MSP-PNTM
System Board
User's Manual

Part Number 771956-D01
October 1995

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Version: D01

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Returned Merchandise Authorization (RMA)

All products returned to Mylex for warranty service or for other reasons must be assigned an RMA number before shipment to Mylex. The RMA number is obtained by contacting Mylex's Technical Support Department and must be visibly displayed on the outside of the package. Any product received without an RMA number will be returned to the shipper unopened.

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The following rules or procedures apply to all RMAs:

1. The product must be returned in original packaging or other suitable materials.
2. Each returned unit will be inspected for damage or other irregularities. It a unit is shown to be modified, the customer will be notified before any action is taken.
3. Mylex will not be responsible for non-Mylex products shipped with an RMA unit. This includes memory, math co-processors, and other internal and external peripherals.
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End users are required to contact their suppliers.

Mylex Technical Support is available 6:00 a.m. to 6:00 p.m. Pacific Standard Time, Monday through Friday except holidays. Contact Mylex Technical Support by voice at (510)796-6100, by fax at (510)745-7715, or by e-mail at tsup@mylex.com.

Handling Precautions

This product contains electronic components which are highly sensitive to electrostatic discharge. Use extra caution when handling this product to ensure there is adequate grounding around the work area the board is being installed. ALWAYS wear a ground strap or ground your body by touching a grounded object such as an unpainted metal device connected to power ground.

This product has delicate crystal oscillators which may break if subjected to sudden shock, such as being tossed on a table. Use care when moving it from point to point.

If Troubles Are Encountered

If this product displays improper operation during the course of installation or operation, make sure all components are seated tightly and configured correctly. Pay particular attention to the jumper settings and the BIOS setup. If the product continues to operate improperly, contact your dealer or distributor for additional information.

Dealers and Distributors may contact Mylex's Technical Support Department at (510) 796-6100 after first completing the enclosed System Problem Report.

Package Contents

MSP-PNTM System Board
This User's Guide Warranty Card
Any pertinent release notes available at the time of shipment
System Problem Report Form
Utility Diskette

FCC Notification

This device has been tested and found to comply within the limits of a class B device, pursuant to Part 15 of FCC regulations. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been designed to provide reasonable protection against harmful interference in a residential area. This equipment generates, uses, and can radiate radio frequency energy. This device, if not installed and used in accordance with the manufacturer's instructions, may cause harmful interference to radio communications. There is no guarantee, however, interference will not occur in a particular installation. Should it be determined that this equipment is causing interference to radio or television reception, the following suggestion actions may be taken.

Reorient or relocate the receiving antennae. Increase the distance between the antennae and the computer. Plug the computer into a different AC outlet so that the two conflicting devices are using a different branch circuit. Contact the dealer who sold this equipment and/or a reputable radio/television service technician for additional suggestions.

Only equipment certified to comply with Class B (computer input/output devices, terminals, printers, etc.) should be attached to this equipment, and must have shielded interface cables.

Finally, any changes or modifications to the equipment by the user not expressly approved by the guarantee or manufacturer could void the users's authority to operate such equipment. Trademarks: Mylex and MSP-PNTM are registered trademarks of Mylex Corporation. All other products and companies are trademarks of their respective owners and licensees.

Mylex Warranty

This product is guaranteed to be free from manufacturing or material defects for a period of 1 (one) year after the date of purchase. Should the product fail during this period, Mylex will repair or replace (at Mylex's option) the product free of charge with the following provisions:

1. Proof of purchase must be provided.
2. The product must have been properly installed in accordance to the documentation provided.
3. The product must not have been modified by any party except by Mylex or an authorized agent.
4. The product must be free of damage.

Any software, including firmware, is provided "as-is" without warranty of any kind, expressed or implied. The purchaser bears complete risk of the performance and quality of the software. Mylex's sole responsibility, and the purchaser's only remedy to any defect in workmanship, shall be replacement of the defective medium (diskette or ROM).

All expressed or implied warranties for this product, including but not limited to warranties of merchantability and fitness for a particular purpose, are restricted to the duration of the warranty period. Under no circumstances shall Mylex be held liable, in any way, to the purchaser for damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use of, or inability to use this product. Some states do not allow warranty or liability restrictions or limitations, so the preceding limitations may not apply to you.

About This Manual

This manual is arranged to help you set up and run the MSP-PNTM system board.

- Chapter 1, *Introduction*, describes the functions and features of the system board and specifications.
- Chapter 2, *System Board Setup*, includes detailed information on how to install and configure the MSP-PNTM system board.
- Chapter 3, *BIOS Setup*, explains how to adjust the BIOS setup to take advantage of the boards various features.
- Chapter 4, *EISA Configuration*, explains how to use the Mylex EISA Configuration Utility to create a conflict-free peripheral configuration.
- Appendix A, *Upgrading the BIOS*, gives instructions on how to update the BIOS Flash ROM.

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Chapter 1
Introduction

Features

The MSP-PNTM system board combines the advanced capabilities of the latest Intel Pentium processors, PCI technology, EISA technology, and high speed external cache to provide a powerful server class computing platform. The MSP-PNTM provides:

- Support for a variety of Pentium processors
- Fixed voltage of 3.51V to support Standard and VRE CPU's
- Support for up to 512MB of DRAM
- 256K or 512K external cache
- Four PCI slots and six EISA slots
- On-board I/O controllers for IDE devices, floppy drives, serial port devices (mouse, modems), and parallel port devices (printers)

EPP, ECP, and 16550

The MSP-PNTM system board provides on-board I/O for connecting high performance external devices. The state of the art I/O includes:

- EPP
- ECP
- 16550 UART chip

Both EPP (an IEEE P1284 standard) and ECP (created by Microsoft and Hewlett Packard) are designed to provide higher performance for connecting external devices such as CD-ROMs, hard drives, printers, etc. The high speed 16550 UART supports high speed modems up to 115.2K baud.

Specifications

CPU:	Intel 75/90/100/120/133MHz Pentium Processor.
System Clock:	50/60/66MHz.
Chipset:	Intel Neptune.
Memory:	Eight 72-pin (36-bit) SIMM sockets supporting a maximum of 512MB.
Cache Memory:	Factory option of 256K or 512K write-back cache.
On-Board I/O:	Two 16550 compatible RS-232-C serial outputs. One SPP/EPP/ECP compatible parallel port. Floppy disk controller (2.88MB/1.44MB/1.2MB/ 720KB/360KB). IDE device controller.
Expansion Slots:	Six EISA slots and four PCI slots.
Shadow RAM:	System BIOS, Video BIOS, and adapter ROM BIOS.
BIOS:	Phoenix 4.05 Plug & Play BIOS on a 1MB Flash ROM.
PCB Size:	12 x 13" 8-layer PCB.

Chapter 2

System Board Setup

This chapter describes the individual jumpers and connectors switches on the MSP-PNTM system board. If your system board has already been installed by the dealer, refer to this chapter when making any changes or upgrading your system.

Warning

All electronic components are subject to damage from static electricity. To reduce the likelihood of damage to the system board, CPU, SIMMs, and components, neutralize any static electricity by using a special grounding wrist strap. If you do not have a grounding wrist strap, touch both of your hands against any safely grounded object.

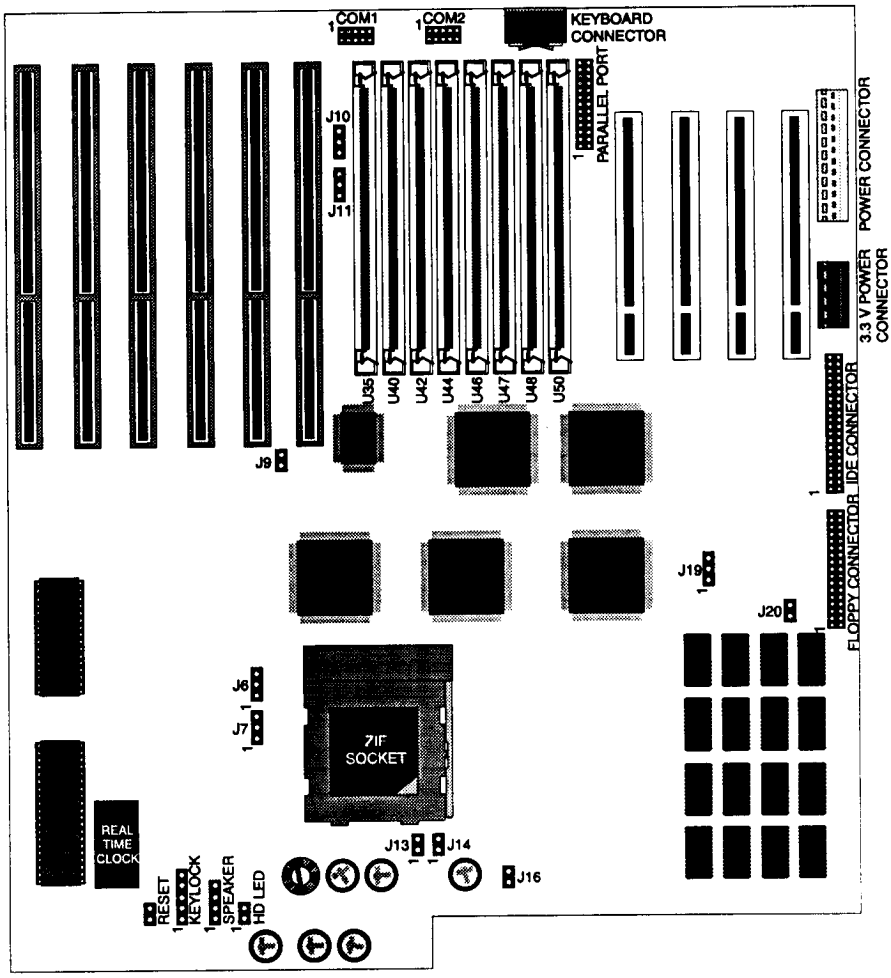

Figure 2-1 System Board Jumper Location

Installing the CPU

The Intel Zero Insertion Force (ZIF) socket incorporated on the MSP-PNTM system board is designed to easily accommodate a large variety of Pentium processors. Follow the directions below to install a Pentium processor:

1. Ground yourself prior to handling the system board, processor, or any components.

2. Locate the ZIF socket (Figure 2-1).

3. Gently pull the lever away from the CPU socket and straight up. Remove the old processor (if installed) and place it in an antistatic package.

4. Insert the processor into the socket, making sure pin 1 is properly aligned with the angled corner of the socket (Figure 2-2).

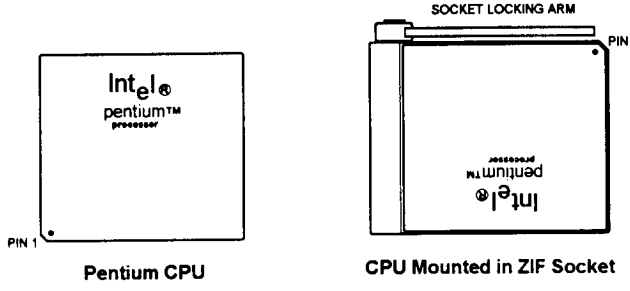

Figure 2-2 Installing a Pentium Processor

5. With the processor properly seated, press the lever down until it locks into place. The processor is now installed.

6. Refer to "Configuring the MSP-PNTM for Different Pentium CPUs (J16, J19)" on page 2-6 to configure the processor jumpers.

Installing System Memory

The MSP-PNTM system board provides eight SIMM sockets and supports from 2MB to 128MB of system memory.

The system board supports any combination of 72-pin (36-bit) SIMM's,. as long as you follow these rules:

- Install SIMMs one bank at a time (two SIMMs).
- Each bank must contain two SIMMs of the same size and preferably made by the same manufacturer.
- Use 70ns or faster SIMMs.

Below is a chart which displays a list of typical memory configurations:

Table 2-1 Typical Memory Configurations

Memory Size	Bank 0	Bank 1	Bank 2	Bank 3
8MB	(2) 4MB			
16MB	(2) 8MB			
16MB	(2) 4MB	(2) 4MB		
24MB	(2) 4MB	(2) 4MB	(2) 4MB	
32MB	(2) 16MB			
32MB	(2) 8MB	(2) 8MB		
32MB	(2) 4MB	(2) 4MB	(2) 4MB	(2) 4MB
48MB	(2) 8MB	(2) 8MB	(2) 8MB	
64MB	(2) 32MB			
64MB	(2) 16MB	(2) 16MB		
64MB	(2) 8MB	(2) 8MB	(2) 8MB	(2) 8MB
96MB	(2) 16MB	(2) 16MB	(2) 16MB	
128MB	(2) 32MB	(2) 32MB		
128MB	(2) 16MB	(2) 16MB	(2) 16MB	(2) 16MB
196MB	(2) 32MB	(2) 32MB	(2) 32MB	
256MB	(2) 32MB	(2) 32MB	(2) 32MB	(2) 32MB

System Board Jumpers

Use jumpers to select between various operating modes or options. A jumper switch consists of two or three gold pins projecting from the system board. Placing the plastic jumper cap over two pins connects those pins and makes a particular selection. If the cap is not placed over two pins, the pins are open and a connection is not made. This is the general method for storing jumpers when a connection is not required.

For all of the following jumpers,

1 – 2 indicates a jumper is installed between pins 1 and 2 (pin 1 is identified only on connectors with 3 or more pins).

2 – 3 indicates a jumper is installed between pins 2 and 3.

"Short" indicates a jumper is installed on a connector with 2 or more pins.

"Open" or no entry indicates no jumper is installed (store the jumper on one pin only).

Figure 2-3 illustrates the jumper pins and cap, and the schematic equivalent. The Jumpers and Connectors Quick Reference located at the end of this chapter provides a layout of the system board to identify major components, jumpers and connectors.

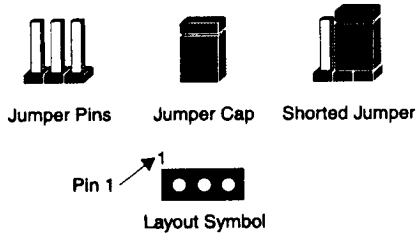

Figure 2-3 Jumper Configurations

Configuring the MSP-PNTM for Different Pentium CPUs (J16, J19)

The MSP-PNTM system board supports Intel 90/100/120/133MHz Pentium processors. Set the System Clock setting jumpers (JP16 and JP19) to match the speed of the microprocessor.

Table 2-2 Configuring the CPU Jumpers

	CPU Jumpers	
CPU Speed	J16	J19
Pentium 90	open	2-3
Pentium 100	open	1-2
Pentium 120	short	2-3
Pentium 133	short	1-2

Cache Size (J6, J7, and J20)

The MSP-PNTM is available with 0K, 256K, or 512K cache. Configure the following jumpers for the amount of cache memory installed.

Table 2-3 Configuring the External Cache Size

	L2 Cache Jumpers		
CPU Speed	J6	J7	J20
0K	2-3	2-3	open
256K	1-2	2-3	open
512K	1-2	1-2	short

System Board Connectors

Connectors interface the system board to other parts of the system, including the power supply, drives, keyboard and various controls on the front panel of the system case. Some connectors are polarized and require specific align-

ment during installation. Polarized connectors are shown with a plus (+) sign to denote the positive pin.

The following connectors are available on the MSP-PNTM system board:

Table 2-4 System Board Connectors

Conn. No.	Function	Page Ref.
J2	Reset	page 2-11
J3	Keyboard Lock Connector	page 2-10
J4	Speaker Connector	page 2-11
J5	IDE Activity Light	page 2-11
J9, J10, J11	Reserved	
J12	RS-232 (COM1) Serial Port 1	page 2-9
J13, J14	!2V Fan Power Connectors	page 2-10
J15	RS-232 (COM2) Serial Port 2	page 2-9
J17	Keyboard Connector	page 2-9
J18	Parallel Printer Port	page 2-9
J21	Floppy Connector	
J22	IDE Connector	page 2-9
J23	Power Supply Connector	page 2-7
J24	3.3V Power Connector (optional)	

Power Supply Connectors (J23)

Most power supplies have two 6-wire plugs which must be connected to the system board. There are two black wires on each plug. Align the plugs so the two black wires on each plug are positioned in the middle of the J23 connec-

tor. Make sure the power supply is not connected to an AC power source while installing the plugs.

Table 2-5 Power Supply Connections

J23	Wire Color	Description
1	Orange	Power Good
2	Red	+5VDC
3	Yellow	+12VDC
4	Blue	-12VDC
5	Black	Ground
6	Black	Ground
7	Black	Ground
8	Black	Ground
9	White	-5VDC
10	Red	+5VDC
11	Red	+5VDC
12	Red	+5VDC

3.3V Power Supply Connector (J24)

The 3.3V Power Supply Connector supplies 3.3V power to the PCI bus. You must have a power supply with a 3.3V connector to use this feature.

Table 2-6 3.3V Power Supply Connections

J4	Description
1	Ground
2	Ground
3	Ground
4	3.3V
5	3.3V
6	3.3V

Keyboard Connector (J17)

This 5-pin DIN connector interfaces the keyboard to the system board.

Table 2-7 Keyboard Connections

J4	Description
1	Keyboard Clock
2	Keyboard Data
3	No Connection
4	Ground
5	+5VDC

Floppy Connector (J21)

A floppy disk drive controller adapter card is not required with the MSP-PNTMMSP-PNTM system board. Connect a 5.25" or 3.5" floppy disk drive to this on-board controller. Two floppy disk drives may be connected on a standard drive cable in the same manner as using a controller adapter card.

RS-232-1 (COM1) Serial Port (J12)

Use this I/O serial port to interface a variety of devices, such as a serial mouse, modem, etc.

RS-232-2 (COM2) Serial Port (J15)

Use this I/O serial port to interface a variety of devices, such as a mouse, modem, etc.

Parallel Printer Port (J18)

Use this port to interface a parallel or parallel port device.

IDE Hard Disk Drive Connector (J22)

A hard disk drive controller adapter card is not required with the MSP-PNTM system board. Connect a hard disk drive to the on-board IDE controller. Up to two hard disk drives may be connected on a standard drive cable in the same manner as using a controller adapter card.

12V Power Connector (J13 and J14)

The MSP-PNTM has two 12V power connectors designed to supply power to cooling fans.

Table 2-8 12V Power Connectors

J13, J14	Description
1	+12VDC
2	Ground

Keyboard Lock Switch and Power-On LED (J3)

When connected to a key switch on the front panel of the system case, turning and removing the key disables the keyboard to prevent other users from operating your computer. When connecting the key switch to the main board, orient the cable correctly. When viewing the board as shown in the Quick Reference at the end of this chapter, pin1 is located on the top and pin 5 is on the bottom.

Table 2-9 Keyboard Connections

J4	Description
1	+5VDC
2	No Connection
3	Ground
4	Keylock Switch
5	Ground

External Speaker (J4)

An external speaker mounted inside the case may be interfaced to the system board through this connector. When viewing the board as shown in the Quick Reference, pin1 is located on the bottom and pin 4 is on the top.

Table 2-10 Speaker Connections

J4	Description
1	Speaker Signal
2	No Connection
3	Ground
4	+5VDC

IDE Activity Light (J5)

This 4-pin connector may interface an LED on the front panel of the system case to indicate the activity status of the hard disk drive. Connect an LED between pins 1 and 2 of JP12 to indicate the activity status of the hard disk drive.

System Reset Switch (J2)

This connector interfaces the system reset switch on the front panel of the case. The switch causes the system board to perform a cold start from the power-on self test without turning off power to components, such as the hard disk drive.

Chapter 3
BIOS Setup

The Phoenix BIOS used on the MSP-PNTM system board has a setup program which allows you to customize your system's configuration. This configuration data is stored in CMOS RAM which will be retained even when the power is turned off.

After configuring the BIOS for the first time, the setup program is not needed unless you want to change the configuration, hardware, or time and date.

Navigating through Phoenix BIOS

Moving Between Menus

To move between menus, use the right and left arrow keys (→←).

Moving Between Categories

To move between categories, use the up and down arrow keys (↑↓).

Changing Values

To change the value of a category, use the plus and minus keys (+/-).

Selecting a Submenu

A submenu is indicated by a small black triangle. Highlight the submenu and press the <Enter> key.

CMOS Main Menu

Power on the computer and press the <F2> key as soon as you see the message "Press <F2> to enter SETUP."

The CMOS Main Menu appears (Figure 3-1).

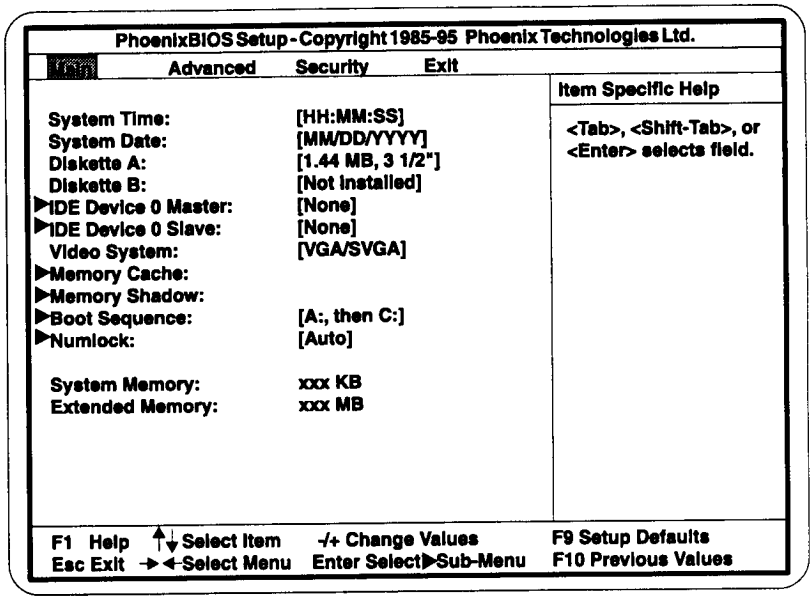

Figure 3-1 CMOS Main Menu

System Time

Set the current time using the <+> and <-> keys.

System Date

Set the current date using the <+> and <-> keys.

Diskette A

❑ 2.88MB ■ **1.44MB** ❑ 1.2MB ❑ 720KB ❑ 360KB

Configure this category for the type of diskette drive installed as Drive A:.

Diskette B

❑ 2.88MB ■ **1.44MB** ❑ 1.2MB ❑ 720KB ❑ 360KB

Configure this category for the type of diskette drive installed as Drive B:.

Video System

■ **EGA/VGA** ❑ Monochrome ❑ CGA 80x25 ❑ CGA 40x25

Configure this category for the type of video system installed in the system.

System Memory

This category displays the amount of system memory installed and cannot be configured.

Extended Memory

This category displays the amount of extended memory installed and cannot be configured.

IDE Device 0 Master and Slave Submenus

To configure IDE devices, highlight IDE Device 0 Master or IDE Device 0 Slave and press the <Enter> key. The following submenu will appear (Figure 3-2):

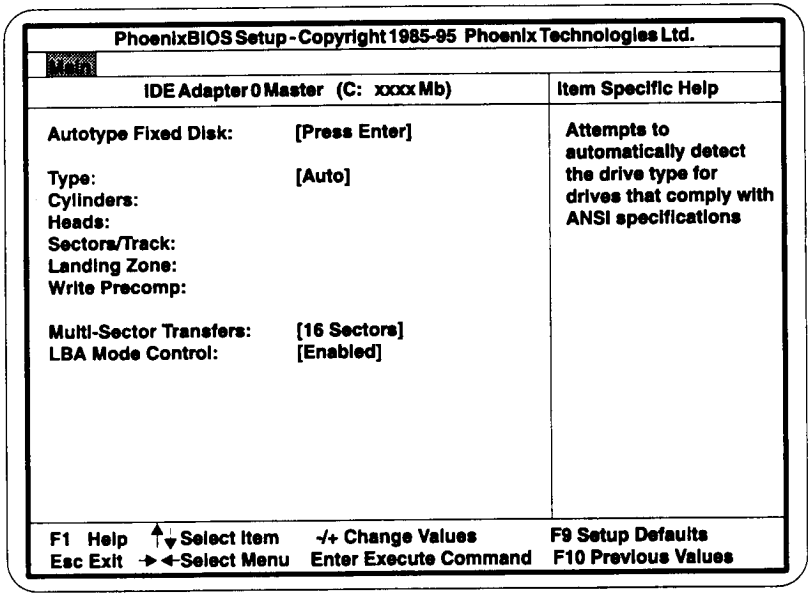

Figure 3-2 IDE Devices Submenu

Autotype Fixed Disk

Selecting Autotype Fixed Disk is an easy and automatic way to configure an IDE device. To automatically configure an IDE device, highlight Autotype Fixed Disk and press <Enter>. The BIOS interviews the attached drive and determines the optimal settings.

Type

■ **Auto** ❑ 1-39 ❑ User ❑ None

Configure this category to select the type of hard drive in your system.

Selecting Auto is recommended for most IDE devices. See *Autotype Fixed Disk* for more information.

Selecting drive types 1-39 is not recommended.

If your IDE drive is not recognized by the BIOS, select User and fill in the remaining options.

If you are using a SCSI adapter, select None and refer to its documentation.

Multi-Sector Transfers

■ **16 Sectors** ❑ 8 Sectors ❑ 4 Sectors ❑ 2 Sectors ❑ Disabled

This category sets the number of sectors per block for multiple sector transfers.

LBA Mode Control

■ **Enabled** ❑ Disabled

For IDE drives over 528MB, select *Enabled*. For smaller drives, select *Disabled*.

Memory Cache Submenu

To open the Memory Cache Submenu, highlight it and press the <Enter> key (Figure 3-3).

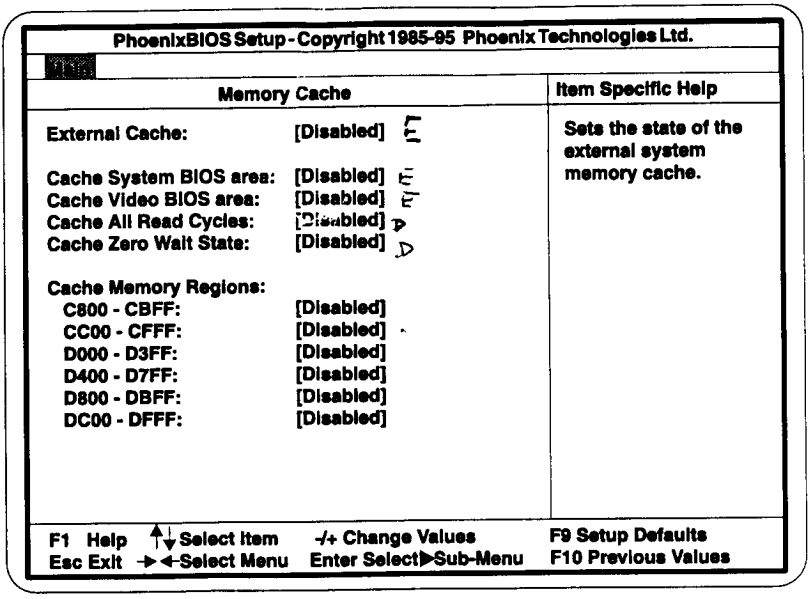

Figure 3-3 Memory Cache Submenu

External Cache

■ **Enabled** ❑ Disabled

Configure this category to enable or disable the external cache.

Cache System BIOS Area

❑ Enabled ■ **Disabled**

Configure this category to cache the system BIOS. Caching the system BIOS improves system performance.

Cache Video BIOS Area

❑ Enabled ■ **Disabled**

Configure this category to cache the video BIOS. Caching the video BIOS improves video performance.

Cache All Read Cycles

❑ Enabled ■ **Disabled**

Do not reconfigure this category.

Cache Zero Wait State

❑ Enabled ■ **Disabled**

Do not reconfigure this category.

Cache Memory Regions

❑ Enabled ■ **Disabled**

Configure each of these categories to cache specific memory regions. If you enable caching for a memory region, it must also be shadowed. See "Shadow Option ROMs" on page 3-8.

Memory Shadow Submenu

Select this section and press <Enter> to modify system shadowing options. The following screen appears (Figure 3-4).

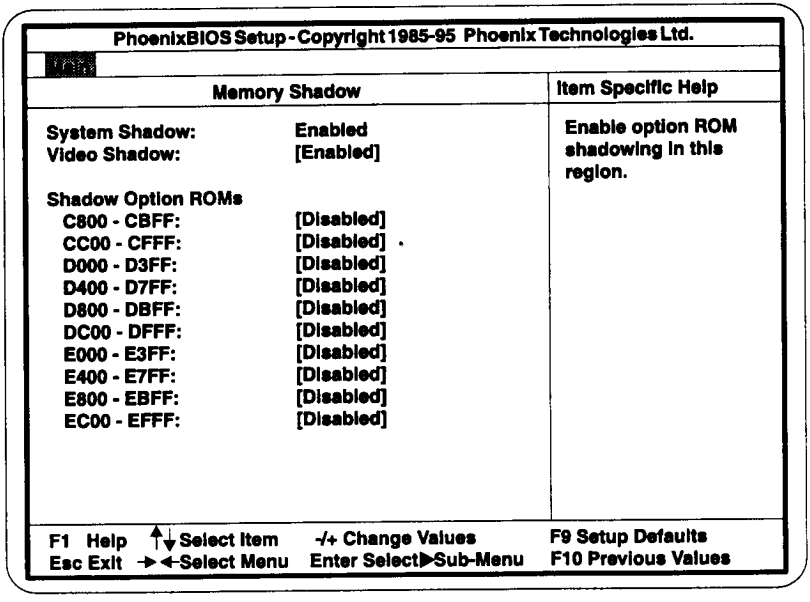

Figure 3-4 System Shadow Submenu

System Shadow

■ **Enabled** ❑ Disabled

Enable this option to shadow the system BIOS. Shadowing the system BIOS copies the BIOS from ROM to RAM for faster execution of BIOS commands.

Video Shadow

■ **Enabled** ❑ Disabled

Enable this option to shadow the video BIOS. Shadowing the video BIOS copies the video BIOS into RAM for faster video performance.

Shadow Option ROMs

❑ Enabled ■ **Disabled**

Configure each of these categories to shadow specific memory regions. Shadowing copies information from ROM to RAM for faster performance.

Boot Sequence Submenu

Highlight this option and press the <Enter> key. The following submenu appears (Figure 3-5).

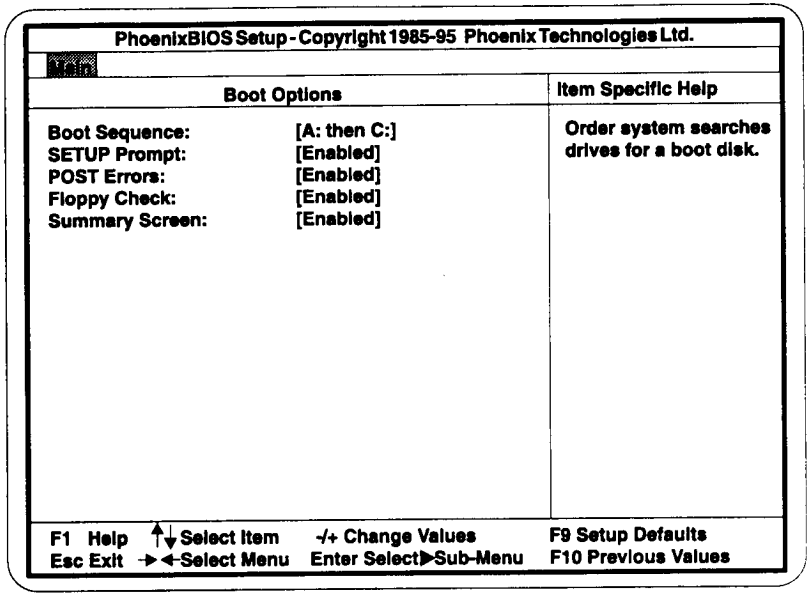

Figure 3-5 Boot Options Submenu

Boot Sequence

■ **A: then C:** ❑ C: then A: ❑ C: Only

Configuring this option selects whether the system attempts to boot from Drive A: first, Drive C: first or Drive C: only.

SETUP Prompt

■ **Enabled** ❑ Disabled

Displays the message "Press <F2> to enter SETUP" during boot.

Post Errors

■ **Enabled** ❑ Disabled

If the system encounters any errors during boot, it displays the message "Press <F1> to resume, <F2> to SETUP".

Floppy Check

■ **Enabled** ❑ Disabled

Causes the system to check for the presence of floppy drives during boot. Disabling this option results in faster booting.

Summary Screen

■ **Enabled** ❑ Disabled

Displays system summary screen during boot.

Keyboard Features Submenu

Highlight *Numlock* and press the <Enter> key to configure keyboard options. The following submenu appears (Figure 3-6).

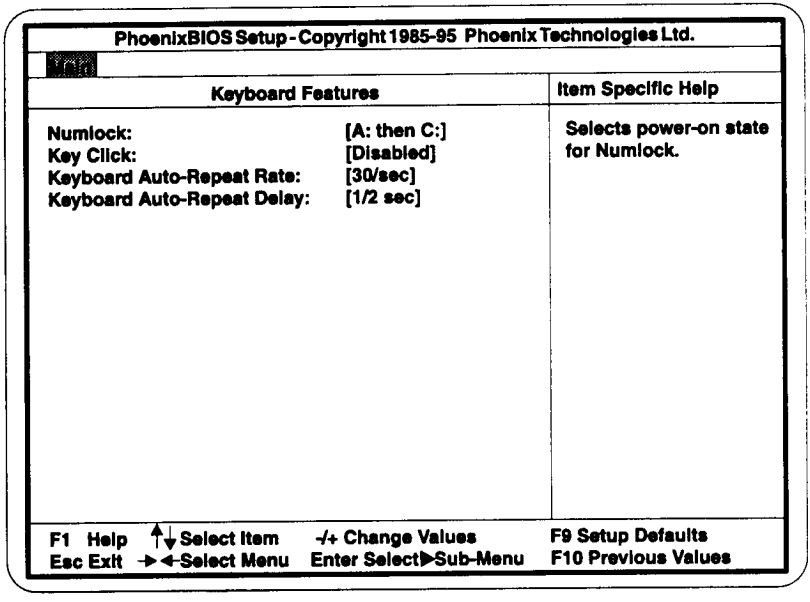

Figure 3-6 Keyboard Features Submenu

Numlock

■ **Auto** ❑ On ❑ Off

Setting this to *On* automatically activates Numlock upon boot. *Auto* automatically activates Numlock if a numeric keypad is detected.

Keyclick

■ **Enabled** ❑ Disabled

This category causes the system to make an audible click every time a key is pressed.

Keyboard Auto-Repeat Rate

❑ 2 Sec ❑ 6 Sec ❑ 10 Sec ❑ 13.3 Sec. ❑ 21.8 Sec ❑ 26.7 Sec ❑ 30 Sec

This category sets the rate at which a character is repeated when a key is held down.

Keyboard Auto-Repeat Delay

❑ 1/4 Sec ❑ 1/2 Sec ❑ 3/4 Sec ❑ 1 Sec

This category sets the delay time before a key is repeated.

CMOS Advanced Menu

Use the right and left arrow keys to select the Advanced Menu (Figure 3-7).

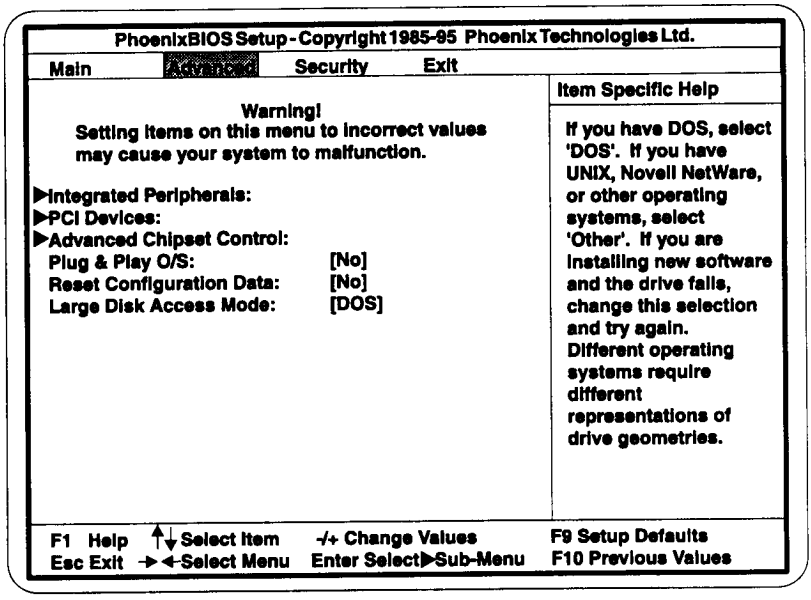

Figure 3-7 CMOS Advanced Menu

Plug and Play O/S

■ **Auto** ❑ Yes ❑ No

Set this category to *Yes* if you are using a Plug & Play operating system such as Windows 95. *Auto* detects if the OS is Plug & Play aware.

Reset Configuration Data

■ **Yes** ❑ No

Select *Yes* to clear the PCI Plug & Play configuration data.

Large Disk Access Mode

■ **DOS** ❑ Other

If you have a DOS operating system such as MS-DOS, PC-DOS, or DR-DOS, select *DOS*. If you have any other operating system, select *Other*.

Advanced Chipset Control Submenu

The unlisted advanced chipset options are preconfigured for optimal performance. It is not recommended you reconfigure them.

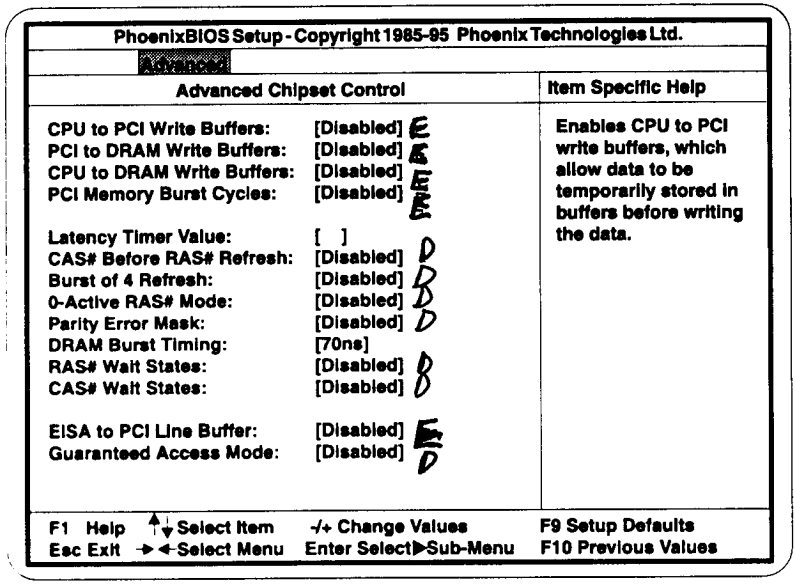

Figure 3-8 Advanced Chipset Submenu

CPU to PCI Write Buffers

❑ Enabled ■ **Disabled**

Enable this category to improve system performance.

PCI to DRAM Write Buffers

❑ Enabled ■ **Disabled**

Enable this category to improve the performance of PCI peripherals.

CPU to DRAM Write Buffers

❑ Enabled ■ **Disabled**

Enable this category to improve system performance.

PCI Memory Burst Cycles

❑ Enabled ■ **Disabled**

Enable this category to improve the performance of PCI peripherals.

Integrated Peripherals Submenu

Highlight this submenu and press <Enter>. The Integrated Peripherals Submenu appears (Figure 3-9).

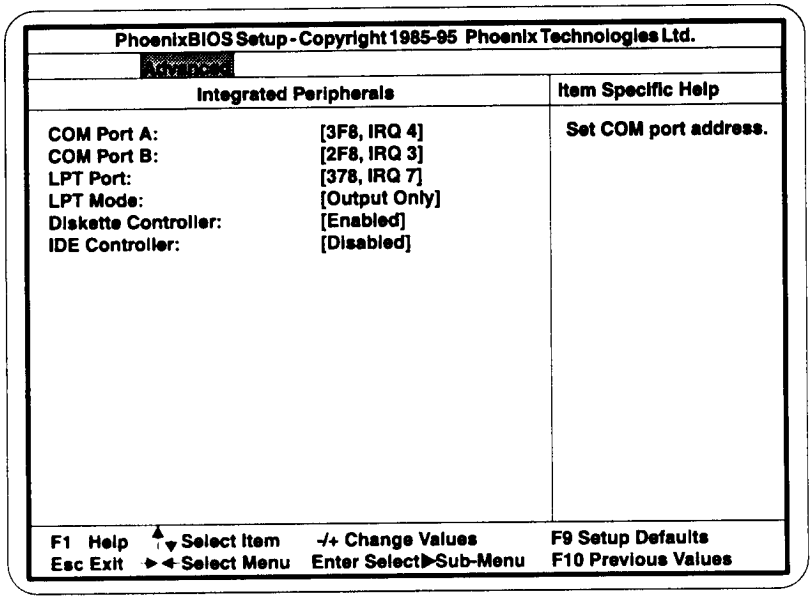

Figure 3-9 Integrated Peripherals Submenu

COM Port A

■ **COM1 3F8, IRQ4** ❑ COM2 2F8, IRQ3 ❑ COM3 3E8, IRQ4

❑ COM2 2E8, IRQ3 ❑ Auto ❑ Disabled

Configure this category to select the setting for COM Port A. Auto provides a trouble-free setting, but gives you less control over your system's configuration.

COM Port B

❑ COM1 3F8, IRQ4 ■ **COM2 2F8, IRQ3** ❑ COM3 3E8, IRQ4
❑ COM2 2E8, IRQ3 ❑ Auto ❑ Disabled

Configure this category to select the setting for COM Port B. Auto provides a trouble-free setting, but gives you less control over your system's configuration.

LPT Port

■ **LPT1 378, IRQ7** ❑ LPT2 278, IRQ5 ❑ Disabled

Configure this category to select the setting for the on-board parallel port.

LPT Mode

■ **Output Only** ❑ Bi-Directional ❑ ECP

Configure this category to select the mode for the on-board parallel port. *ECP* provides the highest performance for non-printer LPT devices.

Diskette Controller

■ **Enabled** ❑ Disabled

Configure this category to enable or disable the on-board diskette controller.

IDE Controller

■ **Enabled** ❑ Disabled

Configure this category to enable or disable the on-board IDE controller.

ECP

■ **Enabled** ❑ Disabled

Set the Extended Capabilities Port (ECP) category to *Enabled* for optimal parallel port performance.

PCI Devices Submenu

Highlight this submenu and press <Enter>. The PCI Devices Submenu appears (Figure 3-10).

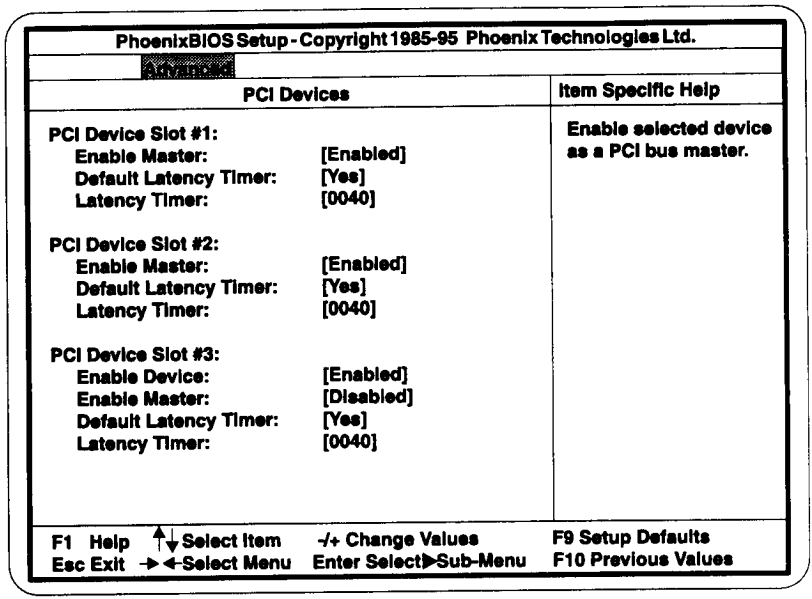

Figure 3-10 PCI Devices Submenu

Enable Master

■ **Enabled** ❑ Disabled

Enables master mode transfers on a particular slot.

Default Latency Timer

■ **Yes** ❑ No

Some PCI devices may require more time on the PCI bus and need the Latency Timer to be enabled.

Latency Timer

This category sets the period of time for the Latency Timer.

Security Menu

Use the right and left arrow keys to select the Security Menu (Figure 3-11).

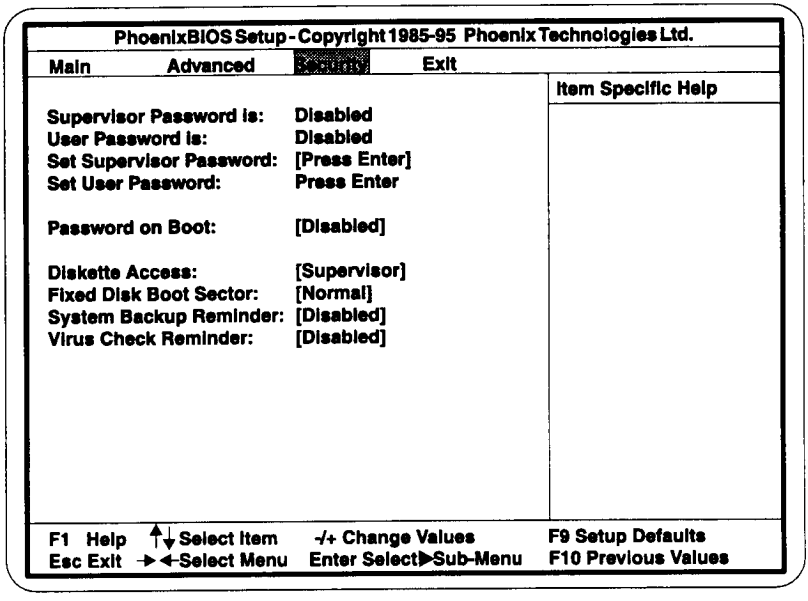

Figure 3-11 Security Menu

Supervisor Password Is

❑ Enabled ■ **Disabled**

If a supervisor password is set on this system, this category reads enabled.

User Password Is

❑ Enabled ■ **Disabled**

If a user password is set on this system, this category reads enabled.

Set Supervisor Password

Select this category and press <Enter>. A password submenu appears.

Type in a password and press <Enter>. Retype the password and press <Enter> again.

The password is set and is required to re-enter the system.

Write the password down somewhere safe. If you lose the password, you will have to discharge the BIOS to re-enter the system.

To deactivate the password option, set the password to nothing by pressing the <Enter> key when a password is requested in this field.

Set User Password

Follow the Set Supervisor Password instructions to set up a user password.

Password on Boot

❑ Enabled ■ **Disabled**

When set to *Enabled*, the system requires a password upon boot.

Diskette Access

■ **Supervisor** ❑ User

The *Supervisor* option allows diskette access to the supervisor only. The *User* option allows diskette access to both the supervisor and the user.

Fixed Disk Boot Sector

■ **Normal** ❑ Write-Protected

This category protects against viruses by write protecting the boot sector.

System Backup Reminder

■ **Disabled** ❑ Daily ❑ Weekly ❑ Monthly

This category sets how often the system reminds you to perform a tape backup.

Virus Check Reminder

■ **Disabled** ❑ Daily ❑ Weekly ❑ Monthly

This category sets how often the system reminds you to perform a virus check.

Exit Screen Menu

Use the right and left arrow keys to select the Exit Screen (Figure 3-12).

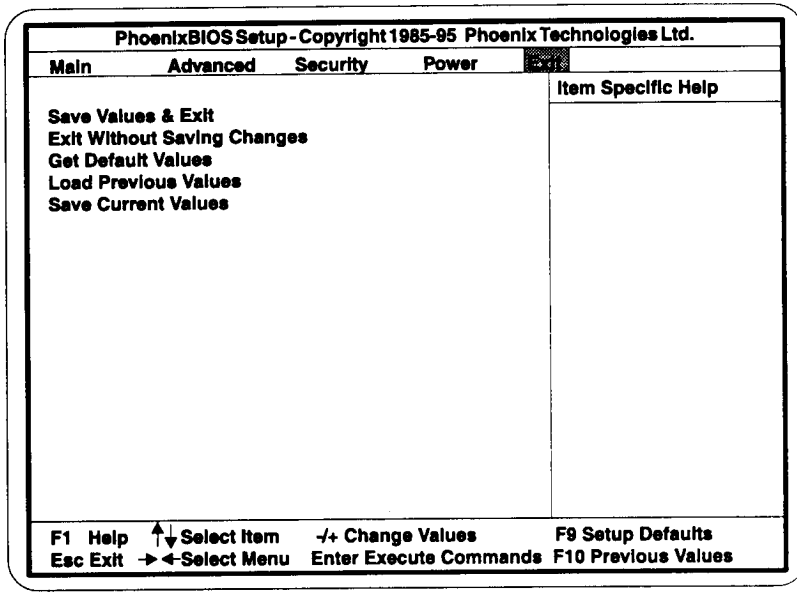

Figure 3-12 Exit Screen Menu

Select *Save Values and Exit.* The system saves the changes and reboots.

Chapter 4

EISA Configuration

The MSP-PNTM system board ships with a setup program which configures EISA peripherals for optimal, conflict-free operation. The configuration process is performed the first time you set up your computer and any time you add, remove, or move an EISA or ISA peripheral.

During configuration, the utility reads each peripheral's configuration (CFG) file. CFG files describe the characteristics and the required system resources of a peripheral. The utility combines the information from all of the CFG files and creates a conflict free configuration.

Once configuration is complete, the information is saved in the computer's nonvolatile memory.

Notes: Run the Mylex EISA Configuration Utility before attempting to use any PCI peripheral that requires IRQ functions.

Load HIMEM.SYS before executing the EISA Configuration Utility. This saves base memory by loading the EISA configuration files into high memory.

Getting Started

Navigating Through the Utility

<Tab> or <↓>	Moves the cursor to the next field
<Shift+Tab> or <↑>	Moves the cursor to the previous field
<↓> or <↑>	Moves the cursor between items within a list
<Enter>	Makes a selection
<Esc>	Cancels the current selection or screen
<PgUp> or <PgDn>	Scrolls a screen
<Home>	Moves the cursor to the top of a list
<End>	Moves the cursor to the bottom of a list
<Ctrl+Home>	Moves the cursor to the beginning of a menu
<Ctrl+End>	Moves the cursor to the end of a menu
Typing an enhanced letter	Makes a selection

Getting Help

The Mylex EISA configuration utility offers detailed on-line help. To get help, press the <F1> key. When you are finished with on-line help, press <Esc>.

Configuration

1. Insert the *EISA Configuration Utility* into Drive A: (or B:).

2. Type "cf" at the A: prompt and press the <Enter> key. The Introduction screen appears (Figure 4-1).

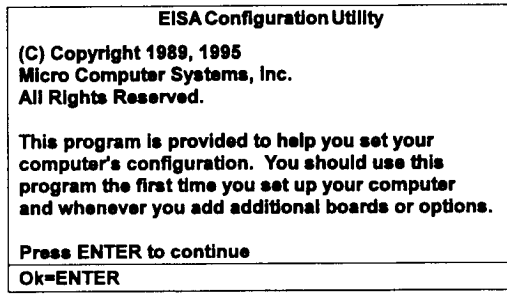

Figure 4-1 Introduction

3. Press the <Enter> key to open the Main Menu.

Main Menu

The Main Menu (Figure 4-2) is shown below.

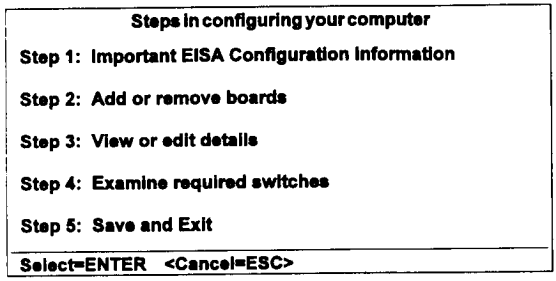

Figure 4-2 Main Menu

Important EISA Configuration Information

This section provides important last-minute information on the EISA Configuration Utility.

Add or Remove Boards

This section adds or removes any EISA or ISA peripherals.

When you select this option, the following screen appears (Figure 4-3).

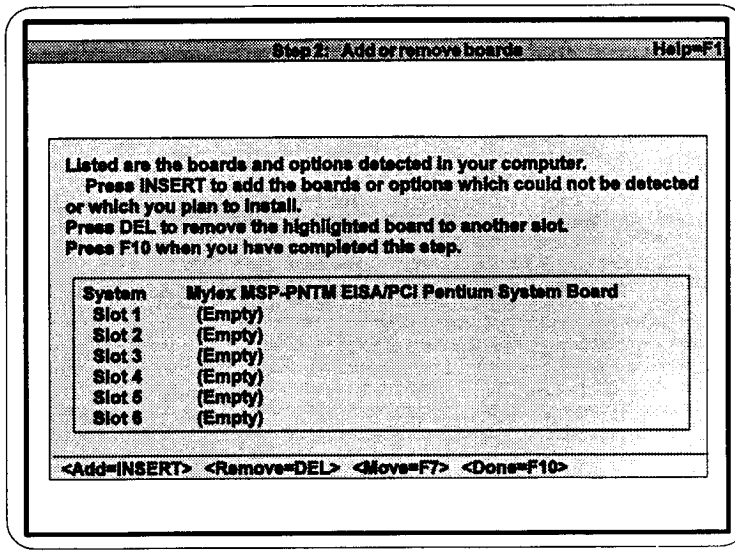

Figure 4-3 Add or Remove Boards

Press the <Insert> key to add boards which could not be detected or modify boards that need additional configuration.

Locate the configuration disks which came with each of the EISA peripherals you are installing. The system prompts you for each disk as needed.

After the EISA CFG files are installed, press the <F10> key to return to the main menu.

View or Edit Details

When you select this section, a display of your system resources appears (Figure 4-4). Edit this menu to optimize performance and resource allocation.

To make changes, select an option and press the <Enter> key.

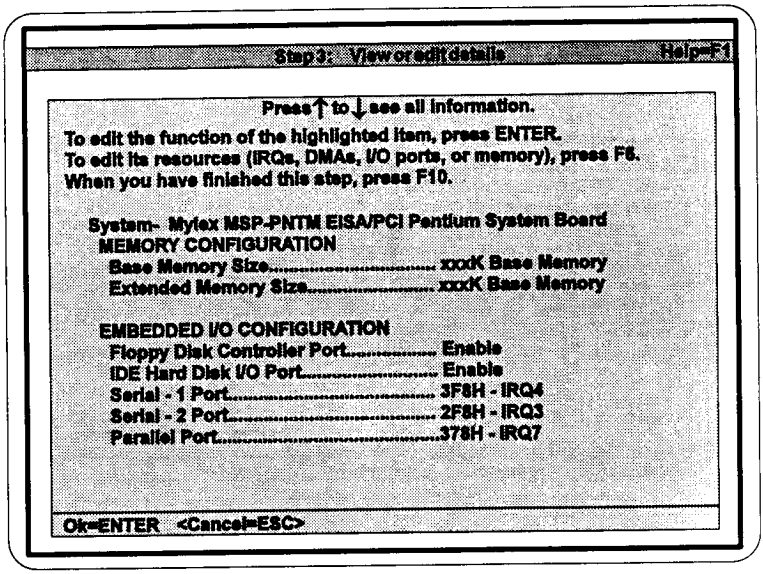

Figure 4-4 View or Edit Details

Advanced Submenu

The advanced submenu allows you to make specialized configurations. Press <F7> to enter the Advanced Submenu.

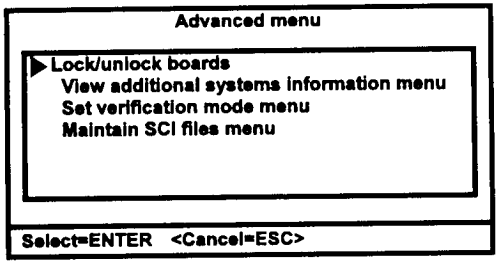

Figure 4-5 Advanced Submenu

Lock/Unlock Boards

Locking a board prevents changes from being made to its settings.

View Additional System Information

This submenu allows viewing of board specifications, system specifications, and system resources.

Set Verification Mode Menu

Set this for Automatic (default) or Manual. Automatic Verification detects and resolves resource conflicts automatically.

Maintain SCI Files Menu

This option loads a SCI file to replace your existing EISA configuration.

Examine Required Switches

This displays a listing of current system board settings.

Save and Exit

When finished configuring the peripherals, select *Step 5: Save and Exit.* Select "Save the configuration and restart the computer."

The reboots screen appears. Press <Enter> and the system reboots.

Appendix A

Updating the System BIOS

This appendix provides instructions on how to update the system BIOS using the Flash BIOS Utility. This utility permits you to update the BIOS without exchanging EPROM chips. Upon receipt of a manufacturer's or dealer's diskette containing the BIOS update data, perform the following procedures:

1. Reboot the system using a simple AUTOEXEC.BAT and CONFIG.SYS without any memory managers. You can do this several ways.

   - Boot from a diskette with a simplified AUTOEXEC.BAT and CONFIG.SYS.
   - When you see the line "Starting MS-DOS" during boot, press the <F5> key. The system will bypass AUTOEXEC.BAT and CONFIG.SYS.
   - When you see the line "Starting MS-DOS" during boot, press the <F8> key. The system will go through the AUTOEXEC.BAT and CONFIG.SYS line by line. Select *Y* for the commands you want to load and *N* for memory managers and commands you do not need.

2. Make a temporary directory called *FLASH*. Copy the file *MDPFL.EXE* and the BIOS update file to the *FLASH* directory.

3. Change directories to the FLASH Directory and type "mdpfl (filename)" (no parenthesis). The following screen appears.

```
**********************************
MSP Flash BIOS Utility
File Name (filename)
**********************************
Programming the BIOS**************
DO NOT RESET THE SYSTEM

If there is any failure beyond this point,
you will need a pre-programmed BIOS to
start your system.
```

4. Do not reset the system until you see the following message:

```
New BIOS Programmed Successfully.
Reset the system (Hard Reset Only) to reboot.
```

5. Reboot the system by pushing the reset button or turning the computer on and off. Do not use the <Ctrl+Alt+Delete> key sequence.

MYLEX

Addendum to MSP-PNTM System Board User's Manual

Version 1.0, Part Number 771956-D01

About This Document

This Addendum applies to the enhanced MSP-PNTM System Boards (Rev. D and above). These products support Intel Pentium Processors operating from 90 to 200 MHz and system memory sizes to 512MB.

Use the information in this Addendum to modify or replace the information in the MSP-PNTM System Board User's Manual where indicated.

Addendum Part Number 771959-ADM

May 1996

(See Page 1-2) **Change the CPU specifications to read as follows:**

CPU: Intel Pentium Processor
90/100/120/133/150/166/180/200MHz

(See Page 2-2) **Replace Figure 2-1 with the following illustration:**

Note: This shows the location (near the Real Time Clock) of jumper J1 that is now also used in setting CPU speed (refer to *Table 2-2a* in the next column).

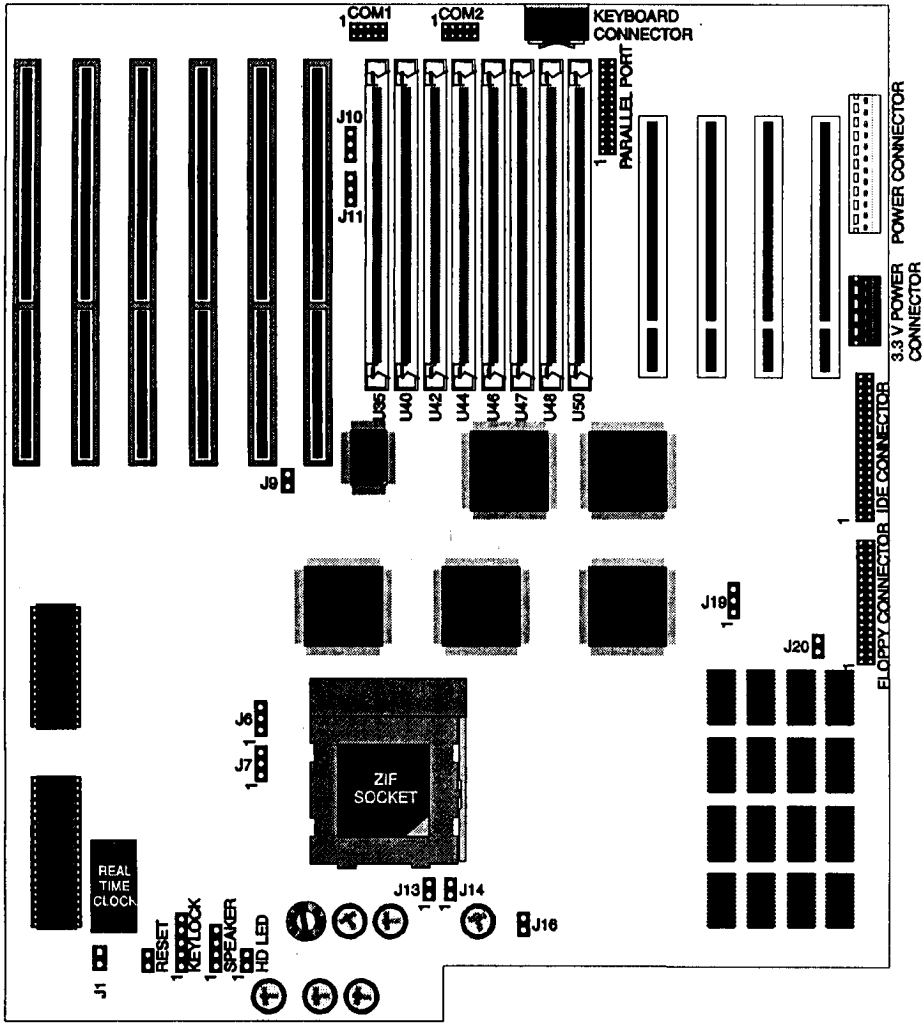

Figure 2-1a System Board Jumper Location

(See Page 2-4) **Add the following line to Table 2-1:**

Table 2-1a Typical Memory Configuration

Memory Size	Bank 0	Bank 1	Bank 2	Bank 3
512MB	(2) 64MB	(2) 64MB	(2) 64MB	(2) 64MB

(See Page 2-6) **Replace the text and Table 2-2 with the following:**

Configuring the MSP-PNTM for Different Pentium CPUs (J16, J19, J1)

The MSP-PNTM system board supports Intel Pentium processors running up to 200 MHz. Set the System Clock using jumpers J16, J19, and J1 to match the microprocessor as indicated in the following table.

Table 2-2a Configuring the CPU Jumpers

CPU Speed	CPU Jumpers		
	J16	J19	J1
Pentium 90	open	2-3	open
Pentium 100	open	1-2	open
Pentium 120	short	2-3	open
Pentium 133	short	1-2	open
Pentium 150	short	2-3	short
Pentium 166	short	1-2	short
Pentium 180	open	2-3	short
Pentium 200	open	1-2	short

(See Page 2-7) **Change these lines in Table 2-4 to read as follows:**

Table 2-4a System Board Connectors

Conn. No.	Function	Page Ref.
J12	COM Port A, RS-232 (COM1)	page 9
J13, J14	12V Fan Power Connectors	page 10
J15	COM Port B, RS-232 (COM 2)	page 9

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Intl. Sales: (510) 745-7521

MADE IN U.S.A.

MYLEX

System Problem Report

Customer Identification

Name: _____

Company: _____

Address: _____

_____

_____

Country: _____

Phone Number: _____

Fax Number: _____

SPR/Product Identification

Date: _____

Purchase Date: _____

Invoice Number: _____

Serial Number: _____

Product Name: _____

_____

Model Number: _____

_____

System Configuration

Host Computer System: _____

System Clock Rate: _____

Memory Installed: _____

BIOS Name/Rev: _____

Operating System: _____

Application S/W: _____

	Product Name	I/O Address	RAM Address	ROM Address	IRQ Line	DMA Channel
Graphics Card:						
Disk Controller:						
LAN Adapter:						
Other I/O Card:						

Problem Description

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Instructions

This form is included as a convenience to both you and our Technical Services Department. If filled out completely, it will greatly assist Mylex personnel in quickly resolving any technical problem or question.

1. Use a separate sheet for each product. Photocopy as necessary and keep a copy for your records.
2. If possible, include version numbers of any products mentioned in the system configuration.
3. Report the minimum configuration in which the reported problem appears.
4. Attach any relevant printouts or copies of manual pages to this report.
5. Use Mylex Fax number (510) 745-7715 to transmit to the Technical Services Department., or mail to:
   Mylex Corporation
   Technical Services Department
   P.O. Box 5035
   Fremont, CA, 94537-5035
6. This form is not a RMA. An RMA number must be obtained before shipping any product to Mylex.

P/N 772014-B