

# **PX486 P3 Main Board User's Manual**

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## Quick Setup Guide

Below is a quick and an easy way to setup your PX486 P3 system.

Check the default jumper settings of your system as follows:

JUMPER	FUNCTION	STATUS
JP1	CMOS power source (On-board battery)	2-3
JP2	Mono/Color display selection	Close
JP19	Turbo switch connector	Close

### A) CPU & Frequency selection

#### (I) CPU selection

CPU	JP13	JP14
486DX, 486DX2, P24T	1-2	1-2, 3-4
486SX	OFF	2-3

#### (II) Frequency selection

If no clock-chip on board, OSC1's frequency is main frequency. If clock-chip on board, set clock-chip jumpers as follows :

Main freq.	JP5	JP6	JP16
16MHz	OFF	ON	ON
20MHz	ON	OFF	ON
25MHz	OFF	OFF	ON
33MHz	ON	OFF	OFF
40MHz	ON	ON	OFF
50MHz	OFF	ON	OFF

### B) Cache size selection

CACHE SIZE	JP3	JP4	JP17	JP18	SRAM 0K x 8	SRAM 32K x 8
0K	OFF	OFF	OFF	OFF	---	---
64K	2-3	2-3	OFF	OFF	U34-37, U32, U42-45	---
128K	1-2	1-2	ON	OFF	U32	U34-37
256K	2-3	2-3	ON	ON	---	U32, U34-37, U42-45

Note : If no SRAM is installed (0K cache), the "External Cache Memory" Option in ADVANCED CMOS SETUP should be set Disabled.

### (C) Memory configuration

The PX486 P3 supports 256KB, 1MB and 4MB memory devices relatively. The total main memory size can be accommodated up to 32MB. A total of 9 different memory configurations are supported as shown in the following table :

Index	(U4-U7) BANK0 SIMM TYPE	(U8-U11) BANK1 SIMM TYPE	TOTAL MEMORY
1	256KB	---	1MB
2	256KB	256KB	2MB
3	1MB	---	4MB
4	1MB	256KB	5MB
5	1MB	1MB	8MB
6	4MB	---	16MB
7	4MB	256KB	17MB
8	4MB	1MB	20MB
9	4MB	4MB	32MB

Note : At least 1MB main memory must be installed on board. The memory banks must be filled beginning from BANK0, then BANK1. In addition, each memory bank must use the same type of SIMM RAM.

### (D) VESA Local Bus

PAL	JP7	JP21	MASTER	SLAVE
With PAL	OFF	OFF	J19, J18	J21
Without PAL	ON	ON	J19	J18, J21

CPU	JP11	JP12	JP10	JP24
<=33MHz	X	OFF	ON	2-3
>33MHz	X	ON	ON	1-2
0WS	OFF	X	ON	X
1WS	ON	X	ON	X

\*X\* - Don't care.

## 1. Introduction

This manual has been written to be useful for two purposes. Firstly, to help you to be more familiar with the system board. Secondly, to serve as a guide to both procedures and specifications for future system upgrading.

### 1.1. General specification on PX486 P3 main board

- Two-third of the baby AT size board ( 220mm x 250mm ).
- Support 486DX/25/33/50MHz, 486DX2/50/66MHz and Intel P24T CPU.
- Use OPTi-SLC (82C495SLC & 82C206) Chipset.
- Support up to 32MB of main memory.
- Support 256K, 1MB and 4MB SDRAM RAMs in memory configurations.
- Support shadow RAM for system, adaptor and video BIOS.
- Three VESA Local bus standard slots (one bus slave, two bus master) (\*one or two bus master slots — optional).
- Three 16-bit AT bus slots and one 8-bit XT bus slots.
- Rechargeable battery and external battery connector on board
- Standard reset, keylock, speaker, turbo LED connectors

### 1.2. VESA local bus

There are three local bus slots (one or two bus master slots, two or one bus slave slots). The local bus slot has adopted the VESA local bus solution, and the pin assignment has been connected in Micro Channel Architecture connector form.

With PAL (U47) :

J18 and J19 are bus master slots, J21 is bus slave slot.

Without PAL (U47) :

J19 is bus master slot, J18 and J21 are bus slave slots.

## 2. Jumper Settings and Connectors Pin Assignment

The settings of various jumpers are shown as follows:

### 2.1. CMOS power source (JP1)

JP1	OPERATION
1-2	CLEAR CMOS
2-3*	ON BOARD BATTERY
OPEN	EXTERNAL BATTERY

"" Default setting, same as below.

### 2.2. CPU & Frequency selection

\* See quick setup A(i) & A(ii)

### 2.3. Mono/Color display selection (JP2)

Jumper JP2 informs the system what type of display is currently in use.

JP2	DISPLAY ADAPTOR TYPE
OPEN	MONO DISPLAY
CLOSE*	COLOR DISPLAY

### 2.4. VESA local bus selection

\* See quick setup (D)

## 2.5. Cache size selection (JP3-JP4, JP17-JP18)

\* See quick setup (B)

## 2.6. Turbo switch connector (JP19)

There are two choices available for the CPU speed :

TURBO	SPEED	TURBO LED
OPEN	LOW	OFF
CLOSE *	HIGH	ON

## 2.7. Turbo LED connector (JP20)

PIN NUMBER	FUNCTION
1	LED ANODE
2	LED CATHODE

## 2.8. External battery connector (J1)

PIN NUMBER	FUNCTION
1	POSITIVE POLARITY + V
2	KEY
3	GND
4	GND

## 2.9. Keyboard connector (J2)

PIN NUMBER	FUNCTION
1	CLOCK
2	DATA
3	NC
4	GND
5	+5V

## 2.10. Reset switch connector (S1)

W1	FUNCTION
CLOSED ONCE	RESET THE SYSTEM
OPEN	NORMAL

## 2.11. Power connector (J10, J11)

PIN NUMBER		FUNCTION
J10	1	POWER GOOD
	2	+5V
	3	+12V
	4	-12V
	5	GND
	6	GND
J11	1	GND
	2	GND
	3	-5V
	4	+5V
	5	+5V
	6	+5V

## 2.12. Keylock and Power LED connector (J20)

PIN NUMBER	FUNCTION
1	+5V
2	KEY
3	GND
4	KEYBOARD INHIBIT
5	GND

## 2.13. Speaker connector (JP9)

PIN NUMBER	FUNCTION
1	SPEAKER +
2	KEY
3	SPARE
4	SPEAKER -

# 3. Reconfiguring Your System

## 3.1. Entering configuration program

During memory test, you will get the following prompt " Hit <Del>, if you want to run setup ". By pressing the <Del>, key the following menu will bring to the screen as shown in Figure 3-1 :

BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITIES (C) 1992 American Megatrends Inc., All Rights Reserved
STANDARD CMOS SETUP ADVANCED CMOS SETUP ADVANCED CHIPSET SETUP AUTO CONFIGURATION WITH BIOS DEFAULTS AUTO CONFIGURATION WITH POWER-ON DEFAULTS CHANGE PASSWORD HARD DISK UTILITY WRITE TO CMOS AND EXIT DO NOT WRITE TO CMOS AND EXIT
Standard CMOS Setup for Changing Time, Date, Hard Disk Type, etc. ESC: EXIT   ↓→↑← :Sel   F2/F3: Color   F10: Save & Exit

Figure 3-1 The screen of BIOS SETUP PROGRAM

**NOTE :** Use the <↓> and <↑> key to select the desired option. When the option is highlighted, press the <Enter> key to enter its manual. Once inside the option's manual, use the <↓> or <↑> key to select the item that you want to modify. When the item is highlighted, press the <PgUp> or <PgDn> key to select the pre-defined value. Press the <Esc> key to exit the option's manual.

### 3.2. The parameters for STANDARD CMOS SETUP

If STANDARD CMOS SETUP is chosen, press <Enter> key twice. The display of STANDARD CMOS SETUP is shown in Figure 3-2 :

BIOS SETUP PROGRAM - STANDARD CMOS SETUP  
(C) 1992 American Megatrends Inc., All Rights Reserved

Date (mm/date/year) : Tue, Jan 01 1980 Base memory : 640KB  
 Time (hour/min/sec) : 00:00:00 Ext. memory : 0KB

Cyltn Head W/pcom LZone Sect Size

Hard disk C: type : Not Installed  
 Hard disk D: type : Not Installed  
 Floppy drive A: : Not Installed  
 Floppy drive B: : Not Installed  
 Primary display : VGA/PGA/EGA  
 Keyboard : Not Installed

Month Jan, Feb, ..., Dec  
 Date 01, 02, 03, ..., 31  
 Year 1901, 1902, ..., 2099

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

ESC:Exit ← → Select F2/F3:Color PU/PD Modify

Figure 3-2 The screen of STANDARD CMOS SETUP

The STANDARD CMOS SETUP will allow you to modify the system and hardware options/devices. It is a user selectable menu and each individual category must be configured according to your own system.

**NOTE :** Use the arrow keys to select the item that you want to modify. When the item is highlighted, press the <PgUp> key to select the previous value or <PgDn> key to select the next value. Press the <Esc> key to exit the program.

### 3.3. The parameters for ADVANCED CMOS SETUP

If ADVANCED CMOS SETUP is chosen, press <Enter> key twice. The display of ADVANCED CMOS SETUP is shown in Figure 3-3 :

BIOS SETUP PROGRAM - ADVANCED CMOS SETUP			
(C) 1992 American Megatrends Inc, All Rights Reserved			
Above 1 MB Memory Test	: Disabled	Adaptor ROM Shadow D800,16K	: Disabled
Memory Test Tick Sound	: Enabled	Adaptor ROM Shadow DC00,16K	: Disabled
Memory Parity Error Check	: Disabled	Adaptor ROM Shadow E000,16K	: Disabled
Wait for <F1> If Any Error	: Enabled	Adaptor ROM Shadow E400,16K	: Disabled
Numeric Processor Test	: Enabled	Adaptor ROM Shadow E800,16K	: Disabled
Floppy Drive Seek At Boot	: Disabled	Adaptor ROM Shadow EC00,16K	: Disabled
System Boot Up Sequence	: C, A	Adaptor ROM Shadow F000,64K	: Enabled
External Cache Memory	: Enabled		
Password Checking Option	: Setup		
Video ROM Shadow C000,16K	: Enabled		
Adaptor ROM Shadow C400,16K	: Enabled		
Adaptor ROM Shadow C800,16K	: Disabled		
Adaptor ROM Shadow CC00,16K	: Disabled		
Adaptor ROM Shadow D000,16K	: Disabled		
Adaptor ROM Shadow D400,16K	: Disabled		

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

Figure 3-3 The screen of ADVANCED CMOS SETUP

### 3.4. The parameters for ADVANCED CHIPSET SETUP

If ADVANCED CHIPSET SETUP is chosen, press <Enter> key twice. The display of ADVANCED CHIPSET SETUP is shown in Figure 3-4 :

BIOS SETUP PROGRAM - ADVANCED CHIPSET SETUP	
(C) 1992 American Megatrends Inc, All Rights Reserved	
Hidden Refresh	: Disabled
Single ALE Enable	: No
Keyboard Reset Control	: Enabled
AT BUS Clock Selection	: CLK/6
Fast Decode Enable	: Disabled
Memory Read Wait State	: 1WS
Memory Write Wait State	: 1WS
Cache Read Option	: 3-2-2-2
Cache Write Option	: 1WS
Non-Cacheable Block-1 Size	: Disabled
Non-Cacheable Block-1 Base	: 0KB
Non-Cacheable Block-2 Size	: Disabled
Non-Cacheable Block-2 Base	: 0KB

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

Figure 3-4 The screen of ADVANCED CHIPSET SETUP

If CPU clock is 33MHz or 40MHz, change setup :

Cache Read Cycle : 3-1-1-1

AT Bus clock selection will be automatically changed to CLK/4 and CLK/5.

When the item is highlighted, press <PgUp> key to select the previous value or <PgDn> key to select the next value. Press the <Esc> key for returning back to BIOS SETUP program as shown in Figure 3-1, then you can choose to save or not to save the parameters.

For detailed information, please highlight this item and press key <F1>.



### 3.5. Auto configuration with BIOS defaults

When entering the Setup screen again, you can press arrow key to highlight:

#### AUTO CONFIGURATION WITH BIOS DEFAULTS

Press <Enter> key, the screen is shown in Figure 3-5:

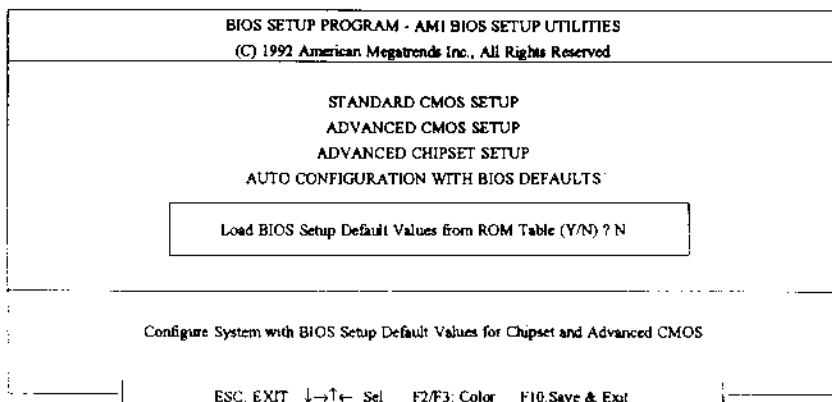


Figure 3-5 The screen of AUTO CONFIGURATION WITH BIOS DEFAULTS

The configuration of advanced CMOS and Chipset will be loaded from BIOS default value if the answer is "Y". If the answer is "N", it will return to the main menu.

### 3.6. Auto configuration with power-on defaults

When entering the Setup screen again, you can press <↓> or <↑> key to highlight:

#### AUTO CONFIGURATION WITH POWER-ON DEFAULTS

Press <Enter> key, the screen is shown in Figure 3-6:

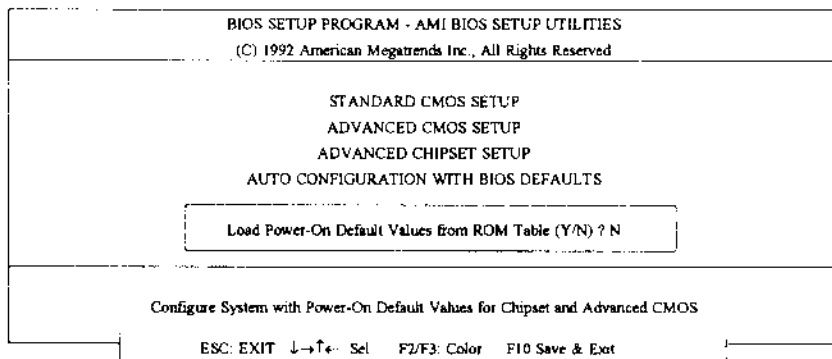


Figure 3-6 The screen of AUTO CONFIGURATION WITH POWER-ON DEFAULTS

The configuration of advanced CMOS and Chipset will be loaded as power-on default value if the answer is "Y". If the answer is "N", it will return to the BIOS SETUP menu.

### 3.7. Change password

When entering the Setup screen again, you can press <↓> or <↑> key to highlight:

#### CHANGE PASSWORD

Press <Enter> key, the screen is shown in Figure 3-7:

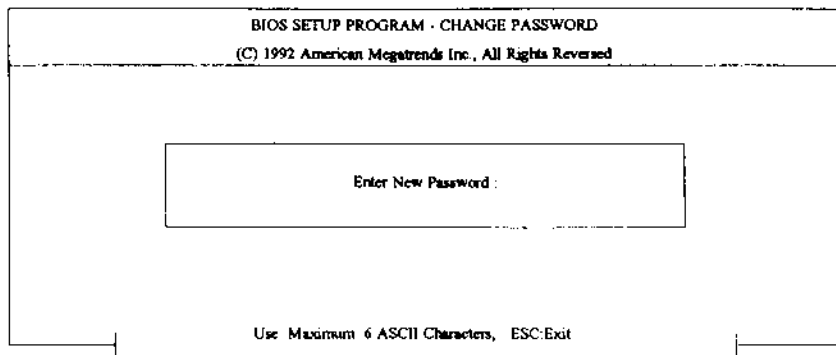


Figure 3-7 The screen of CHANGE PASSWORD

The password cannot be longer than six characters. User can change the password as follows :

- 1) Choose "Change Password" in the BIOS SETUP PROGRAM" and press <Enter>. The following message appears : "Enter ROM Password"
- 2) The first time you run this option, enter the default password and press <Enter>. The screen will not display the characters entered.
- 3) After you correctly enter the current password, the following message appears prompting you for the new password: "Enter New Password"
- 4) Enter the new password and the following appears: "Enter New Password"
- 5) Re-enter the new password. If the password is miskeyed, the following error message appears: "ERROR, Press Any Key"

If the password is keyed in correctly, the following confirmation message appears: "NEW Password Installed"

- 6) Press <Esc> to exit to the BIOS SETUP PROGRAM, then save the changed values and exit BIOS SETUP PROGRAM.

When you next reboot the system, after saving the changed values to CMOS, you will be prompted for the password. If you are not prompted for the password, check the "Password Checking Option" in the ADVANCED CMOS SETUP to see if it is configured for "Setup" or "Always".

When the password prompt appears, key in the new password and press <Enter>. If CMOS is cleared due to battery failure or jumper setting, use the default password "NULL".

### 3.8. Auto detect hard disk

When entering the Setup screen again, you can press <↓> or <↑> key to highlight:

#### AUTO DETECT HARD DISK

Press <Enter> key, then the BIOS will detect the number of cylinders, heads and sectors of the hard disk that installed in the system and give a prompt message screen as shown in Figure 3-8:

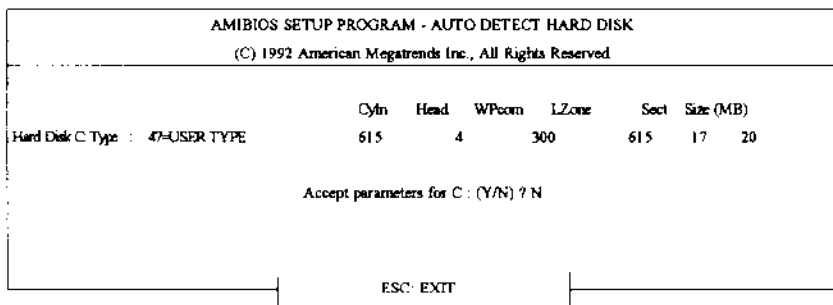


Figure 3-8 The screen of Auto Detect Hard Disk.

Selecting this option will allow the BIOS to detect the hard disk parameter to hard disk type 47 in standard CMOS setup.

### 3.9. Hard disk utility

When entering the Setup screen again, you can press <↓> or <↑> key to highlight:

#### HARD DISK UTILITY

Press <Enter> key, the screen is shown in Figure 3-9:

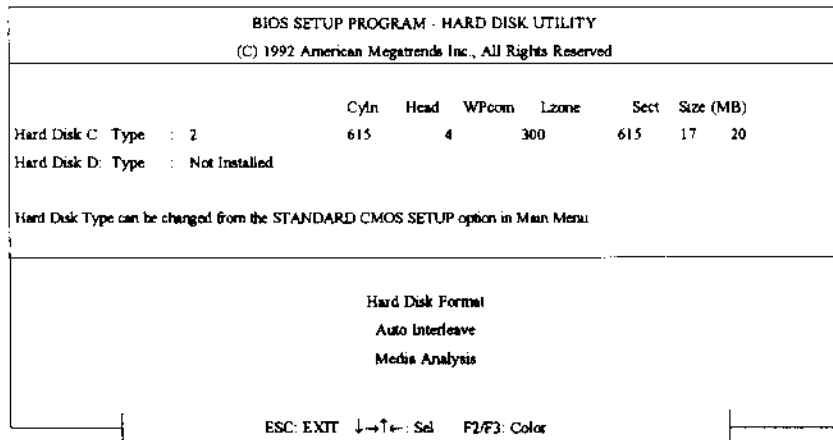


Figure 3-9 The screen of HARD DISK UTILITY

Use the arrow keys to highlight one of the three items and use the <Enter> key to select it.

### 3.10. Write to CMOS and exit

When entering the Setup screen again, you can press arrow key to highlight or press <F10> :  
WRITE TO CMOS AND EXIT

Press <Enter> key, the screen is shown in Figure 3-10:

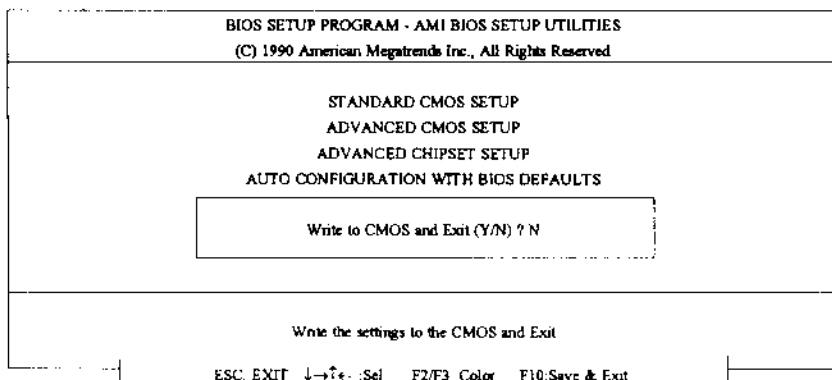


Figure 3-10 The screen of WRITE TO CMOS AND EXIT

The data of STANDARD CMOS, ADVANCED CMOS and CHIPSET will be saved to CMOS memory and exit if the answer is "Y". If the answer is "N", it will return to the main menu.

### 3.11. Do not write to CMOS and exit

When entering the Setup screen again, you can press arrow key to highlight:

DO NOT WRITE TO CMOS AND EXIT

Press <Enter> key, the screen is shown in Figure 3-11:

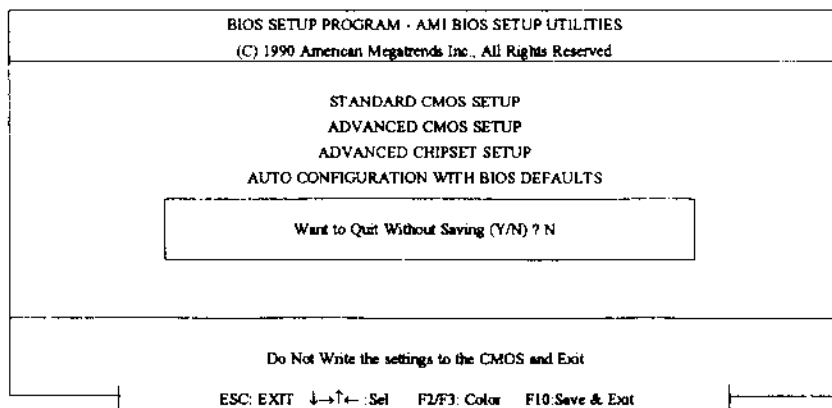


Figure 3-11 The screen of DO NOT WRITE TO CMOS AND EXIT

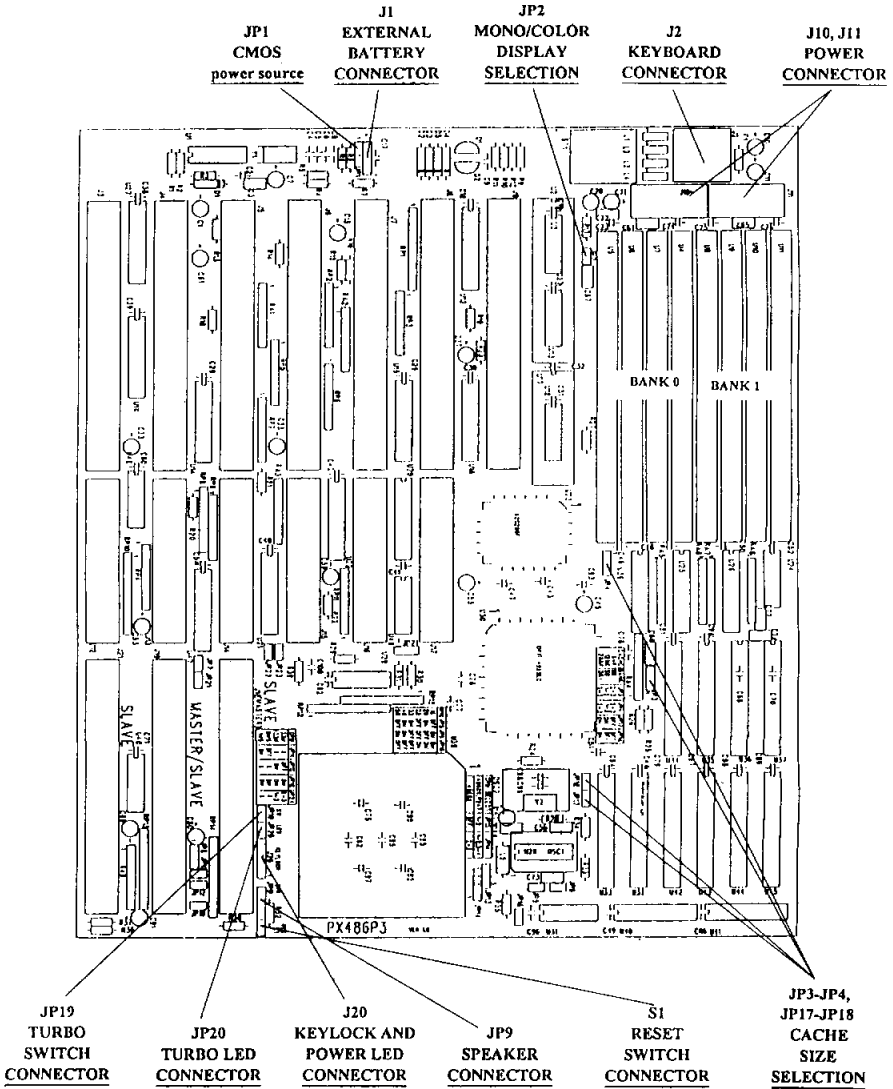
The data of STANDARD CMOS, ADVANCED CMOS and CHIPSET will not be saved to CMOS memory and exit if the answer is "Y". If the answer is "N", it will return to the BIOS SETUP menu.

## 4. Appendix

### 4.1. Drive table

Type	Cylinders	Heads	Write Precomp	LZ	Sector	Size
1	306	4	128	305	17	10MB
2	615	4	300	615	17	20MB
3	615	6	300	615	17	31MB
4	940	8	512	940	17	62MB
5	940	6	512	940	17	47MB
6	615	4	65535	615	17	20MB
7	462	8	256	511	17	31MB
8	733	5	65535	733	17	30MB
9	900	15	65535	901	17	112MB
10	820	3	65535	820	17	20MB
11	855	5	65535	855	17	35MB
12	855	7	65535	855	17	50MB
13	306	8	128	319	17	20MB
14	733	7	65535	733	17	43MB
15	---	---	---	---	---	---
16	612	4	0	663	17	20MB
17	977	5	300	977	17	41MB
18	977	7	65535	977	17	57MB
19	1024	7	512	1023	17	60MB
20	733	5	300	732	17	30MB
21	733	7	300	732	17	43MB
22	733	5	300	733	17	30MB
23	306	4	0	336	17	10MB
24	925	7	0	925	17	54MB
25	925	9	65535	925	17	69MB
26	754	7	754	754	17	44MB
27	754	11	65535	754	17	69MB
28	699	7	256	699	17	41MB
29	823	10	65535	823	17	68MB
30	918	7	918	918	17	53MB
31	1024	11	65535	1024	17	94MB
32	1024	15	65535	1024	17	128MB
33	1024	5	1024	1024	17	43MB
34	612	2	128	612	17	10MB
35	1024	9	65535	1024	17	77MB
36	1024	8	512	1024	17	68MB
37	615	8	128	615	17	41MB
38	987	3	987	987	17	25MB
39	987	7	987	987	17	57MB
40	820	6	820	820	17	41MB
41	977	5	977	977	17	41MB
42	981	5	981	981	17	41MB
43	830	7	512	830	17	48MB
44	830	10	65535	830	17	69MB
45	917	15	65535	918	17	114MB
46	1224	15	65535	1223	17	152MB
47	---	---	---	---	---	---

4.2. Board layout



ML-V4P495L/V2