Selecting [Enabled] causes logical block addressing to be used. Selecting [Disabled] causes cylinder, head, and sector addressing to be used.
PIO Transfer Mode*	Standard Fast PIO 1 Fast PIO 2 Fast PIO 3 **Fast PIO 4**	Determines the method for data transfers to and from the hard disk drive. (Choosing [Auto] for the HDD Configuration option selects the optimum setting for this option.)
DMA Transfer Mode*	Disabled Multiword DMA 1 Multiword DMA 2 Ultra DMA 0 Ultra DMA 1 **Ultra DMA 2**	Determines the mode used for DMA transfers to/from the drive. (Choosing [Auto] for the HDD Configuration option selects the optimum setting for this option.)

* These values can be changed when Hard Disk is selected.

Advanced Menu Options

Options in the Advanced menu are described in Table 3-3.

Table 3-3. BIOS Setup Advanced Menu Options

Option	Settings	Description
Plug & Play OS	**Yes** No	Determines whether BIOS support for Plug and Play device configuration is enabled. Select [Yes] if your operating system supports Plug and Play configuration. Select [No] if your operating system does not support Plug and Play configuration. (Windows 98 and Windows 2000 support Plug and Play configuration.) If this option is set to [Yes], the BIOS only enables devices required to boot the system; further configuration is performed by the operating system.
Protected Device Configurations	**No** Yes	Select [Yes] to prevent a Plug and Play operating system from changing device configuration settings. Select [No] to allow a Plug and Play operating system to configure system devices.
SERIAL/PARALLEL PORT CONFIGURATIONS SUBMENU		Enter this submenu to configure peripheral interfaces. (See "Serial/Parallel Port Configurations Submenu Options" on page 10 for details.)
KEYBOARD/MOUSE FEATURES SUBMENU		Enter this submenu to configure the system keyboard and mouse. (See ""Keyboard/Mouse Features Submenu Options" on page 12 for details).
VIDEO FEATURES SUBMENU		Enter this submenu to configure system resources for the video controller. (See "Video Features Submenu Options" on page 13 for details.)
INTERNAL DEVICE CONFIGURATIONS SUBMENU		Enter this menu to configure additional device controllers. (See "Internal Device Configurations Submenu Options" on page 14 for details.)
PCI CONFIGURATIONS SUBMENU		Enter this menu to reserve specific IRQs for use by ISA devices. (See "PCI Configurations/IRQ Reservation Submenu Options" on page 15 for details.)
CPU FEATURES SUBMENU		Enter this submenu to change CPU serial number features. (See "CPU Features Submenu Options" on page 16 for details).
ACPI FEATURES SUBMENU		Enter this submenu to configure ACPI management features. (See "ACPI Features Submenu Options" on page 16 for details).
EVENT LOGGING SUBMENU		Enter this submenu to view the Event Log features. (See "Event Logging Submenu Options" on page 17 for details).
Hotpad	**Enable** Disable	This setting determines whether the following hotpads are enabled: Speaker On/Mute, Volume Up/Down, Display Select, and Brightness Up/Down.

Serial/Parallel Port Configuration Submenu Options

Configuration options for the Serial/Parallel Port Configuration submenu are given in Table 3-4. Note that some peripheral interfaces are only available when using a device attached to the system interface port such as the mini-dock.

Table 3-4. Serial/Parallel Port Configurations Submenu Options

Option	Settings	Description
Serial Port	Disabled **Enabled** Auto	Determines whether the serial port is active and the method used to configure the serial port. Select [Auto] to allow the BIOS or operating system to configure the port automatically. Select [Enabled] to configure the Base I/O Address and Interrupt options manually in BIOS setup. Select [Disabled] to turn serial port A off.
I/O Address	**3F8 - 3FF** 2F8 - 2FF 3E8 - 3EF 2E8 - 2EF	Determines the base I/O address used for the serial port. The Serial Port option must be set to [Enabled] before this setting can be changed.
Interrupt	IRQ 3 **IRQ 4**	Determines the interrupt request level used for the serial port. The Serial Port option must be set to [Enabled] before this setting can be changed.
Infrared Port	Disabled **Enabled** Auto	Determines whether the infrared port is active and the method used to configure the infrared port. Select [Auto] to allow the BIOS or operating system to configure the port automatically. Select [Enabled] to configure the I/O Address and Interrupt options manually in BIOS setup. Select [Disabled] to turn off the infrared port.
Mode	IrDA **FIR**	Determines which physical interface the infrared port is assigned to. Select IrDA to use the IrDA port in Standard IR (SIR) mode (115 Kbps). Select FIR to use the IrDA port in Fast IR mode (4 Mbps).
I/O Address	3F8 - 3FF 2F8 - 2FF 3E8 - 3EF **2E8 - 2EF**	Determines the base I/O address used for the infrared port. The Infrared Port option must be set to [Enabled] before this setting can be changed.
Interrupt	**IRQ 3** IRQ 4	Determines the interrupt request level used for the infrared port. The Infrared Port option must be set to [Enabled] before this setting can be changed.
I/O Address	100 - 107 108 - 10F 110 - 117 **118 - 11F**	Determines the base I/O address for the infrared port. This option is only selectable when the Infrared Port Mode setting is FIR.

Table 3-4. Serial/Parallel Port Configurations Submenu Options (Continued)

Option	Settings	Description
DMA Channel	DMA 1 **DMA 3**	Determines the DMA channel assigned to the infrared port when using Fast IR mode. This option is only selectable when the Infrared Port Mode setting is FIR.
Parallel Port	Disabled **Enabled** Auto	Determines how system resources for the parallel port are configured. Select [Enabled] to configure resources manually. Select [Auto] to allow the BIOS (or Plug and Play operating system) to configure system resources for the parallel port. Select [Disabled] to disable the parallel port.
Mode	Output Only **Bidirectional** ECP	Determines the operational mode for the parallel port. Select Output Only, Bidirectional, or ECP (Extended Capabilities Port) depending on which setting is appropriate for your application. This option is not displayed when the Parallel Port option is set to [Disabled].
I/O Address	**378 - 37F** 278 - 27F 3BC - 3BF	Determines the base I/O address used for the parallel port. This option is not displayed when the Parallel Port option is set to [Disabled].
Interrupt	IRQ 3 IRQ 4 **IRQ 7**	Determines the interrupt request level used for the parallel port. This option is not displayed when the Parallel Port option is set to [Disabled].
DMA Channel	**DMA 1** DMA 3	Determines the DMA channel assigned to the parallel port when using ECP mode. This option is only displayed when the Parallel Port option is set to ECP.

Keyboard/Mouse Features Submenu Options

Configuration options for the Keyboard/Mouse Features submenu are given in Table 3-5.

Table 3-5. Keyboard/Mouse Features Submenu Options

Option	Settings	Description
Numlock	**Off** Auto On	This option determines the state of the NumLock key when the system is powered on.
Hot Plug	**Enabled** Disabled	This option determines whether the system is hot-pluggable. Select [Enabled] to allow devices to be connected while the system is running. Select [Disabled] to prevent devices from being hot-plugged into the system.
USB Keyboard/Mouse	**Auto** Disabled Enabled	When [Auto] is selected, Legacy (PS/2) Emulation is enabled if a USB keyboard is connected at boot. When [Disabled] is selected, Legacy Emulation is disabled. When [Enabled] is selected, Legacy Emulation is enabled and a USB keyboard is available without a USB-aware operating system.

Video Submenu Options

Options for the Video Features submenu are given in Table 3-6.

Table 3-6. Video Features Submenu Options

Option	Settings	Description
Display	**Internal Flat Panel** External Simultaneous	Determines the default display device. Select the appropriate option to choose the LCD (internal flat panel), an external video monitor, or both as the default display device. Note that using the Display Select hotpad will change this setting.
Compensation	**Disabled** Enabled	Determines whether the VGA images will expand to full screen on an SVGA display, or cause VGA images to stretch to SVGA on an XVGA display (not full screen). Note that if compensation is enabled, the display quality will not be as good as if it is disabled. Select [Disabled] to use the center portion of the screen. Select [Enabled] to expand the image.

Internal Device Configurations Submenu

Options for the Internal Device Configurations submenu are given in Table 3-7.

Table 3-7. Internal Device Configurations Submenu Options

Option	Settings	Description
Floppy Disk Controller	**Enabled** Disabled	When [Enabled] is selected, the floppy disk drive is enabled. When [Disabled] is selected, the floppy disk drive is disabled.
IDE Controller	**Enabled** Disabled	When [Enabled] is selected, the IDE port is enabled. When [Disabled] is selected, the IDE port is disabled.
LAN Controller	**Auto** Enabled Disabled	When [Auto] is selected, the LAN device is always enabled when AC power is supplied. When running on battery power, the LAN device is only enabled when the link is active. When [Enabled] is selected, the LAN device is enabled. When [Disabled] is selected, the LAN device is disabled.
Modem Controller	**Enabled** Disabled	When [Enabled] is selected, the modem is enabled. When [Disabled] is selected, the modem is disabled.

PCI Configurations/IRQ Reservation Submenu

The PCI Configuration submenu has only one selection: the IRQ Reservation submenu. The IRQ Reservation submenu allows you to reserve specific IRQs that are used by legacy devices. Unless you need to reserve specific IRQs to resolve a resource conflict, the recommended setting for each of these options is Available.

Table 3-8. PCI Configurations/IRQ Reservation Submenu Options

Option	Settings	Description
IRQ 3	**Available** Reserved	Select Reserved if the IRQ is needed for use by a legacy ISA device.
IRQ 4	**Available** Reserved	Select Reserved if the IRQ is needed for use by a legacy ISA device.
IRQ 7	**Available** Reserved	Select Reserved if the IRQ is needed for use by a legacy ISA device.
IRQ 9	**Available** Reserved	Select Reserved if the IRQ is needed for use by a legacy ISA device.
IRQ 10	**Available** Reserved	Select Reserved if the IRQ is needed for use by a legacy ISA device.
IRQ 11	**Available** Reserved	Select Reserved if the IRQ is needed for use by a legacy ISA device.
IRQ 15	**Available** Reserved	Select Reserved if the IRQ is needed for use by a legacy ISA device.

CPU Features Submenu

Options for the CPU Features submenu are given in Table 3-9.

Table 3-9. CPU Features Submenu Options

Option	Settings	Description
Processor Serial Number	**Disabled** Enabled	This option configures the Processor Serial Number feature of Pentium III processor. This option is accessible via DMI. When [Disabled] is selected, the Processor Serial Number feature is disabled. When [Enabled] is selected, the Processor Serial Number feature is enabled.

ACPI Features Submenu

Options for the ACPI Features submenu are given in Table 3-10.

Table 3-10. ACPI Features Submenu Options

Option	Settings	Description
ACPI Management	**Disabled** Enabled	This option configures the ACPI extended feature for system management. This feature should **only** be enabled when you use applications that require it. When [Disabled] is selected, the extended feature is disabled. When [Enabled] is selected, the extended feature is enabled.

Event Logging Submenu

The Event Logging Submenu allows you to configure DMI (Desktop Management Interface) event logging options. To access this submenu, select Event Logging Submenu from the Advanced menu.

Table 3-11. Event Logging Submenu Options

Option	Settings	Description
Event Log Capacity		Status of the event log is displayed.
Event Log Validity		Indicates whether data in the event log is valid.
View Event Log	**Enter**	Press the <Enter> key or select the [Enter] option to view the contents of the event log.
Clear all DMI event logs	**No** Yes	Choose Yes to clear all DMI event logs at the next boot. (This setting is reset to No after the event logs are cleared.)
Event Logging	Disabled **Enabled**	Determines whether DMI event logging is enabled.
System Boot Event	**Disabled** Enabled	This option is only available when [Enabled] is selected for Event Logging. When [Enabled] is selected, the event may be logged. When [Disabled] is selected, the event is ignored.
Clear All Event Logs	**No** Yes	Choose [Yes] to clear all DMI event logs at the next boot. (This setting is reset to No after the event logs are cleared.)
Mark Events as Read	**Enter**	Press [Enter] or press the <Enter> key to mark all events currently in the event log as read. Marked events will not be displayed the next time View Event Log is selected.

Security Menu Options

Security menu options for the Stylistic 3400 pen tablet are described in Table 3-12. Note that settings for some security menu options determine whether other options are available.

Table 3-12. BIOS Setup Security Menu Options

Option	Settings	Description
Supervisor Password Is	Enabled **Disabled**	Indicates whether a supervisor password has been specified. (This field cannot be changed directly. To enable or disable the supervisor password, enter a new password or clear the old password using the Set Supervisor Password option.)
User Password Is	Enabled **Disabled**	Indicates whether a user password has been specified. (This field cannot be changed directly. To enable or disable the user password, enter a new password or clear the old password using the Set User Password option.)
Set Supervisor Password	(Tap on the setting field for this option or press the <Enter> key to specify a supervisor password.)	Specifying a supervisor password grants access to all password protected Security menu options. When a supervisor password is enabled and a user password is used to enter BIOS Setup, the user cannot access the following Security menu options: Set Supervisor Password, Floppy Disk Access, and Hard Disk Boot Sector. When enabled, a supervisor password (or user password if used) is required to run BIOS Setup.
Set User Password	(Tap on the setting field for this option or press the <Enter> key to specify a user password.)	Specifying a user password grants access to the following Security menu options only: User Password, Password On Boot. Other Security menu options are not accessible. (When a supervisor password is enabled and a user password is used to enter BIOS Setup, the user cannot access the following Security options: Set Supervisor Password, Floppy Disk Access, Hard Disk Boot Sector.) When enabled, a user (or supervisor) password is required to run BIOS Setup. Note that a supervisor password must be enabled before a user password can be specified.
Minimum User Password Length		Set the minimum length for the user password. Once this field is set, the user cannot enter any passwords less than the minimum length.
Password On Boot	**Disabled** Enabled	Select [Enabled] to require a user or supervisor password to boot the system. Note that a user or supervisor password must be specified before this option can be enabled.

Table 3-12. BIOS Setup Security Menu Options (Continued)

Option	Settings	Description
Boot from Removable Media	**All** Supervisor Only	This option determines who has permission to boot the system using removable media. Select [Supervisor Only] to allow the system only to be booted from removable media after the system is started by entering a supervisor password when the Password On Boot option is enabled. When [Supervisor Only] is selected, the system cannot be booted from removable media if Supervisor Password is enabled and the Supervisor password was not entered at boot time.
Floppy Disk Access	**All** Supervisor Only	This option determines who has access to an external floppy drive. Select [Supervisor Only] to allow diskette access only after the system is started by entering a supervisor password when the Password On Boot option is enabled. If the Password On Boot option is disabled, the floppy drive is not accessible. When [Supervisor Only] is selected, the system prevents diskette access if Supervisor Password is enabled and the Supervisor password was not entered at boot time.
HARD DISK SECURITY SUBMENU		Enter this submenu to configure the hard disk security. (See "Hard Disk Security Submenu Options" on page -20 for details.)
OWNER INFORMATION SUBMENU		Enter this submenu to view and change system owner information. (See "Owner Information Submenu Options" on page -20 for details.)
Hard Disk Boot Sector	**Normal** Write Protected	This option write-protects the boot sector on the hard disk, to protect against viruses. Select [Write Protect] to grant read only access to the hard disk drive's boot sector. Select [Normal] to allow read and write access to the boot sector. **Caution** Selecting [Write Protect] is not advisable on systems running Windows 98 or Windows 2000, since those operating systems must occasionally write to the boot sector. Select [Normal] if your system runs Windows 98 or Windows 2000.

Hard Disk Security Submenu

Hard Disk Security submenu options for the Stylistic 3400 pen tablet are described in Table 3-13.

Table 3-13. Hard Disk Security Submenu Options

Option	Settings	Description
Primary Master	**Disabled** Enabled	When [Enabled] is selected, the hard disk is locked with the password. Data in the locked disk cannot be read on any system other than the original system on which it was locked, or on systems with identical password settings. If the Supervisor Password has not yet been set, this item is grayed, and cannot be selected or changed. When [Disabled] is selected, this feature is disabled.

Owner Information Submenu

Owner Information submenu options for the Stylistic 3400 pen tablet are described in Table 3-14.

Table 3-14. Owner Information Submenu Options

Option	Settings	Description
Owner Information Is	**Clear** Set	Display only. Depending upon the current setting of the owner information, either [Clear] or [Set] is displayed.
Set Owner Information	**Enter**	Press the <Enter> key or select [Enter] to set owner information. If the Supervisor Password has not yet been set, this item is grayed, and cannot be selected or changed. The owner information is always displayed on the bottom line of the screen during POST.

Power Savings Menu Options

Options for the Power Savings menu are described in Table 3-15. Default settings for most options in this menu differ depending on the setting selected for the Power Savings BIOS option. (Refer to Chapter 7 of this manual for more information on power management.)

Caution

Power savings options should be set to the most conservative values possible for your application; doing so extends battery life and lowers internal temperatures of the pen tablet.

Windows 98 and Windows 2000 users: Windows 98/2000 can be configured to use ACPI. (APM is enabled as the factory setting.) Systems with ACPI enabled will not use power management settings configured in BIOS Setup. To configure power management settings in Windows 98 or Windows 2000,

open Power Management in Control Panel and select the desired settings in the Power Management Properties window.

Table 3-15. BIOS Setup Power Savings Options

Option	Settings	Description
Power Savings	Maximum Power Savings Maximum Performance **Customized** Disabled	Select [Maximum Power Savings] to use a power management profile designed to maximize battery life. Select [Maximum Performance] to configure the system to use a power management profile designed for maximum system performance. Select [Customized] to edit power management BIOS options directly and create a custom power management profile. Select [Disabled] to use no power management (all devices remain fully on).
Hard Disk Timeout	**Off** 30 Seconds 1 Minute 2 Minutes 4 Minutes 6 Minutes 8 Minutes 10 Minutes 15 Minutes 20 Minutes	Determines the amount of time elapsed with no hard disk drive activity before the hard disk drive is spun down. Select [Off] to keep the hard disk fully powered (always spinning) while the system is running. Note that the hard disk drive is more vulnerable to shock and vibration damage when it is spinning.
Display Timeout	**Off** 2 Minutes 4 Minutes 6 Minutes 8 Minutes 10 Minutes 15 Minutes 20 Minutes	Use this option to determine the amount of time the user input devices are inactive before the screen is turned off automatically. This setting affects any external video monitor as well as the pen tablet display screen. Select [Off] to keep the video system fully powered while the system is running.
Standby Timeout	Off 1 Minute 2 Minutes **4 Minutes** 6 Minutes 8 Minutes 12 Minutes 16 Minutes	Standby Mode turns off various devices in the system, including the screen and the CPU until you start using the computer again. Select the period of time the system should be inactive before it automatically enters standby mode. When in standby mode, some system components, including the display, are turned off to conserve battery power. Select Off to disable the Standby Mode Timeout feature. (See "Standby Mode" on page 72 for more information.)

Table 3-15. BIOS Setup Power Savings Options (Continued)

Option	Settings	Description
Auto Suspend Timeout	Off 5 Minutes 10 Minutes **15 Minutes** 20 Minutes 30 Minutes 40 Minutes 60 Minutes	Determines the amount of time elapsed with no system activity before system operation is suspended automatically.
Suspend Mode	**Suspend** Save To Disk	Determines the suspend mode used when you press the Suspend/Resume button or when the Suspend Mode Timeout expires. Selecting [Suspend] also allows you to configure the Save-To-Disk Timeout option. Note: You must choose [Suspend] to use the Resume On Modem Ring and Resume On Time options. If [Save To Disk] is selected, and either Resume On Modem Ring or Resume On Time are enabled, the system will suspend to RAM and won't save to disk.
Auto Save-To-Disk	**Off** After 1 Hour	Determines whether the system automatically performs a save-to-disk operation after 1 hour in Suspend mode. To use this feature, the Suspend Mode option must be set to [Suspend].
Resume On Modem Ring	**Off** On	Select [On] to configure the system to resume operation when an incoming call is detected by your modem. This feature will detect a modem ring on the built-in modem, a modem installed in a PC Card slot, or an external modem connected to a serial port; however, implementation of the ring indicator function differs between modem vendors, so this feature may not be supported by some third-party modems. To use this feature, the Suspend Mode option must be set to [Suspend]. If [Save To Disk] is selected, and Resume On Modem Ring is On, the system will suspend to RAM and won't save to disk.
Resume On Time	**Off** On	Select [On] to configure your system to resume operation at the time of day specified in the Resume Time field. To use this feature, the Suspend Mode option must be set to [Suspend]. If [Save To Disk] is selected, and Resume On Time is On, the system will suspend to RAM and won't save to disk.
Resume Time	00:00:00	Determines time of day system will resume when the Resume On Time option is On. Enter the time of day in HH:MM:SS format. Note: system uses a 24-hour clock.
ADVANCED FEATURES SUBMENU		Select this submenu to further refine power management BIOS options. See Table 3-16 for more information.

Advanced Features Options Submenu

Options for the Advanced Features Options submenu are described in Table 3-16.

Table 3-16.   BIOS Advanced Features Options Submenu

Option	Settings	Description
Suspend/Resume Switch	**Enabled** Disabled	Determines whether the Suspend/Resume switch is enabled or disabled. Note that when this option is in Disabled mode, the switch will still resume from an auto-suspended state.
Resume On LAN	**Off** On	Selecting [On] allows the system to wake up when the internal LAN device receives a Magic Packet while in Suspend Mode.
Serial Mouse Activity	**Disabled** Enabled	Determines whether the video system resumes when external serial activity is detected. Select Enabled to resume video system operation when a connected serial device (such as a serial mouse) is active.
Thermal Control	**Maximum Power Savings** Maximum Performance	This selection determines the method of thermal control used by the system. Select [Maximum Power Savings] to use CPU slowdown as the primary cooling method. Select [Maximum Performance] to use the fan as the primary cooling method. Note that - if the temperature is too high - both systems may be used to cool it down.

Boot Menu Options

Boot menu options are described in Table 3-17.

Table 3-17. BIOS Setup Boot Menu Options

Option	Settings	Description
QuickBoot	Disabled **Enabled** Auto	Determines whether the full set of tests are run during the Power-On Self Test (POST). When [Enabled] is selected, a less extensive memory test is performed and the size of installed memory is not displayed during the memory test. When [Auto] is selected, diagnostic tests will either be skipped or performed according to the order of the ACPI OS. When [Disabled] is selected, the full set of tests is run.
Boot-Time Diagnostic Screen	**Disabled** Enabled	Determines whether status messages are displayed as the Power On Self Test (POST) is performed. Select [Enabled] to display messages. If [Disabled] is selected, messages are not displayed and the logo screen is displayed. (If POST errors occur, POST messages are displayed regardless of this setting.)
Preboot Execution Environment	**Disabled** Enabled	Determines whether the boot up from a network server. Select [Enabled] to allow the system to boot from a network server (Preboot Execution Environment). If [Disabled] is selected, this feature is disabled.
BOOT DEVICE PRIORITY SUBMENU		Select this submenu to configure the order in which drives are searched for a bootable image.

Boot Device Priority Submenu

Table 3-18. describes settings in the Boot Device Priority submenu.

Table 3-18. BIOS Setup Boot Sequence Submenu

Setting	Description
1. [Floppy Disk Drive] **2. [Hard Disk Drive]**	Determines the order that the systems searches drives for a bootable image.
1. [Hard Drive] 2. [Diskette Drive]	Tap on item 2 to change the boot sequence.

Info Menu

The Info menu displays information about the pen tablet hardware and BIOS software installed on the system as described in Table 3-19.

Table 3-19. BIOS Setup Info Menu

Field	Description
BIOS Version	Version number of the BIOS software installed on system.
BIOS Date	Release date of the BIOS software.
BIOS Area	Memory area used by the BIOS.
CPU Type	Pen tablet CPU.
CPU Speed	Processor speed.
L1 Cache	Size of level 1 cache.
L2 Cache	Size of level 2 cache.
Total Memory	Total memory installed in pen tablet (including built-in memory).
Onboard	Size of built-in memory.
Memory Slot	Size of memory installed in DIMM slot.

Exit Menu Options

Exit menu options are described in Table 3-20.

Table 3-20. BIOS Setup Exit Menu Options

Option	Description
Exit Saving Changes	Exit after writing all changed BIOS Setup settings to CMOS memory.
Exit Discarding Changes	Exit without saving changes to BIOS Setup settings to CMOS memory.
Load Setup Defaults	Load default settings for all BIOS Setup options.
Discard Changes	Read previous settings from CMOS memory and load in all BIOS Setup options.
Save Changes	Save BIOS changes to CMOS.

Using GetCMOS and PutCMOS

Used in combination, the **GetCMOS** *[filename]* and **PutCMOS** *[filename]* command line functions can be used to easily configure the system BIOS using pre-determined settings.

Any number of BIOS configurations can be stored using these commands, either on the system hard disk or on removable media. Using the GetCMOS/PutCMOS commands allows you to create identical BIOS configurations on multiple systems.

Saving a BIOS Configuration Using GetCMOS

To run GETCMOS, attach a keyboard to your system and perform the following procedure. (An external keyboard must be used to type the commands since pen support is not available at the MS-DOS level.)

1. Turn the system on and enter the BIOS setup by double-tapping the screen when prompted.

2. Adjust the BIOS configuration to the desired settings.

3. Save and Exit the BIOS setup.

4. Boot to the MS-DOS prompt.

5. Go to the DOS command line and type: `getcmos (filename)`, with the filename being the destination at which you want to store the BIOS configuration that you just created. When you press the Enter key, the BIOS configuration is stored in the file destination you selected.

Restoring a BIOS Configuration

To apply the BIOS setting created with GetCMOS, attach a keyboard to your system and perform the following procedure. (An external keyboard must be used to type the commands since pen support is not available at the MS-DOS level.)

1. Boot to the MS-DOS prompt.

2. At the DOS command line, type *putcmos (filename)*, with the filename the path to the location of the GetCMOS BIOS configuration you want to apply to the system.

3. When you press the Enter key, the BIOS configuration associated with the designated GetCMOS file is applied to the system BIOS.

PHDISK Hard Disk Preparation Utility

The PHDISK hard disk preparation utility can be used to prepare either a dedicated partition or create a hidden MS-DOS file for storing system data during a "save-to-disk" operation.

Note: ***The Save-to-Disk operation will not work unless the Resume On Modem Ring is disabled in both the BIOS and in Windows.*** *In order to disable Resume On Modem Ring, contact Fujitsu PC to obtain a patch program which will allow you to disable the function through Windows.*

> **Caution**
>
> Creating a save-to-disk partition will reformat the hard disk drive, erasing all data on the disk. Back up your hard disk before using PHDISK to create a save-to-disk partition.

Command Line Options

Table 3-21 lists PHDISK command line options and additional parameters. Note that PHDISK options can be invoked using only the first letter of each option and parameter. For example either,

```
PHDISK /REFORMAT
```

or

```
PHDISK /R
```

can be used to invoke the reformat option.

Table 3-21. PHDISK Command Line Options

Option	Parameters	Description
None		Displays the PHDISK Opening Screen.
/CREATE	/PARTITION	Creates a save-to-disk partition. (Entire hard disk is reformatted.) **Caution** Creating a save-to-disk partition will reformat the hard disk drive, erasing all data on the disk. You must back up your hard disk before using PHDISK to create a save-to-disk partition. To avoid reformatting your hard disk, use the /FILE parameter instead of the /PARTITION parameter.
	/FILE	If no save-to-disk partition exists, PHDISK creates a save-to-disk file large enough for the current system configuration. If a save-to-disk partition exists, PHDISK creates a save-to-disk file large enough to supplement the existing save-to-disk partition space. (The file created provides additional disk space required for save to disk operation.)
/DELETE	/PARTITION	Deletes all data in the save-to-disk partition and renders disk space occupied by the save-to-disk partition unusable. (You must reformat the entire hard disk to use the hard disk space occupied by the deleted partition.)
	/FILE	Delete save-to-disk file.

Table 3-21. PHDISK Command Line Options (Continued)

Option	Parameters	Description
/INFO	/PARTITION	Displays data about the save-to-disk partition.
	/FILE	Displays data about the save-to-disk file.
/REFORMAT	/PARTITION	Reformat the save-to-disk partition. This option is typically used if a hard disk error is detected in the save-to-disk partition.

The example below shows the type of information that is displayed when PHDISK is called without a command line option. This example displays both the save to disk FILE INFORMATION and save-to-disk PARTITION INFORMATION headers. These headers are displayed only when both a save-to-disk partition and a save to disk file exist. (The USAGE and OPTIONS headers are displayed in several screens displayed by PHDISK).

> *Note:* *When a save-to-disk partition and file both exist, save-to-disk data is stored in the partition first and any excess data is stored in the save-to-disk file. It is recommended that you configure your system to use either a save-to-disk partition exclusively or a save-to-disk file exclusively. This ensures that your save-to-disk data is stored in contiguous disk space.*

```
PHDISK 3.2.10 -- Phoenix NoteBIOS 4.0 (TM) Save to Disk Preparation Utility
Copyright (c) Phoenix Technologies Ltd. 1995-97.  All rights Reserved.
Copyright (c) FUJITSU LIMITED. 1998

Save to Disk file information:
    Your Save to Disk file is named C:\SAVE2DSK.BIN and has a size
    of xxxx KBytes. It has System, Hidden, and Read Only attributes.

Save to Disk partition information:
    Partition starts at sector xxxxx (head xx, cylinder xx, sector xx)
    Partition size: xxxx KBytes total

Current System Status:
    You currently need a Save to Disk area of xxxx KBytes. PhDisk will
    also require additional overhead and will automatically calculate the
    actual required space.

You have both a file and a partition. Save to Disk will default
to file. Either delete the file, or the partition.


Usage:PHDISK [options]
/CREATE    (/FILE or /PARTITION)      -- Create STD file or partition
/DELETE    (/FILE or /PARTITION)      -- Delete existing STD file or partition.
/INFO                                 -- Information on STD disk area(s)
/REFORMAT /PARTITION                  -- Reformat existing STD partition

 This utility configures a hard disk to utilize the Phoenix NoteBIOS 4.0
 Save to Disk feature. Please refer to your user manual for information
 regarding Save to Disk.
```

CREATE Option

The CREATE option measures the amount of on-board memory, and partitions a segment of the hard disk drive large enough to store all the data that might be there. The CREATE option formats the save-to-disk partition or file, marking bad spots on the hard disk drive as they are found.

Automatic Memory Size Calculation

PHDISK automatically measures all system and video memory and calculates the exact amount of hard disk space required to store the maximum amount of data the memory might contain. The result of this measurement, [SIZE], is displayed on the PHDISK screen.

The total amount of system and video memory is calculated by the following formula:

Calculated memory = Physical System Memory + Video Memory + 0.3 KBytes (Save to Disk overhead)

Hard disk space is allocated by cluster, therefore, the save-to-disk partition may exceed [SIZE] by nearly one cluster. This space is used, as needed, for the bad-sector replacement pool.

Specify Memory Size

The amount of disk space required to store all system and video memory is calculated automatically whenever the CREATE option is used. If you specify a specific amount of memory, [SIZE], equal to or larger than the calculated space required, the amount of memory specified by the [SIZE] parameter is allocated. [SIZE] is measured in kilobytes (the measurement notation K, or KB, or KBytes, is not entered in the command line).

- If [SIZE] is larger than or equal to the calculated space required:
  Save to Disk disk space allocated = [SIZE].

- If [SIZE] is smaller than the calculated space required:
  [SIZE] is ignored, no Save to Disk disk space is allocated, and an error message is displayed.

/PARTITION or /P

PARTITION creates a hard disk partition where only save-to-disk data is stored.

Caution

Creating a save-to-disk partition will reformat the hard disk drive, erasing all data on the disk. You must back up your hard disk before using PHDISK to create a save-to-disk partition. To avoid reformatting your hard disk, use the /FILE parameter instead of the /PARTITION parameter.

Note: *The hard disk drive boot sector BIOS configuration option must be set to normal to create a save-to-disk partition.*

/FILE or /F

The /FILE parameter creates a file in the hard disk's MS-DOS partition that is used to store only save-to-disk data. When a save-to-disk partition already exists, a file large enough to supplement the save-to-disk partition is created by default.

When the system and video memory outgrows the [SIZE] of the save-to-disk partition, the /FILE option can be used to re-allocate disk space. Using /FILE eliminates the user's need to create a new save-to-disk partition, and also eliminates the time consuming task of backing up the entire hard disk drive before running PHDISK /CREATE /PARTITION.

If you want to use a save-to-disk file exclusively to store save-to-disk data, you must first delete any existing save-to-disk partition before creating a save-to-disk file.

/CREATE Option Syntax

The syntax of the PHDISK ∕CREATE option is:

```
PHDISK /CREATE [SIZE][/FILE][/PARTITION]
```

Table 3-22 lists valid examples of the PHDISK ∕CREATE option.

Table 3-22. PHDISK ∕CREATE Option

Command	Description
PHDISK /CREATE /FILE (or PHDISK /C /F)	If no save-to-disk partition exists, PHDISK creates a save-to-disk file large enough for the current system configuration. If a save-to-disk partition exists, PHDISK creates a save-to-disk file large enough to supplement the existing save-to-disk partition space. (The file created provides additional disk space required for save-to-disk operation.)
PHDISK /CREATE /PARTITION (or PHDISK /C /P)	Creates a save-to-disk partition using the amount of memory required as calculated by PHDISK. **Caution** Creating a save-to-disk partition will reformat the hard disk drive, erasing all data on the disk. You must back up your hard disk before using PHDISK to create a save-to-disk partition. To avoid reformatting your hard disk, use the /FILE parameter instead of the /PARTITION parameter.
PHDISK /CREATE 10240 /FILE (or PHDISK /C 10240 /F)	Creates a 10 MB save-to-disk file. The [SIZE] variable is 10240.

REFORMAT Option

The ∕REFORMAT option resets the pointers in a save-to-disk partition. Use this option after a save-to-disk operation is terminated by a read or write error.

Note: Only save-to-disk partitions can be reformatted; save-to-disk files cannot. If a hard disk error occurs while writing to a save-to-disk file, use PHDISK /DELETE /FILE to delete the save-to-disk file. Then, use PHDISK /CREATE /FILE to create a new save-to-disk file.

/REFORMAT Option Syntax

Table 3-23 lists an example of the PHDISK ∕REFORMAT option.

Table 3-23. PHDISK ∕REFORMAT Option

Command	Description
PHDISK /REFORMAT /PARTITION (or PHDISK /R /P)	Reformats the save-to-disk partition.

DELETE Option

When DELETE is specified, the pointers and data in the specified save-to-disk partition or file are deleted. Use DELETE when bad data is displayed after a Resume From Disk operation.

/DELETE Option Syntax

Table 3-24 lists valid examples of the PHDISK /DELETE option.

Table 3-24. PHDISK /DELETE Option

Command	Description
PHDISK /DELETE /FILE (or PHDISK /D /F)	Delete save-to-disk file.
PHDISK /DELETE /PARTITION (or PHDISK /D /P)	Deletes all data in the save-to-disk partition and renders disk space occupied by the save-to-disk partition unusable. (You must reformat the entire hard disk to use the hard disk space occupied by the deleted partition.)

INFO Option

The ∕INFO option displays data about the save-to-disk partition or file.

/INFO Option Syntax

Table 3-25 lists valid examples of the PHDISK ∕INFO option.

Table 3-25. PHDISK /INFO Option

Command	Description
PHDISK /INFO /FILE (or PHDISK /I /F)	Displays the size (in kilobytes) of the save-to-disk file size.
PHDISK /INFO /PARTITION (or PHDISK /I /P)	Displays the PHDISK /INFO screen.

An example of the ∕INFO screen when a save-to-disk partition exists is shown below:

```
PHDISK 3.2.10 -- Phoenix NoteBIOS 4.0 (TM) Save to Disk Preparation Utility
Copyright (c) Phoenix Technologies Ltd. 1995-97.  All rights Reserved.
Copyright (c) FUJITSU LIMITED. 1998

Save to Disk partition information:
    Partition starts at sector xxxxx (head xx, cylinder xx, sector xx)
    Partition size: xxxx KBytes total

Current System Status:
    You currently need a Save to Disk area of xxxx KBytes. PhDisk will
    also require additional overhead and will automatically calculate the
    actual required space.
```

Messages

PHDISK returns various informational messages, not all of which are listed here. The following listing emphasizes the error messages, including a possible course of action.

PHDISK Sign-on Message

This message is displayed at system startup.

```
PHDISK X.X - Phoenix NoteBIOS 4.0 (tm) Save to Disk Preparation Utility
Copyright (c) Phoenix Technologies Ltd. 1995. All rights reserved.
```

Help Screen

The HELP screen is displayed when PHDISK is called without options. The following text is displayed when a save-to-disk partition already exists.

```
Usage:PHDISK [options]
/CREATE    (/FILE or /PARTITION)   -- Create STD file or partition
/DELETE    (/FILE or /PARTITION)   -- Delete existing STD partition.
/INFO                              -- Information on STD disk area(s)
/REFORMAT /PARTITION               -- Reformat existing STD partition
This utility configures a hard disk to utilize the Phoenix NoteBIOS 4.0
Save to Disk feature. Please refer to your user manual for information
regarding Save to Disk.
```

Unrecognized Option

The following text is displayed when an invalid option is entered at the command line.

```
Error: (User option) is an unrecognized command line option.
For a command line summary, invoke PHDISK without any parameters.
```

Run the PHDISK command again in this case.

Fatal Error

The following text is displayed when a hard disk error is detected during any save-to-disk operation.

```
Error: A fatal hard disk error has occurred.
Check your hardware configuration and re-execute PHDISK.
```

Run a hard disk utility to determine the source of the error, then re-execute the PHDISK command.

Not Enough Disk Space

The following text is displayed when the amount of unused disk space available is less than the amount required to create the save-to-disk partition.

```
Error: Not enough free disk space exists to create the suspend to disk
partition. Refer to the user manual for possible suggestions on increasing
the amount of free disk space for the suspend to disk partition.
```

Delete unused files, backup the DOS partition, reformat the disk, then run
PHDISK /CREATE /PARTITION to create a larger partition.

Save to Disk Partition Exists

The following text is displayed when a PHDISK /CREATE /PARTITION operation is attempted while a save-to-disk partition exists.

```
Error:Phoenix NoteBIOS Save to Disk partition already exists. To resize the
partition, delete the existing partition with PHDISK/DELETE and create the
partition with PHDISK/CREATE.
```

Reallocate the save-to-disk partition if needed, or use the /CREATE /FILE option instead. (Note that a partition will require contiguous disk space.)

Too Many Bad Sectors

The following text is displayed when the save-to-disk partition is too small because of an increasing number of bad sectors.

```
Error: Too many errors exist in the Phoenix NoteBIOS (tm) Save to Disk
partition. Check your hardware configuration and rerun PHDISK.
```

Execute PHDISK /CREATE /FILE to create a save-to-disk file.

First Two Sectors Bad

The following text is displayed when the save-to-disk partition cannot be used.

```
Error: The first two sectors in the Save to Disk partition are both
unusable. This disk is unsuitable for the Phoenix NoteBIOS Save to Disk
feature.
```

Attempt to reformat the partition using PHDISK /REFORMAT /PARTITION. (You may need to first delete the partition using PHDISK /DELETE /PARTITION depending on the disk error.)

PHDISK /CREATE Failed to Execute

The following text is displayed when no save-to-disk partition exists, or the partition table on head 0, cylinder 0, sector 1 is corrupted.

```
Error: The Phoenix NoteBIOS (tm) Save to Disk partition doesn't exist or the
hard disk partition table on head 0, cylinder 0, sector 1 is corrupted.
Invoke PHDISK/CREATE to create the Save to Disk partition.
```

Execute PHDISK /CREATE /PARTITION.

Good Sector Map Corrupted

The following text is displayed when a save-to-disk partition exists but the GSM is corrupted.

```
Error: The "Good sector map" (GSM) in the Phoenix NoteBIOS Save to Disk
partition is bad. Invoke PHDISK /REFORMAT to rebuild this table.
```

Use PHDISK /REFORMAT /PARTITION to reset the GSM flags.

Not Enough System Memory

The following text is displayed when not enough system memory is available to execute PHDISK.

```
Error: Couldn't allocate additional memory required to execute PHDISK.
```

Add more system memory, then try the PHDISK command again.

File Already Exists

The following text is displayed when the PHDISK /CREATE /FILE command is entered when a save-to-disk file already exists.

```
PHDISK X.X  -- Phoenix NoteBIOS 4.0 (tm) Save to Disk Preparation Utility
Copyright (c) Phoenix Technologies Ltd. 1995. All rights reserved.

Save to Disk file information:
   Your Save to Disk file is named C:\SAVE2DSK.BIN and has a size
   of xxxx KBytes. It has System, Hidden, and Read Only attributes.

The system will now be reset to allow the BIOS to
recognize the changes. If the system fails to reboot,
please reset the system manually.

Press any key to reset the system...
```

Delete the current file, using PHDISK /DELETE /FILE, before creating another save-to-disk file.

Chapter 4

Installing Hardware Options

This chapter provides procedures for installing PC Cards and DIMM cards. (For details on replacing the pen tablet's internal IDE hard disk drive, refer to "Removing the Hard Disk Drive" on page 83.)

Installing a PC Card

You can install a PC Card while the system is running, when the system is off, or when system operation is suspended.

To install a PC Card,

1. With the arrow on the PC Card facing up, insert the card through the shutters in the PC Card slot, as shown in Figure 4-1.

2. Push the PC Card into the slot until it is seated.

3. If necessary, install any driver or application software necessary to use your PC Card. Do not, however, install any Card Services or Socket Services software provided with your PC Card. Card and Socket Services are configured automatically by the operating system.

The PC Card is now installed and you can use the PC Card with your system.
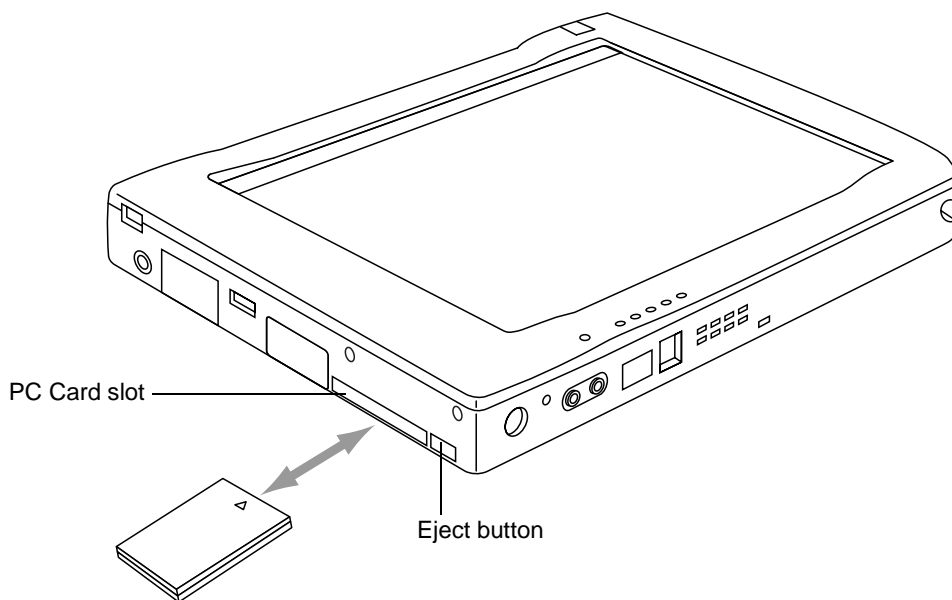

PC Card slot

Eject button

Figure 4-1 Installing a PC Card

Removing a PC Card

To remove a PC Card,

1. Stop the PC Card using the appropriate features of your operating system.

2. Press the Eject button for the PC Card slot.

3. Pull the PC Card all the way out of the slot.

Installing a DIMM Card

One of the following DIMM cards can be installed in the Stylistic 3400 pen tablet:

Table 4-1. DIMM Card Sizes

DIMM Card Number	SDRAM Size
FMW28EM32	32MB SDRAM
FMW28E64	64MB SDRAM
FMW28EM128	128MB SDRAM

Only one DIMM socket is available on the pen tablet. You will need to remove any DIMM card currently installed in the system before you can install a new DIMM card. See "Removing a DIMM Card" on page 37 for details.

To install a DIMM card in the pen tablet,

1. Ensure that the pen tablet is off. To do so, carry out the Shut Down command in the Start menu. (Do not attempt to remove or install a DIMM card when the system is in Suspend mode or running.)

2. Remove the two screws from the cover plate on the back of the pen tablet and remove the cover plate as shown in Figure 4-2.
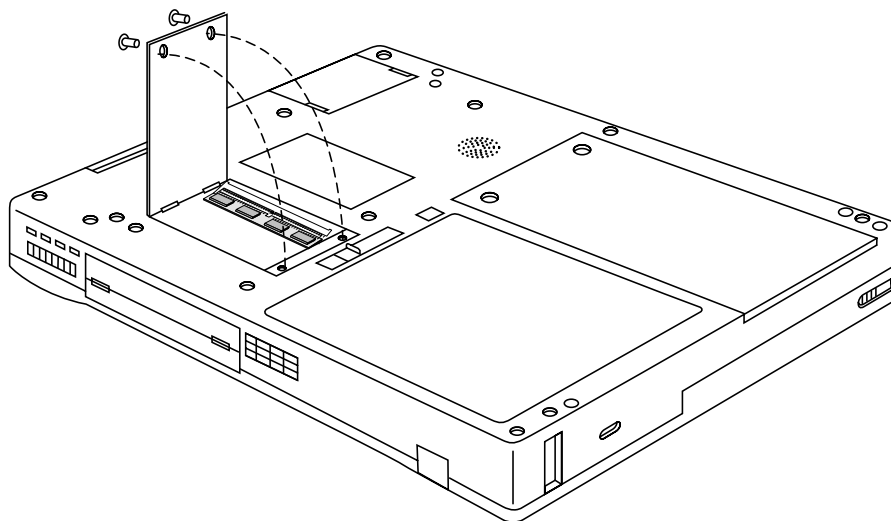
Figure 4-2 Installing a DIMM Card

3. Insert the DIMM card in the socket at an angle and push it down until it locks into place. Note that the DIMM card is keyed to prevent it from being inserted backwards.

4. Reinstall the cover and screws that you removed in step 2.

5. Confirm that the DIMM card is recognized by the system. To do so, run BIOS Setup. The size of the DIMM card should be displayed in the Info menu in BIOS Setup.

The DIMM card is installed in the pen tablet and you can now use the system.

Removing a DIMM Card

To remove a DIMM card,

1. Ensure that the pen tablet is off. To do so, carry out the Shut Down command in the Start menu. (Do not attempt to remove or install a DIMM card when the system is in Suspend mode or running.)

2. Remove the screws from the cover plate on the back of the pen tablet and remove the cover plate as shown in Figure 4-2.

3. Spread the fingers on the socket that lock the DIMM card in place until the DIMM card is loose.

4. Remove the DIMM card from the socket.

5. Reinstall the cover plate if you are not installing a new DIMM card.

The DIMM card is now removed from the pen tablet. Refer to "Installing a DIMM Card" on page 36 if you are installing a new DIMM card.

Chapter 5

Hardware Specifications

Specifications for the Stylistic 3400 pen tablet and mini-dock are given in this chapter.

General Specifications

General specifications for the pen tablet are given in Table 5-1.

Table 5-1. Logic System Specifications

Feature	Specification	Comments
Architecture	IBM-AT compatible	
Microprocessor	Intel 400 MHz Pentium III processor	Intel 440MX - 100 chipset
Cache	Level 1 (L1) cache: 16 KB Level 2 (L2) cache: 256 KB	L1 cache (internal CPU) is always enabled.
BIOS ROM	512 KB	Flash ROM with boot block
RAM (built-in)	64 MB 3.3-Volt SDRAM	
RAM (expansion)	One 144-pin DIMM slot. Supports up to 128 MB additional memory.	Total allowable RAM is 192 MB including built-in memory on system board. (Use only FMW28EM32, FMW28EM64, or FMW28EM128 expansion modules. Memory from third-party vendors is not supported for use with the Stylistic 3400 pen tablet.)
Video Controller	Trident Cyber9525DVD	Mobile multimedia VGA controller with SVGA enhancements.
Video Memory	2.5 MB VRAM	High speed VRAM integrated in video controller.
I/O Controller	FDC37N769 Standard Microsystems Corporation	Controller for: serial ports, parallel port, IrDA port, and floppy disk drive.
PC Card Controller	PCI1420 Texas Instruments	Controller is on PCI bus. Supports CardBus (PCI bridge) and PCIC protocols.
Audio Controller	Integrated into the Intel chipset, supported by 'AC'97 codec.	Sound Blaster Pro-compatible.

Display Specifications

Specifications for the Stylistic 3400 pen tablet display are given in Table 5-2.. The Stylistic 3400 pen tablet is available with one of two different displays. Note the display type for your system when referring to this table. Comments indicate which displays are best suited to particular environments and applications.

Table 5-2. Display Specifications

Feature	Specification	Comments
Indoor Color TFT LCD	10.4" diagonal TFT Color XGA 1024 x 768 dot composition 256 K colors Brightness: Approx. 20 ~ 100 cd/m^2 Backlight: CFL x 1, 8 gradations	Best choice for indoor lighting environments.
Indoor/Outdoor Color TFT LCD	10.4" diagonal TFT Color SVGA 800 x 600 dot composition 256 K colors Brightness: Approx. 20 ~ 100 cd/m^2 Backlight: CFL x 1, 8 gradations	Best choice when pen tablet must be used both indoors and outdoors. When used indoors, the LCD backlight provides adequate display brightness. When used outdoors, the LCD can be used with reflected light only (the backlight may be needed in the shade).

External Video Capabilities

The Stylistic 3400 pen tablet can drive an external video monitor. You can select an external monitor, the pen tablet display screen, or both as the active video display. The pen tablet supports VGA, SVGA, and XGA video modes with external monitors. Screen resolutions supported for external video monitors are given in Table 5-3. For pin assignments on the video port connector, see "Video Port" on page 49.

Note: *After panning, stretching, or rotating the display, be sure to return the display to its normal resolution before attempting to recalibrate.*

Table 5-3. Supported Video Modes for External Monitors

Resolution	Colors
640x480 (VGA)	Up to 16 M
800x600 (SVGA)	Up to 16 M
1024x768* (XGA)	Up to 16 M

* The pen tablet display supports 640x480, 800x600, and 1024x768 resolutions. When using an external monitor at 1024x768 with an SVGA display (800x600), the internal monitor and the external monitor will pan when set to 1024x768. The LCD will not compensate for lower resolutions; when compensating, the area of the display will become smaller. The screen appearance will depend upon your compensationj setting.

Digitizer Specifications

The Stylistic 3400 pen tablet digitizer consists of the pen, a sensor grid, and supporting controller circuitry. The sensor grid is built into the pen tablet behind the display screen and receives a signal via pen pressure. The signal indicates the pen location relative to the sensor grid.

Technology Notice

The display for your pen tablet incorporates a breakthrough digitizer technology that dramatically improves outdoor viewability. Compared to traditional outdoor displays, the new display excels in providing superior visibility in full sunlight, and a clear, bright picture indoors, in low light conditions, or at night.

This new technology involves the use of a liquid between the digitizer layers to minimize light refraction and reduce glare. As a result of this technology, users may notice the appearance of tiny air bubbles which are caused by changes in pressure (such as that experienced in an airplane). These tiny bubbles are temporary and do not affect system performance or usability. The digitizer functions normally when the air bubbles are present.

The air bubbles are formed when the liquid vaporizes due to pressure change. When the pen tablet is returned to normal use conditions, the tiny air bubbles are absorbed back into the liquid after a short amount of time.

If these air bubbles are visually distracting, or if they form a larger bubble, gently rub the screen with a soft cotton cloth in a circular motion, similar to cleaning the screen of fingerprint oil.

Table 5-4. Digitizer Specifications

Feature	Specification	Comments
Type	Pressure-sensitive	Resistive digitizer
Active Area	213.2 mm x 160.4 mm	Area of display screen that reacts with the pen.
Resolution	0.1 mm	
Maximum Sampling Rate	100 points per second	
Interface	Serial interface	
Pen Switches	None	Pen buttons can be emulated with use of right-mouse button hotpad.

Peripheral Interface Specifications

Specifications for peripheral interfaces on the Stylistic 3400 pen tablet are given in Table 5-5. For specifications on peripheral interfaces provided by the port replicator, see "Port Replicator Specifications" later in this chapter. Also note that pin assignments and other details for peripheral interfaces on the Stylistic 3400 pen tablet are given in Chapter 6 of this manual.

Table 5-5. Peripheral Interface Specifications

Feature	Specification	Comments
PC Card Slot	One Type II PCMCIA CardBus slot. Compliant with PC Card Standard Rev. 3.0	Supports CardBus and PCIC (PC Card I/O Cards)
IDE Interface	Supports one IDE hard disk drive (2.5 inch)	IDE hard disk drive is preinstalled at factory.
Modem Port	RJ-11 connector for internal modem	See "Internal LAN/Modem Specifications" on page 45 for more information. Note that the LAN portion of the device is accessible only via the mini-dock.
Video Port	Standard 15-pin video connector with Display Data Channel (DDC) display support.	External monitor only or simultaneous with LCD.
Universal Serial Bus Port (USB A)	One USB Series A receptacle on pen tablet.	
IrDA Port	Infrared transceiver built into pen tablet.	Compliant with IrDA Standard Revision 1.1 Supports: FIR (4 Mbps max), SIR (115 Kbps max) Range: approximately 1 M, 15 degrees from center
Infrared Keyboard Port	Infrared receiver built into the pen tablet for use with an optional infrared keyboard.	Proprietary Fujitsu receiver. Range: approximately 1 M, 15 degrees from center
DC Power Input	16 VDC ±10%, 3.36 A Connector vendor: Hosiden (Hosiden part number HEC3900-01-010) This connector is a EIAJ-RC5320A standard connector.	For use with FMWAC6A, FMWAC6B, and FMWAC6C AC adapters. External power can be connected to DC input connector on the pen tablet, mini-dock, port replicator, or high-usage contacts. See "DC Power Inputs" on page 68 for more details.
Audio Jacks	Monaural microphone input mini jack Stereo headphone output mini jack	Standard 3.5 mm mini jacks. See "Audio Jacks" on page 60 for details on audio inputs and outputs.
System Interface Port	200-pin connector	For use with Stylistic 3400 port replicator or mini-dock.
High-Usage Contacts	8-position external contact connector provides connections for: DC power input and USB.	See "High Usage Contacts" on page 48 for signal assignments of the high-usage contacts.
Floppy Disk Drive Port	26-pin floppy disk drive connector	For use with Fujitsu FMWFD2 floppy disk drive.

Power System Specifications

Specifications for the Stylistic 3400 pen tablet power system are given in Table 5-6. The power system and power management characteristics are further described in Chapter 7 of this manual.

Table 5-6. Power System Specifications

Feature	Specification	Comments
Power Management Specification Supported	APM Specification Revision 1.2 ACPI Specification Revision 1.0	Windows 98: APM is the default, but ACPI support can be configured in BIOS Setup. Windows 2000: The operating system always sets the BIOS mode. Windows NT4: APM support can be configured in BIOS Setup. Chapter 7 of this manual describes system power management in detail.
Battery Pack	Rechargeable 6-cell lithium ion battery pack Capacity: 2600 mAh Nominal operating voltage: 10.8 V Charge time (in suspend or off mode): ≈ 180 minutes (90% charge) ≈ 240 minutes (99-100% charge) Charge time (system running): ≈ 360 minutes (90% charge) ≈ 480 minutes (99-100% charge) Battery life: ≈ Approximately 2.5 hours when running (dependent upon application, power management, and backlight) ≈ Minimum 5 days in Suspend-to-RAM mode ≈ Approximately 30 days in Fully Off mode	Charge times are for a 0% charged battery pack charging in pen tablet (not in an external battery charger). If the battery pack is 90% or higher when you connect DC power, the battery pack will not charge, thus preventing overcharging. Battery life values are approximate.
Bridge Battery	• Nickel metal hydride • 6 cells • Capacity: 6.0 V, 35 mAH (210 mWh) • Suspend life (backup battery only): Approximately 5 minutes • Charge Time: 100 hours (with AC)	Bridge battery supplies power to RAM in suspend mode for about 5 minutes while battery pack is removed. (Note: bridge battery cannot power system in fully on mode.) Bridge battery is charged: • In all modes when external DC power is connected. • In On, Idle, or Standby modes (when system is running) when external power is not connected.
Sub Battery	• Lithium battery (built in) • 265 mAh	Provides real time clock power backup. Approximate battery life is 5 years. (Not field replaceable.)
AC Adapter	FMWAC6A, FMWAC6B, and FMWAC6C: • Input: 100-240 VAC, 50/60 Hz • Output: 16 VDC ±10%, 3.36 A	AC adapters approved for use with Stylistic 3400 are site-dependent: FMWAC6A (US), FMWAC6B (UK), FMWAC6C (Euro)

Environmental Specifications

Environmental specifications for the Stylistic 3400 pen tablet are given in Table 5-7.

Table 5-7. Environmental Specifications

Feature	Specification
Temperature	Operating: 0° to 40°C (32° to 104°F) Nonoperating: -20° to 60°C (-4° to 140°F)
Humidity	Operating: 20% to 80% RH noncondensing Nonoperating: 8% to 80% RH noncondensing
Vibration	0.67G, random

Physical Specifications

Physical specifications for the Stylistic 3400 pen tablet are given in Table 5-8.

Table 5-8. Stylistic 3400 Pen Tablet Specifications

Feature	Specification
Pen Tablet Dimensions	11 x 8.5 x 1.1 in (280 x 215 x 27.4 mm)
Pen Tablet Weight (with battery pack)	3.2 lbs. (1.45 Kg)

Agency Approval Specifications

Specifications for government agency approvals are given in Table 5-9.

Table 5-9. Agency Approval Specifications

Feature	Specification
Emissions	• FCC Part 15 Class B • EN55022 Class B
Immunity	• EN61000-4-2 • EN61000-4-3 • EN61000-4-4
Safety	• UL 1950 • EN60950

See "Internal LAN/Modem Specifications" on page 45 for communications agency approvals for systems equipped with an internal modem. See also Appendix C for more information on agency notices.

Internal LAN/Modem Specifications

The internal LAN/modem device connects to the system's PCI bus. Specifications for the internal LAN/modem are given in Table 5-10. The internal LAN/modem is built-in and is not field replaceable. The internal modem is a global device.

Table 5-10. Internal LAN/Modem Specifications

Feature		Specification
LAN Part	Transmission media	Non-shielded twisted-pair cable.
	Transmission system	Base-band method
	Data transfer velocity	100 Mbps/10 Mbps
	Network form	Star
	Max. segment length	100 m
	Max. number of node/segments	Dependent upon hub
	Data link control method	CSMA/CD
	Message protocol	Variable length frame
	Synchronous method	Pre-amp
	Error correct method	32-bit CRC check
	Frame addressing method	Unique address Group address Simultaneous address
	Data encode/decode method	Manchester method (10 Mbps) MLT-3 method (100 Mbps)
Modem Part	Data rate	56 Kbps[*]
	Protocols	• ITU-T V.90 • ITU-T V.34 • ITU-T V.32bis • ITU-T V.32 • ITU-T V.22bis
	Standards	Hayes AT command set
	Compression method	• V.42bis data compression • MNP Class 5 data compression
	Error correction	V.42 automatic correction MNP Class 4

Table 5-10. Internal LAN/Modem Specifications

Feature		Specification
Fax	Standard	EIA/TIA 578 (Class 1)
	Protocol	G3 facsimile standard: ITU-T T.30
	Capability	ITU-T V.17 ITU-T V.29 ITU-T V.27 ITU-T V.21 ch2
Compliance countries		US / Canada / Japan / Belgium / Denmark / Finland / France / Germany / The Netherlands / Italy / Norway / Sweden / Switzerland / United Kingdom / Austria / Portugal / Ireland / Spain / Greece

* Current FCC restrictions, line conditions, and other external factors will reduce actual data transmission rates.

Port Replicator/Mini-Dock Specifications

The Stylistic 3400 port replicator and mini-dock are designed to provide optimal support for your pen tablet. Specifications for interfaces on the Stylistic 3400 port replicator and mini-dock are given in Table 5-11. Note that these interfaces duplicate corresponding ports on the pen tablet. Do not use ports on the pen tablet when using the port replicator or mini-dock. For details on peripheral interfaces provided by the port replicator and mini-dock, refer to Chapter 6 of this manual.

Note: *The connectors and ports on the port replicator and mini-dock are identical with one exception: the mini-dock has a PCMCIA slot, but the port replicator does not.*

Table 5-11. Stylistic 3400 Port Replicator/Mini-Dock Specifications

Feature	Specification	Comments
DC power input	+ tip / - sleeve 16 VDC ±10%, 3.36 A	
Keyboard Port	6-pin PS/2-style	Supports most PS/2-style keyboards.
Mouse Port	6-pin PS/2-style	
Video Port	Standard 15-pin video connector	System supports simultaneous operation of external monitor with LCD.
Serial Port A	Male 9-pin D connector	NS 16C550-compatible, fully functional RS-232C serial port.
LAN Port	Standard RJ-45 port	See "Internal LAN/Modem Specifications" on page 45 for more information. Note that this portion of the LAN/Modem device is accessible only via the port replicator or mini-dock.
Floppy Disk Drive Port	26-pin connector for use with Fujitsu FMWFD2 floppy disk drive.	
Line Output Jack	3.5 mm mini stereo jack	Using the line output jack does not disable any other audio features on the pen tablet or port replicator. (The line output jack is not disabled when other audio jacks are used.)
Universal Serial Bus Port	USB Series A receptacle	The USB port on pen tablet is disabled when the port replicator or mini-dock is connected.
Parallel Port	25-pin D connector, female	Output only, bidirectional, and ECP operational modes are supported.
PCMCIA	Standard 68-pin PCMCIA connector	Available on mini-dock only.

Chapter 6

Peripheral Interfaces

Details on peripheral interfaces on the Stylistic 3400 pen tablet are described in this chapter. The Stylistic 3400 pen tablet provides the following peripheral interfaces:

- DC input connector
- Video port
- IrDA port
- Infrared keyboard port
- Universal Serial Bus (USB)
- RJ-11 jack for internal modem
- Stereo headphone jack
- Stereo microphone jack
- System interface port*
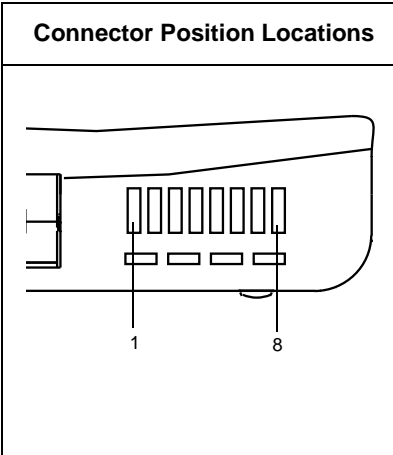- High-usage contacts
- Floppy disk drive port
- PC Card socket
- Hard disk drive port

* Note that the system interface port (also referred to as the port replicator or mini-dock connector in some documentation) allows you to connect the Stylistic 3400 port replicator or mini-dock.

Pin assignments for peripheral interfaces on the Stylistic 3400 pen tablet are given in the following sections.

High Usage Contacts

The high usage contacts on the Stylistic 3400 pen tablet provide signals for the DC power input and USB devices. Signal assignments for the metal contacts are shown in Table 6-1.

Table 6-1. Metal Contacts

Connector Position Locations	Position	Signal
	1	DC-IN
	2	DETECT0
	3	USBVCC1
	4	USBP-
	5	USBP+
	6	USBG
	7	DETECT1
	8	GND

Video Port

The video port provides a standard VGA connector that allows you to use the pen tablet with an external monitor. Pin assignments for the video port connector are shown in Table 6-2.

Table 6-2. Video Port Connector Pin Assignments

Connector Pin Locations	Pin	Signal Name	Signal Description
Pin 10 Pin 5 Pin 1 Pin 6 Pin 15 Pin 11	1	RED	Red analog video output
	2	GREEN	Green analog video output
	3	BLUE	Blue analog video output
	4	NC	Not used
	5 – 8	GND	Ground
	9	DDCVCC	DDC Vcc
	10	GND	Ground
	11	NC	Not used
	12	DDCDATA	DDC data
	13	HSYNC	Horizontal sync
	14	VSYNC	Vertical sync
	15	DDCCLK	DDC clock

DC Power Input

The DC power input connector connects to the AC adapter or auto adapter to power the pen tablet. The DC power input connector is a two-conductor connector with a center pin and sleeve. Pin assignments for this connector are given in Table 6-3.

Table 6-3. DC Power Input Connector Pin Assignments
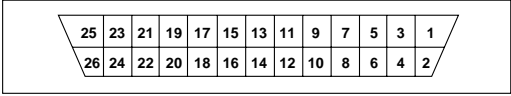
Conductor	Description	Comments
Center Pin	16 Volts DC ±10%, 3.36 A	This connector is a EIAJ-RC5320A standard connector. See "DC Power Input Connector Pin Assignments" on page 49 for more details.
Sleeve	Ground	

When a DC power source is connected to the DC power input on the pen tablet, circuitry built into the pen tablet provides protection against reverse polarity and overvoltage.

Floppy Disk Drive Port

The floppy disk drive port on the pen tablet is compatible with the Fujitsu FMWFD2 floppy disk drive. Pin assignments for the floppy disk drive connector are given in Table 6-4.

Table 6-4. Floppy Disk Drive Connector Pin Assignments

Connector Pin Locations	Pin	Signal Name	Signal Description
	1	GND	Ground
	2	GND	Ground
	3	HDSEL#	Head select
	4	RDATA#	Read disk data
	5	FDATCH#	Floppy disk drive attached
	6	WDATA#	Write data
	7	MODE#	Mode select
	8	N.C.	No connection
	9	DRVSEL#	Drive select
	10	5V	5-Volt power
	11	5V	5-Volt power
	12	5V	5-Volt power
	13	INDEX#	Index
	14	WP#	Write protected
	15	TRK0#	Track 00
	16	GND	Ground
	17	WGATE#	Write gate
	18	GND	Ground
	19	N.C.	No connection
	20	STEP#	Step pulse
	21	DIR	Direction control
	22	MOTOR#	Motor on
	23	N.C.	No connection
	24	DSKCHG#	Disk change
	25	GND	Ground
	26	N.C.	No connection

Connector Pin Locations diagram:

| 25 | 23 | 21 | 19 | 17 | 15 | 13 | 11 | 9 | 7 | 5 | 3 | 1 |
| 26 | 24 | 22 | 20 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 |

#Indicates active-low signal.
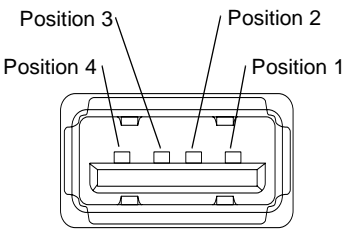
Universal Serial Bus Port

The pen tablet provides a Universal Serial Bus (USB) port that is compliant with the *Universal Serial Bus Specification Revision 1.0.* The USB port is a powered USB hub and can support concurrent operation of up to 127 devices. The Stylistic 3400 pen tablet functions as a USB host and supports high-power, bus-powered functions as defined in the USB specification. System resources for the USB are assigned by the operating system, no software configuration is necessary; however, it may be necessary to install drivers and application software to support your USB device.

The Stylistic 3400 port replicator and mini-dock provide one USB port. The pen tablet can supply a maximum of 500 mA at 5 volts (or a 5-*unit load* as defined by the USB specification) on each USB connector (for a total of 1,000 mA using both USB connectors, one on main unit and the other on the port replicator, or mini dock, or high usage cradle, or wall mount cradle).

Ensure that your USB configuration does not exceed this maximum load. Note that the conductor gauge and length of your USB cabling will affect the voltage drop and signal propagation between USB devices. Refer to the *Universal Serial Bus Specification* for details on cable requirements or contact your cable vendor. Also note that some USB devices are self-powered and do not draw power over the USB cable. Contact pin assignments for the USB port are shown in Table 6-5.

Table 6-5. Universal Serial Bus Port Contact Pin Assignments

Contact Pin Locations	Contact Number	Signal Name	Signal Description
Position 3 Position 2 Position 4 Position 1	1	5V	Cable power (+ 5 volts DC)
	2	DATA -	Data
	3	DATA +	Data
	4	GND	Cable ground

System Interface Port

The system interface port on the Stylistic 3400 pen tablet allows you to attach the Stylistic 3400 port replicator or mini-dock. The system interface port is a 200-pin connector. Figure 6-1 shows the pin locations for the system interface port connector on the pen tablet.

Note: *The connectors used for the system interface port are manufactured by JAE. Part numbers are: female: KX20-200RG-F2LT, male: KX20-200BG-F2LT*

Figure 6-1 System Interface Port Connector (On Pen Tablet)
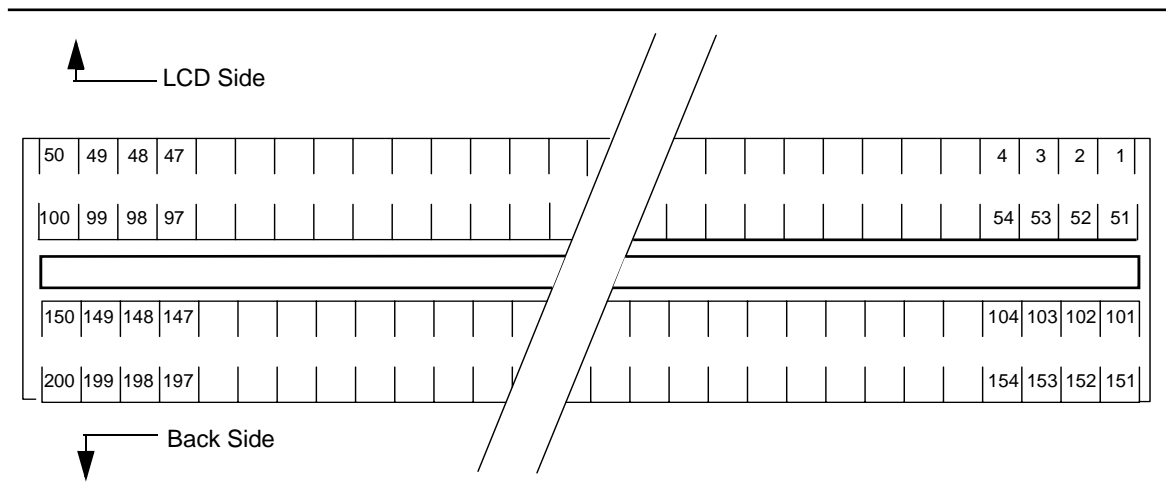
The pin assignments for the system interface port connector on the pen tablet are given in Table 6-6. Signals designated with the "pound" (#) symbol are active low.

Note: • *Signal names listed in the second column of this table are not industry standard signal names. They are provided to assist in cross-referencing these signal names when they appear elsewhere.*

• *Signals provided on the system interface port duplicate signals for connectors on the pen tablet. Do not use peripheral connectors on the pen tablet when using corresponding interfaces on the system interface port.*

The port replicator/mini-dock connector is not a "hot pluggable" connector. You must shut down or suspend the pen tablet before connecting the port replicator. The system interface port is disabled (all signals de-asserted) when system operation is suspended.

Table 6-6. System Interface Port Connector Pin Assignments

Pin	Signal Name	Level	Description	Port or Connector
1	POW1	+16V	DC Power Input	DC-IN
2	POW1			
3	POW1			
4	POW1			
5	POW1			
6	POW1			
7	LOUTLG	GND	Ground Left	Line Output Audio Jack
8	LOUTL	Analog	Signal Left	
9	5VMAIN	+5V	+5 Volt Power Output	Port Replicator
10	5VMAIN			
11	5VMAIN			
12	5VMAIN			
13	FDSEL0#		Drive Select	FDD
14	FMODE#		Density Select	
15	FSIDE#		Head Select	
16	VGAGND	GND	VGA Ground	CRT
17	VGAGND			
18	VSYNC	+5V	Vertical Sync Signal	
19	VGAB	Analog	DAC Blue Signal	
20	VGAGND	GND	VGA Ground	
21	RTSA#	RS-232C	Request to Send	Serial Port
22	DSRA#		Data Set Ready	
23	SMI	+3.3V	SMI Input	Port Replicator
24	ID0		Port Replicator ID Input	
25	PPERR#	+5V	Error	Parallel Port
26	PAFD#		Autofeed Output	
27	PRD6		Port Data 6	
28	PRD5		Port Data 5	
29	PRD0		Port Data 0	

Table 6-6. System Interface Port Connector Pin Assignments (Continued)

Pin	Signal Name	Level	Description	Port or Connector
30	B_D10	PCMVCC	Card Data 10	PC Card Slot
31	B_WP		Write Protect	
32	B_BVD1		Battery Voltage Detect 1	
33	B_A0		Card Address 0	
34	B_A1		Card Address 1	
35	B_RESET		Card Reset	
36	B_A6		Card Address 6	
37	B_A15		Card Address 15	
38	B_A22		Card Address 22	
39	GND	GND	Ground	Port Replicator
40	B_A19	PCMVCC	Card Address 19	PC Card Slot
41	B_A11		Card Address 11	
42	B_IORD#		I/O Read	
43	B_D7		Card Data 7	
44	GND	GND	Ground	Port Replicator
45	B_D11	PCMVCC	Card Data 11	PC Card Slot
46	B_D3		Card Data 3	
47	GND	GND	Ground	Port Replicator
48	GND			
49	LANTX-	LAN	Transmit Data	LAN (RJ-45)
50	LANTX+			
51	GND	GND	Ground	Port Replicator
52	NC	--	--	Reserved
53	POW1	+16V	DC Power Supply from Port Replicator	DC-IN
54	POW1			
55	POW1			
56	NC	--	--	Reserved
57	SPOUT1	Analog	Speaker Out	Speaker
58	LOUTR		Signal Right	Line Output Audio Jack
59	LOUTRG		Ground Right	
60	NC	--	--	Reserved

Table 6-6. System Interface Port Connector Pin Assignments (Continued)

Pin	Signal Name	Level	Description	Port or Connector
61	5VMAIN	+5V	+5V Power Output	Port Replicator
62	FWG#		Write Gate	FDD
63	FINDEX#		Index	
64	5VMAIN		+5V Power Output	Port Replicator
65	FRDDT#		Read Disk Data	FDD
66	VGAGND	GND	VGA Ground	CRT
67	VGAGND			
68	DDCDATA	+5V	Serial data for VESA DDC2B monitor	
69	VGAGND	GND	VGA Ground	
70	VGAGND			
71	RIA#	RS-232C	Ring Indicator	Serial Port
72	CTSA#		Clear to Send	
73	DCDA#		Data Carrier Detect	
74	K-SW	+5V	Keyboard Detect	Keyboard
75	PSLIN#		Printer Select Input	Parallel Port
76	PINIT#		Initiate Output	
77	PSTB#		Strobe Output	
78	PRD7		Port Data 7	
79	GND	GND	Ground	Port Replicator
80	PRD1	+5V	Port Data 1	Parallel Port
81	B_D0	PCMVCC	Card Data 0	PC Card Slot
82	B_CD2		Card Detect 2	
83	B_VS1		Voltage Sense 1	
84	GND	GND	Ground	Port Replicator

Table 6-6. System Interface Port Connector Pin Assignments (Continued)

Pin	Signal Name	Level	Description	Port or Connector
85	B_A4	PCMVCC	Card Address 4	PC Card Slot
86	B_A5		Card Address 5	
87	B_A12		Card Address 12	
88	B_A23		Card Address 23	
89	B_A20		Card Address 20	
90	B_A14		Card Address 14	
91	B_A9		Card Address 9	
92	B_IOWR		I/O Write	
93	B_CE1#		Card Enable 1	
94	B_D15		Card Data 15	
95	B_D12		Card Data 12	
96	B_D4		Card Data 4	
97	GND	GND	Ground	Port Replicator
98	GND			
99	LANRX-	LAN	Receive Data	LAN (RJ-45)
100	LANRX+			
101	DETECT1	+16V	Core Unit Detect 1	Port Replicator
102	USBGND	GND	USB Ground	USB
103	USBGND			
104	USBGND			
105	USBGND			
106	SPOUT2G		Speaker Ground	Speaker
107	SPOUT2	Analog	Speaker Out	
108	NC	--	--	Reserved
109	NC			
110	FMOTOR#	+5V	Motor On	FDD
111	5VMAIN		+5V Power Output	Port Replicator
112	FSTEP#		Step	FDD
113	FWP#		Write Protected	
114	5VMAIN		+5V Power Output	Port Replicator
115	FDATCH#		FDD Attach	FDD

Table 6-6. System Interface Port Connector Pin Assignments (Continued)

Pin	Signal Name	Level	Description	Port or Connector
116	VGAGND	GND	VGA Ground	CRT
117	VGAGND			
118	DDCCLK	+5V	Serial Clock for VESA DDC2B monitor	
119	VGAG	Analog	DAC Green Signal	
120	VGAGND	GND	VGA Ground	
121	NC	--	--	Reserved
122	NC			
123	SINA	RS-232C	Receive Data	Serial Port
124	GND	GND	Ground	Port Replicator
125	KDATA	+5V	Keyboard Data	Keyboard
126	KCLOCK		Keyboard Clock	
127	BUSY#		Busy	Parallel Port
128	PACK#		Acknowledge	
129	PRD3		Port Data 3	
130	PRD2		Port Data 2	
131	B_D1	PCMVCC	Card Data 1	PC Card Slot
132	B_D8		Card Data 8	
133	B_WAIT#		Bus Cycle Wait	
134	B_READY		Ready	
135	B_A3		Card Address 3	
136	B_INPACK		Input Acknowledge	
137	B_A7		Card Address 7	
138	B_A24		Card Address 24	
139	GND	GND	Ground	Port Replicator
140	B_WE#	PCMVCC	Write Enable	PC Card Slot
141	B_A8		Card Address 8	
142	B_A17		Card Address 17	
143	B_A10		Card Address 10	
144	GND	GND	Ground	Port Replicator

Table 6-6. System Interface Port Connector Pin Assignments (Continued)

Pin	Signal Name	Level	Description	Port or Connector
145	B_D13	PCMVCC	Card Data 13	PC Card Slot
146	B_D5		Card Data 5	
147	PCMVCC		PCMVCC Power Supply	
148	PCMVCC			
149	PCMVCC			
150	DETECT0	+16V	Core Unit Detect 1	Port Replicator
151	NC	--	--	Reserved
152	USBVCC	+5V	USBVCC Power Supply	USB
153	USBVCC			
154	USBP+		USB DATA+	
155	USBP-		USB DATA-	
156	USBGND	GND	USB Ground	
157	GND		Ground	Port Replicator
158	GND			
159	GND			
160	FDCHG#	+5V	Disk Change	FDD
161	5VMAIN		+5V Power Output	Port Replicator
162	FDIR#		Direction Control	FDD
163	FTRK0#		Track 00	
164	5VMAIN		+5V Power Output	Port Replicator
165	FWD#		Write Data	FDD
166	VGAGND	GND	VGA Ground	CRT
167	VGAGND			
168	HSYNC	+5V	Horizontal Sync Signal	
169	VGAR	Analog	DAC Red Signal	
170	VGAGND	GND	VGA Ground	
171	GND		Ground	Port Replicator
172	SOUTA	RS-232C	Transmit Data	Serial Port
173	DTRA#		Data Terminal Ready	
174	MCLOCK	+5V	Mouse Clock	Mouse
175	MDATA		Mouse Data	
176	PCMVPP	PCMVPP	PCMVPP Power Supply	PC Card Slot

Table 6-6. System Interface Port Connector Pin Assignments (Continued)

Pin	Signal Name	Level	Description	Port or Connector
177	PSLCT	+5V	Printer Selected Status	Parallel Port
178	PPE		Paper End	
179	GND	GND	Ground	Port Replicator
180	PRD4	+5V	Port Data 4	Parallel Port
181	B_D2	PCMVCC	Card Data 2	PC Card Slot
182	B_D9		Card Data 9	
183	B_BVD2		Battery Voltage Detect 2	
184	GND	GND	Ground	Port Replicator
185	B_A2	PCMVCC	Card Address 2	PC Card Slot
186	B_REG		Attribute Memory Select	
187	B_VS2		Voltage Sense 2	
188	B_A25		Card Address 25	
189	B_A16		Card Address 16	
190	B_A21		Card Address 21	
191	B_A13		Card Address 13	
192	B_A18		Card Address 18	
193	B_OE#		Output Enable	
194	B_CE2#		Card Enable 2	
195	B_D14		Card Data 14	
196	B_D6		Card Data 6	
197	B_CD1#		Card Detect 1	
198	GND	GND	Ground	Port Replicator
199	NC	--	--	Reserved
200	PCMVCC	PCMVCC	PCMVCC Power Supply	PC Card Slot

† The Port Replicator Detect signal is grounded when the port replicator is attached. (Note that this is not a System Management Interrupt signal line on the microprocessor.)

IrDA Port

The IrDA port on the Stylistic 3400 pen tablet is compliant with the Infrared Data Association (IrDA) Standard Revision 1.1. Specifications for the IrDA port on the pen tablet are given in Table 6-7. Before you can use the IrDA port, the Serial Port B Device BIOS option must be set to IrDA or FIR. See "Serial∕ Parallel Port Configurations Submenu Options" on page 10 for details on BIOS options for the IrDA port.

Table 6-7. IrDA Port Specifications

Feature	Specification
Standard supported	IrDA Standard Revision 1.1
Distance	Up to 1 meter point to point (environmental conditions affect usable range)
Conveyable wave	Infrared rays (wavelength peak 875 nm)
Signal	Send data / Receive data
Modulation/Data Rate	IrDA SIR: 9.6 - 115.2 Kbps IrDA FIR: 4,000.0 Kbps
Angle	0° to 15° from center of beam (30° viewing angle)

Audio Jacks

All audio jacks on the Stylistic 3400 pen tablet and Stylistic 3400 port replicator are stereo mini jacks. Some audio functions on the pen tablet are disabled when audio jacks are used. Table 6-8 shows which audio inputs are disabled when inputs on the pen tablet and port replicator or mini-dock are used (enabled). Table 6-9 shows which audio outputs are disabled when outputs on the pen tablet and port replicator are used.

Table 6-8. Active Audio Inputs

Input Activity	Pen Tablet		Port Replicator/Mini-dock	
	Microphone (built-in)	Microphone Input Jack	Microphone Input Jack	Line Input Jack
Microphone On (microphone built into pen tablet)	Enabled	Plug not inserted	Plug not inserted	NA
Pen tablet Microphone jack used (external microphone connected)	Disabled	Enabled	Plug not inserted	NA
Port replicator Microphone jack used (external microphone connected)	Disabled	Disabled	Enabled	NA
Port replicator Line In jack used	NA	NA	NA	Enabled

NA indicates that the condition does not apply. (The condition has no effect on the given input.)

Table 6-9. Active Audio Outputs

Output Activity	Pen Tablet		Port Replicator	
	Speaker (built-in)	**Headphone Jack**	**Headphone Jack**	**Line Output Jack**
Speaker On (speaker built into pen tablet)	Enabled	Plug not inserted	Plug not inserted	NA
Pen tablet Headphone jack used (external headphone connected)	Disabled	Enabled	Enabled	NA
Port replicator Headphone jack used (external headphone connected)	Disabled	Enabled[*]	Enabled	NA
Port replicator Line Output jack used	NA	NA	NA	Enabled

[*] Using the headphone jacks on the pen tablet and port replicator at the same time is not recommended.

"NA" indicates that the condition does not apply. (The condition has no effect on the given output.)

PC Card Port

The PC Card socket is compliant with PC Card standard 3.0. Table 6-10 shows the pin assignments for the PC Card port. Table 6-2 illustrates the pin locations on the connector.

Figure 6-2 PC Card Port Configuration
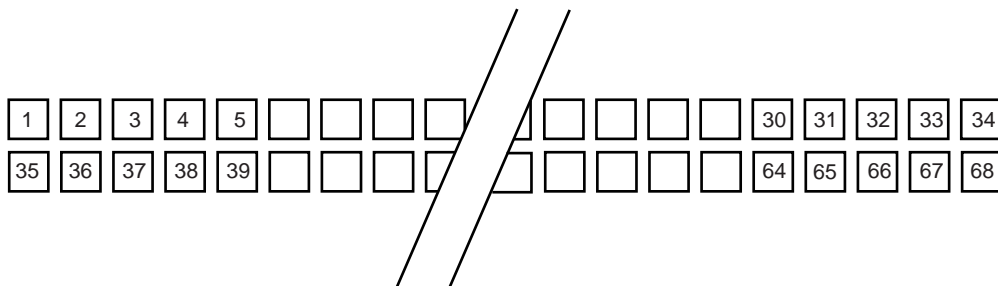
Table 6-10. PC Card Port Pin Assignments

Pin	16-bit PC Card Interface		CardBus
	Memory-Only	I/O & Memory	
1	GND	GND	GND
2	D3	D3	CAD0
3	D4	D4	CAD1
4	D5	D5	CAD3
5	D6	D6	CAD5
6	D7	D7	CAD7
7	CE1#	CE1#	CCBE0#
8	A10	A10	CAD9
9	OE#	OE#	CAD11
10	A11	A11	CAD12
11	A9	A9	CAD14
12	A8	A8	CCBE1#
13	A13	A13	CPAR
14	A14	A14	CPERR#
15	WE#	WE#	CGNT#
16	READY	IREQ#	CINT#
17	VCC	VCC	VCC
18	VPP1	VPP1	VPP1
19	A16	A16	CCLK
20	A15	A15	CIRDY#

Table 6-10. PC Card Port Pin Assignments

| Pin | 16-bit PC Card Interface | | CardBus |
	Memory-Only	I/O & Memory	
21	A12	A12	CCBE2#
22	A7	A7	CAD18
23	A6	A6	CAD20
24	A5	A5	CAD21
25	A4	A4	CAD22
26	A3	A3	CAD23
27	A2	A2	CAD24
28	A1	A1	CAD25
29	A0	A0	CAD26
30	D0	D0	CAD27
31	D1	D1	CAD29
32	D2	D2	RFU
33	WP	IOIS16#	CCLKRUN#
34	GND	GND	GND
35	GND	GND	GND
36	CD1#	CD1#	CCD1#
37	D11	D11	CAD2
38	D12	D12	CAD4
39	D13	D13	CAD6
40	D14	D14	RFU
41	D15	D15	CAD8
42	CE2#	CE2#	CAD10
43	VS1#	VS1#	CVS1
44	RUF	IORD#	CAD13
45	RFU	IOWR#	CAD15
46	A17	A17	CAD16
47	A18	A18	RFU
48	A19	A19	CBLOCK#
49	A20	A20	CSTOP#
50	A21	A21	CDEVSEL#
51	VCC	VCC	VCC
52	VPP2	VPP2	VPP2

Table 6-10. PC Card Port Pin Assignments

| Pin | 16-bit PC Card Interface | | CardBus |
	Memory-Only	I/O & Memory	
53	A22	A22	CTRDY#
54	A23	A23	CFRAME#
55	A24	A24	CAD17
56	A25	A25	CAD19
57	VS2#	VS2#	CVS2
58	RESET	RESET	CRST#
59	WAIT#	WAIT#	CSERR#
60	RFU	INPACK#	CREQ#
61	REG#	REG#	CCBE3#
62	BVD2	SPKR#	CAUDIO
63	BVD1	STSCHG#	CSTSCHG
64	D8	D8	CAD28
65	D9	D9	CAD30
66	D10	D10	CAD31
67	CD2#	CD2#	CCD2#
68	GND	GND	GND

Hard Disk Drive Port

Under ordinary circumstances, it is not necessary to access the hard disk drive port. The pin locations are listed in Table and illustrated in Figure in the event of hard disk replacement.

Figure 6-3 Hard Disk Drive Pin Locations
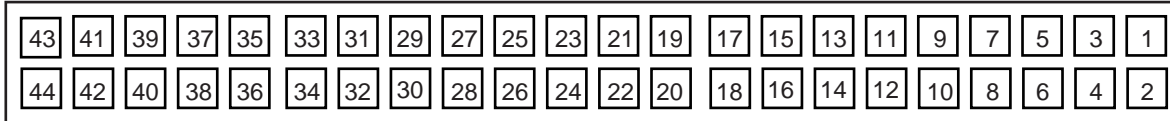
43	41	39	37	35	33	31	29	27	25	23	21	19	17	15	13	11	9	7	5	3	1
44	42	40	38	36	34	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2

Table 6-11. Hard Disk Drive Pin Assignments

HDD side Pin Number	PCB side Pin Number	Signal Name
1	1	RESET#
2	2	GND
3	3	DATA7
4	4	DATA8
5	5	DATA6
6	6	DATA9
7	7	DATA5
8	8	DATA10
9	9	DATA4
10	10	DATA11
11	11	DATA3
12	12	DATA12
13	13	DATA2
14	14	DATA13
15	15	DATA1
16	16	DATA14
17	17	DATA0
18	18	DATA15
19		GND
20		KEY
21	19	DMARQ
22	20	GND
23	21	DIOW# / STOP
24	22	GND

Table 6-11. Hard Disk Drive Pin Assignments

HDD side Pin Number	PCB side Pin Number	Signal Name
25	23	DIOR# / HDMARDY# / HSTROBE
26	24	GND
27	25	IORDY / #DDMARDY / DSTROBE
28	26	CSEL#
29	27	DMACK#
30		GND
31	28	INTRQ
32	29	IOCS16#
33	30	DA1
34	31	PDIAG#
35	32	DA0
36	33	DA2
37	34	CS0#
38	35	CS1#
39	36	DASP#
40	37	GND
41	38	+5V (LOGIC)
42	39	+5 V (MOTOR)
43	40	GND
44		RESERVE

Chapter 7

System Power

This chapter covers the Stylistic 3400 pen tablet's system power hardware, power management states, and state transitions.

System Power Hardware

The Stylistic 3400 pen tablet uses components designed for low power consumption in mobile applications. DC power, whether supplied by the battery pack or an external source, is regulated to different voltage levels required to power various components in the system.

Battery Pack

When the system is not connected to external power, system power is provided by the battery pack. When an external DC power source is connected to the pen tablet, the battery pack is charged and the system is powered by the external source.

The battery pack can also be removed from the pen tablet and charged in an external charger. A bridge battery built into the pen tablet powers the system in suspend mode for approximately 5 minutes while the battery pack is removed.

> *Note:* *Do not remove the battery pack while the system is running. Suspend system operation or shut down the system before removing the battery pack. The bridge battery will not power the system in the Fully On state.*

The pen tablet is equipped with a microcontroller, called the power management microcontroller unit (PMU), which is dedicated to managing battery pack power. The battery pack charge is monitored by the PMU. The PMU determines the percent of charge remaining in the battery pack, controls the battery level, and supplies battery status information to the system through a dedicated interface.

A low voltage level detect circuit (independent of the PMU) measures the battery pack voltage level to determine whether the battery pack voltage has dropped to the critically low level (the critically low voltage varies depending on total current draw). When the system is running and the critically low voltage level is reached, the circuit forces the system into Suspend mode and the battery level window indicates the critically low condition.

When the system is forced into Suspend mode by a critically low battery, the system is powered by the remaining charge in the battery pack or the bridge battery (whichever has the highest voltage). In this mode, the Suspend/Resume button is disabled and system operation cannot be resumed until either an external DC power source is connected or a battery pack with adequate charge is installed. See "Battery Charge Level and Power Management" on page 74 for details on system activity for different battery charge levels.

DC Power Inputs

External DC power can be connected at three locations on the pen tablet:

- DC power connector on the pen tablet
- System interface connector
- DC input positions of the high-usage contacts

A DC power source connected to any of these inputs must provide 3.36 amps at a continuous DC voltage of 16 volts ±10%. Specifications for the DC input connectors on the pen tablet and port replicator are given below.

Table 7-1. DC Input Connectors

Connector type	EIAJ RC-5320A Type 5
Connector vendor	Hosiden
Vendor part number*	HEC3900-01-010
Pin assignments	Center conductor: +16 VDC ±10% Sleeve: ground

* This is the part number for the female DC input connector on the pen tablet and the port replicator.

Power Management

System behavior that affects power management is described in this section. Your system can be configured a number of different ways resulting in higher or lower power savings. More conservative power savings settings are recommended to maximize battery life and decrease internal temperatures of the pen tablet.

The Stylistic 3400 pen tablet BIOS and system hardware are compliant with the following power specifications:

- *All Operating Systems:* Advanced Power Management (APM) BIOS Interface Specification Revision 1.2
- *Windows 98 and Windows 2000 only*: Advanced Configuration and Power Interface (ACPI) Specification Revision 1.0

Note: This section describes power management features as they are controlled and configured primarily by the BIOS and BIOS settings. The APM and ACPI specifications allow for additional control over power management features such as state transitions and device timeouts. Refer to the APM and ACPI specifications and the documentation for your operating system regarding power management for details on APM and ACPI features.

Power States and State Transitions

The system manages power consumption by performing transitions between system power states, or modes. State transitions can be triggered by timeouts configured in the BIOS, and other types of system activity. Figure 7-1 shows system power states, transition paths and some typical events that trigger a transition from one state to the next. You can configure the pen tablet to utilize some or all of these states by setting power management options in the BIOS. Table describes each power state. These states, and BIOS options that affect them, are also described in further detail in "Power Management States and BIOS Configuration Options" on page 71.
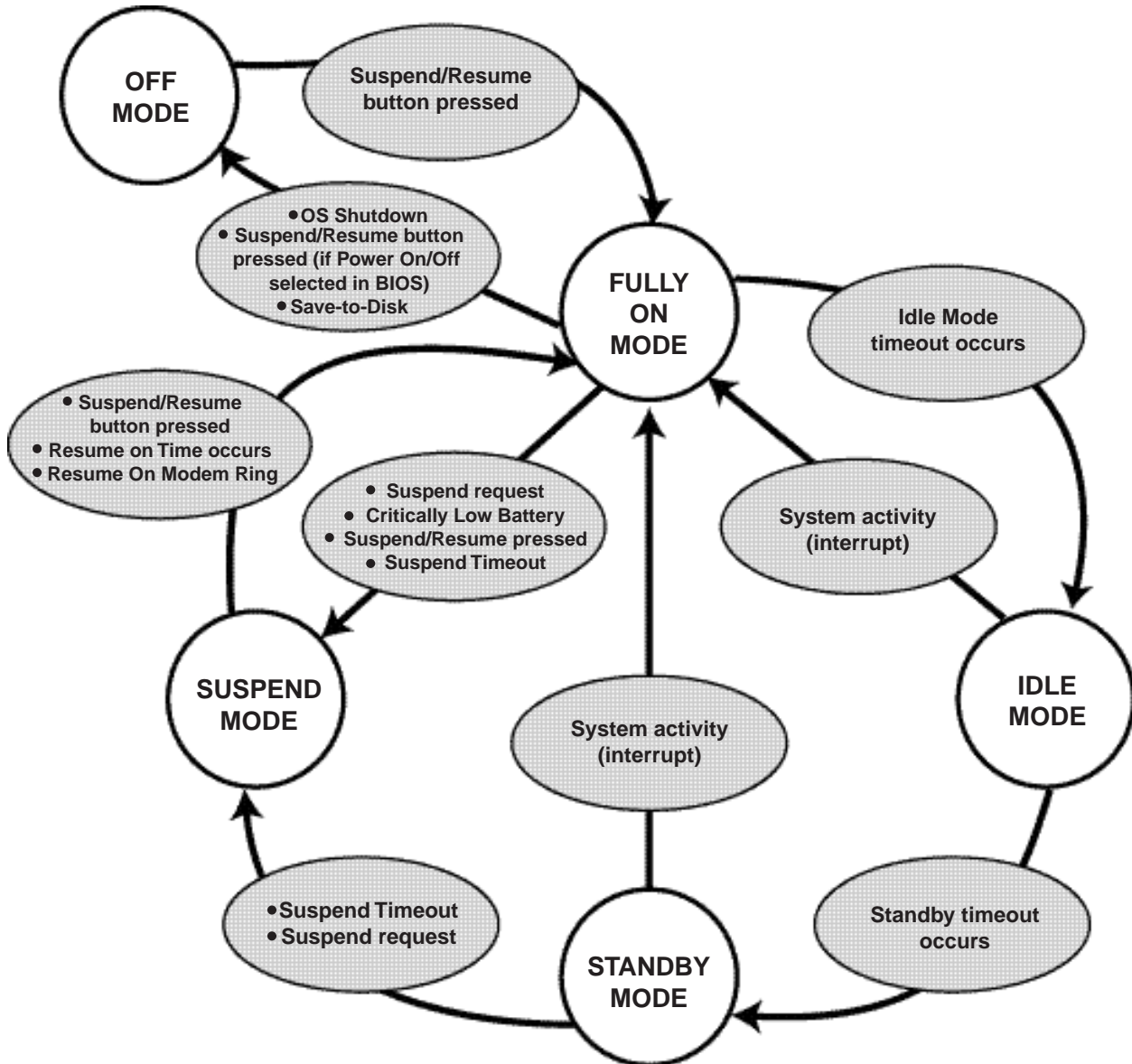
Figure 7-1 Power Management State Transitions

Table describes system activity for each system power state and describes events that cause the system to enter each state. System power states are listed here in decreasing order from higher to lower power usage. The system can be configured to use some, all, or a combination of these system power states. These states are described in more detail later in this chapter, see "Power Management States and BIOS Configuration Options" on page 71. Also note that timeouts, such as the suspend timeout and hard disk drive spin-down timeout can be configured separately in the BIOS or controlled by system or application software through APM or ACPI.

Table 7-2: System Power States

System State	System Activity	Events Causing System to Enter State
Fully On Mode	System is running. CPU, system bus, and all other active interfaces operate at full speed.	From Standby or Idle mode: user activity detected. From Off mode: system started. From Suspend-to-RAM mode: system operation resumed (Suspend/Resume button pressed, resume on modem ring, resume on time).
Idle Mode	CPU speed reduced to the speed selected for the Idle Mode CPU Speed BIOS option. See "Idle Mode" on page 71 for more details on Idle mode.	Idle mode timeout occurs. (No system activity for 1/2 second.) Note: The low battery warning condition (less than 12% charge) will force the system to use Idle mode. Low battery warning (audible beep) is heard if Audio is enabled in the BIOS.
Standby Mode	CPU enters stop-grant state (CPU stopped). Hard disk drive enters standby state (spun down). Display and backlight are turned off.	Standby timeout occurs.
Suspend-to-RAM Mode*	Resume system logic remains powered (Suspend/Resume button circuitry) and RAM remains powered to maintain active data. All other devices are powered off.	Suspend timeout occurs. Suspend request (issued by software or Suspend/Resume button pressed). Critically low battery. Note that a critically low battery forces system into Suspend-to-RAM mode regardless of the Suspend Mode setting in the BIOS.
Save-to-Disk Mode*	Active system data is saved to the hard disk drive. (Data is saved to a partition or file depending on save to disk configuration.) System is fully powered off except for logic components required for Suspend/Resume button operation.	Suspend timeout occurs. Suspend request (issued by software or Suspend/Resume button pressed).
Off Mode	System is fully powered off except for logic components required for Suspend/Resume button and real-time clock operation.	System shutdown.

* The system can be configured to use Suspend-to-RAM mode or Save-to-Disk mode. See "Power Savings Menu Options" on page 20 for more information. If Save-to-Disk is used, the system must have a save-to-disk partition or file, see "PHDISK Hard Disk Preparation Utility" on page 27 for more information.

Power Management States and BIOS Configuration Options

The system power states utilized by your system depend on how power management options are configured in the BIOS. System power states and BIOS options that affect each state are described in this section.

> *Note:* *Power management state transitions can also be controlled by Windows. Some of the power management features and states described in this section function differently when APM or ACPI is active. Refer to your operating system documentation for details on configuring ACPI controls.*

Timeouts

Timeouts for the Idle, Standby, and Suspend states are configured in the BIOS. (A timeout is the period of time that must elapse with no activity before the transition occurs.) In addition to overall system power states, power for some devices can be individually managed through timeouts configured in the BIOS such as the hard disk drive spin-down timeout.

Fully On State

In the Fully On state, all devices are fully powered and the CPU runs at full speed. The system is in the Fully On state whenever user activity is detected. The system will remain in the Fully On state until an event such as the idle mode timeout or a suspend request occurs. Note that if Idle and Standby modes are not utilized, the system will remain in the Fully On state until an event such as a suspend request causes a transition out of the Fully On state.

Idle Mode
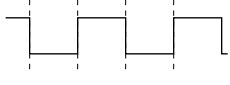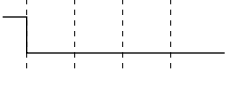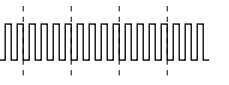
When the Idle Mode Timeout BIOS option is enabled, the system will enter Idle mode after a period of 1/2 second with no activity. The system also runs in Idle mode (and does not use the Fully On state) under the following conditions regardless of the Idle Mode Timeout setting:

- When operating on battery power under the Low Battery or Very Low Battery conditions. (This conserves battery power.)

- When the system temperature is High. (This reduces the internal temperature of the system.)

In Idle mode, internal CPU clock signals are "throttled" or periodically switched on and off achieving a net reduction of the CPU speed which reduces the amount of power consumed by the CPU. This is done by switching the Stop Grant signal of the CPU on and off. In turn, most internal CPU clock signals are turned on and off.

Table 7-3. shows the activity of these signals in Idle and Standby modes. (The first dotted line in each column of this table indicates when the timeout occurs and the mode is entered.) If user activity generates an interrupt, the system returns to the Fully On state. If the Idle Mode option is disabled in the BIOS, the system will not enter Idle mode.

Table 7-3. System Activity in Idle and Standby Modes

System Activity	Idle Mode	Standby Mode
Stop Grant (STPCLK#)		
Internal CPU Clock Signals		
External Clock Signals		
Hard Disk Drive	On*	Standby (spin down)
Display	On*	Off

* Power saving timeouts can be configured independently for these devices allowing them to enter a low-power state while the system is in Idle mode.

Note that this table does not depict a precise timing diagram. The illustrations given in this table are intended to show the relative characteristics of these signals.

Standby Mode

Standby mode is entered when the Standby Mode Timeout (configured in the BIOS) occurs. In Standby mode, the CPU, supporting chip set, and RAM remain powered, however, the CPU's internal clock signals are stopped (effectively stopping the CPU) as indicated in Table 7-3. Any user activity that generates an interrupt will cause a transition out of the Standby state to the Fully On state.

The hard disk drive is forced into standby mode (spun down) when the standby mode timeout occurs. Note, however, that the hard disk drive can be configured to spin down earlier by setting the HDD Spin-down Timeout BIOS option. The display system (including backlight) is also turned off when the standby timeout occurs. The display can also be configured to turn off earlier by setting the Video Timeout BIOS option.

Suspend Modes

The system can be configured to use one of two different suspend modes: Suspend-to-RAM or Save-to-Disk. System power activity in each of these modes is described below.

Suspend-to-RAM Mode

In Suspend-to-RAM mode, power is maintained to RAM, video memory, and circuitry for the Suspend/ Resume button while all other system circuitry and power managed devices are powered off. The PC Card slot will also remain powered if the Resume On Modem Ring option is enable in the BIOS. Pressing the Suspend/Resume button, or a resume request generated by a modem ring will cause a transition to the Fully On state. Suspend-to-RAM mode is best suited for applications where system operation is suspended frequently and a quick resume is desired.

Save-to-Disk Mode

In Save-to-Disk mode, data in RAM and video memory are written to the hard disk drive and, with the exception of resume logic circuits connected to the Suspend/Resume button switch, the system is

completely powered down. In this state, the system consumes about the same amount of power consumed in the Off mode. This suspend state uses the least amount of battery power.

Before you configure your system to use Save-to-Disk mode, consider the following factors:

- More time is required to suspend or resume system operation as data must be written to or read from the hard disk drive.

- You must first create a save-to-disk file or partition before you can use Save-to-Disk mode, see "PHDISK Hard Disk Preparation Utility" on page 27 for details. (Note that PHDISK may not be supported for use with your operating system.)

- System operation can only be resumed if the Suspend/Resume button is pressed.

- Save-to-Disk mode cannot be used with the Resume On Modem Ring or Resume On Time BIOS features.

Suspend Events

System operation is suspended when the Suspend Timeout occurs, the Suspend/Resume button is pressed, or a suspend request is generated by a software application.

Off State

In the Off state, the system is fully powered off. Note, however, that some circuits connected to the battery will continue to draw a very small amount of current when the system is off. For this reason, the pen tablet should be stored with a fully charged battery pack if the system will not be in use for more than a few days.

Other Power Management Issues

Issues described up to this point in this chapter deal with configurable options in the BIOS that affect system performance and power consumption. Other power management features are built into the system to prevent heat damage and data loss.

Battery Charge Level and Power Management

The pen tablet monitors the voltage of the battery pack. When the voltage drops to low levels, the system is forced into Idle or Suspend mode to increase battery life and prevent data loss. Table 7-4 describes system operation for different battery charge levels.

Table 7-4. Low Battery Modes

Mode	Description
Normal mode: Battery charge 12% to 100% or system connected to external power.	Power management features operate normally.
Low battery mode: Battery charge below 12%	The low battery alarm (periodic audible "beep") is sounded.
Critically low battery mode: Battery charge below critical threshold.	The system is forced to suspend using Suspend-to-RAM mode. The system will not resume until a sufficiently charged battery pack is installed or external power is connected. The power LED flashes indicating that the system is in Suspend mode. Note: • In the event of a critically low battery, the system is forced into Suspend-to-RAM mode regardless of the Suspend Mode setting in BIOS Setup. • The percent of full battery charge cannot be determined for the critically low battery level because the circuit that detects the critically low voltage level monitors the battery voltage independent of the PMU.

Chapter 8

BIOS Configuration Application Programming Interfaces

This chapter describes application programming interfaces (APIs) that allow Windows applications to configure BIOS settings. These APIs include functions in the BIOSSET.DLL (dynamic-link library).

This DLL includes functions that can be called from Windows applications to configure BIOS parameters for the Stylistic 3400 pen tablet.

To use these functions with your applications:

- Include the header file *BIOSINC.H* in your program source code.
- Ensure that the *BIOSSET.DLL* file is in the *C:\WINDOWS\SYSTEM* directory on your system at run time.

The DLL files are available on-line and can be downloaded from the Fujitsu PC web site at:

www.fujitsupc.com

Function prototypes for these APIs are written in the C programming language and are described in this guide using C syntax. Although ideally suited for program development using a compiler that supports the ANSI C or C++ standard, these functions can be called from applications developed in other programming languages, such as Microsoft Visual Basic, which allow you to use DLLs. Refer to the documentation for your programming language for details on calling functions in DLLs.

Version Information

Version information for the DLL can be obtained by calling the GetFileVersionInfo and GetFileVersionInfoSize functions supplied in the Microsoft Visual C++ development library.

Note: *Version information can also be viewed by selecting the file and carrying out the* Properties *command in Windows.*

Summary of Functions

A summary of functions you should be familiar with to use this API is given below:

- **InitializeBIOS**
  This function initializes the API. This function must be called before any other functions in this API can be called.

- **UpdateBIOSCheckSum**
  Applications which use this API must call this function to close the API before the application exits.

- **ReadBIOSSettings**
  This function retrieves BIOS settings for a BIOS option that you specify.

- **BiosSetupSet**
  This function sets the BIOS setting that you specify.

> *Note:* *Parameter names given in this manual in prototypes for some of these functions may differ from parameter names given in the prototypes that appear in the header files. This is done to provide consistent terminology throughout this manual.*

InitializeBIOS

This function initializes the API. This function must be called before any other functions in this API can be called. This function,

- Opens the API.
- Connects to the APM BIOS.

A prototype of this function is shown below:

```
int InitializeBIOS ( void )
```

This function accepts no parameters and returns the value SETUP_SUCCESS when it completes successfully. If an error occurs, this function returns an error value as defined in Table 8-1.

UpdateBIOSCheckSum

Applications that initialize this API using *InitializeBIOS* must call this function before the application exits. This function performs the following tasks:

- Updates the CMOS checksum and CRC values.
- Disconnects from the APM BIOS.

A prototype of this function is shown below:

```
int UpdateBIOSCheckSum ( void )
```

This function accepts no arguments and returns the value SETUP_SUCCESS when it completes successfully. If an error occurs, this function returns an error value as defined in Table 8-1.

ReadBIOSSettings

This function retrieves the setting for a given BIOS option. You define the BIOS option to be retrieved by passing the appropriate parameters for the desired option. A prototype is shown below:

```
DWORD ReadBIOSSettings ( DWORD dwSetupParam )
```

The *Option* parameter defines the BIOS option you want to retrieve. Definitions for the *Option* parameter are listed in Table 8-2 later in this section.

On success, this function returns the *Setting* for the requested BIOS option. See Table 8-2 for a listing of settings for each BIOS option. Possible error codes returned by this function are listed in Table 8-1.

BiosSetupSet

This function sets the BIOS option you specify. A prototype of the function is shown below:

```
int BiosSetupSet ( DWORD dwSetupParam, int nValue )
```

The *Option* parameter defines the BIOS option you want to set. The *Setting* parameter defines the setting for the given option. Definitions for the *Option* parameter are listed in Table 8-2 on page 77.

On success, this function returns the label SETUP_SUCCESS. In the event of an error, this function returns one of the error codes listed in Table 8-1.

Error Codes

Error codes returned by functions in this API are given in Table 8-1.. These values are defined in the header file *BIOSINC.H.*

Table 8-1. BIOS Configuration API Error Codes

Return Value	Description
SETUP_INVALID_PARAMETER	The *Option* parameter is out of range. The value passed does not specify a valid BIOS option.
SETUP_INTERNAL_ERROR	Windows system call failure.

Option and *Setting* Parameters

Option and *Setting* parameters accepted by the functions described in this chapter are defined in the header file for the DLL. Table 8-2 lists the *Option* parameter and corresponding *Setting* parameters for each BIOS option. (These *Setting* parameters are also the values returned by the *ReadBIOSSettings* function on success.)

Table 8-2. Option and Setting Parameters and Return Values

Option Parameter *Option Description*	Setting Parameter	Setting Description
SERIAL_PORT *Serial Port*	SERIAL_PORT_ON	Enabled
	SERIAL_PORT_OFF	Disabled
	SERIAL_PORT_AUTO	Auto
SERIAL_ADDRESS Serial Port Address	SERIAL_ADD_2E8	I/O Address 2E8
	SERIAL_ADD_2F8	I/O Address 2F8
	SERIAL_ADD_3E8	I/O Address 3E8
	SERIAL_ADD_3F8	I/O Address 3F8
SERIAL_INTERRUPT Serial Port Interrupt	SER_INT_IRQ3	IRQ 3
	SER_INT_IRQ4	IRQ 4
INFRARED_PORT *Infrared Port*	INFRARED_PORT_ON	Enabled
	INFRARED_PORT_OFF	Disabled
	INFRARED_PORT_AUTO	Auto
INFRARED_ADDRESS Infrared Port Address	INFRA_ADD_2E8	I/O Address 2E8
	INFRA_ADD_2F8	I/O Address 2F8
	INFRA_ADD_3E8	I/O Address 3E8
	INFRA_ADD_3F8	I/O Address 3F8
INFRARED_INTERRUPT *Infrared Port Interrupt*	INFRA_INT_IRQ3	IRQ 3
	INFRA_INT_IRQ4	IRQ 4

Table 8-2. Option and Setting Parameters and Return Values (Continued)

Option Parameter *Option Description*	**Setting Parameter**	**Setting Description**
INFRARED_MODE Infrared Device Mode	INFRA_DEV_FIR INFRA_DEV_IRDA	FIR IrDA (SIR mode)
INFRARED_SEC_ADDRS Secondary Infrared Address	INFRA_ADD_100 INFRA_ADD_108 INFRA_ADD_110 INFRA_ADD_118	I/O Address 100 I/O Address 108 I/O Address 110 I/O Address 118
INFRARED_DMA Infrared Direct Memory Access (DMA) Channel	INFRA_DMA_DMA1 INFRA_DMA_DMA3	DMA Channel 1 DMA Channel 3
PARALLEL_PORT *Parallel Port*	PARALLEL_PORT_ON PARALLEL_PORT_OFF PARALLEL_PORT_AUTO	Enabled Disabled Auto
PARALLEL_ADDRESS *Parallel Port Address*	PAR_ADD_278 PAR_ADD_378 PAR_ADD_3BC	I/O Address 278 I/O Address 378 I/O Address 3BC
PARALLEL_INTERRUPT Parallel Port Interrupt	PAR_INT_IRQ3 PAR_INT_IRQ4 PAR_INT_IRQ7	IRQ 3 IRQ 4 IRQ 7
PARALLEL_MODE Parallel Port Mode	PAR_MODE_BID PAR_MODE_ECP PAR_MODE_OUTP	Bidirectional Extended Capabilities Port Output Only
PARALLEL_DMA Parallel Port ECP DMA Channel	PAR_DMA_DMA1 PAR_DMA_DMA3	DMA Channel 1 DMA Channel 3
KBD_MOU_PLUG Keyboard/Mouse Hot Plug	KBD_MOU_PLUG_ON KBD_MOU_PLUG_OFF	Enabled Disabled
MODEM_CONTROLLER *Internal Modem*	MODEM_ENB MODEM_DIS	Enabled Disabled
DISPLAY *Display*	DISP_INT DISP_EXT DISP_BOT	LCD External Monitor Both

Table 8-2. Option and Setting Parameters and Return Values (Continued)

Option Parameter *Option Description*	**Setting Parameter**	**Setting Description**
COMPENS	DISP_ENB	Enabled
Expand VGA Screen	DISP_DIS	Disabled
HOT_PAD	HP_ENABLE	Enabled
Hotpad	HP_DISABLE	Disabled
HD_SECTOR	BS_NORM	Normal
Hard Disk Boot Sector	BS_WP	Write Protect
THERMAL_CNTR	THERMAL_CPU	CPU thermal control
Thermal Controller	THERMAL_FAN	Fan thermal control
FLOPPY_CONTROLLER	FLPY_ENB	Enabled
Floppy Disk Drive Controller	FLPY_DIS	Disabled
LAN_CONTROLLER	LAN_ENB	Enabled
LAN Controller	LAN_DIS	Disabled
	LAN_AUTO	Auto
IDE_CONTROLLER	IDE_ENB	Enabled
IDE Controller	IDE_DIS	Disabled
SR_SWITCH	SR_ENABLE	Enabled
Suspend/Resume Switch	SR_DISABLE	Disabled
QUICK_BOOT	QUICK_ENABLE	Enabled
QuickBoot Mode	QUICK_DISABLE	Disabled
	QUICK_AUTO	Auto
DIAG_SCREEN	DIAG_ENABLE	Enabled
Boot-time Diagnostic Messages	DIAG_DISABLE	Disabled
EXEC_ENVRN	SETUP_ENABLE	Enabled
Pre-Boot Execution Environment	SETUP_DISABLE	Disabled
NUM_LOCK	NUM_ON	On
Numlock	NUM_OFF	Off
	NUM_AUTO	Auto

Chapter 9

Programmable Hotpad Libraries for Windows Applications

This chapter provides details on using libraries that allow Windows applications to use the programmable hotpad on the pen tablet.

>   *Note:*   *The library files and the header file referenced in this chapter can be downloaded from the Fujitsu PC website:* ***www.fujitsupc.com***

The following two libraries allow you to use the programmable hotpad with your applications:

*   *HOTPAD.DLL*
    A dynamic-link library.

*   *HOTPAD.LIB*
    A static library which allows your application to link to *HOTPAD.DLL*.

Functions described in this chapter are the same for both of these libraries. Use one of these libraries depending on whether you want to use dynamic or static linking in your application.

To use dynamic linking:

*   Include the header file *HOTPAD.H* in the program code for your application.

*   The file *HOTPAD.DLL* must be in the *C:\WINDOWS\SYSTEM* directory at run time.

To use static linking:

*   Include the file *HOTPAD.LIB* in your program code.

*   The file *HOTPAD.DLL* must be in the *C:\WINDOWS\SYSTEM* directory at run time.

>   *Note:*   *The DLL is still used at run time when you use static linking. Using static linking resolves calls to the DLL when your program is compiled.*

Hotpad Notification

Applications using this DLL are notified when a hotpad event occurs (when the programmable hotpad is tapped) using a notification message sent to the window procedure of the application.

Hotpad notification is enabled and disabled using the following functions:

*   *SetHotpadNotification*
    This function enables hotpad notification for the calling application.

*   *KillHotpadNotification*
    This function disables hotpad notification for the calling application.

These functions are described in the following sections.

>   *Note:*   *Hotpad notification using a call-back function is not supported by* HOTPAD.DLL.

SetHotpadNotification

This function enables hotpad notification. Applications which are to receive notification of hotpad events must call this function once to enable hotpad notification. A prototype of this function is shown below:

```
int SetHotpadNotification ( HWND WindowHandle, UINT MessageID )
```

Parameters this function accepts are described below:

Parameter	Description
WindowHandle	Handle to the application window that will receive hotpad notification messages.
MessageID	Message ID of the notification message that will be sent to the calling application window when a hotpad event occurs.

Return values for *SetHotpadNotification* are as follows:

Return Value	Description
Positive nonzero integer	Hotpad notification ID. Returned on success.
	The library assigns a unique hotpad notification ID number for each occurrence of the *SetHotpadNotification* function. Your application must pass this ID number when hotpad notification is disabled using the *KillHotpadNotification* function.
0	Memory allocation failure.
-1	*WindowHandle* parameter not valid.
-2	Could not allocate system timer.

KillHotpadNotification

This function disables hotpad notification for your application. Programs which have enabled hotpad notification should call this function before exiting or when hotpad notification is no longer desired. A prototype of this function is shown below:

```
BOOL KillHotpadNotification ( int NotificationID )
```

You must pass the hotpad notification ID number that was returned by *SetHotpadNotification* as the *NotificationID* parameter. Note that this function disables hotpad notification for the calling application only. Other applications which have enabled hotpad notification will continue to receive hotpad notification. Return values for this function are as follows:

Return Value	Description
TRUE	Returned if the function is successful. Hotpad notification is disabled.
FALSE	Returned if the function fails.
	This function will fail if the *NotificationID* parameter is not a valid hotpad notification ID.

Appendix A

Replacing the IDE Hard Disk Drive

The internal IDE hard disk drive in the Stylistic 3400 pen tablet can be removed and replaced, if necessary.

Caution

Observe the following guidelines when handling the hard disk drive:

- Do not attempt to disassemble or modify the hard disk drive.

- Do not remove any labels from the hard disk drive.

- HDD replacement should only be performed at a static-free workstation. Avoid touching connector pins and circuit boards on the drive or pen tablet. Electrostatic discharge caused by doing so can damage sensitive components.

Removing the Hard Disk Drive

To remove the hard disk drive from the pen tablet,

1. Ensure that the pen tablet is off. To do so, carry out the Shut Down command in the Start menu.

2. Using a Phillips screw driver (size #1), remove the two screws in the hard disk drive cover plate and remove it as shown in Figure A-1:.
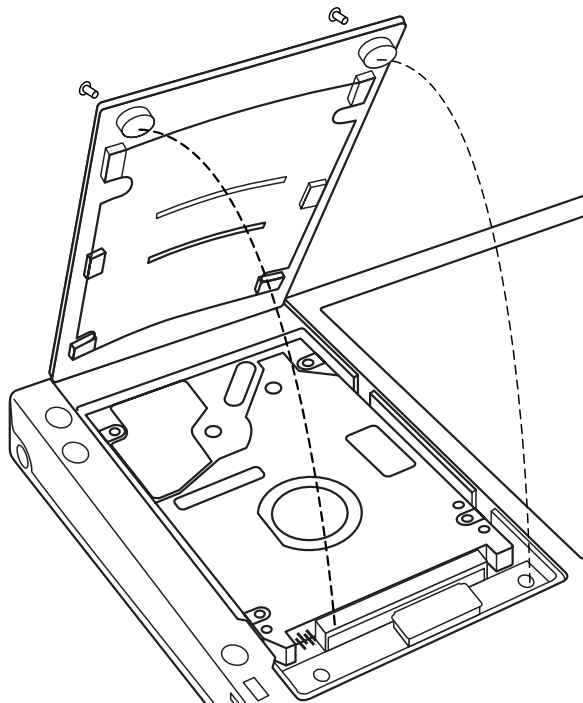
Figure A-1: IDE Hard Disk Drive Cover Plate

3. Carefully disconnect the small connector by pulling upwards (reference Figure A-2:). Use care when disconnecting this connector; it is attached to a delicate flex cable.

Caution

- Do not pull the tab on the flex cable connector when lifting the drive. Doing so will damage the flex cable; it is fragile and has very little slack.

- Be careful not to damage the hard disk drive's printed circuit board when removing the drive. Handle the drive by the edges and avoid touching the printed circuit board with your hands or tools.
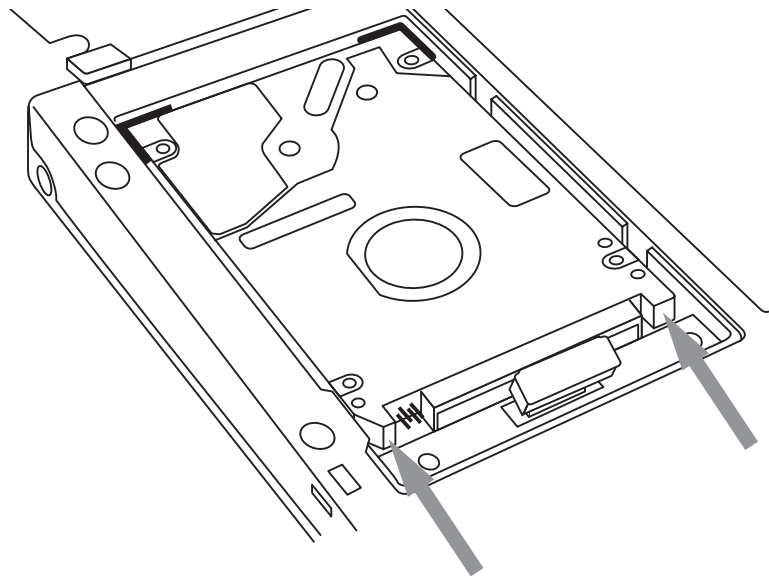
Figure A-2: Unplugging the Hard Disk Drive Connector

4. Using your thumbs, push back on the two corners of the hard drive at the locations indicated in Figure A-3:. Using firm pressure, push the hard disk drive towards the edge of the system. The small foam inserts on the end of the hard disk tray offer sufficient "give" for the drive to be removed without damaging the flex cable.
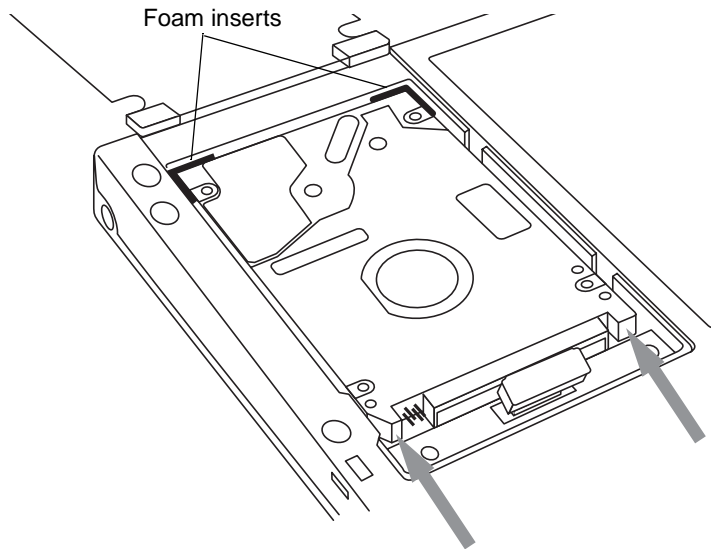
Figure A-3: Removing the Hard Disk Drive, Part 1

5. While pushing back on the hard drive, lift the connector end out of the tray, as illustrated in Figure A-4.
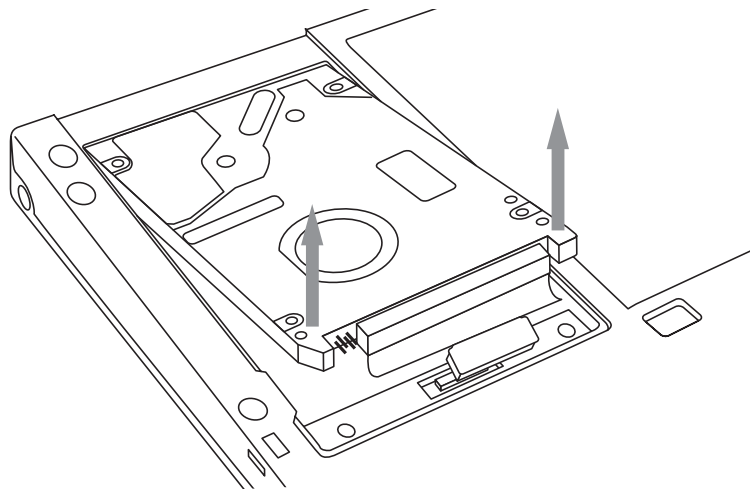
Figure A-4: Removing the Hard Disk Drive, Part 2

6. Remove the hard drive from the tray, as illustrated in Figure A-5. Once the hard disk drive has been removed from the pen tablet, you can install a new hard disk drive. If you are returning the hard disk drive for repair, ensure that the packaging material will protect the drive sufficiently during shipment.
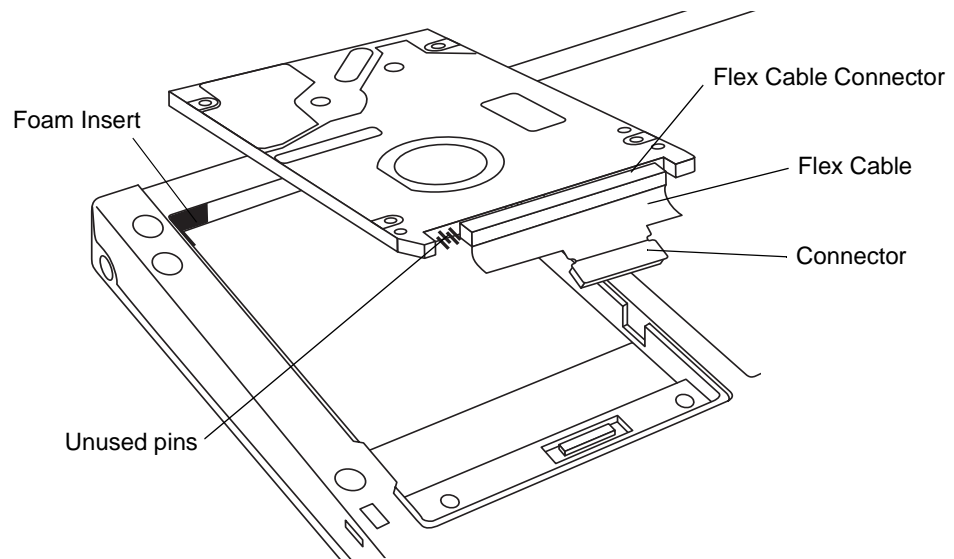
Figure A-5: Installing the IDE Hard Disk Drive

Installing the Hard Disk Drive

To install the hard disk drive, refer to Figures A-1 through A-5, and perform the following steps:

1. Connect the flex cable to the hard disk drive and fold the tab on the flex cable down under the flex cable as shown in Figure A-5:. Note the orientation of the hard disk drive and note that four pins on the hard disk drive connector are not used. (The connector on the flex cable is keyed so it cannot be installed incorrectly.)

2. Ensure that the plastic liner tray is in place and insert the hard disk drive into the pen tablet. Note that the liner tray is installed between the hard disk drive and surrounding surfaces of the pen tablet to prevent the shock mount pads from sticking to the hard disk drive.

3. Follow the steps contained in the section entitled "Removing the Hard Disk Drive" in reverse order. Use care when installing the drive to prevent damage to the flex cable.

The hard disk drive is now installed in the pen tablet.

Appendix B

Enabling ACPI

The Stylistic 3400 pen tablet BIOS supports ACPI (under Windows 98); however, Windows 98 systems are shipped with APM enabled as the factory default power management interface. ACPI is not available in Windows NT 4.0 systems. Due to limitations with the implementation of ACPI, APM is the recommended setting.

To use ACPI on Windows 98 systems, you must edit the registry and enable ACPI detection on the pen tablet as described in the following procedure:

1. Attach a mouse to your system. You must perform this procedure using a mouse. (A keyboard is also helpful, but is not required.)

2. From the start menu, choose Run, type Regedit, and choose OK to open the Registry Editor.

3. In the Registry Editor, open the directory: *HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Detect*.

4. From the Edit menu, choose New, DWORD Value. A new value appears in the registry.

5. Select the new value and choose Modify from the Edit menu. Name the new value *ACPIOption* and set the value to 1h.

6. In the Registry Editor, open the directory: *HKEY_LOCAL_MACHINE\Enum\USB\ROOT_HUB\ PCI&VEN_8086...,* and change the value of *ConfigFlags* from 00 00 00 00 to 00 00 01 00. (This is necessary to ensure proper operation when using Suspend-to-RAM mode.)

7. Close the Registry Editor.

8. Open Control Panel and choose Add New Hardware. Choose Yes when prompted to allow Windows to detect new hardware.

9. When prompted, choose Yes to restart your system.

When your system restarts, Windows will detect and enable the ACPI in the BIOS and will run using ACPI. To disable ACPI and enable APM, follow the procedure above and set the *ACPIOption* value to 2h (instead of 1h) when you perform step 5.

Appendix C

Agency Notices

FCC Notices

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. Changes or modifications not expressly approved by Fujitsu Personal Systems, Inc., could void the user's authority to operate the equipment.

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 the 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 emissions limits governing this device.

Notice to Users of the US Telephone Network

Note: Stylistic 3400 pen tablets shipped outside of North America do not have an internal modem. The following information applies only to those systems with an internal modem.

The Stylistic 3400 pen tablet is supplied with an internal modem which complies with Part 68 of the FCC rules. On the pen tablet is a label that contains the FCC Registration Number and Ringer Equivalence Number (REN) of this system, along with other information. If requested, users must provide their telephone company with the following information:

- The telephone number to which the pen tablet is connected
- The Ringer Equivalence Number (REN) for this equipment
- The information that the system requires a standard modular jack type USOC RJ-11C which is FCC Part 68-compliant
- 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.

The REN is used to determine the number of devices you may connect to your telephone line and still have all 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 all of the devices should not exceed five (5). To be certain of the number of devices you may connect to your line, as determined by the RENs, contact your local telephone company.

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

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

If you experience trouble with this equipment, please contact your support representative.

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 services commission, or corporation commission for more information.

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 at least ten percent of the rooms must contain hearing aid compatible telephones which will be provided to hearing impaired customers on request.

DOC (Industry Canada) Compliance Notices

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set forth in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

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 classe B respecte toutes les exigences du règlement sur le matériel brouilleur du Canada.

Notice to Users of the Canadian Telephone Network

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

Repairs to telecommunication equipment should be made by a Canadian authorized maintenance facility. Any repairs or alterations not expressly approved by Fujitsu Personal Systems, Inc. or any equipment failures may give the telecommunications 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 0.2.

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 to be 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.

Le Stylistic 3400 possede 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 expressement approuvée par Fujitsu Personal Systems, Inc., ou toute défaillance de l'équipement peut entrainer la compagnie de télécommunications à exiger que l'utlilisateur déconnecte l'équipement de la ligne téléphonique.

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

Le numéro de charge est 0.2.

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

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