386SX MAIN BOARD
(25/33/40 MHz)

PT-309

USER'S MANUAL

BEFORE INSTALLING THIS 386SX MAIN BOARD PLEASE READ THIS MANUAL COMPLETELY AND RETAIN IT FOR FUTURE REFERENCE

Note:

1. For the first time installation with error message on the screen, please leave the system on for about 15-30 minutes to recharge the battery, then you can enter the system configuration.
2. Leave your system on for about 24 hours to recharge the battery fully.
3. If you have switched off the computer system for more than two weeks, you might be required to repeat step 2 to recharge the battery fully.

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SECTION 1

INTRODUCTION

1.1 Overview

This guide will tell you how to install it in PT-309 and sstup its configuration. PT-309 only small footprint (22x17cm) achieved by using the Acer M1217 single chipset. New features design support 386SX-33 and Cyrix 486SLC CPU, low power consumption, large memory capacity high performance and high reliability.

The Acer M1217 incorporates coprocessor interface, memory controller, parity generation and checking, two 8237 DMA controller, two 8259 interrupt controllers, one 8254 timer/counter, address buffer and data buffer.

1.2 Checklist

Please check your PT-309 package to ensure that it contains the following items :

- PT-309 Main board
- PT-309 User's manual

If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

SECTION 2

SPECIFICATIONS

2.1 General features

1. 100% IBM AT compatible
2. Work with 16/20/25/33 MHz 80386SX microprocessor
3. Operate at 25/33/40MHz CPU clock with zero wait
4. Socket for 80387SX math co-processor
5. 4 layer and 22x17 cm board size
6. Support DRAM size up to 16MB with 256K, 1M, 4M SIMM RAM device
7. Wait states configurable by software
8. Six 16-bit slots on board
9. Address remapping/shadow RAM for the BIOS, video ROM
10. Hardware emulation of fast GATE A20 and RC reset for OS/2 optimization
11. Programmable I/O recovery time for back-to-back cycle

2.2 Jumpers and Connectors

Jumpers / Connectors	Description
J1	Keyboard Connector
J2	Power Connector
J3	Power Connector
J4	Ext. Battery
J6	Reset
J7	Speaker
J8	Turbo Switch & Power LED
J9	Key Lock & Power LED
JP1	System Clock Select #1
JP2	NPU Syn/Asyn Selection
JP4	Mono/Color Display Card Selection
JP5	System Clock Selection #2
JP6	Parity Check Enable/Disable

2.2 Jumpers and Connectors

J1 : Keyboard Connector
Pin Assignment

Pin	Assignment
1	Clock
2	Data
3	N.C.
4	GND
5	+5V

J3 : Power Connector
Pin Assignment

Pin	Assignment
1	Power Good
2	+5V
3	+12V
4	-5V
5	GND
6	GND

J2 : Power Connector
Pin Assignment

Pin	Assignment
1	GND
2	GND
3	-5V
4	+5V
5	+5V
6	+5V

2.2 Jumpers and Connectors

JP4 : Ext. Battery
Pin Assignment

1	Power
2	N.C.
3	GND
4	GND

J6 : Reset
Pin Assignment

1	GND
2	Reset

JP7 : Speaker
Pin Assignment

1	VCC
2	SPKR
3	SPKR
4	SPKR

J8 : Pin Assignment

1	VCC , LED Anode
2	Trubo LED , LED Cathode
3	NC
4	VCC
5	Turbo Switch , (Ctrl)+(Alt)+(+,-)

J9 : Key Lock & Power LED
Pin Assignment

1	LED Power
2	Key
3	GND
4	KBD INH
5	GND

2.2 Jumpers and Connectors

JP4 : Mono/Color Display Card Selection
Pin Assignment

1-2 short	Monochrome
2-3 short	Color

JP2 : NPU Syn/Asyn Selection
Pin Assignment

1-2 short	Syn
2-3 short	Asyn

JP1,JP5 : System Clock Selection
Pin Assignment

CPU	JP1	JP5
33MHz	2-3	2-3
25MHz	1-2	1-2
20MHz	2-3	1-2
16MHz	1-2	1-2

JP6 : Parity Check Enable/Disable
Pin Assignment

1-2 Short	Disable
1-2 open	Enable

2.3 Memory Configurations

SIMM1	SIMM2	SIMM3	SIMM4	Total Memory
256K	256K	None	None	512K
256K	256K	256K	256K	1M
1M	1M	None	None	2M
1M	1M	1M	1M	4M
4M	4M	None	None	8M
4M	4M	4M	4M	16M

SECTION 2

SPECIFICATION

2.4 Installation of Co-processor

There is a 68 pin PLCC socket U11 for either Intel , AMD or Cyrix 80387SX co-processor. Make sure the placement of Co-processor is inserted. PT-309 System Board can support Co-processor running either in Synchronous or Asynchronous Mode.

Refer to the section of Jumper Configurations for correct installation. Double check the settings before power up the system board.

Also make sure OSC1 was correctly inserted when running in Asynchronous Mode.

For 25MHz Co-processor : use 50MHz for OSC1
For 20MHz Co-processor : use 40MHz for OSC1

* If any question found, please contact your local dealer for assistance.

SECTION 3

INPUT/OUTPUT CHANNEL SLOTS

The input/output channel of PT-309 supports:

Refresh of system memory from channel microprocessors
Selection of data accesses (either 8-bit or 16-bit)
Interrupt
DMA channels
I/O wait-state generation
Open-bus structure (allowing multiple microprocessors to share the system's resources including memory)

3.1 I/O address map

Hex range	Devices	Usage
000-01F	DMA controller 1	System
020-03F	Interrupt controller 1	System
040-05F	Timer	System
060-06F	8042 (Keyboard)	System
070-07F	Real time clock, NMI mask	System
080-09F	DAM page register	System
0A0-0BF	Interrupt controller 2	System
0C0-0DF	DMA controller 2	System
0F0	Clear math co-processor busy	System
0F1	Reset math co-processor	System
0F8-0FF	Math co-processor	System
1F0-1F8	Fixed disk	I/O
200-207	Game I/O	I/O
278-27F	Parallel printer port 2	I/O
2F8-2FF	Serial port 2	I/O
300-31F	Prototype card	I/O
360-36F	Reserved	I/O
378-37F	Parallel printer port 1	I/O
380-38F	SDLC, bisynchronous 2	I/O
3A0-3AF	Bisynchronous 1	I/O
3B0-3BF	Monochrome display and printer adapter	I/O
3C0-3CF	Reserved	I/O
3D0-3DF	Color/graphic monitor adapter	I/O
3F0-3F7	Floppy diskette controller	I/O
3F8-3FF	Serial port 1	I/O

SECTION 3

INPUT/OUTPUT CHANNEL SLOTS

3.2 62-Pin, 36-Pin I/O Bus

		REAR	PANEL		
GND	B1	-	-	A1	-I/O CH CK
RESET DRV	B2	-	-	A2	SD7
+5V ED	B3	-	-	A3	SD6
IRQ9	B4	-	-	A4	SD5
-5V DC	B5	-	-	A5	SD4
DRQ2	B6	-	-	A6	SD3
-12VDC	B7	-	-	A7	SD2
DWS	B8	-	-	A8	SD1
+12VDC	B9	-	-	A9	SD0
GND	B10	-	-	A10	-I/O CH RDY
-SMEMW	B11	-	-	A11	AEN
-SMEMR	B12	-	-	A12	SA19
-LOW	B13	-	-	A13	SA18
-LOR	B14	-	-	A14	SA17
-DACK3	B15	-	-	A15	SA16
DRQ3	B16	-	-	A16	SA15
-DACK1	B17	-	-	A17	SA14
DRQ1	B18	-	-	A18	SA13
-REFRESH	B19	-	-	A19	SA12
CLK	B20	-	-	A20	SA11
IRQ7	B21	-	-	A21	SA10
IRQ6	B22	-	-	A22	SA9
IRQ5	B23	-	-	A23	SA8
IRQ4	B24	-	-	A24	SA7
IRQ3	B25	-	-	A25	SA6
-DACK2	B26	-	-	A26	SA5
T/C	B27	-	-	A27	SA4
BALE	B28	-	-	A28	SA3
+5VDC	B29	-	-	A29	SA2
OSC	B30	-	-	A30	SA1
GND	B31	-	-	A31	SA0

-MEM CS16	D1	-	-	C1	SBHE
-I/O CS16	D2	-	-	C2	LA23
IRQ 10	D3	-	-	C3	LA22
IRQ 11	D4	-	-	C4	LA21
IRQ 12	D5	-	-	C5	LA20
IRQ 15	D6	-	-	C6	LA19
IRQ 14	D7	-	-	C7	LA18
-DACK 0	D8	-	-	C8	LA17
DRQ 0	D9	-	-	C9	-MEMR
-DACK 5	D10	-	-	C10	-MEMW
DRQ 5	D11	-	-	C11	SD08
-DACK 6	D12	-	-	C12	SD09
DRQ 6	D13	-	-	C13	SD10
-DACK 7	D14	-	-	C14	SD11
DRQ 7	D15	-	-	C15	SD12
+5V DC	D16	-	-	C16	SD13
-MASTER	D17	-	-	C17	SD14
GND	D18	-	-	C18	SD15

SECTION 4

HARDWARE COMPATIBILITY

4.1 System timers

The system has three programmable timer/counters controlled by an Intel 8254-2 timer/counter chip. These are channel 0 through 2, defined as follows :

Channel 0	System timer
GATE 0	Tied on
CLK IN 0	1.190Mhz OSC
CLK OUT 0	8259A IRQ 0

Channel 1	Refresh Request Generator
GATE 1	Tied on
CLK IN 1	1.190Mhz OSC
CLK OUT 1	Request Refresh Cycle

* Note : Channel is programmed to generate a 15 microsecond period signal.

Channel 2	Tone Generation for speaker
GATE 2	Controlled by bit 0 of hex 61 PPI bit
CLK IN 2	1.190Mhz OSC
CLK OUT 2	Used to drive the speaker

4.2 System interrupts

Sixteen levels of system interrupts are provided by the 80286 NMI & two 8259A interrupt controller chips. The following shows the various interrupt-level assignments in decreasing priority :

Level	Function
Microprocessor NMI	Parity or I/O channel check
Interrupt controllers	
CTLR 1 CTLR 2	
IRQ 0	Timer output 0
IRQ 1	Keyboard (Output buffer full)
IRQ 2	Interrupt from CTLR 2
IRQ 8	Real time clock interrupt
IRQ 9	Software redirected to INT 0AH(IRQ 2)
IRQ 10	Reserved
IRQ 11	Reserved
IRQ 12	Reserved
IRQ 13	Numeric co-processor
IRQ 14	Fixed disk controller
IRQ 15	Reserved
IRQ 3	Serial Port 2
IRQ 4	Serial Port 1
IRQ 5	Parallel Port 2
IRQ 6	Diskette controller
IRQ 7	Parallel port 1

4.3 Direct memory access

Each DMA channels are supported by the system. Two Intel 8237-5 DMA controller chips (Four channels in each chip) are used. DMA channels are assigned as follows :

CTLR 1	CTLR 2
Ch 0-Spare	Ch 4-Cascade for CTLR 1
Ch 1-SDLC	Ch 5-Spare
Ch 2-Diskette	Ch 6-Spare
Ch 3-Spare	Ch 7-Spare

Channels from 0 through 3 are contained in DMA controller 1. Transfers of 8-bit data, 8-bit I/O adapters and 8-bit or 16-bit system memory are supported by these channels. Each of these channels will transfer data in 64KB block throughout the 16-megabyte system address space.

Channels from 4 through 7 are contained in DMA controller 2. To cascade channels 0 through 3 to the microprocessor, use channel 4. Transfer of 16-bit data between 16-bit adapters and 16-bit system memory are then supported by channels 5, 6 & 7. DMA channels from 5 through 7 transfer data in 128K blocks throughout the 16-megabyte system address space.
These channels will not transfer data on odd-byte boundaries.

The address for the page register are as follows :

Page Register	I/O HEX address
DMA channel 0	0087
DMA channel 1	0083
DMA channel 2	0081
DMA channel 3	0082
DMA channel 5	008B
DMA channel 6	0089
DMA channel 7	008A
Refresh	008F

Address generation for the DMA channels is as follows :

For DMA channels 3 through 0 :

Source	DMA Page Registers 8237A-5	
Address	A23.....A16	A15.....A1

For DMA channels 7 through 5 :

Source	DMA Page Registers 8237A-5	
Address	A23.....A17	A16.....A0

Note : The BHE and A0 addressing signals are forced to a logic 0. DMA channel addressees do not increase or decrease through page boundaries(64KB for channels 0 through 3 and 128KB for channels 5 through 7).

4.4 Real time clock and non-volatile RAM

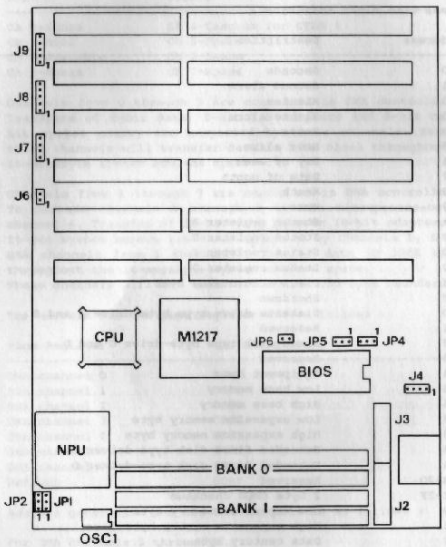
The real time clock and its 64 bytes of RAM information are backed up by 3.6V rechargeable DC battery (or 6V external battery). The internal clock circuitry uses 14 bytes while the rest is allocated to system configuration.

Real time clock address :

Address	Description
00	Seconds
01	Second alarm
02	Minutes
03	Minute alarm
04	Hours
05	Hour alarm
06	Day of week
07	Date of month
08	Month
09	Year
0A	Status register A
0B	Status register B
0C	Status register C
0D	Status register D
0E	Diagnostic Status byte
0F	Shutdown
10	Diskette drive type byte-drive A and B
11	Reserved
12	Fixed disk type byte-drive C and D
13	Reserved
14	Equipment byte
15	Low base memory
16	High base memory
17	Low expansion memory byte
18	High expansion memory byte
19	Extended fixed disk type-driver C
1A	Extended fixed disk type-driver D
1B-2D	Reserved
2E-2F	2 byte CMOS checksum
30	Low expansion memory byte
31	High expansion memory byte
32	Data century byte
33	Information flags (set during power on)
34-3F	Reserved

SECTION 5

LAYOUT DIAGRAM of PT-309



SECTION 6

AMI BIOS Setup

6.1 About CMOS Setup

Once the mainboard has been integrated into a system, you must run the mainboard's Setup program to record and/or change configuration information, such as the current date and time or your hard disk drive type. The Setup program is stored in read-only memory (ROM), and can only be accessed when you turn on or reset the system.

The settings you specify with the Setup program are recorded in a special area of memory called CMOS RAM. This memory is backed up by a battery so that it will not be erased when you turn off or reset the system. Whenever you turn on the power, the system reads the settings stored in CMOS RAM and compares them to the equipment check conducted during the POST. If an error occurs, an error message will be displayed onscreen, and you will be prompted to run the Setup program.

The AMI BIOS Setup program is accessed through a menu which allows you to easily configure your system. Standard CMOS Setup allows you to record basic system information regarding date and time, video type and installed drives. Advanced CMOS Setup gives you access to the advanced features supported by the AMI BIOS and your mainboard's M1217 chipset.

- After powering on the system and in the course of the system POST, you will be presented with the screen depicted below.

  To enter the Setup program at this time, press the [Del] key. This will display the first page of the AMI BIOS Setup menu, which is illustrated on the next page.

- If you do not press these keys at the correct time and the system boots, press [Ctrl-Alt-Del] to restart the system and try again.

- If you do not press the key at the correct time and the system fails to boot, an error message will be displayed (such as KEYBOARD ERROR) and you will again be asked to:

  RUN SETUP UTILITY
  Press <F1> to resume

  This is normal. Press [Ctrl-Alt-Del] at this time to restart the system and then enter Setup by pressing the [Del] key.

If you press and hold the [Ins] key while the system is booting until you hear a single beep, the default Setup values will be loaded into CMOS. Release the key after the beep to prevent a keyboard error from occurring.

After you enter Setup, you will be presented with the main menu of the AMI Setup program, which is pictured below.

- Select Standard CMOS Setup to access the Standard CMOS Setup menu, which is discussed in section 6.4 below.

- Select Advanced CMOS Setup to access the Advanced CMOS Setup menu, which is discussed in section 6.5 below.

- The Advanced Chipset Setup menu option is not implemented.

- Select Auto Configuration with BIOS Defaults to load the default system values. You will be prompted for confirmation, and notified that the values have been loaded.

- Select Auto Configuration with Power-On Defaults to load the default power-on values, which disable all performance options. This option serves a useful diagnostic function in the event of a compatibility problem. You will be prompted for confirmation, and notified that the values have been loaded.

- Select Change Password to access the password security menu, which is discussed in section 6.6 below.

- Select Hard Disk Utility to access the hard disk utility menu, which is discussed in section 6.7 below.

- Select Write to CMOS and Exit to save your configuration and exit the Setup program. You will be prompted for confirmation before the changes are written to CMOS and the system reboots.

- Select Do Not Write to CMOS and Exit to cancel any changes to your configuration and exit the Setup program. You will be prompted for confirmation before the system reboots.

  A warning message, which is pictured below, appears each time you select Standard or Advanced CMOS Setup.

6.3 Getting Help

- Help screens are displayed for each option in the Standard CMOS Setup menu,and can be accessed in the Advanced CMOS Setup menu by pressing [F1]. A "pop-up" window will appear, similar to the one pictured below, listing the available selections for that option. To exit the Help window, press any key.

- If you have trouble reading the Setup menu, toggle the menu colors by pressing [F2] for background color and [F3] for foreground color.

6.4 Using Setup

The following keys and key combinations are used to maneuver among Setup options and to change values.

- To move the highlight bar from one option to another, use cursor (or arrow) keys, with [NumLock] turned off.

- Press [PgUp] or [PgDn] to change the value of option.

- Press the [Esc] key to exit back to the AMI Setup program's main menu.

- Press [F5] to restore the values that were resident when the Setup program was entered.

6.5 Standard CMOS Setup

The Standard CMOS Setup menu allows you to specify the following system configuration information:

- Date and time. Enter the date and time, respectively.

- Daylight saving. Choose Enabled or Disable.

- Hard disk C: and D: type. The BIOS supports 47 fixed disk drive types, 46 of which are predefined in the ROM-resident table. If your hard disk type is not directly supported, you may need to manually enter the correct parameters (heads, cylinders, sectors, write precompensation, and landing zone) under type 47. If no hard drive is installed, select Not Installed.

- Floppy drive A: and B:. Enter the diskette configuration your system is equipped with. If no floppy drive is installed, select Not Installed.

- Primary display. Enter the type of video display adapter you have connected to your system. The AMI BIOS will usually auto detect the correct type.

- Keyboard. Choose Installed or Not Installed (e.g. for a file server), as appropriate.

6.6 Advanced CMOS Setup

The Advanced CMOS Setup menu allows you to set various BIOS and chipset performance options, as illustrated and described below.

BIOS SETUP PROGRAM - ADVANCED CMOS SETUP
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Typematic Rate Programming	: Disabled	Adaptor ROM Shadow D800,32K	: Disabled
Typematic Rate Delay (msec)	: 500	Adaptor ROM Shadow E000,32K	: Disabled
Typematic Rate (Chars/Sec)	: 15	Adaptor ROM Shadow E800,32K	: Disabled
Above 1 MB Memory Test	: Disabled	System ROM Shadow F000,64K	: Enabled
Memory Test Tick Sound	: Enabled	Memory Wait State	: Disabled
Memory Parity Error Check	: Enabled	RAS Time Out	: Enabled
Hit <DEL> Message Display	: Enabled	16bit ISA cycle insert wait	: 0 W/S
Hard Disk Type 47 Data Area	: 0:300	RAS Active Time Insert Wait	: Disabled
Wait For <F1> If Any Error	: Enabled	Quick RAS Precharge Time	: Disabled
System Boot Up Num Lock	: Off	Slow Refresh	: Disabled
Numeric Processor	: Absent	IO Recover Period Define	: Disabled
Floppy Drive Seek At Boot	: Disabled		
System Boot Up Sequence	: C:, A:		
Internal Cache Memory	: Disabled		
Password Checking Option	: Disabled		
Video ROM Shadow C000,32K	: Enabled		
Adaptor ROM Shadow C800,32K	: Disabled		
Adaptor ROM Shadow D000,32K	: Disabled		

ESC:Exit ↓→↑←/Home/End:Sel (Ctrl)Pu/Pd:Modify F1:Help F2/F3:Color
F5:Old Values F6:BIOS Setup Defaults F7:Power-on Defaults

- Typematic Rate Programming. This option enables or disables programming of the keystroke repeat rate, which is adjusted by means of the next two options.

- Typematic Rate Delay (msecs). If Typematic Rate Programming is enabled, this option allows you to specify the delay between holding down a key and when the character begins repeating.

- Typematic Rate (Char/Sce). If Typematic Rate Programming is enabled, this option allows you to specify the rate at which a character keeps repeating.

- Above 1MB Memory Test. When Enable this option causes memory above 1MB to be checked during the POST. If Disable, only the first 1MB is checked during the POST.

- Memory Test Tick Sound. This option enables or disables an audible sound during the POST memory test.

- Memory Parity Error Check. This option enables or disables BIOS memory parity error checking routines.

- Hit <DEL> Message Display. Disable this option to prevent the "Hit <DEL>, If you want to run Setup" message from appearing on screen after the POST.

- Hard Disk Type 47 RAM Area. Select 0:300 unless your system is running a network operation system which uses the 0:300 address for system operations.

- Wait for <F1> If Any Error. Disable this option to eliminated the need for any user response to a non-fatal error condition during the POST.

- System Boot Up Num Lock. Select On or Off to enable or disable the keyboard NumLock switch.

- Numeric Processor. Select Installed if you have installed an 80387SX numeric co-processor.

- Floppy Drive Seek at Boot. Select Disabled to speed up the boot process and prevent possible damage to the diskette drive heads.

- System Boot Up Sequence. As a general guideline, select A then C(A:, C:) if you will normally boot the operating system from a floppy disk. Select C then A (C:, A:) if you will normally boot the operating system from the hard disk drive.

- Internal Cache Memory. This option Select Disabled to speed up the boot process and prevent possible damage to the diskette drive heads.

- Password Checking Option. This allows you to optionally limit access to the system or to the Setup program alone. If you enable security by selecting Always or Setup, access to the system and/or the Setup program is restricted to valid password entry.

- Video ROM Shadow. This option allows you to shadow the video BIOS address range from C000h to C7FFH. Shadow RAM is a technique that copies slower 8- or 16-bit ROMs to faster RAM system memory. Unless you encounter a compatibility problem, you should enable video ROM shadowing to improve performance.

- Adapter ROM Shadow. This option allows you to shadow potential ROM BIOS address ranges from C800h to EFFFh. Shadow RAM is a technique that copies slower 8- or 16-bit ROMs to faster RAM system memory. If your system includes a ROM adapter that supports shadowing, you may obtain improved performance by shadowing the address region used by the adapter.

- System ROM Shadow. This option allows you to shadow the system BIOS address range from F000h to FFFFh. Shadow RAM is a technique that copies slower 8- or 16-bit ROMs to faster RAM system memory. Unless you encounter a compatibility problem, you should enable system ROM shadowing to improve performance.

- Memory Wait State. This option allows you to enable or disable a DRAM access wait-state. Unless you encounter a compatibility problem, you should set this option to Disabled for improved performance.

- RAS Time Out. Unless you encounter a compatibility problem, you should set this option to Enabled for improved performance.

- 16bit ISA cycle insert wait. This option selects the number of wait-states the system will insert on the I/O bus. Select 0 WS if your add-in cards support high-speed, o wait-state operation; insert 1 wait-state if you encounter a compatibility problem.

- RAS Active Time Insert Wait. Unless you encounter a compatibility problem, you should set this option to Disables for improved performance.

- Quick RAS Precharge Time. If system SIMM memory supports quick RAS precharge timing, you can set this option to Enabled for improved performance.

- Slow Refresh. If system SIMM memory supports a slow refresh rate, you can set this option to Enabled for improved performance.

- IO Recover Period Define. This option enables or disables I/O recovery. For compatibility with older add-in cards, I/O recovery should be Enabled.

6.7 Changing the Password

If the Password Checking Option under the Advanced CMOS Setup menu is set to either Always or Setup, password entry is required every time the system boots or an attempt is made to enter the Setup program, respectively. The Change Password menu allows you to change the current password, as illustrated below.

- To change the current password, select the Change Password menu option from the Setup main menu. You will be prompted to enter the old password before gaining access. If this is the first time you attempt to change passwords, the default password is AMI.

- After entering the correct current password, you will be prompted to enter a new password. The password can be no longer than 6 characters. After entering the new password, you will be prompted to enter it a second time for confirmation. If the second entry matches the first, you will be notified that the new password has been installed.

If you forget or lose your password, the only way to access the system and/or Setup program is to discharge the CMOS battery. When the CMOS battery becomes corrupted or is discharged, the default password becomes AMI.

6.8 Hard Disk Utility

If the Hard Disk Utility menu is selected from the Setup main menu, you will be presented with three options: Hard Disk Format, Auto Interleave, and Media Analysis. Performing any of these operations will destroy all data on the hard disk, so be sure to backup your data before selecting any of these options.

- Hard Disk Format. This option performs a low-level format of the hard disk. Note that many hard drives are factory low-level formatted, and should not be re-formatted. Check with your hard disk manufacturer before selecting this option.

- Auto Interleave. This option determines the optimum interleave factor prior to a low-level format of the hard disk.

- Media Analysis. This option analyzes each track on the hard disk to determine if it is usable. If it is unusable, the track is marked as "bad".

- Media Analysis. This option analyzes each track on the hard disk to determine if it is usable. If it is unusable, the track is marked as "bad" so that the system will not write data to it. Many manufacturers provide a list of bad tracks so that this step may not be necessary.

IDE and SCSI hard drive should not normally be low-level formatted. Refer to your hard disk dealer or manufacturer before using the AMI Hard Disk Utility.

6.9 Exiting Setup

- To exit Setup, press [Esc] to return to the Setup main menu.

- To save your changes and exit Setup, select Write to CMOS and Exit.

- To exit Setup without saving your changes, select Do Not Write to CMOS and Exit.

AMENDMENT FOR PT-309

SECTION 2

SPECIFICATION

2.2 **Jumpers and Connectors**

JP4 : Mono/Color Display Card Selection
Pin Assignment

1-2 short	Monochrome	
* 2-3 short	Color	**Default**

JP2 : NPU Syn/Asyn Selection
Pin Assignment

* 1-2 short	Syn	**Default**
2-3 short	Asyn	

Note : If the speed of the CPU & Math Co-processor are in the same speed, then JP2 1-2 should be connected.
If the speed of the CPU & Math Co-processor aren't in the same speed, then JP2 2-3 should be connected. An additional oscillator needs to be added.

JP1,JP5 : System Clock Selection
Pin Assignment

CPU	JP1	JP5
33MHz	2-3	2-3
* 25MHz	1-2	**2-3**
20MHz	2-3	1-2
16MHz	1-2	1-2

JP6 : Parity Check Enable/Disable
Pin Assignment

* 1-2 Short	Disable	**Default**
1-2 open	Enable	

* indicated the changes

6.6 **Continued... Advanced CMOS Setup**

The "Advanced Chipset Setup" is pre-set inside the BIOS. And it is exclusively used by the manufacturer. All the information in the "Advanced Chipset Setup" has been set to default to enhance the overall system performance. In order to avoid from mis-configuring the advanced chipset information, this advanced chipset setup will only appear in the setup menu and won't be available to end user.