PAM-0050V

High Performance

Pentium PCI Mainboard

User's Guide

Edition 1.20

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WARNING

For the system to operate normally, please make sure JP6 of the mainboard is set as below. Refer to Fig. 4 in this manual for the location JP6.

If JP6 is openedor shorted to 2-3, no CMOS data can be retained.

CONTENTS

CHAPTER 1 INTRODUCTION

The motherboard is designed on VIA VT82C580VP Chip Set and follows the latest PCI (Peripheral Component Interconnect) local bus standard. It is developed around the pentium microprocessor (P54C) with 64-bit access to data transfer, and integrated with the I/O chip (W83877F) to form a high performance and cost-effective computer system.

1.1 GENERAL SPECIFICATION

Processor

- Intel Pentium P54C series, P55C series.
- Cyrix 6x86 and AMD-K5 64-bit microprocessor.
- The mainboard can run with following speeds:
  75, 90, 100, 110, 120, 133, 150, 166 and 200MHz

Chipset

- VIA VT82C585VP System Controller
- VIA VT82C586 PCI to ISA bridge
- VIA VT82C587VP data buffer
- Winbond W83877F Super I/O Controller

Cache Size

- Built in 256KB or 512KB Sychronized Pipelined Burst Mode SRAM to achieve the high Pentium system performance.

Main Memory

- Mainboard can decode the DRAM space up to 256MB, possible memory configurations are from combination of 256K*36 to 16M*36 double side SIMM module (32-bit 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.
- External PS/2 Mouse Cable is provided.
- Optional PS/2 keyboard and PS/2 mouse connector is provided.
- Optional IrDA or Fast IR is provided.

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. Multiword DMA Mode 2 transfer rate can be up to 22Mb/s.

System BIOS

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

Slots

- Four PCI slots
- Three ISA slots

Board

- 4 Layer

Form Factor

- 220mm (W) x 270mm (L)

1.2 MAINBOARD COMPONENTS

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

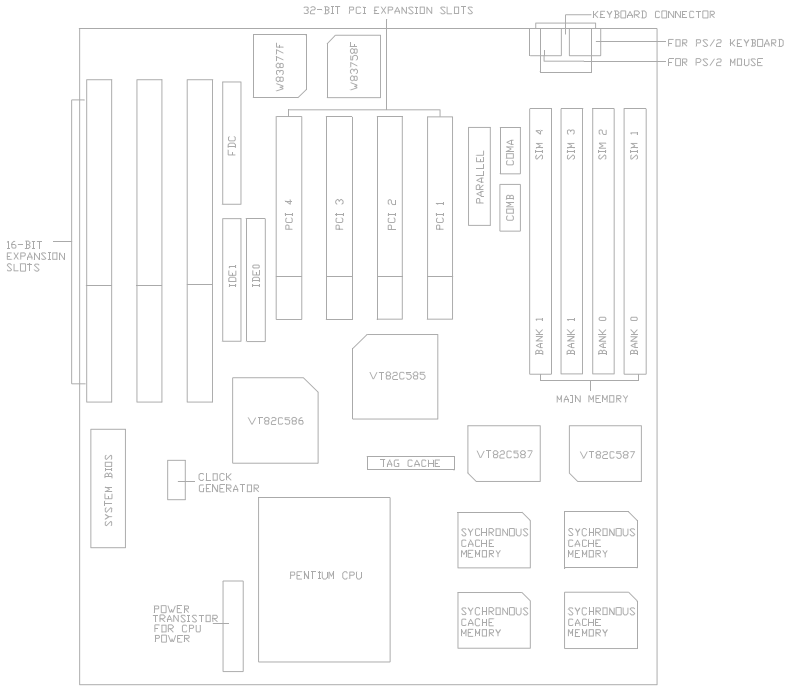


Fig. 1 Key Components of the Mainboard

CHAPTER 2 MEMORY CONFIGURATION

2.1 SYSTEM MEMORY

The Mainboard lets user add system memory via SIMM sockets on the mainboard. On-board memory is located in two banks: Bank 0 - SIM1 & SIM2, and Bank 1 - SIM3 & SIM4.

Both single sided and double sided DRAM modules are supported. The mainboard can decode the DRAM space up to 512MB.

Both 36 bits and 32 bits (non-parity) SIMM are supported, and user can install either 4/8/16/32/64/128MB SIMM (72-pin) in each SIMM socket. Note that all SIMM modules in a bank must be the same capacity. SIMM speed required for best performance depends on the CPU speed, which requires 70ns SIMM.

Note: The type of SIM1/SIM2 must be same.
The type of SIM3/SIM4 must be same.

Table 1 provides some typical DRAM configurations supported by the mainboard:

Total Size	Bank 0 (SIM1/2)	Bank 1 (SIM3/4)
8MB	1Mx32 Single	None
8MB	None	1Mx32 Single
16MB	1Mx32 Single	1Mx32 Single
16MB	1Mx32 Double	None
16MB	None	1Mx32 Double
24MB	1Mx32 Single	1Mx32 Double
24MB	1Mx32 Double	1Mx32 Single
32MB	1Mx32 Double	1Mx32 Double
32MB	4Mx32 Single	None
32MB	None	4Mx32 Single
40MB	1Mx32 Single	4Mx32 Single
40MB	4Mx32 Single	1Mx32 Single
48MB	4Mx32 Single	1Mx32 Double
48MB	1Mx32 Double	4Mx32 Single
64MB	4Mx32 Single	4Mx32 Single
64MB	4Mx32 Double	None
64MB	None	4Mx32 Double
To be continued…		

Table 1A: Memory Configuration

Total Size	Bank 0 (SIM1/2)	Bank 1 (SIM3/4)
72MB	1Mx32 Single	4Mx32 Double
72MB	4Mx32 Double	1Mx32 Single
80MB	1Mx32 Double	4Mx32 Double
80MB	4Mx32 Double	1Mx32 Double
96MB	4Mx32 Single	4Mx32 Double
96MB	4Mx32 Double	4Mx32 Single
128MB	4Mx32 Double	4Mx32 Double
128MB	16Mx32 Single	None
128MB	None	16Mx32 Single
136MB	1Mx32 Single	16Mx32 Single
136MB	16Mx32 Single	1Mx32 Single
144MB	16Mx32 Single	1Mx32 Double
144MB	1Mx32 Double	16Mx32 Single
160MB	4Mx32 Single	16Mx32 Single
160MB	16Mx32 Single	4Mx32 Single
192MB	16Mx32 Single	4Mx32 Double
192MB	4Mx32 Double	16Mx32 Single
To be continued…		

Table 1B: Memory Configuration

Total Size	Bank 0 (SIM1/2)	Bank 1 (SIM3/4)
256MB	16Mx32 Double	None
256MB	None	16Mx32 Double

Table 1C: Memory Configuration

2.2 CACHE MEMORY CONFIGURATION

256KB or 512KB Pipeline Burst SRAM are built on the mainboard:

Cache Size	Tag RAM (U23)	Data RAM Bank 0 (U6, U7)	Data RAM Bank 1 (U25, U26)
256KB	8Kx8	32Kx32	None
	16Kx8		
	32Kx8		
512KB	16Kx8	32Kx32	32Kx32
	32Kx8		

Table 2

Cache Tag RAM Location: U23
Size of the Tag RAM: 8Kx8, 16Kx8 or 32Kx8
Synchronous Pipeline Burst SRAM Location: U6, U7, U25, U26

Note:** **Tag RAM are all 5V device, Pipeline Burst data RAM are 3.3V device e.g. Winbond W259010AF.

CHAPTER 3 JUMPER SETTINGS AND CONNECTORS

3.1 CPU TYPE

3.1.1 INTEL PENTIUM CPU

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.

Fig.2a 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

3.1.2 INTEL PENTIUM w/ MMX™ TECH (P55C) CPU

The Intel Pentium w/ MMX™ Tech (P55C) CPU is offered with dual voltage supply - 2.8V for core and 3.3V for I/O interface. The following is the marking for identify the CPU type. (The following diagram is provided as an example only. It does not necessarily indicate a valid product marking.)

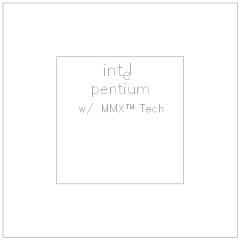


Fig. 2b CPU Description (Top Side)

	I/O Voltage	Core Voltage
Intel Pentium w/ MMX™ Tech (P55C)	3.3V	2.8V

3.1.3 AMD-K5 CPU

The AMD-K5 family CPU is operated on different operation voltage depending on the CPU Type. The operating voltage can be known through the marking on the surface of the CPU. (The following diagram is provided as an example only. It does not necessarily indicate a valid product marking.)

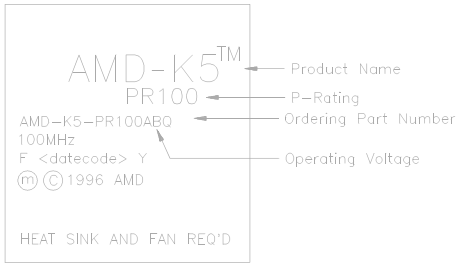


Fig. 2c CPU Description (Top Side)

Description:

Operating Voltage
B = 3.45V - 3.60V
C = 3.30V - 3.465V
F = 3.135V - 3.465V
H = 2.86V - 3.0V (core)
3.30V - 3.46V (I/O)
J = 2.57V - 2.84V (core)
3.30V - 3.46V (I/O)
K = 2.38V - 2.63V (core)
3.30V - 3.46V (I/O)

3.1.4 CYRIX 6x86 CPU

The Cyrix 6x86 has different nominal voltage depends on different lot. Please refer to the CPU marking.

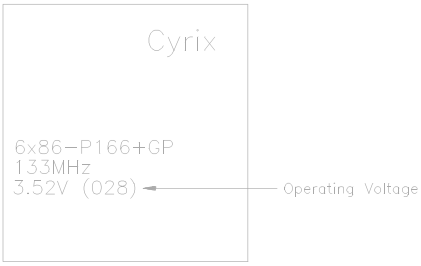


Fig. 2d CPU Description (Top Side)

Marketing	Recommended Nominal Voltage
3.3V or 3.52V	3.52V
028	3.52V
016	3.3V
Blank	3.52V

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	2 Transistors Installed in Q1	3.4V Single Voltage CPU For P54C, P54CS, P54C-VR, P54CT, AMD-K5(C,F)	JP1: short S0: short S1: short S2: short
		3.5V Single Voltage CPU For P54C-VRE, AMD-K5(B), Cyrix 6x86	JP1: open S0: short S1: short S2: short
		3.4V (I/O)/2.8V (core) Dual Voltage CPU For P55C, AMD-K5(H), Cyrix 6x86L	JP1: short S0: open S1: open S2: open
CPU Speed Selection	For 75MHz Intel Pentium, AMD-K5-PR75 CPU		JP7: 1-2 short JP8: 1-2 short S3: short S4: short S5: open
	For 90MHz Intel Pentium, AMD-K5-PR90 and AMD-K5-PR120 CPU		JP7: 1-2 short JP8: 1-2 short S3: short S4: open S5: open
	For 100MHz Intel Pentium, AMD-K5-PR100 and AMD-K5-PR133 CPU		JP7: 1-2 short JP8: 1-2 short S3: open S4: short S5: open
To be continued…			

Table 3A: Jumper Setting

Function		Jumper Setting
CPU Speed Selection	For 100MHz Cyrix 6x86-P120+ CPU	JP7: 1-2 short JP8: 2-3 short S3: short S4: short S5: open
	For 110MHz Cyrix 6x86-P133+ CPU	JP7: 1-2 short JP8: 2-3 short S3: open S4: open S5: open
	For 120MHz Intel Pentium, Cyrix 6x86-P150+ and AMD-K5-PR150 CPU	JP7: 1-2 short JP8: 2-3 short S3: short S4: open S5: open
	For 133MHz Intel Pentium, Cyrix 6x86-P166+ and AMD-K5-PR166 CPU	JP7: 1-2 short JP8: 2-3 short S3: open S4: short S5: open
	For 150MHz Intel Pentium CPU	JP7: 2-3 short JP8: 2-3 short S3: short S4: open S5: open
	For 150MHz Cyrix 6x86-P200+ CPU	JP7: 1-2 short JP8: 2-3 short S3: open S4: open S5: short
To be continued…		

Table 3B: Jumper Setting

Function		Jumper Setting
CPU Speed Selection	For 166MHz Intel Pentium CPU	JP7: 2-3 short JP8: 2-3 short S3: open S4: short S5: open
	For 200MHz Intel Pentium CPU	JP7: 2-3 short JP8: 1-2 short S3: open S4: short S5: open
Clear RTC CMOS Data	Normal	JP6: 1-2 short
	Clear	JP6: 2-3 short
System ROM Selection	5V Flash EPROM	JP2: 1-2 short
	12V Flash EPROM	JP2: 2-3 short

Table 3C: Jumper Setting

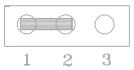
3.3 CONNECTION THE MOTHERBOARD

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.

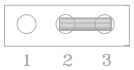
A description of each connector and its connector pins follows. See Fig. 3 for the location of the connectors on the mainboard.

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
Black: Other

3.3.3 CONNECTOR LOCATIONS

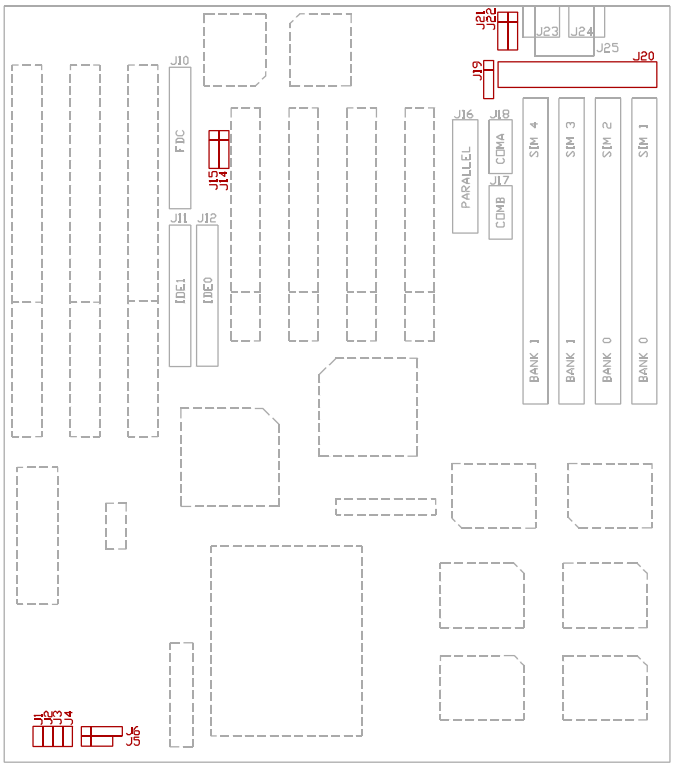


Fig.3 Connector Location

3.4 CONNECTORS

3.4.1 J1 - RESET SWITCH CONNECTOR

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

J1	Description
	Reset
	Normal (default)

3.4.2 J2 - TURBO SWITCH CONNECTOR

J2 connects to the Turbo Switch, which is used to select the mainboard clock speed.

J2	Description
	Turbor Mode
	De-Turbo Mode

3.4.3 J3 - TURBO LED CONNECTOR

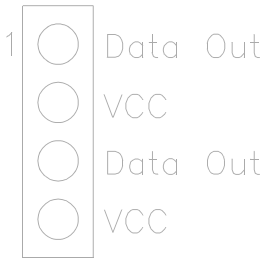
J3 is usually connected to a Turbo LED on front of the system case. If the system board select is in Turbo mode, the indicator lights during high-speed operation.

3.4.4 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.

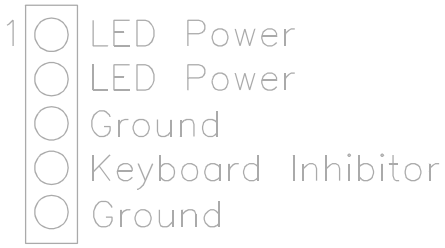
3.4.5 J5 - SPEAKER CONNECTOR

J5 is a four pins connector, which is used to connect with the system speaker.



3.4.6 J6 - KEYLOCK CONNECTOR

J6 is a keylock connector that enables and disables the keyboard.



3.4.7 J10 - FLOPPY DRIVE CONTROLLER

J10 is on the right hand side of ISA Slot 3. Please refer to Fig. 3 for its location. This Floppy drive controller also supports 2.88M FDD format.

3.4.8 J11 - SECONDARY IDE CONNECTOR

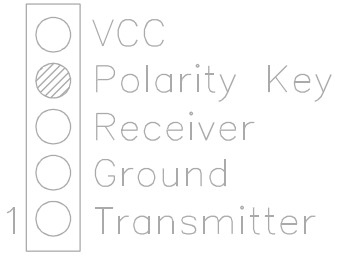
J11 locates on the left hand side of J12, the primary IDE connector. Please refer to Fig. 3 for its location.

3.4.9 J12 - PRIMARY IDE CONNECTOR

The bootable Hard Disk must connect to this Primary IDE Connector. J12 locates on the left hand side of PCI Slot 1, please refer to Fig. 3 for its location.

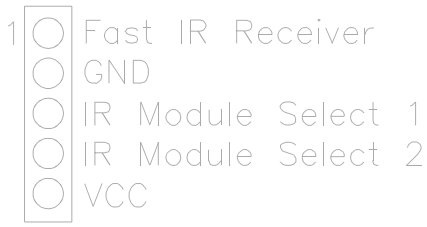
3.4.10 J14 - IrDA CONNECTOR

J14 is a IrDA connector that using UART2 as interface of IrDA Infrared and HP SIR.



3.4.11 J15 - OPTIONAL FAST IR CONNECTOR

J15 is a five pin connector, which is used with J14 as fast IR Interface.



3.4.12 J16 - PARALLEL PORT

J16 is on the left hand side of PCI Slot 1, please refer to Fig. 3 for its location. Pin 1 is on the up left hand side.

3.4.13 J17 - SERIAL PORT 2

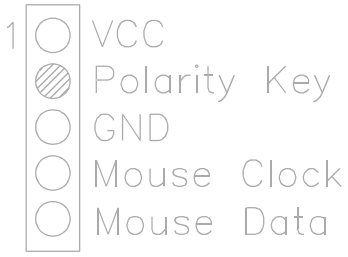
J17 is under J18, please refer to Fig. 3 for its location. Pin 1 is on the up left hand side.

3.4.14 J18 - SERIAL PORT 1

Both COMA and B are 16550 fast UART compatible. J18 is located in between the PCI Slot and the SIMM socket, please refer to Fig. 3 for its location. Pin 1 is on the up left hand side.

3.4.15 J19 - EXTENSION PS/2 MOUSE CONNECTOR

J19 is a five-pin connector with polarity key located left side of the power connector J20. It is connected with the PS/2 mouse connector cable to extend the PS/2 mouse connector to the rear of the system case.



3.4.16 J20 - 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)

3.4.17 J21 - USB2 CONNECTOR (OPTIONAL)

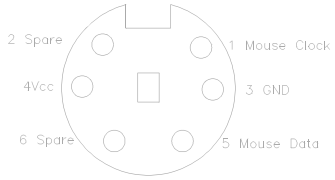
A five-pin connector locates on the left hand side of J25, keyboard connector, which is used to connect with the USB (Universal Serial Bus) cable. It is defined as USB2.

3.4.18 J22 - USB1 CONNECTOR (OPTIONAL)

A five-pin connector locates on the left hand side of J21, which is used to connect with the USB cable. It is defined as USB1, and it's pin assignment is same as J21.

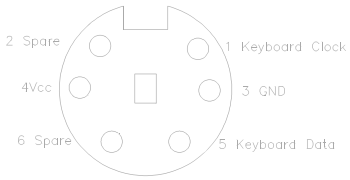
3.4.19 J23 - OPTIONAL PS/2 MOUSE CONNECTOR

An optional six-pin female mini DIN connector is located at the rear of the mainboard. Plug the jack on the PS/2 mouse cable into this connector.



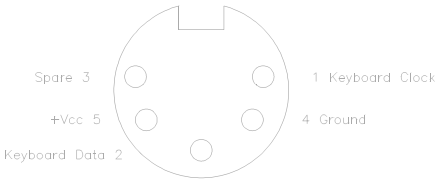
3.4.20 J24 - OPTIONAL PS/2 KEYBOARD CONNECTOR

An optional six-pin female mini DIN connector is located at the rear of the mainboard. Plug the jack on the PS/2 keyboard cable into this connector.



3.4.21 J25 - KEYBOARD CONNECTOR

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



3.5 GRAPHICAL DESCRIPTIONS OF JUMPER SETTINGS

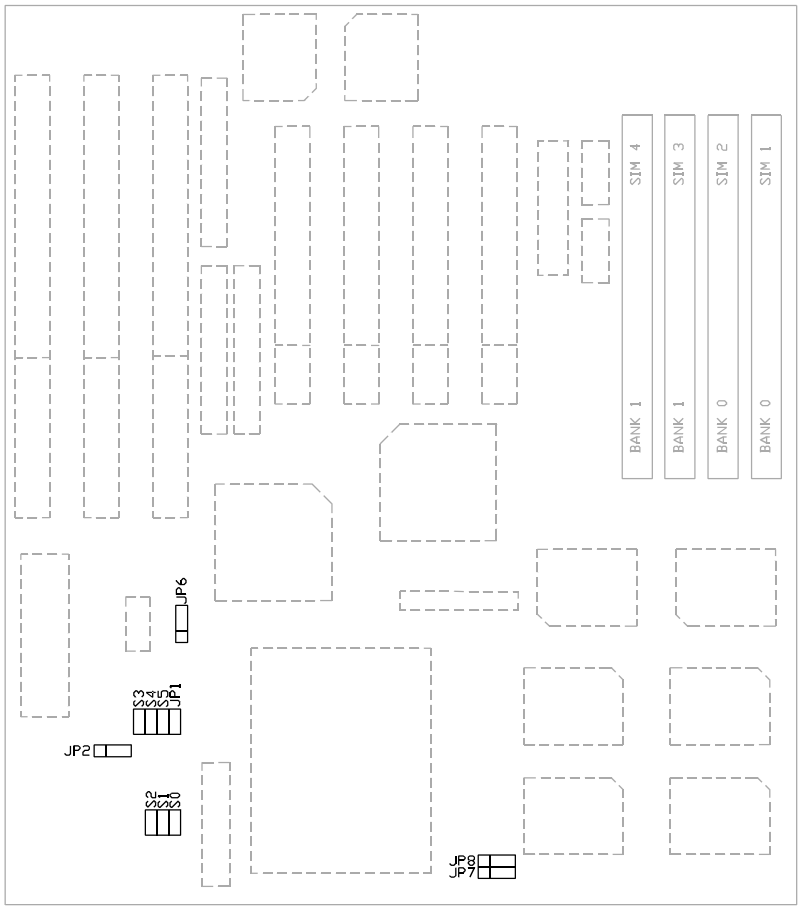
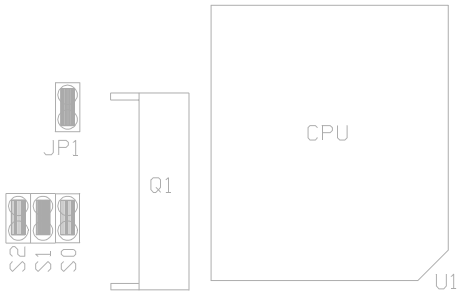


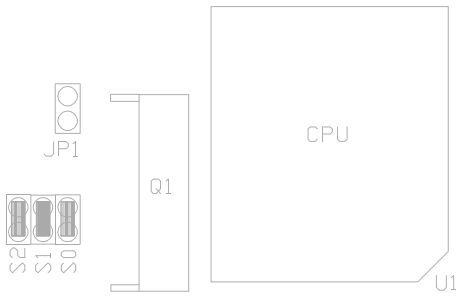
Fig. 4 Jumper Location

3.5.1 CPU VOLTAGE SELECTION FOR 2 TRANSISTORS INSTALLED IN Q1

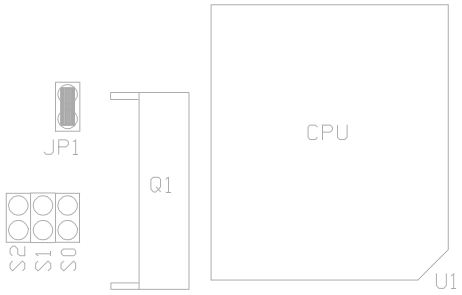
1. For 3.4V Single Voltage CPU: P54C, P54CS, P54C-VR, P54CT, AMD-K5(C,F)



2. For 3.5V Single Voltage CPU: P54C-VRE, AMD-K5(B), Cyrix 6x86

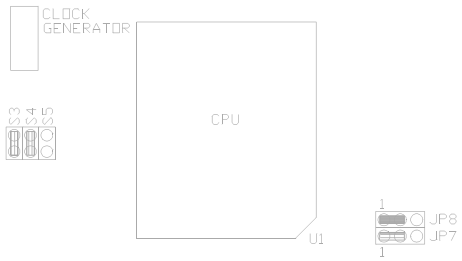


3. For 3.4V (I/O)/2.8V (core) Dual Voltage CPU: P55C, AMD-K5(H), Cyrix 6x86L

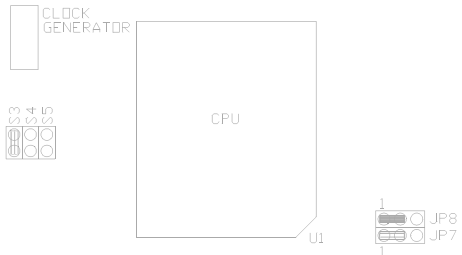


3.5.2 CPU SPEED

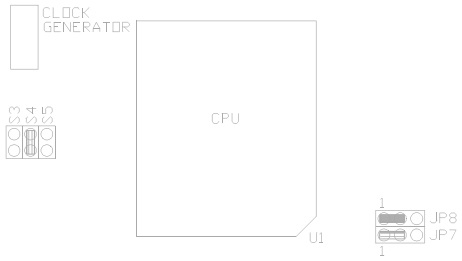
1. For 75MHz Intel Pentium, AMD-K5-PR75 CPU



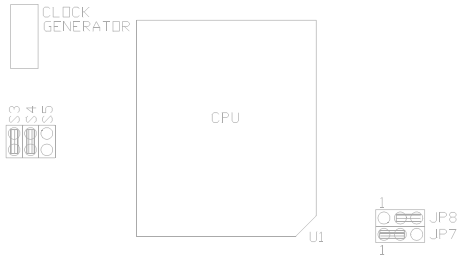
2. For 90MHz Intel Pentium, AMD-K5-PR90 and AMD-K5-PR120 CPU



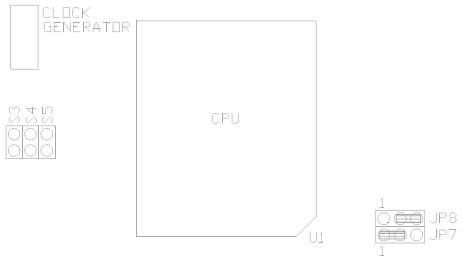
3. For 100MHz Intel Pentium, AMD-K5-PR100 and AMD-K5-PR133 CPU



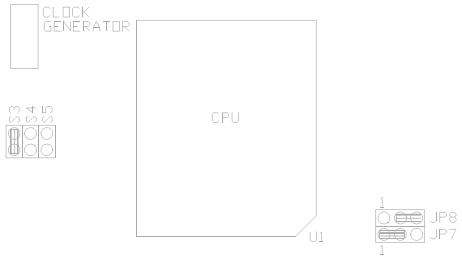
4. For 100MHz Cyrix 6x86-P120+ CPU



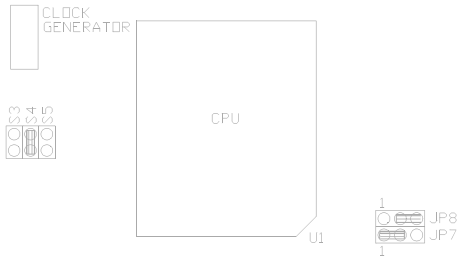
5. For 110MHz Cyrix 6x86-P133+ CPU



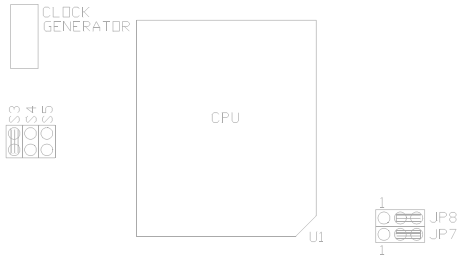
6. For 120MHz Intel Pentium, Cyrix 6x86-P150+ and AMD-K5-PR150 CPU



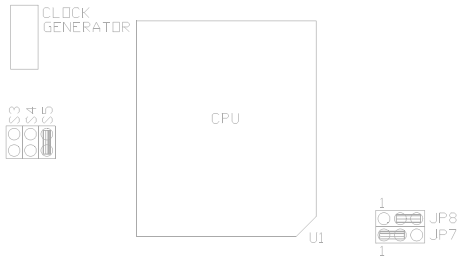
7. For 133MHz Intel Pentium, Cyrix 6x86-P166+ and AMD-K5-PR166 CPU



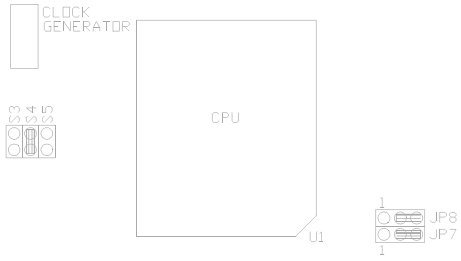
8. For 150MHz Intel Pentium CPU



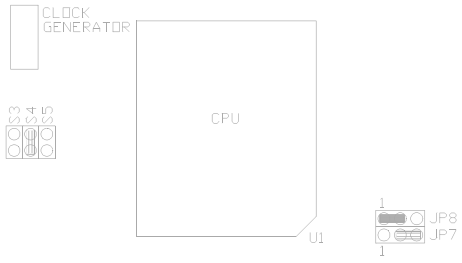
9. For 150MHz Cyrix 6x86-P200+ CPU



10. For 166MHz Intel Pentium CPU



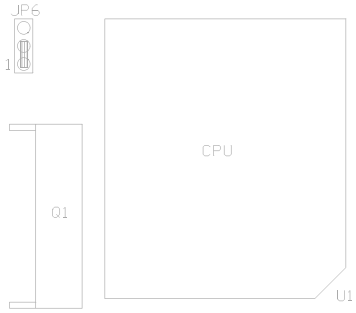
11. For 200MHz Intel Pentium CPU



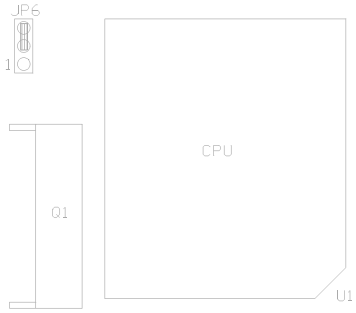
3.5.3 JP6 - DISCHARGE CMOS RAM

JP6 is used to clear the content of the CMOS Data in the Real Time Clock Chip.

1. Normal Mode

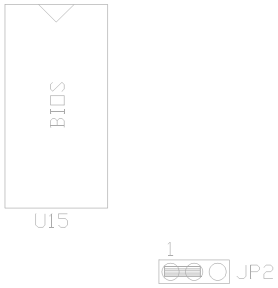


2. Reset Content of RTC

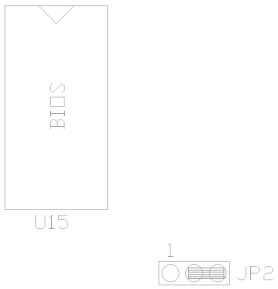


3.5.4 JP2 - VOLTAGE SELECT FOR SYSTEM ROM

1. 5V Flash EPROM as system ROM



2. 12V Flash EPROM as system ROM



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 < DEL > key to enter the AWARD BIOS setup program and the following screen appears:

ROM PCI/ISA BIOS (2A5LAG39)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

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

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 (2A5LAG39)
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
Primary Master	: Auto	0	0	0	0	0	0	AUTO
Primary Slave	: None	0	0	0	0	0	0	--------
Secondary Master	: None	0	0	0	0	0	0	--------
Secondary Slave	: None	0	0	0	0	0	0	--------

Drive A : 1.44M , 3.5in.
Drive B : None

Video : EGA/VGA
Halt On : All Errors

Base Memory:	640K
Extended Memory:	7168K
Other Memory:	384K
Total Memory:	8192K

Esc : Quit
F1 : Help
8 9 6 7 : Select Item
(Shift)F2 : Change Color
PU/PD/ + /- : Modify

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

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

Hard Disks Choose from the standard hare 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 (2A5LAG39)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Disabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up Numlock Status	: On		
Boot Up System Speed	: High		
IDE HDD Block Mode	: Enabled		
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
IDE Second Channel Control	: Enabled	F1: Help	PU/PD/+/-: Modify
PCI/VGA Palette Snoop	: Disabled	F5: Old Values	(Shift)F2: Color
Assign IRQ for VGA	: Disabled	F7: Load Setup Defaults	
OS Select For DRAM > 64MB	: Non-OS2		

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.

IDE Second Channel Control: "Disable" this item let the user insert an IDE controller board on the PCI Slot as the secondary IDE controller.

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

Assign IRQ for VGA: Select Disabled or Enabled. Disable this option will make the system BIOS not assign IRQ for the VGA card, so one more IRQ can be spare for another device.

OS Select For DRAM > 64MB: Select Disabled or Enabled. If the system memory is larger than 64MB and running OS/2, please enable this item. However, if it use other operating system, please disable this feature. Furthermore, if the system memory is less than 64MB, the BIOS will ignore this function.

Video BIOS Shadow: ROM Shadow copies Video BIOS code from slower ROM to faster RAM. Video BIOS can then execute from RAM.

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 (2A5LAG39)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: 70ns	
Video BIOS Cacheable	: Enabled	
System BIOS Cacheable	: Enabled	
Memory Hole at 15MB Addr.	: Disabled	
Sustained 3T Write	: Disabled	
PBSRAM	: 3-1-1-1	
Read Pipeline	: Enabled	
Write Pipeline	: Enabled	
DRAM Timing Control	: Normal	
Reduce DRAM leadoff cycle	: Enabled	ESC: Quit 896 7: Select Item F1: Help PU/PD/ + /-: Modify F5: Old Values (Shift)F2: Color F7: Load Setup Defaults

A short description of the screen items follows:

Auto Configuration: Per-defined values for DRAM, cache, timing according to CPU type & system clock. Choose Enabled, 60ns or 70ns.

Video BIOS Cacheable: When enabled, allows the system to use the video BIOS codes C0000H-C7FFFH from cache, instead of the slower DRAMs or ROMs, Video BIOS must be shadowed first.

System BIOS Cacheable: When enabled, allows the ROM area E0000H-FFFFFH to be cacheable when cache controller is activated.

Memory Hole at 15MB Addr.: When enabled, the memory hole at the 15MB address will be relocated to the 15-16MB address range of the ISA cycle when the processor accesses the 15-16MB address area.

Sustained 3T Write: the cache architecture adopts Write Through. When Write Through is enabled, the performance is better under most application environment because the VP1 FIFO queue is deep.

PBSRAM: For two bank cache, this option supports 3-1-1-1-2-1-1-1 or 3-1-1-1-3-1-1-1 cycle.

Read/Write Pipeline: Turn on Read/Write pipeline operation to increase performance.

DRAM Timing Control: Allows you to speed up the date access of 82C585VP. The available option are "Normal", "Medium", "Fast", "Turbo". For Fast Page-70ns SIMM, "Fast" may be selected. For EDO-60ns SIMM, "Turbo" option is recommended.

Reduce DRAM leadoff cycle: When enabled, leadoff cycle reduce one cycle for Burst EDO.

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 (2A5LAG39)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: Disabled	IRQ5 (LPT 2)	: Primary
PM Control by APM	: Yes	IRQ6 (Floppy Disk)	: Primary
Video Off Option	: Suspend - > Off	IRQ7 (LPT 1)	: Primary
Video Off Method	: V/H SYNC + Blank	IRQ8 (RTC Alarm)	: Disabled
Conserve Mode	: Disabled	IRQ9 (IRQ2 Redir)	: Secondary
MODEM Use IRQ	: 3	IRQ10 (Reserved)	: Secondary
		IRQ11 (Reserved)	: Secondary
** PM Timers **		IRQ12 (PS/2 Mouse)	: Primary
HDD Power Down	: Disabled	IRQ13 (Coprocessor)	: Primary
Suspend Mode	: Disabled	IRQ14 (Hard Disk)	: Primary
		IRQ15 (Reserved)	: Primary
** PM Events **			
VGA	: ON		
LPT & COM	: LPT/COM	ESC: Quit	896 7: Select Item
HDD & FDD	: ON	F1: Help	PU/PD/ + /-: Modify
DMA/master	: ON	F5: Old Values	(Shift)F2: Color
Primary INTR	: ON	F7: Load Setup Defaults	
IRQ3 (COM 2)	: Primary		
IRQ4 (COM 1)	: Primary		

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: Available selection are "Disabled", "User Define", "Max Saving" and "Min Saving":
"Disabled" will disable all the power saving functions.
"User Define" makes the time period waiting for Suspend Mode to be programmed.
"Max Saving" will set the time period waiting for Suspend Mode to be 20 seconds.
"Min Saving" will set the time period waiting for Suspend Mode to be 40 minutes.

PM Control by APM: Available options are "Yes" and "No". To choose "Yes" to let the Power Management Function to be control by the MS APM software.

Video Off Option: This feature provides the selections of the video display power saving mode. The otpion"Suspend- > Off" allows the video dispaly blanks if the system enters Suspend mode. The option "All modes- > Off" allows the video display banks if the system enters Doze mode or Suspend mode. The option "Always On" allows the video display to stay in Standby mode even the system enters Doze or Suspend mode.

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.

Conserve Mode: When the Doze Mode of the system being happened, the Doze Mode is hundled by hardware not by SMI function.

MODEM Use IRQ: When the system is in green function, modem wakes up the system through IRQ.

HDD Power Down: To select the time period will turn the HDD off. Accessing the HDD again will take a few seconds for HDD to spin up for operation.

Suspend Mode: To set the time period waiting for Suspend Mode when the Power Management function is set to "User Define".

VGA: Selecting "ON" will enable the power management timers when a "no activity" events is detected in the VGA. Selecting "OFF" to disable the PM timer even if a "no activity" event is detected.

LPT & COM: Selecting "LPT & COM" will enable the power management timers when a "no activity" event is detected in the LPT and COM ports. Selecting "LPT"("COM") will enable the power management timers when a "no activity" event is detected in the LPT (COM) ports. Selecting "NONE" to disable the PM timer even if a "no activity" event is detected.

HDD & FDD: Selecting "ON" will enable the power management timers when a "no activity" event is detected in the hard disk drive and floppy disk drive. Selecting "OFF" to disable the PM timer event if a "no activity" event is detected.

DMA/master: When the master is working, the system will not have SMI signal until the master is finished.

Primary INTR: When enabled, you can choose any IRQ#.

IRQ#: When set at "Primary" the processor will power down only after the BIOS detects a "no IRQ activity" during the time specified by the Suspend time. If set at "Secondary event", the system will distinguish whether an interrupt accesses and I/O address or not. If it does, the system enters the standby mode. If not, the system enters the dreaming mode; that is the system goes back to full-on status but leaves the monitor blank. For instance, if the system connects to a LAN and receives an interrupt from its file server, the system will enter the dreaming mode to execute the corresponding calling routine.

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 (2A5LAG39)
PnP/PCI CONFIGURATION SETUP
AWARD SOFTWARE, INC.

Resources Controlled By	: Manual	CPU to PCI Write Buffer	: Enabled
Reset Configuration Data	: Disabled	PCI Dynamic Bursting	: Disabled
		PDI Master 0 WS Write	: Enabled
IRQ-3 assigned to	: Legacy ISA	Quick Frame Generation	: Disabled
IRQ-4 assigned to	: Legacy ISA	PCI Arbitration Mode	: Req-Base
IRQ-5 assigned to	: PCI/ISA PnP		
IRQ-7 assigned to	: Legacy ISA	PCI IRQ Actived By	: Level
IRQ-9 assigned to	: PCI/ISA PnP	PCI IDE IRQ Map To	: PCI-AUTO
IRQ-10 assigned to	: PCI/ISA PnP	Primary IDE INT#	: A
IRQ-11 assigned to	: PCI/ISA PnP	Secondary IDE INT#	: B
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: Legacy ISA		
IRQ-15 assigned to	: Legacy ISA		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP	ESC: Quit	896 7: Select Item
DMA-3 assigned to	: PCI/ISA PnP	F1: Help	PU/PD/+/-: Modify
DMA-5 assigned to	: PCI/ISA PnP	F5: Old Values	(Shift)F2: Color
DMA-6 assigned to	: PCI/ISA PnP	F7: Load Setup Defaults	
DMA-7 assigned to	: PCI/ISA PnP		

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:

Resources Controlled By: Available options are "Manual" and "Auto". If "Auto" is selected, the system BIOS will use the ESCD with the legacy information. If "Manual" is selected, the BIOS will not refer the ESCD for IRQ and DMA information. Instead, it will refer the items in the items in this setup menu for assigning IRQ and DMA.

Reset Configuration Data: If enable this option, the BIOS will clear and reset the ESCD after hardware reset.

IRQ#/DMA# assigned to: These items will be shown only when "Resources Controlled By" option is set the "Manual". The available options are "Legacy ISA: and "PCI/ISA PnP". If the option is set to "Legacy ISA", the BIOS will never assign the specified IRQ/DMA resource to PCI or ISA PnP Devices. If "PCI/ISA PnP" is chosen, the BIOS will make the specified IRQ/DMA have a chance to be assigned to the PCI or ISA PnP devices.

CPU to PCI Write Buffer: This item used to enable or disable the CPU to PCI posted write buffers feature. The default setting is enabled.

PCI Dynamic Bursting: To enable this item will enable the PCI dynamic bursting feature. The default setting is disabled.

PCI Master 0 WS Write: To enable this item will make zero wait state PCI master and slave burst transfer rate. The default setting is disabled.

Quick Frame Generation: To enable this item will enable the Quick Frame Generation feature to speed up the PCI cycle. The default setting is disabled.

PCI Arbitration Mode: The available options are "Req-Base" and "Frame-Base". To use "Req-Base" will make the PCI bridge arbitrate at the end of REQ. To use "Frame-Base" will arbitrate at the end of each FRAME. The default setting is "Req-Base".

PCI IRQ Active By: Choose Level or Edge. The default settings 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 INTEGRATED PERIPHERALS SETUP MENU

The Integrated Peripherals setup option is need to change the values of the I/O chipset registers for I/O functions.

ROM PCI/ISA BIOS (2A5LAG39)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

OnChip IDE First Channel	: Enabled	
OnChip IDE Second Channel	: Enabled	
IDE Prefetch Mode	: Enabled	
IDE Primary Master PIO	: Auto	
IDE Primary Slave PIO	: Auto	
IDE Secondary Master PIO	: Auto	
IDE Secondary Slave PIO	: Auto	
Onboard FDD Controller	: Enabled	
Onboard Serial Port 1	: 3F8/IRQ4	ESC: Quit 896 7: Select Item
Onboard Serial Port 2	: 2F8/IRQ3	F1: Help PU/PD/+/-: Modify
UART 2 Mode	: Standard	F5: Old Values (Shift)F2: Color
Onboard Parallel Port	: 378H/IRQ7	F6: Load BIOS Defaults
Onboard Parallel Mode	: SPP	F7: Load Setup Defaults

A short description of the screen items follows:

OnChip IDE First Channel: This item is used to enable or disable the on board primary IDE controller. User can disable it if higher performance or specialized controller is added to the system.

OnChip IDE Second Channel: This item is used to enable or disable the on board secondary IDE controller. User can disable it if higher performance or specialized controller is added to the system.

IDE Prefetch Mode: To enable or disable the prefetch buffer of the on board IDE controller. The default setting is "Enabled".

IDE Primary Master PIO/IDE Primary Slave PIO/IDE Secondary Master PIO/IDE Secondary Slave PIO: Available selection are "Auto", "Mode 0", "Mode 1", "Mode 2", "Mode 3" and "Mode 4". To choose "Auto", the system BIOS will scan the IDE device and decide which mode of the device is. Otherwise the user should key in the mode of the device to the corresponding field.

Onboard FDD 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.

UART 2 Mode: Choose Standard, ASKIR and HPSIR for IrDA serial interface.

IR Function Duplex: This item will be shown only when ASKIR or IrDA is selected for UART2 Mode. It is used to select the IR working in half duplex mode or full duplex mode.

RxD, TxD Active: This item will be shown only when ASKIR or IrDA is selected for UART2 Mode. It is used to select the active level of Receiver and Transmitter in IrDA connector.

RxD, TxD Active	Active level of the Receiver	Active level of the Transmitter
Hi, Hi	High	High
Hi, Lo	High	Low
Lo, Lo	Low	Low
Lo, Hi	Low	High

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

4.8 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 > .

4.9 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.*

4.10 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.

4.11 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.

4.12 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)?

4.13 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)?