

PAM-0054I

High Performance
Pentium PCI Mainboard



Edition 2.30
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WARNING

For the system to operate normally, please make sure JP11 of the mainboard is set as below. Refer to Fig. 9 in this manual for the location JP11.



If JP11 is closed, no CMOS data can be retained.

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CHAPTER 1 INTRODUCTION

The motherboard is a 4-layer, 2/3 baby AT size high-performance mainboard. It includes Intel 82430FX system chipset, Winbond W83783/W83768 Super I/O controller.

1.1 GENERAL SPECIFICATION

Processor

- ! Intel Pentium P54C series - P54C, P54CS, P54C-VR, P54C-VRE, P54CT.
- ! Cyrix 6x86 and AMD5_k86 64-bit microprocessor.
- ! The mainboard can run with following speeds:
75, 83, 90, 100, 110, 120, 133, 150 and 166 MHz

Chipset

- ! Intel 82437FX (Intel 82430FX System Controller)
- ! Intel 82438FX (Intel 82430FX Data Path Unit)
- ! Intel 82371FB (PCI ISA IDE Xcelerator)
- ! Winbond W83787 (Super I/O Controller)
- ! Winbond W83768 (I/O TTL Integration)

Cache Size

- ! Programmable Cache coherent algorithms: WT or WB.
- ! Cache size option is 256KB/512KB.
- ! Optional 256KB Pipelined Burst Mode SRAM to achieve the high Pentium system performance.

Main Memory

- ! Memory configurations from 2MB to 128MB are possible using combination of 256K*36 to 8MB*36 SIMM module. (32Bits non-parity 72-pin SIMM Module also available).
- ! Support both Fast Page Mode and Extended Data Output (EDO) Mode DRAM Modules.
- ! Hidden DRAM Refresh for higher system performance.

Multi I/O

- ! On board Multi-I/O supports two serial, one parallel ports and floppy drive controller.
- ! Serial ports are 16550 Fast UART compatible.
- ! Parallel port has EPP and ECP capabilities.

PCI IDE

- ! On board supports PCI Master IDE Controller, two connectors support up to four IDE devices such as HDD, CD ROM drive and Tape Back-up drives, etc.
- ! PCI Master IDE controller supports PIO Mode 3 and 4 devices, I/O data transfer rate can be up to 17Mb/s.

System BIOS

- ! Award/AMI BIOS (128KB Flash EPROM).

Slots

- ! Three PCI slots
- ! Four ISA slots

Board

- ! 4 Layer

Form Factor

- ! 2/3 Baby AT Size (220 x 270mm)

1.2 MAINBOARD COMPONENTS

This section gives a brief description of key components on the mainboard. Please refer to Fig 1 for component locations.

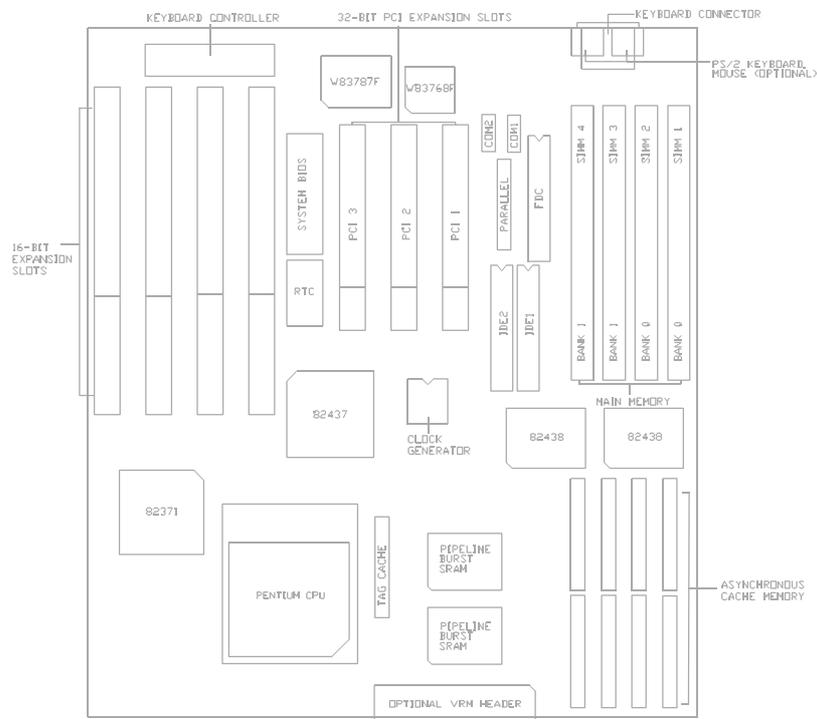


Fig. 1 Key Components of the Mainboard

CHAPTER 2 MEMORY CONFIGURATION

2.1 SYSTEM MEMORY

The Mainboard lets user upgrade system memory via SIMM sockets on the mainboard. On-board memory is located in two banks: Bank 0 and Bank 1.

Two SIMM sockets are provided in each bank. User can install either 1M, 4M, 8M, 16M or 32M SIMM in each bank.

*Note: The type of SIMM1/SIMM2 must be same.
The type of SIMM3/SIMM4 must be same.*

DRAM Type and Total system memory size:

Bank 0 (SIMM1, 2)	Bank 1 (SIMM3, 4)	Total Size
1Mx36 Single	None	8M
1Mx36 Double	None	16M
4Mx36 Single	None	32M
4Mx36 Double	None	64M
None	1Mx36 Single	8M
None	1Mx36 Double	16M
None	4Mx36 Single	32M
None	4Mx36 Double	64M
To be continue		

Table 1A: Memory Configuration

Bank 0 (SIMM1, 2)	Bank 1 (SIMM3, 4)	Total Size
1Mx36 Single	1Mx36 Single	16M
1Mx36 Single	1Mx36 Double	24M
1Mx36 Single	4Mx36 Single	40M
1Mx36 Single	4Mx36 Double	72M
1Mx36 Single	1Mx36 Single	16M
1Mx36 Double	1Mx36 Single	24M
4Mx36 Single	1Mx36 Single	40M
4Mx36 Double	1Mx36 Single	72M
1Mx36 Double	1Mx36 Single	24M
1Mx36 Double	1Mx36 Double	32M
1Mx36 Double	4Mx36 Single	48M
1Mx36 Double	4Mx36 Double	80M
1Mx36 Single	1Mx36 Double	24M
1Mx36 Double	1Mx36 Double	32M
4Mx36 Single	1Mx36 Double	48M
4Mx36 Double	1Mx36 Double	80M
To be continue		

Table 1B: Memory Configuration

Bank 0 (SIMM1, 2)	Bank 1 (SIMM3, 4)	Total Size
4Mx36 Single	1Mx36 Single	40M
4Mx36 Single	1Mx36 Double	48M
4Mx36 Single	4Mx36 Single	64M
4Mx36 Single	4Mx36 Double	96M
1Mx36 Single	4Mx36 Single	40M
1Mx36 Double	4Mx36 Single	48M
4Mx36 Single	4Mx36 Single	64M
4Mx36 Double	4Mx36 Single	96M
4Mx36 Double	1Mx36 Single	72M
4Mx36 Double	1Mx36 Double	80M
4Mx36 Double	4Mx36 Single	96M
4Mx36 Double	4Mx36 Double	128M
1Mx36 Single	4Mx36 Double	72M
1Mx36 Double	4Mx36 Double	80M
4Mx36 Single	4Mx36 Double	96M
4Mx36 Double	4Mx36 Double	128M

Table 1C: Memory Configuration

*****Note: based on above chart, the different types of SIMM can be in different bank, but within same bank, the two SIMM modules must be of same type and size.***

2.2 CACHE MEMORY CONFIGURATION

The mainboard has a built-in cache controller. It requires external SRAM as tag and data memory.

Cache Tag RAM Location: U17

Asynchronous Standard Cache Bank Location: U27 - U32, U34, U35

Pipeline Burst SRAM Location: U22, U23

Cache Type	Cache Size	Tag RAM (U17)	Data RAM Group 1 (U27-U32, U34, U35)	Data RAM Group 2 (U22, U23)
Asyn	256K	8Kx8	32Kx8	None
		16Kx8		
Asyn	512K	16Kx8	64Kx8	None
		32Kx8		
Pipeline Burst	256K	8Kx8	None	32Kx32
		16Kx8		32Kx36

Table 2: Secondary Cache Configuration

**Note: Tag RAM are all 5V device, Asyn. Data RAM are Mix-Voltage device, e.g. Winbond W24M257AK and Pipeline Burst data RAM are 3.3V device e.g. Winbond W259010AF.*

CHAPTER 3 JUMPER SETTINGS AND CONNECTORS

3.1 CPU TYPE

The pentium processors have different operation voltage. In order to using the CPU Voltage correctly, the following is the marking for identify the CPU type.



XXXXXXXXXX
XXXXXXXXXX
A80502-MMM

SXXXX/XYZ

**Fig.2 CPU Description
(Bottom Side)**

Description :

X = Voltage Specification (S or V)
S = Standard Voltage (3.4V)
V = VRE 3.4 - 3.6V (3.5V)

Y = Timing Specification (S or M)
S = Standard EDS timings
M = Min Valid Delay Spec.

Z = Dual Processing Support (S or U)
S = Support DP/MP/UP
U = Not tested to support DP

3.2 SETTING THE JUMPERS

The table below summaries the functions and settings of each jumper of the motherboard.

Function		Jumper Settings
CPU Voltage Selection	3.4V For P54C, P54CS, P54C-VR, P54CT, Cyrix 6x86, AMD5 _k 86(C,F)	JP2: open JP3: short
	3.5V For P54C-VRE, AMD5 _k 86(B)	JP2: short JP3: open
CPU Speed Selection	75MHz Intel Pentium, AMD5 _k 86-P100(AMD-K5-75) and AMD5 _k 86-P75(AMD-SSA/5-75) CPU	JP4: open JP5: open JP16: short JP17: short
	83MHz AMD5 _k 86-P90 (AMD-SSA/5-83) and AMD5 _k 86-P100(AMD-K5-83) CPU	JP4: open JP5: open JP16: open JP17: open
	90MHz Intel Pentium, AMD5 _k 86-P90(AMD-SSA/5-90) and AMD5 _k 86-P120(AMD-K5-90) CPU	JP4: open JP5: open JP16: short JP17: open
	100MHz Intel Pentium, AMD5 _k 86-P100(AMD-SSA/5-100) and AMD5 _k 86-P133(AMD-K5-100) CPU	JP4: open JP5: open JP16: open JP17: short
To be continue...		

Table 3A: Jumper Setting

Function		Jumper Setting	
CPU Speed Selection	100MHz Cyrix 6x86-P120 CPU	JP4: short JP5: open JP16: short JP17: short	
	110MHz Cyrix 6x86-P133 CPU	JP4: short JP5: open JP16: open JP17: open	
	120MHz Intel Pentium, Cyrix 6x86-P150 and AMD5 ₈₆ -P150(AMD-K5-120) CPU	JP4: short JP5: open JP16: short JP17: open	
	133MHz Intel Pentium, Cyrix 6x86-P166, AMD5 ₈₆ -P75(AMD-SSA/5-66) and AMD5 ₈₆ -P166(AMD-K5-133) CPU	JP4: short JP5: open JP16: open JP17: short	
	150MHz Intel Pentium CPU	JP4: short JP5: short JP16: short JP17: open	
	166MHz Intel Pentium CPU	JP4: short JP5: short JP16: open JP17: short	
Cache Size	256KB	Standard	JP14: 2-3 short
		Pipeline Burst	
	512KB	Standard	JP14: 1-2 short
Clear RTC CMOS Data	Normal		JP11: open
	Clear		JP11: short
To be continue...			

Table 3B: Jumper Setting

Function		Jumper Setting
System ROM Selection	5V Flash EPROM	JP10: 2-3 short
	12V Flash EPROM	JP10: 1-2 short
Onboard 2.5V for CPU (optional)	3.4V CPU For P54C, P54CS, P54C-VR, P54CT, Cyrix 6x86, AMD5 _k 86(C,F)	J6: 6-7, 21-22 short JP2: open JP3: short JP13: 1-2, 3-4 open
	3.5V CPU For P54C-VRE, AMD5 _k 86(B)	J6: 6-7, 21-22 short JP2: short JP3: open JP13: 1-2, 3-4 open
	3.3V/2.5V Mixed CPU	J6: 6-7, 21-22 open JP2: open JP3: short JP13: 1-2, 3-4 short

Table 3C: Jumper Setting

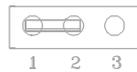
3.3 CONNECTION THE MOTHERBOARD

Once the mainboard have been fastened into the system case, the next step is to connect the internal cables. The internal cables are wire leads with plastic female connectors that attach to the connectors. The mainboard connectors have varying numbers of pins and are the points of contact between the mainboard and other parts of the computer.

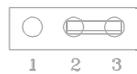
A description of each connector and its connector pins follows. See Fig. 3 for the location of the connectors on the mainboard.

Note: Before making connectors on the board, make sure that power to the system is turned off.

3.3.1 JUMPER PRESENTATION



Pins 1 and 2 are shorted with a jumper cap.



Pins 2 and 3 are shorted with a jumper cap.



The jumper is shorted when the jumper cap is placed over the two pins of the jumper.



The jumper is open when the jumper cap is removed from jumper.

3.3.2 JUMPER CONVENTION OF THE MOTHERBOARD

Different colour of jumper caps (mini-jumpers) are used on the board to represent different usage of the jumpers:

Red : CPU Clock setting
Yellow : Cache Setting
Black: Other

3.3.3 CONNECTOR LOCATIONS

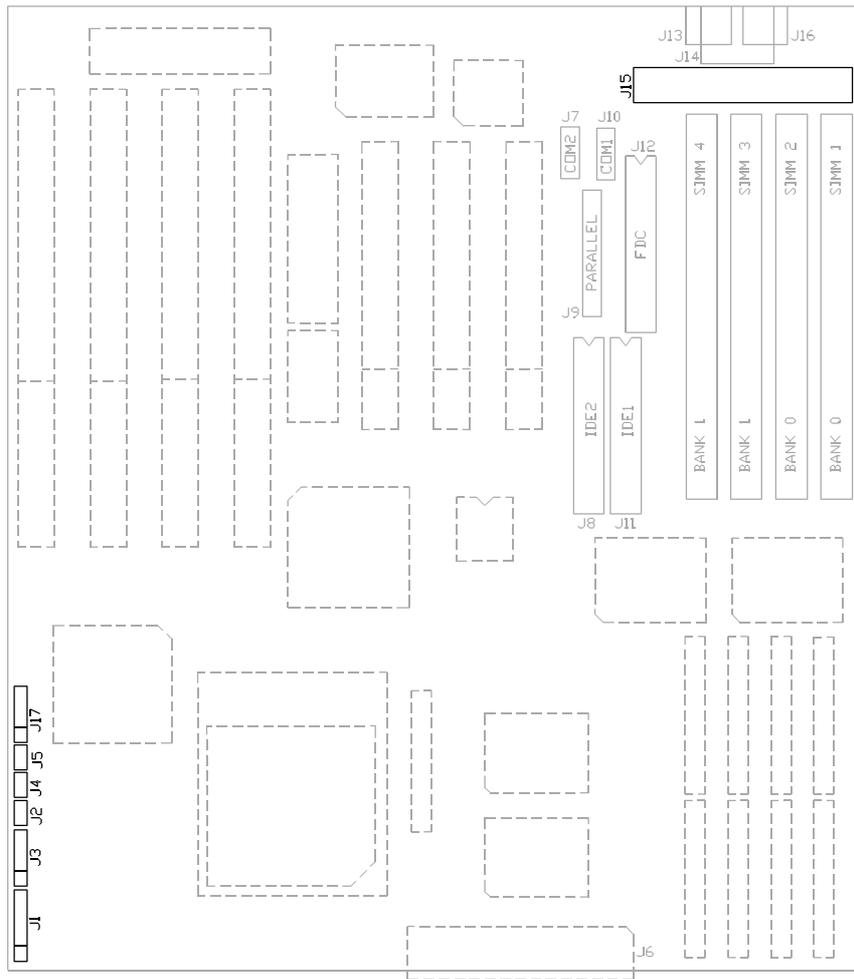


Fig.3 Connector Location

3.4 CONNECTORS

3.4.1 J15 - POWER SUPPLY CONNECTOR

The power supply connector has two six-pin male header connectors. Plug the dual connectors from the power directly onto the board connector.

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

Table 4: J15 - Power Supply Connector

3.4.2 J1 - KEYLOCK CONNECTOR

J1 is a keylock connector that enables and disables the keyboard.



Fig. 4 J1 - Keyboard Connector

3.4.3 J2 - TURBO LED CONNECTOR

J2 is usually connected to a Turbo LED on front of the system case. If the system board select is in Turbo mode, the indicator lights during high-speed operation. This motherboard always operate at high-speed.



Fig. 5 J2 Turbo LED

3.4.4 J3 - SPEAKER CONNECTOR

Following is the system speaker to connector J3.

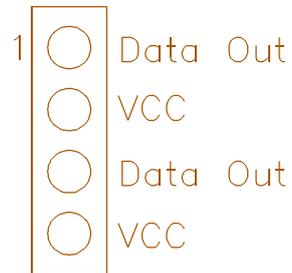


Fig. 6 J3 Speaker Connector

3.4.5 J4 - HDD LED CONNECTOR

J4 is usually connected to a HDD LED on front of the system case. If the HDD is in operation, the indicator lights during operation.



Fig. 7 J4 HDD LED

3.4.6 J5 - RESET SWITCH CONNECTOR

Attach the Reset switch cable to this connector. The Reset switch restarts the system.

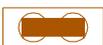
J5	Description
	Reset
	Normal (default)

Table 5: J5 Reset Switch Connector

3.4.7 J14 - KEYBOARD CONNECTOR

A standard five-pin female DIM keyboard connector is located at the rear of the keyboard. Plug the jack on the keyboard cable into this connector.

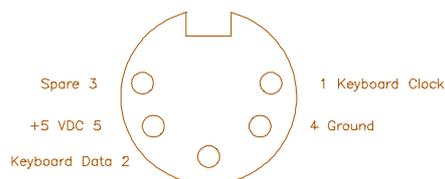


Fig. 8 J14 - Keyboard Connector

3.4.8 J10 - SERIAL PORT 1

Both COM1 and 2 are 16550 fast UART compatible. J10 is located right beside J15 Power Connector. Pin 1 is on the up left hand side.

3.4.9 J7 - SERIAL PORT 2

J7 is right to J10. Pin 1 is on the up left hand side.

3.4.10 J9 - PARALLEL PORT

J9 is right beneath J7 and J10. Pin 1 is on the up left hand side.

3.4.11 J12 - FLOPPY DRIVE CONTROLLER

J12 locates between DRAM SIMM Module connectors and J12 Parallel port. This Floppy drive controller also supports 2.88M FDD format.

3.4.12 J11 - PRIMARY IDE CONNECTOR

The bootable Hard Disk must connect to this Primary IDE Connector, it locates right beneath J9 parallel port connector.

3.4.13 J8 - SECONDARY IDE CONNECTOR

J8 locates left to J11, the primary IDE connector

3.4.14 J16 - PS/2 STYLE KEYBOARD CONNECTOR (OPTIONAL)

A PS/2 Standard six-pin female DIM connector for keyboard is located at left to J14.

3.4.15 J13 - PS/2 STYLE MOUSE CONNECTOR (OPTIONAL)

A PS/2 Standard six-pin female DIM connector for mouse is located at right the J16.

3.4.16 J17 - SMI SWITCH

J17 is for SMI Break Switch Setting. When J17 is trigger from OPEN to CLOSE and back to OPEN, the system would suspend immediately.

3.5 BOARD LAYOUT

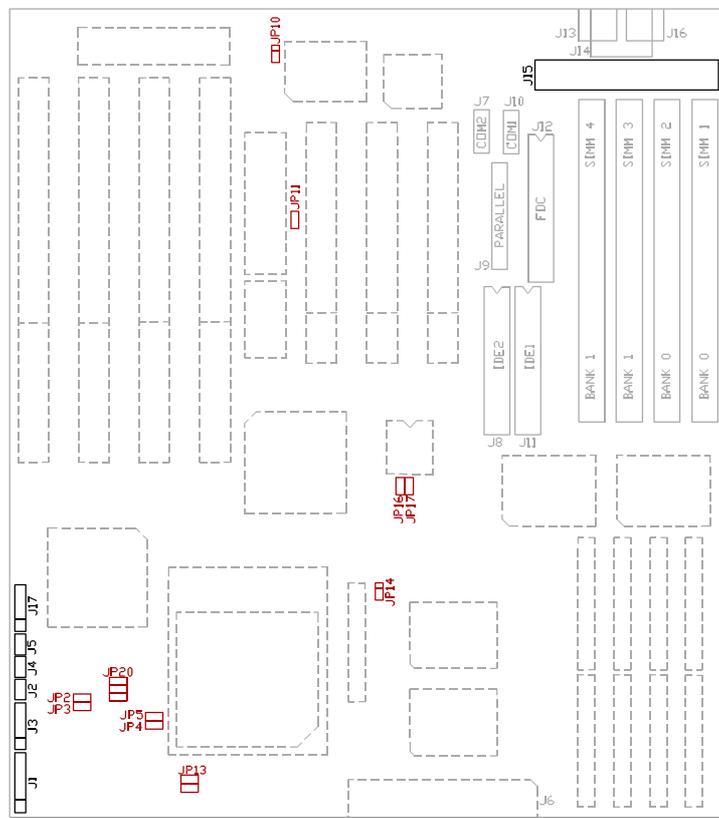


Fig. 9 Board Layout

3.6 GRAPHICAL DESCRIPTIONS OF JUMPER SETTINGS

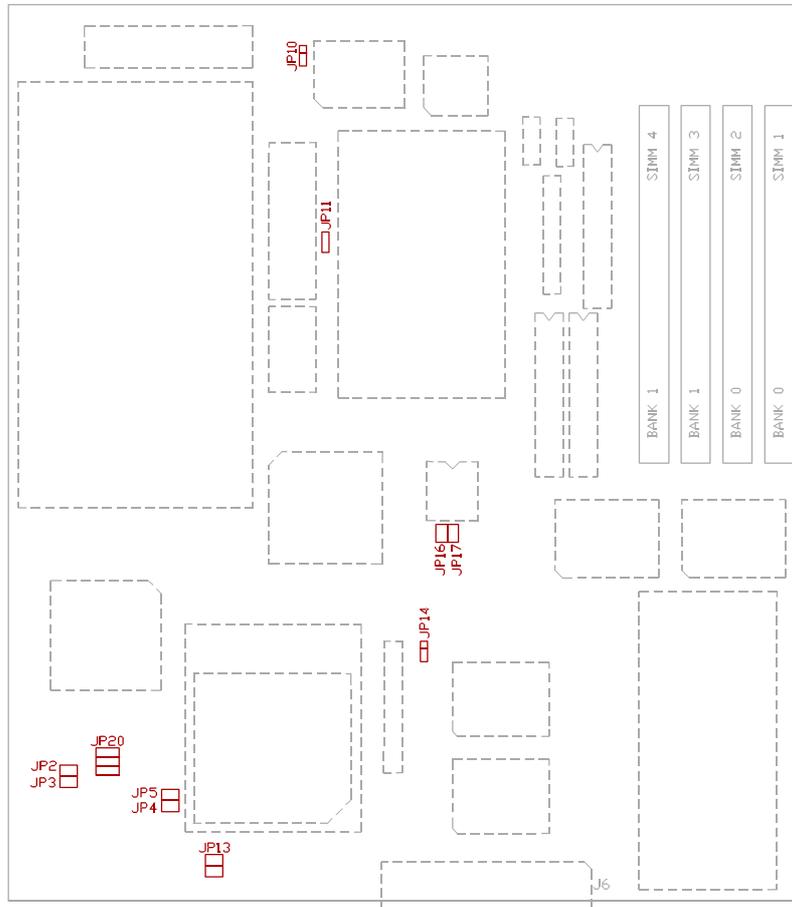


Fig. 10 Jumper Location

3.6.1 CPU TYPE (VOLTAGE) SELECTION - SINGLE VOLTAGE SUPPLY

The Q2 supplies the CPU voltage.

1. 3.4V for P54C, P54CS, P54C-VR, P54CT, Cyrix 6x86, AMD5_k86(C,F)

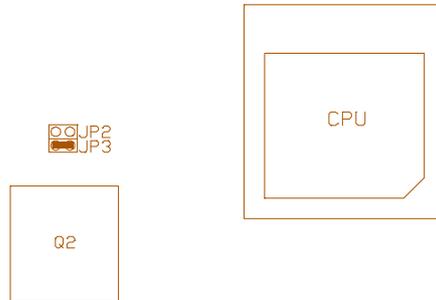


Fig. 11A CPU Type - 3.4V

2. 3.5V for P54C-VRE, AMD5_k86(B)

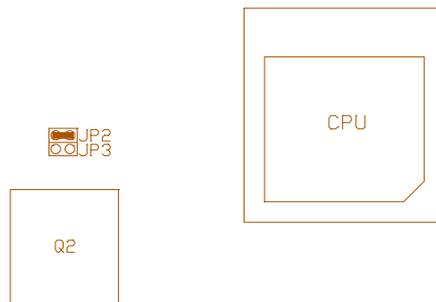


Fig. 11B CPU Type - 3.5V

3.6.2 3.3V/2.5V CPU VOLTAGE SELECTION (OPTIONAL)

Q5 is an optional 2.5V Regulator for Advanced CPU used.

1. Single Voltage CPU used (JP2, 3 setting refer to Section 3.6.1).

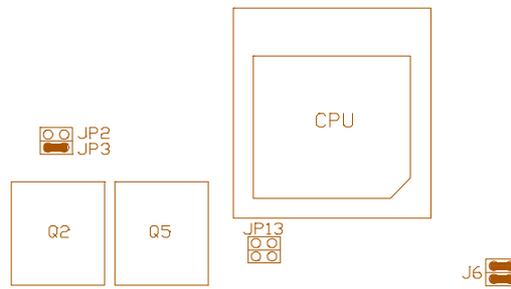


Fig. 13A CPU Type - Single Voltage CPU

2. 3.3V/2.5V mixed CPU used

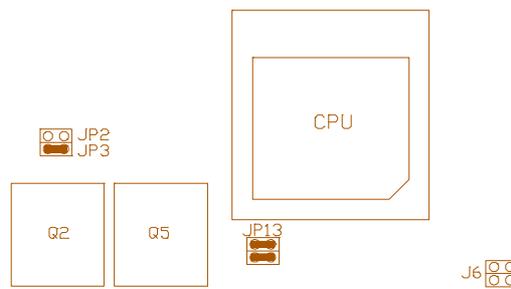


Fig. 13B CPU Type-3.3V/2.5V Mixed CPU

3.6.3 CPU SPEED

1. For 75MHz Intel Pentium, AMD5_k86-P100(AMD-K5-75) and AMD5_k86-P75(AMD-SSA/5-75) CPU

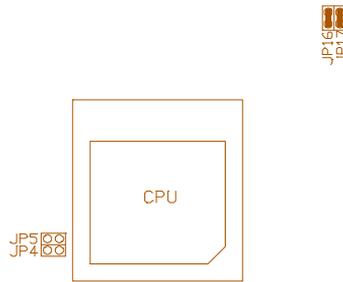


Fig. 14A CPU Speed

2. For 83MHz AMD5_k86-P90(AMD-SSA/5-90) and AMD5_k86-P120(AMD-K5-90) CPU

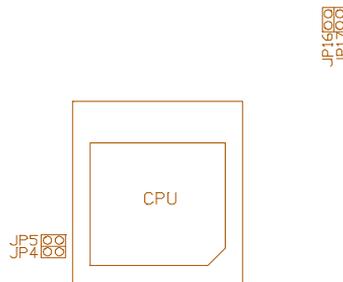


Fig. 14B CPU Speed

3. For 90MHz Intel Pentium, AMD5_k86-P90(AMD-SSA/5-90) and AMD5_k86-P120(AMD-K5-90) CPU

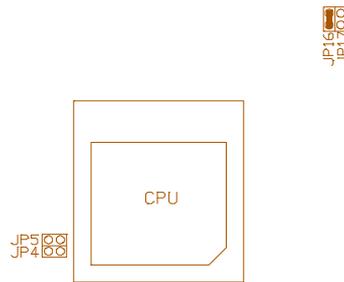


Fig. 14C CPU Speed

4. For 100MHz Intel Pentium, AMD5_k86-P100(AMD-SSA/5-100) and AMD5_k86-P133(AMD-K5-100) CPU

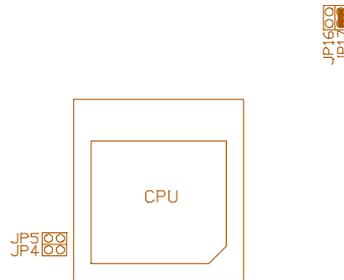


Fig. 14D CPU Speed

5. For 100MHz Cyrix 6x86-P120 CPU

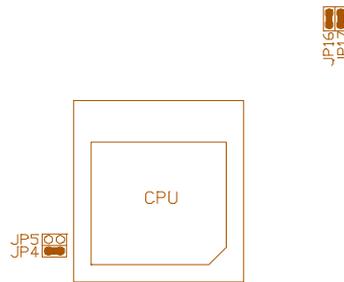


Fig. 14E CPU Speed

6. For 110MHz Cyrix 6x86-P133 CPU

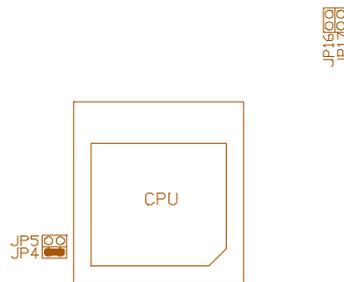


Fig. 14F CPU Speed

7. For 120MHz Intel Pentium, Cyrix 6x86-P150, AMD5_k86-P150(AMD-K5-120) CPU

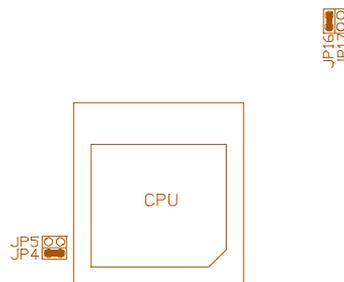


Fig. 14G CPU Speed

8. For 133MHz Intel Pentium, Cyrix 6x86-P166, AMD5_k86-P75(AMD-SSA/5-66) and AMD5_k86-P166(AMD-K5-133) CPU

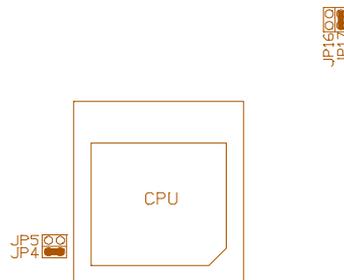


Fig. 14H CPU Speed

9. For 150MHz Intel Pentium CPU

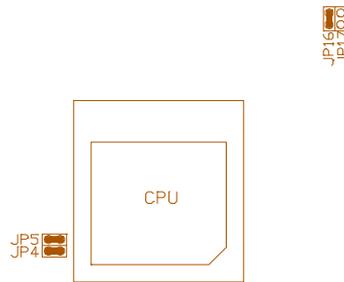


Fig. 14I CPU Speed

10. For 166MHz Intel Pentium CPU

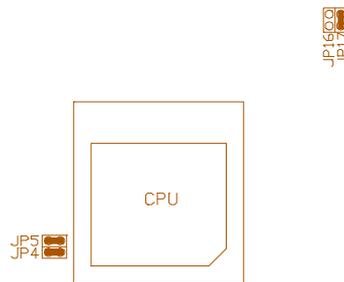


Fig. 14J CPU Speed

3.6.4 CACHE SIZE SETTING

- 256K (32K x 8) Cache Size

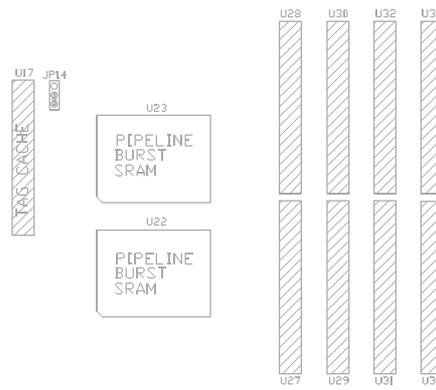


Fig. 15A Standard 256KB Cache

- 512K (64K x 8) Cache Size

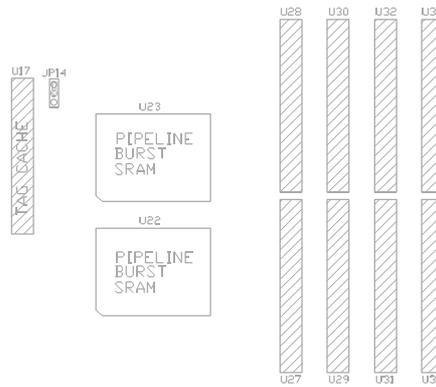


Fig. 15B Standard 512KB Cache

3. 256K (32K x 32) Cache Size - Pipeline Burst Mode

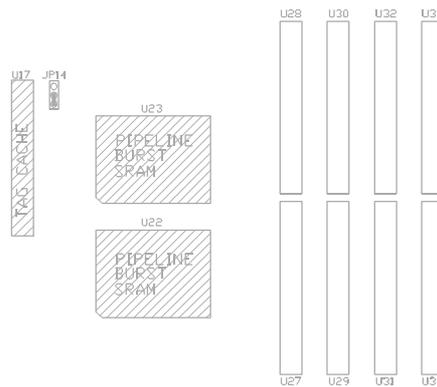


Fig. 15C PB Mode 256KB Cache

3.6.5 DISCHARGE CMOS

JP11 is used to clear the content of the CMOS Data in the RTC chip DS12887A/DS12B887. Refer to Fig. 9 for the location.

JP11	Description
	Clear CMOS
	Normal (default)

Table 6: JP11 Discharge CMOS

Different RTC chip needs a special sequence of Clear CMOS.

For DS12887A: Power Off 6 Clear CMOS 6 Power On
 For DS12B887: Power On 6 Clear CMOS 6 H/W Reset

CHAPTER 4 AWARD BIOS SETUP GUIDE

This following manual is specially provided for the BIOS supported system. After the configuration of the mainboard, and have assembled the components, user can turn on the completed system. At this point, run the software setup to ensure that the system information is correct.

The software setup of the system board is achieved through Basic Input-Output System (BIOS) programming. Use the BIOS setup program to tell the operating system what type of devices (such as disk drives) are connected to the system board.

The system setup is also called CMOS setup. Normally, users need to run system setup if either the hardware configuration is not identical with information contained in the CMOS RAM, or the CMOS RAM has lost power.

4.1 AWARD BIOS SETUP

The setup program provided with the mainboard is the Award BIOS from Award Software, Inc. Enter the AWARD Setup program's Main Menu as follows:

1. Turn on or reboot the system. After a series of diagnostic check, the following message appear:

"Press DEL to enter SETUP"

2. Press the key to enter the AWARD BIOS setup program and the following screen appears:

ROM PCI/ISA BIOS (2A59CD1_)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
PCI CONFIGURATION SETUP	
LOAD SETUP DEFAULTS	
Esc : Quit	8 9 6 7 : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color
Time, Data, Hard Disk Type...	

Fig. 16

3. Choose an option and press <Enter>. Modify the system parameters to reflect the options installed in the system. (see the following sections for more information).
4. Press <ESC> at anytime to return to the Main Menu.

5. In the Main Menu, choose "SAVE AND EXIT SETUP" to save change and reboot the system. Choosing "EXIT WITHOUT SAVING" to ignore all changes and exists the program.

4.2 STANDARD CMOS SETUP

ROM PCI/ISA BIOS (2A59CD1_)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Thu, Jan 31 1991	
Time (hh:mm:ss) : 15 : 23 : 15	
HARD DISKS	TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE
<hr/>	
Primary Master : Auto	0 0 0 0 0 0 0 AUTO
Primary Slave : None	0 0 0 0 0 0 0 -----
Secondary Master : None	0 0 0 0 0 0 0 -----
Secondary Slave : None	0 0 0 0 0 0 0 -----
Drive A : 1.44M , 3.5in.	Base Memory: 640K Extended Memory: 7168K Other Memory: 384K <hr style="width: 100%;"/> Total Memory: 8192K
Drive B : None	
Video : EGA/VGA	
Halt On : All Errors	
Esc : Quit	8 9 6 7 : Select Item
F1 : Help	PU/PD/+/- : Modify (Shift)F2 : Change Color

Fig. 17

Date(mm/dd/yy) Type the current date.

Time(hh:mm:ss) Type the current time.

Hard Disks	Choose from the standard hard disk types 1 to 45. Type 47 is user definable. Type Auto is for auto detect the hard disk type.
Drive A&B	Choose 360K, 5.25 in. 1.2M, 5.25 in. 720K, 3.5 in. 1.44M, 3.5 in. 2.88MB 3.5 in. or None
Video	Choose EGA/VGA, CGA 40, CGA 80, or MONO,
Halt On	Choose All Errors No Errors, All, But Keyboard, All, But Diskette, or All, But Disk/Key

4.3 BIOS FEATURES SETUP

ROM PCI/ISA BIOS (2A59CD1_)
 BIOS FEATURES SETUP
 AWARD SOFTWARE, INC.

Virus Warning	: Disabled	C8000-CBFFF Shadow: Disabled
CPU Internal Cache	: Enabled	CC000-CFFFF Shadow: Disabled
External Cache	: Enabled	D0000-D3FFF Shadow: Disabled
Quick Power On Self Test	: Disabled	D4000-D7FFF Shadow: Disabled
Boot Sequence	: A,C	D8000-DBFFF Shadow: Disabled
Swap Floppy Drive	: Disabled	DC000-DFFFF Shadow:Disabled
Boot Up Floppy Seek	: Enabled	
Boot Up Numlock Status	: On	
Boot Up System Speed	: High	
Gate A20 Option	: Fast	
Typematic Rate Setting	: Disabled	
Typematic Rate (Chars/Sec)	: 6	
Typematic Delay (Msec)	: 250	
Security Option	: Setup	ESC: Quit 896 7: Select Item
PCI/VGA Palette Snoop	: Disabled	F1: Help PU/PD/+/-: Modify
		F5: Old Values (Shift)F2: Color
		F7: Load Setup Defaults

Fig. 18 BIOS Setup Defaults

A short description of the screen items follows:

Virus Warning: Enable Virus from invading the Boot area in either Hard Disk or Floppy Drive.

CPU Internal Cache: Choose Enabled or Disabled. This option lets user choose whether to use CPU internal cache memory. The default is Enabled.

External Cache: Choose Enabled or Disabled. This option lets user choose whether to use secondary cache memory. The default is Enabled.

Quick Power On Self Test: Choose Enabled or Disabled. This option let the POST sequence runs longer for through tests.

Boot Sequence: With the default setting the BIOS first attempts to boot from drive A: and then, if unsuccessful, from hard disk C:. User can reverse this sequence with "C: A:", but then drive A: cannot boot directly.

Swap Floppy Drive: Choose Enabled or Disabled. This option lets end users to change the Drive A: or B: to others.

Boot Up Floppy Seek: Choose Enabled or Disabled. "Disabled" provides a fast boot and reduces the possibility of damage to the heads.

Boot Up NumLock Status: Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts numeric keypad in arrow key mode at boot-up.

Boot Up System Speed: Choose High or Low. Set the CPU timing at Boot Up, the default is high.

Gate A20 Option: Choose Fast or Slow. The system switch back an forth from real mode to virtue mode, fast means the system will switch through logic, slow through keyboard. The default is Fast.

Typematic Rate Setting: Choose Enabled or Disabled. Enabled will determines the typematic rate defined by following two options.

Typematic Rate: The number selected 6,8,10... indicates how fast the number of characters can response in one second.

Typematic Delay (Msec): The number selected indicates the time period between two identical keys appear.

Security Option: Choose Setup or System. If system is selected, the password should be set.

PCI/VGA Palette Snoop: Select Disabled or Enabled. If Enabled the MPEG Card can synchronised with PCI/VGA.

C8000-CFFFF Shadow: If enabled and BIOS is present in this segment, then the BIOS is shadowed.

D0000-DFFFF Shadow: If enabled and BIOS is present in this segment, then the BIOS is shadowed.

4.4 CHIPSET FEATURES SETUP

The Advanced Chipset Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

Note: Change these Settings only if user is familiar with the Chipset.

ROM PCI/ISA BIOS (2A59CD1_)
 CHIPSET FEATURES SETUP
 AWARD SOFTWARE, INC.

DRAM RAS# Precharge Time : 4	PCI Concurrency : Enabled
DRAM R/W Leadoff Timing : 8\6	PCI Streaming : Enabled
DRAM RAS To Cas Delay : 3	PCI Bursting : Enabled
DRAM Read Burst Timing : x4444	Onboard FDC Control : Enabled
DRAM Write Burst Timing : x4444	Onboard Serial Port 1 : COM1
System BIOS Shadow : Disabled	Onboard Serial Port 2 : COM2
Video BIOS Shadow : Disabled	Onboard Parallel Port : 378H
Memory Hole At 15M-16M : Disabled	Onboard Parallel Mode : EPP/SPP
IDE HDD Block Mode : Enabled	ECP Mode DMA Select : DMA 1
IDE Primary Master PIO : Auto	
IDE Primary Slave PIO : Auto	
IDE Secondary Master PIO : Auto	
IDE Secondary Slave PIO : Auto	
On-Clip Primary PCI IDE : Enabled	ESC: Quit 896 7: Select Item
On-Clip Secondary PCI IDE : Enabled	F1: Help PU/PD/+/-: Modify
PCI Slot IDE 2nd Channel : Enabled	F5: Old Values (Shift)F2: Color
	F7: Load Setup Defaults

Fig. 19

A short description of the screen items follows:

DRAM RAS# Precharge Time/DRAM R/W Leadoff Timing/DRAM RAS to CAS Delay: The default setting of these items is as following, when EDO RAM used it can be set faster:

	Default	EDO RAM Used
DRAM RAS# Precharge Time	4	3
DRAM R/W Leadoff Timing	8/6	7/5
DRAM RAS to CAS Delay	3	2

Table 7

DRAM Read Burst Timing: When there is cache miss the cache controller tries to read data from DRAM, the option x222, x333 and x 444 should depend on CPU clock speed, following is the best choice:

CPU Speed	DRAM Read Burst Timing
75 MHz	x2222
90 MHz	x3333
100 MHz or above	x4444
EDO RAM Used	x2222

Table 8

DRAM Write Burst Timing: When there is cache miss the cache controller try to write data from cache to DRAM, the option x222, x333 and x444 should depend on system board clock speed, following is the best choice:

CPU Speed	DRAM Write Burst Timing
75 MHz	x2222
90 MHz	x3333
100 MHz or above	x4444
EDO RAM Used	x2222

Table 9

System/Video BIOS Shadow: Choose Enabled or Disabled. RAM Shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.

Memory Hole At 15M-16M: Choose Enabled or Disabled. "Enabled" allows some linear VGA Cards to run larger frame port, or it can be reserved or some operating system.

On-Chip primary PCI IDE: Choose Enabled or Disabled. "Enabled" allows onboard IDE to be functioned, otherwise the users should use other sources.

On-Chip secondary PCI IDE: Choose Enabled or Disabled. "Enabled" allows onboard IDE to be functioned, otherwise the users should use other sources.

Onboard FDC Controller: Choose Enabled or Disabled. "Enabled" allows onboard Floppy Drive Controller to be functioned, otherwise the users should use other sources.

Onboard Serial Port 1: Choose None or from COM1, COM3, COM4 with different I/O Address. While choosing proper I/O Address, be sure not to cause Address conflict with other I/O devices.

Onboard Serial Port 2: Choose None or from COM1, COM2, COM3, COM4 with different I/O Address. While choosing proper I/O Address, be sure not to cause Address conflict with other I/O devices.

Onboard parallel Port: Choose None or with four different I/O Address and corresponding IRQx. While choosing proper I/O Address, be sure not to cause Address conflict with other I/O devices.

Onboard Printer Mode: Choose EPP/SPP, ECP, ECP+EPP Mode. Make proper selection with the attached printer port device.

ECP Mode DMA Select: When you choose the ECP mode, you can select DMA 1/ DMA 3 for it.

4.5 POWER MANAGEMENT SETUP MENU

The Power Management Setup option is used to change the values of the chipset registers for system power management functions.

ROM PCI/ISA BIOS (2A59CD1_) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.	
Power Management : Disabled	**Power Down & Resume Events**
PM Control by APM : Yes	IRQ3 (COM 2) : ON
Video Off Method : V/H SYNC+Blank	IRQ4 (COM 1) : ON
Standby Mode : Disabled	IRQ5 (LPT 2) : ON
Suspend Mode : Disabled	IRQ6 (Floppy Disk) : ON
HDD Power Down : Disabled	IRQ7 (LPT 1) : ON
Wake Up Events In Doze & Standby	IRQ8 (RTC Alarm) : OFF
IRQ3 (Wake-up Event) : ON	IRQ9 (IRQ2 Redir) : ON
IRQ4 (Wake-up Event) : ON	IRQ10 (Reserved) : ON
IRQ8 (Wake-up Event) : ON	IRQ11 (Reserved) : ON
IRQ12 (Wake-up Event) : ON	IRQ12 (PS/2 Mouse) : ON
<u>Power Down Activities</u>	IRQ13 (Coprocessor) : ON
COM Ports Accessed : ON	IRQ14 (Hard Disk) : ON
LPT Ports Accessed : ON	IRQ15 (Reserved) : ON
Drive Ports Accessed : ON	ESC: Quit 896 7: Select Item
	F1: Help PU/PD/+/-: Modify
	F5: Old Values (Shift)F2: Color
	F7: Load Setup Defaults

Fig. 20

Note: Change these Settings only if user is familiar with the Chipset and system power management functions.

A short description of the screen items follows:

Power Management: Choose Disable, User Define, Max Saving or Min Saving. Disabled will disable all the power saving functions. User define means the power management time period of each I/O device can be programmed. Max and Min saving of each I/O device are list below.

	Max Saving	Min Saving
Standby Mode	1 Min	1 Hour
Suspend Mode	1 Min	1 Hour
HDD Power Down	1 Min	15 Min

Table 10

PM Control by APM: Choose Yes or No. Yes means the Power Management Function can be controlled by MS APM software.

Video Off Method: Choose V/H SYNC+Blank, DPMS or Blank Screen. This is monitor Power Saving Method. V/H SYNC+Blank means turn off Vertical, Horizontal scanning and blank the screen. Blank Screen will blank the display screen. DPMS (Display Power Management System) can allow the System BIOS control the Display Card to turn off the Display.

Standby and Suspend Mode: Different level of Power Management stage.

HDD Power Down: To select the time period will turn the HDD off. Access the HDD again will take a few seconds for HDD to spin back to normal speed for data.

IRQx (Wake-up Event): When it is enabled, the system will monitor each ON event which also is "ON" on the right side device, once one of those device (IRQx) is triggered the system will go back from Standby Mode to normal state.

Monitor IRQ 3 - 15: When it is enabled, the system will monitor system IRQ's activities, once one of these IRQx in triggered the system will go back from Suspend Mode to normal state.

4.6 PCI CONFIGURATION SETUP

The PCI Configuration Setup option is used to configure the PCI add-on Cards on PCI Slots. Without proper setup the PCI Add-on Cards might not function properly.

ROM PCI/ISA BIOS (2A59CD1_)
PCI CONFIGURATION SETUP
AWARD SOFTWARE, INC.

PnP BIOS Auto-Config : Disabled	
Slot 1 Using INT# : AUTO	
Slot 2 Using INT# : AUTO	
Slot 3 Using INT# : AUTO	
1st Available IRQ : 10	
2nd Available IRQ : 11	
3rd Available IRQ : 9	
4th Available IRQ : 12	
PCI IRQ Active By : Level	
PCI IDE IRQ Map To : PCI-AUTO	
Primary IDE INT# : A	
Secondary IDE INT# : B	
	ESC: Quit 896 7: Select Item F1: Help PU/PD/+/-: Modify F5: Old Values (Shift)F2: Color F7: Load Setup Defaults

Fig. 21

Note: Change these Settings only if user is familiar with the Chipset and all the PCI Add-on Cards functions.

A short description of the screen items follows:

PnP BIOS Auto-Config: Choose Enabled or Disabled. When Disabled, the following items will be displayed. The available IRQ sequence can be set manually.

1st Available IRQ : 10
2nd Available IRQ : 11
3rd Available IRQ : 9
4th Available IRQ : 12

Slot 1/2/3 Using INT#: Choose Auto/A/B/C/D. This is the interrupt sequence for the PCI slot.

PCI IRQ Active By: Choose Level or Edge. The default setting is Level.

PCI IDE IRQ Map To: Choose PCI-AUTO, PCI-SLOT1, PCI-SLOT2, PCI-SLOT3, ISA. The default setting is PCI-AUTO.

4.7 LOAD SETUP DEFAULTS MENU

This Main Menu item uses the default setup values. Use this option as a diagnostic aid if the system behaves erratically. Choose this item and the following message appears:

"Load SETUP Defaults (Y/N)? N"

To use the Power-On defaults, change the prompt to "Y" and press <Enter>.

4.8 PASSWORD SETTING

The Main Menu item lets user to configure the system so that a password is required every time the system boots or an attempt is made to enter the Setup program.

Change the password as follows:

1. Choose "PASSWORD SETTING" in the Main Menu and press <Enter>. The following message appears:

"ENTER PASSWORD:"

2. Enter the Password and press <Enter>. The following message appears:

"CONFIRM PASSWORD:"

Important: Keep a safe record of the new password. If forget or lose the password, the only way to access the system is to disconnect the CMOS batteries and then re-enter the password.

4.9 IDE HDD AUTO DETECTION

When users can not find the Hard Disk information, it is very helpful to use his option.

1. Choose this item and press <Enter>.
2. After couple seconds, the screen will appear the Hard Disk information and following message:

"SELECT PRIMARY MASTER OPTION(N=SKIP): N"

3. Enter Y or N to confirm the acceptance then enter.
4. The process will repeat for Primary Slave, Secondary Master and Secondary Slave Hard Disks.

4.10 SCSI HARD DISK INSTALLATION

In Standard CMOS Setup Utility, select hard disk type to be "Not Installed". In Advanced CMOS Setup Utility, Disable "Adapter ROM Shadow DC00". On the SCSI Controller card, set the jumpers which configure the SCSI card BIOS segment address located at DC00 or DE00. Format the SCSI disk by the Formatter provided in the SCSI BIOS.

4.11 SAVE & EXIT SETUP MENU

When you select this function, the following message will appear at the centre of the screen to assist you to Save data to CMOS and Exit the Setup.

Save to CMOS and Exit (Y/N)?

4.12 EXIT WITHOUT SAVING MENU

When you select this function, the following message will appear at the centre of the screen to assist you to Abandon all Data and Exit Setup.

Quit Without Saving (Y/N)?

