

PAM-0065I

High Performance
Pentium PCI Mainboard



Edition 1.01
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WARNING

For the system to operate normally, please make sure JP9 of the mainboard is set as below. Refer to Fig. 4 in this manual for the location JP9.



If JP9 is closed, no CMOS data can be retained.

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CHAPTER 1 INTRODUCTION

The motherboard is a 4-layers, LPX size high-performance mainboard. It includes Intel 82430VX system chipset, Winbond W83877F Super I/O controller.

1.1 GENERAL SPECIFICATION

Processor

- ! Intel Pentium P54C series - P54C, P54CS, P54C-VR, P54C-VRE, P54CT, P55C.
- ! Cyrix 6x86 and AMD-K5 64-bit microprocessor.
- ! The mainboard can run with following speeds:
75, 90, 100, 110, 120, 133, 150, 166, 180 and 200MHz

Chipset

- ! Intel 82437VX System Controller (TVX)
- ! Intel 82371SB PCI ISA IDE Xcelerator
- ! Intel 82438VX Datapath (TDX) EDS
- ! S3 86765 Trio64V+ Integrated Graphics Accelerator
- ! Winbond W83877F Super I/O Controller

Cache Size

- ! Built in 256KB Synchronized Pipelined Burst Mode SRAM to achieve the high Pentium system performance.
- ! COAST Connector is available for expanding the cache size to 512KB through cache modules.

Main Memory

- ! Supports Mixed Memory Technologies: - EDO (Extended Data Output), Standard Page Mode (SPM), Fast Page Mode (FPM), and Synchronous DRAM (SDRAM) SIMM can work together.
- ! Memory configurations from 4MB to 128MB are possible using combination of 512K*32 to 8M*32 SIMM module. (32Bits non-parity 72-pin SIMM Module) and 2M*32 to 8M*32 SDRAM DIMM module.
- ! DIMM socket for SDRAM (3.3V unbuffered).

Graphics Controller

- ! On board high-performance Integrated DRAM-based 64-bit GUI Accelerator.
- ! On board 1MB Video RAM, can be expanded to 2MB.

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.
- ! PS/2 mouse and keyboard supported
- ! IrDA and Fast IR support (optional)
- ! Two Standard USB connectors support (optional)

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. DMA mode transfer rate can be up to 22Mb/s.

System BIOS

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

Slots

! One extension slot for dedicated extension card to provide ISA, and PCI interface.

Board

! 4 Layers

Form Factor

! LPX Size (W 200 x L 320mm)

1.2 MAINBOARD COMPONENTS

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

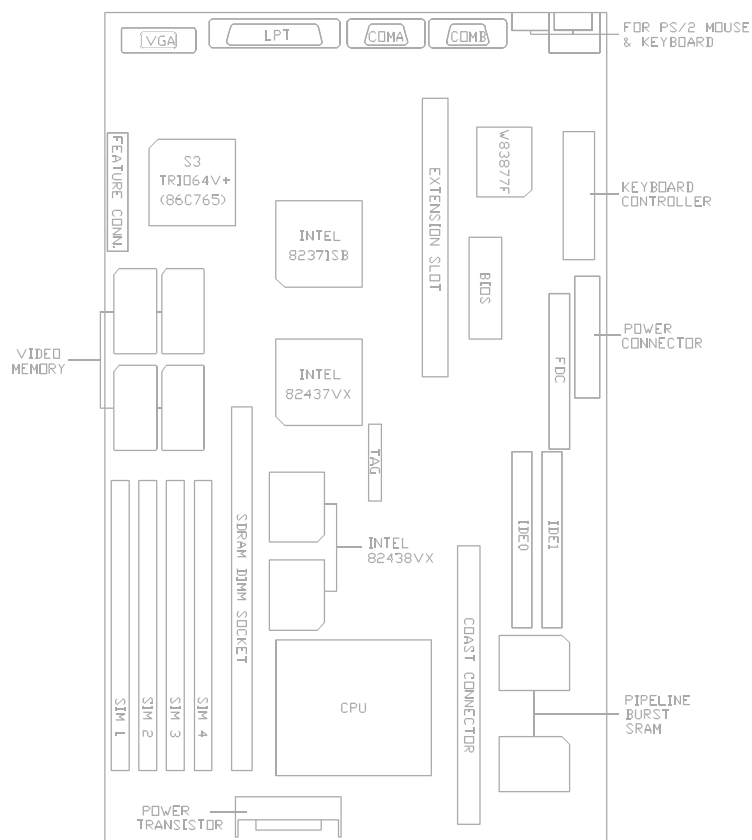


Fig. 1 Key Components of the Mainboard

CHAPTER 2 MEMORY CONFIGURATION

2.1 SYSTEM MEMORY

The Mainboard lets user upgrade system memory via SIMM sockets and DIMM socket on the mainboard. Four SIMM sockets (SIM1, SIM2, SIM3, SIM4) are provided for SPM, FPM and EDO DRAM SIMM and one DIMM socket (M2) is available for the SDRAM DIMM.

On board memory is divided in two banks.

Bank 0: SIM1 & SIM2 - which are assigned as row 0 (when single sided SIMMs are used) or row 0, 1 (when double sided SIMMs are used) by the System BIOS.

OR

M2 - which is assigned as row 0, 1 for SDRAM.

Bank 1: SIM3 & SIM4 - which are assigned as row 3 (when single sided SIMMs are used) or row 3, 4 (when double sided SIMMs are used) by the System BIOS.

2 SIMM sockets are used as a single bank and the only one DIMM socket form a single bank itself. User can use the combination of 4M, 8M, 16M or 32M SIMM; 8MB, 16MB and 32MB SDRAM DIMM as the system memory. However, it is not recommended to install SIMM and DIMM at the same time.

Note: *! The type of SIM1/SIM2 must be same.*
 ! The type of SIM3/SIM4 must be same.
 ! SIM1/SIM2 and M2 cannot co-exist.
 ! Non-parity SIMMs and DIMMs is required.
 ! Only 3.3V, unbuffered SDRAM DIMM can be used.

DRAM Type and Total system memory size:

Total Size	Bank 0 (M2)	Bank 0 (SIM1/2)	Bank 1 (SIM3/4)
8MB	None	1Mx32 Single	None
8MB	1Mx64 Single	None	None
8MB	None	None	1Mx32 Single
16MB	None	1Mx32 Double	None
16MB	2Mx64 Single	None	None
16MB	None	1Mx32 Single	1Mx32 Single
16MB	1Mx64 Single	None	1Mx32 Single
16MB	None	None	1Mx32 Double
24MB	None	1Mx32 Single	1Mx32 Double
24MB	1Mx64 Single	None	1Mx32 Double
24MB	None	1Mx32 Double	1Mx32 Single
24MB	2Mx64 Single	None	1Mx32 Single
32MB	None	4Mx32 Single	None
32MB	2Mx64 Double	None	None
32MB	None	1Mx32 Double	1Mx32 Double
32MB	2Mx64 Single	None	1Mx32 Double
32MB	None	None	4Mx32 Single
To be continue...			

Table 1A: Memory Configuration

Total Size	Bank 0 (M2)	Bank 0 (SIM1/2)	Bank 1 (SIM3/4)
40MB	None	1Mx32 Single	4Mx32 Single
40MB	1Mx64 Single	None	4Mx32 Single
40MB	None	4Mx32 Single	1Mx32 Single
40MB	2Mx64 Double	None	1Mx32 Single
40MB	None	1Mx32 Single	4Mx32 Single
40MB	1Mx64 Single	None	4Mx32 Single
48MB	None	1Mx32 Double	4Mx32 Single
48MB	2Mx64 Single	None	4Mx32 Single
48MB	None	1Mx32 Double	4Mx32 Single
48MB	2Mx64 Single	None	4Mx32 Single
48MB	None	4Mx32 Single	1Mx32 Double
48MB	2Mx64 Double	None	1Mx32 Double
64MB	None	4Mx32 Double	None
64MB	None	None	4Mx32 Double
64MB	None	4Mx32 Single	4Mx32 Single
64MB	2Mx64 Double	None	4Mx32 Single
72MB	None	1Mx32 Single	4Mx32 Double
72MB	1Mx64 Single	None	4Mx32 Double
To be continue...			

Table 1B: Memory Configuration

Total Size	Bank 0 (M2)	Bank 0 (SIM1/2)	Bank 1 (SIM3/4)
72MB	None	4Mx32 Double	1Mx32 Single
72MB	None	4Mx32 Double	1Mx32 Single
72MB	None	1Mx32 Single	4Mx32 Double
72MB	1Mx64 Single	None	4Mx32 Double
80MB	None	1Mx32 Double	4Mx32 Double
80MB	2Mx64 Single	None	4Mx32 Double
80MB	None	4Mx32 Double	1Mx32 Double
96MB	None	4Mx32 Single	4Mx32 Double
96MB	2Mx64 Double	None	4Mx32 Double
96MB	None	4Mx32 Double	4Mx32 Single
128MB	None	4Mx32 Double	4Mx32 Double

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. Moreover, it is not recommended to install the 5V SIMM and 3.3V DIMM at the same time.

2.2 CACHE MEMORY CONFIGURATION

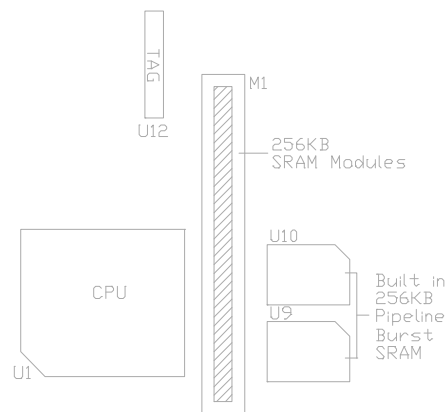
256KB secondary cache system is built in with Pipeline Burst SRAM:

Cache Tag RAM Location: U12

Size of the Tag RAM: 8Kx8, 16Kx8 or 32Kx8

Synchronous Pipeline Burst SRAM Location: U9, U10

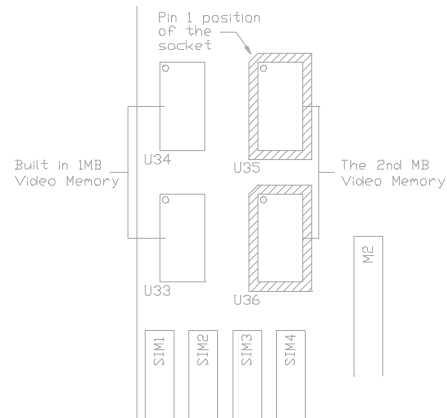
However, user can expand the secondary cache system to 512KB by installing 256KB SRAM modules to the COASt connector M1.



2.3 VIDEO MEMORY UPGRADE

1MB video memory is built in with EDO DRAM on U33, U34. User can upgrade the video memory to 2MB with installing 2 pcs 50ns - 60ns 256KBx16 (SOJ) EDO DRAM on U35, U36.

Make sure the pin 1 of the DRAM matching with the pin 1 of the SOJ socket.



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)

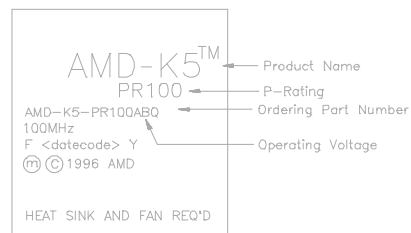


Fig. 2b CPU Description

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)

3.1.3 CYRIX 6x86 CPU TYPE

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

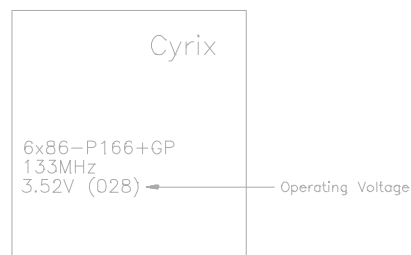


Fig. 2c CPU Description

Marketing	Recommended Nominal Voltage
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 Setting	
CPU Voltage Selection	2 Transistors Installed in Q2 (Optional)	3.4V Single Voltage CPU For P54C, P54CS, P54C-VR, P54CT, AMD-K5(C,F)	JP3: short S4: short S5: short S6: short
		3.5V Single Voltage CPU For P54C-VRE, AMD-K5(B), Cyrix 6x86	JP3: open S4: short S5: short S6: short
		3.4V/2.9V Dual Voltage CPU For P55C, AMD-K5(H)	JP3: short S4: open S5: open S6: open
	Only 1 Transistor Installed in Q2	3.4V Single Voltage CPU For P54C, P54CS, P54C-VR, P54CT, AMD-K5(C,F)	JP3: short
		3.5V Single Voltage CPU For P54C-VRE, AMD-K5(B), Cyrix 6x86	JP3: open
CPU Speed Selection	IMISC610 Clock Generator installed on U8	For 75MHz Intel Pentium, AMD-K5-PR75 CPU	JP4: 1-2 short JP5: 1-2 short S1: short S2: short S3: open
To be continue...			

Table 2A: Jumper Setting

Function		Jumper Setting	
CPU Speed Selection	IMISC610 Clock Generator installed on U8	For 90MHz Intel Pentium, AMD-K5-PR90, AMD-K5-PR120 CPU	JP4: 1-2 short JP5: 1-2 short S1: short S2: open S3: open
		For 100MHz Intel Pentium, AMD-K5-PR100, AMD-K5-PR133 CPU	JP4: 1-2 short JP5: 1-2 short S1: open S2: open S3: open
		For 100MHz Cyrix 6x86-P120+ CPU	JP4: 1-2 short JP5: 2-3 short S1: short S2: short S3: open
		For 110MHz Cyrix 6x86-P133+ CPU	JP4: 1-2 short JP5: 2-3 short S1: open S2: short S3: open
		For 120MHz Intel Pentium, Cyrix 6x86-P150+ and AMD-K5-PR150 CPU	JP4: 1-2 short JP5: 2-3 short S1: short S2: open S3: open
		For 133MHz Intel Pentium, Cyrix 6x86-P166+ and AMD-K5-PR166 CPU	JP4: 1-2 short JP5: 2-3 short S1: open S2: open S3: open
To be continue...			

Table 2B: Jumper Setting

Function		Jumper Setting	
CPU Speed Selection	IMISC610 Clock Generator installed on U8	For 150MHz Intel Pentium CPU	JP4: 2-3 short JP5: 2-3 short S1: short S2: open S3: open
		For 150MHz Cyrix 6x86-P200+ CPU	JP4: 1-2 short JP5: 2-3 short S1: open S2: open S3: short
		For 166MHz Intel Pentium CPU	JP4: 2-3 short JP5: 2-3 short S1: open S2: open S3: open
		For 180MHz Intel Pentium CPU	JP4: 2-3 short JP5: 1-2 short S1: short S2: open S3: open
		For 200MHz Intel Pentium CPU	JP4: 2-3 short JP5: 1-2 short S1: open S2: open S3: open
	PLL52C61-01 Clock Generator installed on U7	For 75MHz Intel Pentium, AMD-K5-PR75 CPU	JP4: 1-2 short JP5: 1-2 short S1: short S2: short S3: short
To be continue...			

Table 2C: Jumper Setting

Function		Jumper Setting	
CPU Speed Selection	PLL52C61-01 Clock Generator installed on U7	For 90MHz Intel Pentium, AMD-K5-PR90, AMD-K5-PR120 CPU	JP4: 1-2 short JP5: 1-2 short S1: short S2: open S3: open
		For 100MHz Intel Pentium, AMD-K5-PR100, AMD-K5-PR133 CPU	JP4: 1-2 short JP5: 1-2 short S1: open S2: open S3: open
		For 100MHz Cyrix 6x86-P120+ CPU	JP4: 1-2 short JP5: 2-3 short S1: short S2: short S3: short
		For 110MHz Cyrix 6x86-P133+ CPU	JP4: 1-2 short JP5: 2-3 short S1: short S2: short S3: open
		For 120MHz Intel Pentium, Cyrix 6x86-P150+ and AMD-K5-PR150 CPU	JP4: 1-2 short JP5: 2-3 short S1: short S2: open S3: open
		For 133MHz Intel Pentium, Cyrix 6x86-P166+ and AMD-K5-PR166 CPU	JP4: 1-2 short JP5: 2-3 short S1: open S2: open S3: open
To be continue...			

Table 2D: Jumper Setting

Function		Jumper Setting	
CPU Speed Selection	PLL52C61-01 Clock Generator installed on U7	For 150MHz Intel Pentium CPU	JP4: 2-3 short JP5: 2-3 short S1: short S2: open S3: open
		For 150MHz Cyrix 6x86-P200+ CPU	JP4: 1-2 short JP5: 2-3 short S1: open S2: short S3: open
		For 166MHz Intel Pentium CPU	JP4: 2-3 short JP5: 2-3 short S1: open S2: open S3: open
		For 180MHz Intel Pentium CPU	JP4: 2-3 short JP5: 1-2 short S1: short S2: open S3: open
		For 200MHz Intel Pentium CPU	JP4: 2-3 short JP5: 1-2 short S1: open S2: open S3: open
On board VGA Selection (optional)	On board VGA Enabled	JP14: short	
	On board VGA Disabled	JP14: open	
S3 Module Selection	Normal	JP8: open	
	S3 Module is installed	JP8: close	
To be continue...			

Table 2E: Jumper Setting

Function		Jumper Setting
Clear RTC CMOS Data	Normal	JP9: open
	Clear	JP9: short
System ROM Selection	5V Flash EPROM	JP13: 2-3 short
	12V Flash EPROM	JP13: 1-2 short

Table 2F: 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 CONNECTORS LOCATION

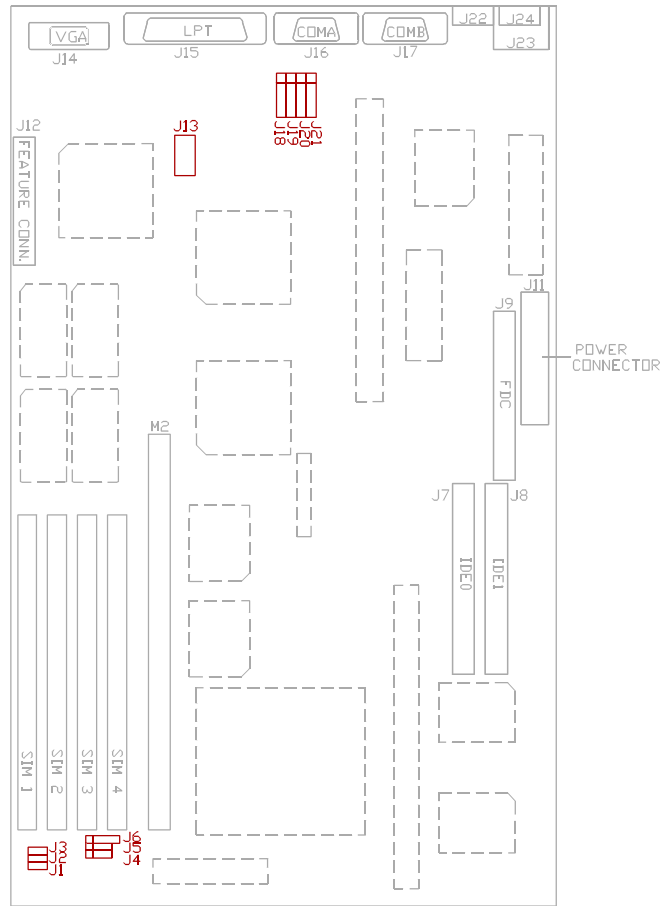




Fig.3 Connectors Location

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 - SMI SWITCH

J2 is for SMI Break Switch Setting. When J2 is trigger from OPEN to CLOSE and back to OPEN, the system would suspend immediately.

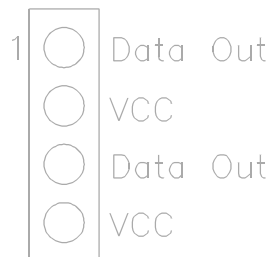
3.4.3 J3 - SUSPEND LED CONNECTOR

J3 is usually connected to a LED on front of the system case. If the system board select is in Suspend mode, the indicator will be off.



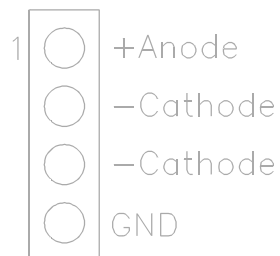
3.4.4 J4 - SPEAKER CONNECTOR

J4 is a four pins connector, which is used to connect with a speaker.



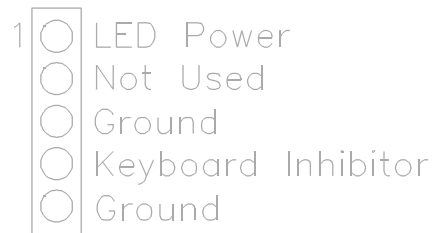
3.4.5 J5 - HDD LED CONNECTOR

J5 is usually connected to a HDD LED on front of the system case. If the HDD is in operation, the indicator lights during operation.



3.4.6 J6 - KEYLOCK CONNECTOR

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



3.4.7 J7 - PRIMARY IDE CONNECTOR

The bootable Hard Disk must connect to this Primary IDE Connector. Please refer to Fig. 3 for its location.

3.4.8 J8 - SECONDARY IDE CONNECTOR

J8 locates right to J7, the primary IDE connector. Please refer to Fig. 3 for its location.

3.4.9 J9 - FLOPPY DRIVE CONTROLLER

J9 locates right to the Power Connector, J11. Please refer to Fig. 3 for its location. This Floppy drive controller also supports 2.88M FDD format.

3.4.10 J11 - 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)

3.4.11 J12 - VGA FEATURE CONNECOTR

J12 is a 2x17 pin header for VGA feature connector. Refer to Fig. 3 for its location.

3.4.12 J13 - S3 MPEG MODULE UPGRADE CONNECTOR

J13 is a 2x5 pin header for S3 MPEG Module Upgrade.

3.4.13 J14 - VGA CONNECTOR

J14 is a D-Type 3 rows female connector, locates on the upper-left corner of the mainboard. It is used to connect the VGA monitor.

3.4.14 J15 - PARALLEL PORT

J15, a D-Type 25 pins female connector, locates on the rear of the mainboard.

3.4.15 J16 - SERIAL PORT 1 (COMA)

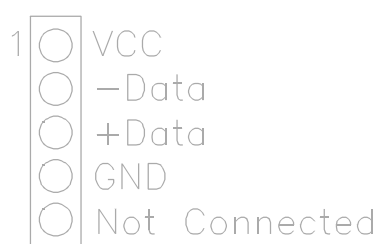
Both COMA and B are 16550 fast UART compatible. J16 is a D-Type 9 pins male connector, locates on the rear of the mainboard, left to J15.

3.4.16 J17 - SERIAL PORT 2 (COMB)

J17, a D-Type 9 pins male connector, locates on the left of J16.

3.4.17 J18 - USB0 CONNECTOR (OPTIONAL)

A five-pin connector, located left side of the SLOT 1, is used to connect with the USB (Universal Serial Bus) cable. It is defined as USB0.

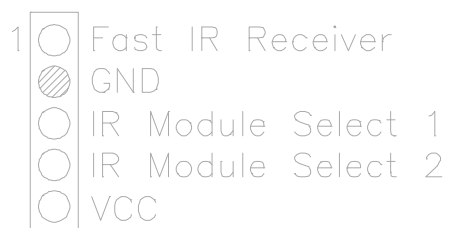


3.4.18 J19 - USB1 CONNECTOR (OPTIONAL)

A five-pin connector, located right side of J18, is used to connect with the USB cable. It is defined as USB1, and its pin assignment is same as J18.

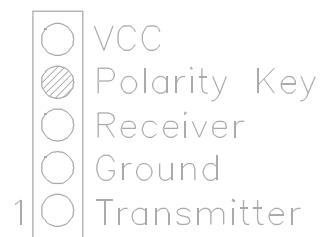
3.4.19 J20 - OPTIONAL FAST IR CONNECTOR

J20 is a five-pin connector, which is used with J21 as fast IR Interface.



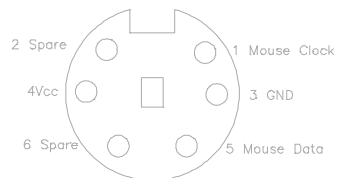
3.4.20 J21 - IrDA CONNECTOR

J21 is a IrDA connector that using UART2 as interface for IrDA Infrared and HP SIR.



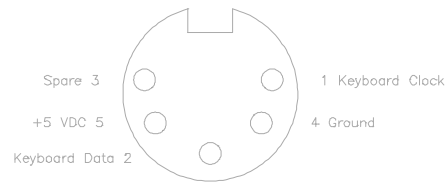
3.4.21 J22 - PS/2 MOUSE CONNECTOR

A six-pin female mini DIN connector locates at the rear of the mainboard. Plug the jack on the PS/2 mouse cable into this connector.



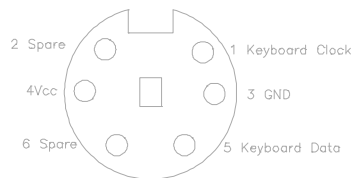
3.4.22 J23 - STANDARD KEYBOARD CONNECTOR (OPTIONAL)

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



3.4.23 J24 - PS/2 KEYBOARD CONNECTOR

A six-pin female mini DIN connector locates at the rear of the mainboard. Plug the jack on the PS/2 keyboard cable into this connector.



3.5 GRAPHICAL DESCRIPTIONS OF JUMPER SETTINGS

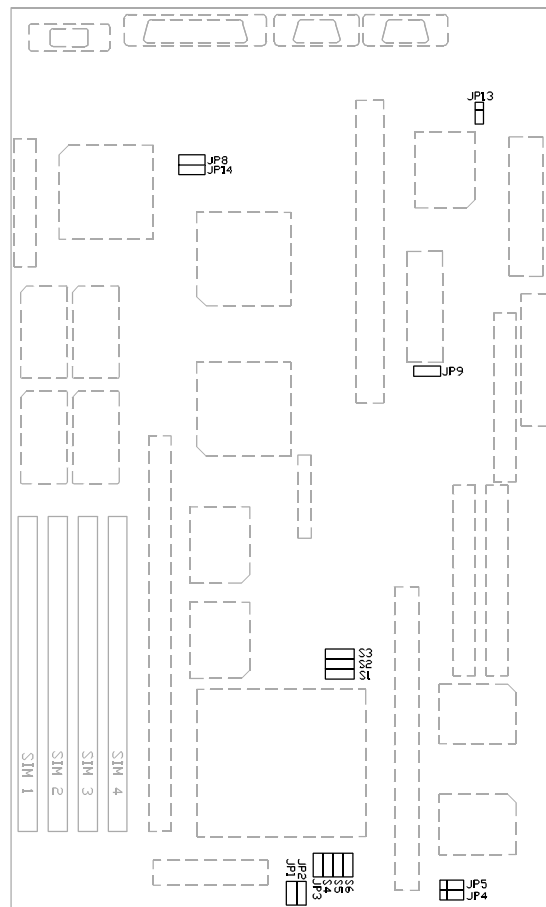
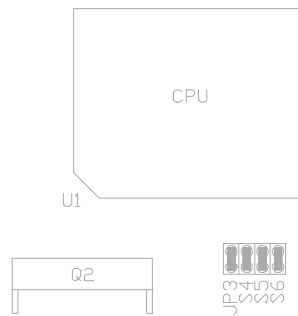


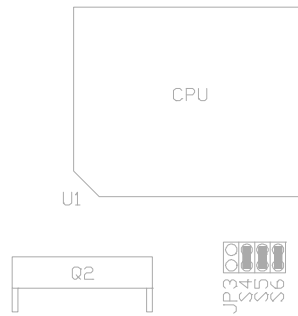
Fig. 4 Jumper Location

3.5.1 CPU VOLTAGE SELECTION FOR 2 TRANSISTORS INSTALLED IN Q2 (OPTIONAL)

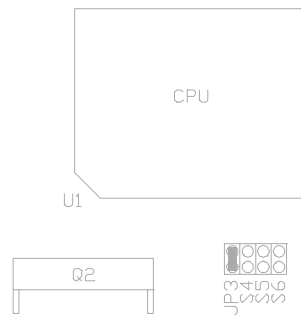
1. For 3.4V Single Voltage CPU: P54C, P54CS, P54C-VR, P54CT, AMD-K5(C,F)



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

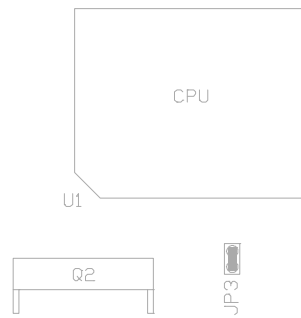


3. For 3.4V (I/O)/2.9V (core) Dual Voltage CPU: P55C, AMD-K5(H)

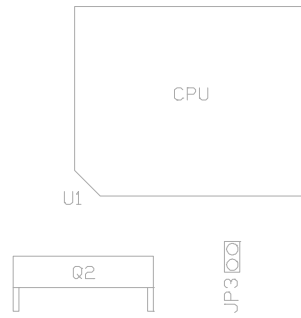


3.5.2 CPU VOLTAGE SELECTION FOR ONLY 1 TRANSISTOR INSTALLED IN Q2

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



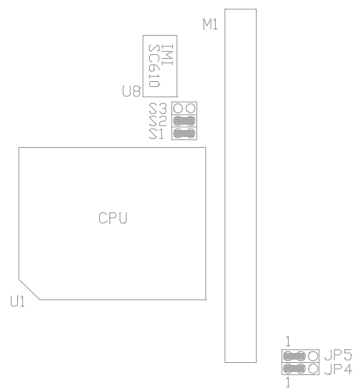
2. For 3.5V Single Voltage CPU: P54C-VRE, AMD-K5(B), Cyrix 6x86



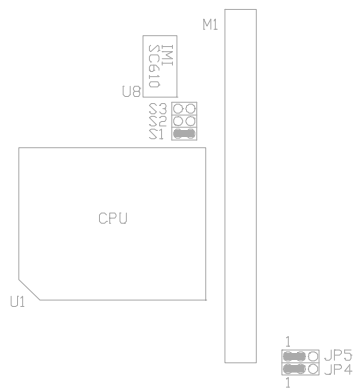
3.5.3 CPU SPEED

I) For IMISC610 Clock Generator installed on U8

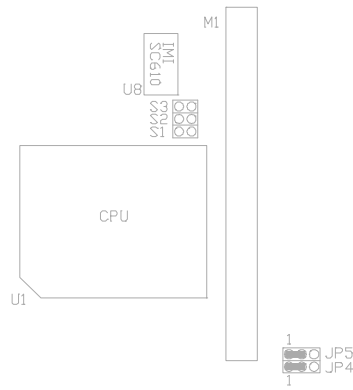
1. For 75MHz Intel Pentium, AMD-K5-PR75 CPU



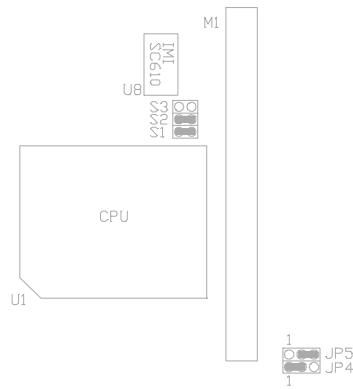
2. For 90MHz Intel Pentium, AMD-K5-PR90 and AMD-K5-PR120 CPU



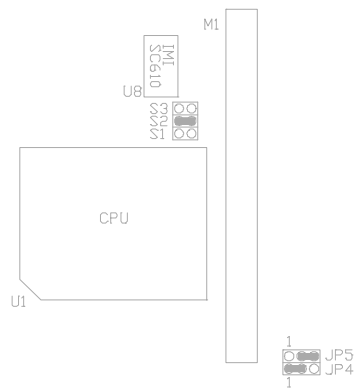
- 3. For 100MHz Intel Pentium, AMD-K5-PR100 and AMD-K5-PR133 CPU



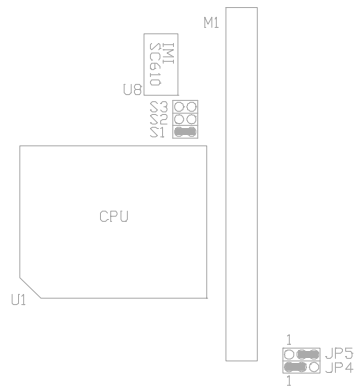
- 4. For 100MHz Cyrix 6x86-P120+ CPU



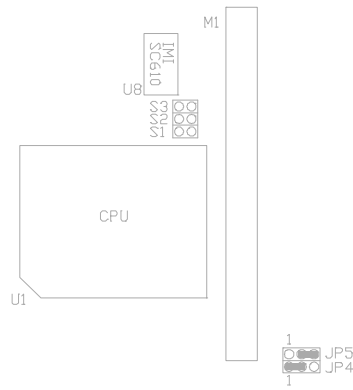
5. For 110MHz Cyrix 6x86-P133+ CPU



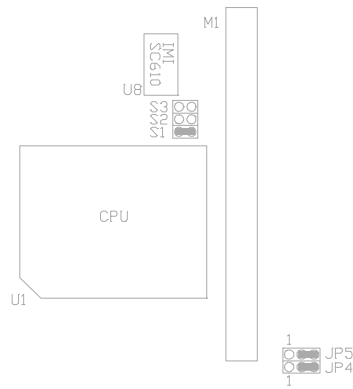
6. For 120MHz Intel Pentium, Cyrix 6x86-P150+ and AMD-K5-PR150 CPU



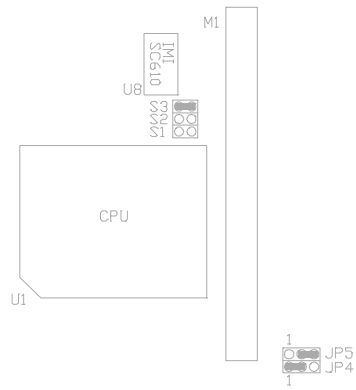
- 7. For 133MHz Intel Pentium, Cyrix 6x86-P166+ and AMD-K5-PR166 CPU



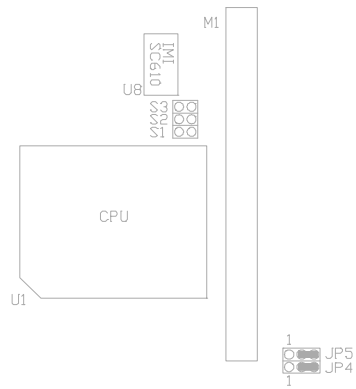
- 8. For 150MHz Intel Pentium CPU



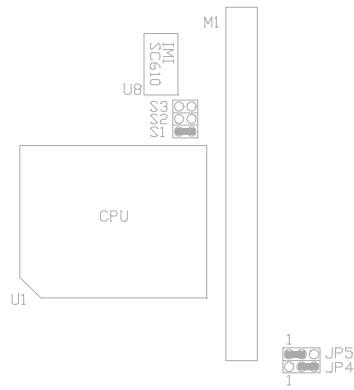
- 9. For 150MHz Cyrix 6x86-P200+ CPU



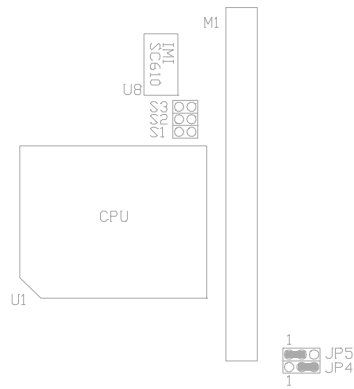
- 10. For 166MHz Intel Pentium CPU



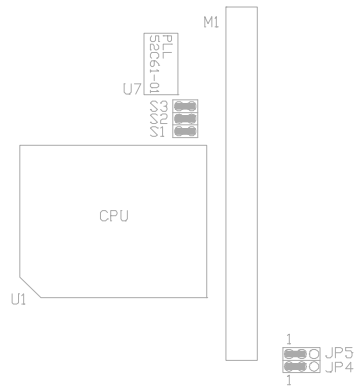
11. For 180MHz Intel Pentium CPU



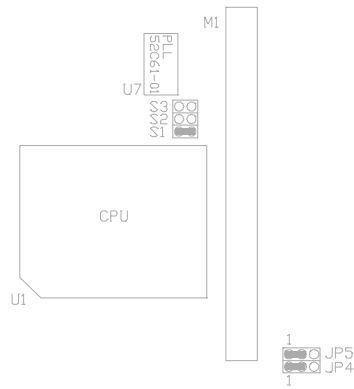
12. For 200MHz Intel Pentium CPU



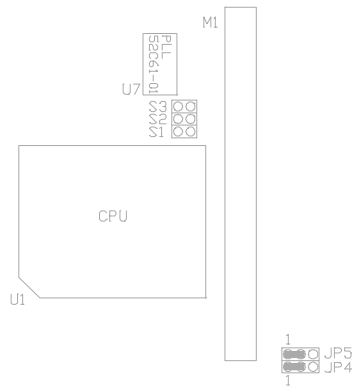
- II) For PLL52C61-01 Clock Generator installed on U7
1. For 75MHz Intel Pentium, AMD-K5-PR75 CPU



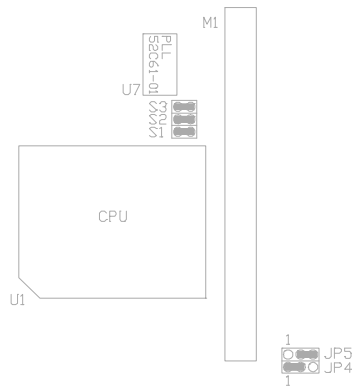
2. For 90MHz Intel Pentium, AMD-K5-PR90 and AMD-K5-PR120 CPU



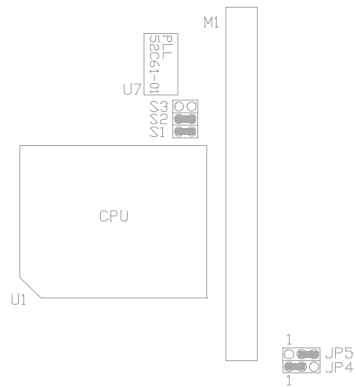
3. For 100MHz Intel Pentium, AMD-K5-PR100 and AMD-K5-PR133 CPU



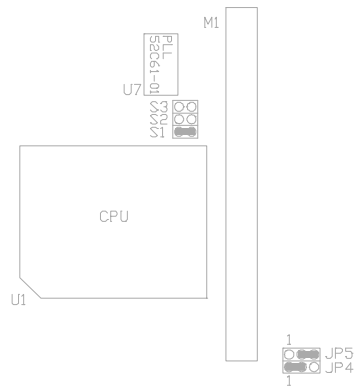
4. For 100MHz Cyrix 6x86-P120+ CPU



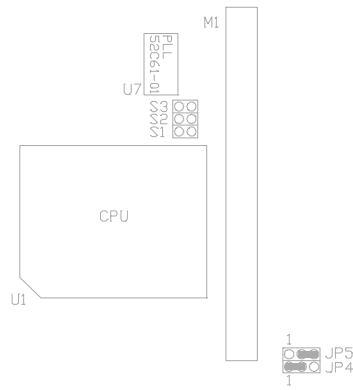
5. For 110MHz Cyrix 6x86-P133+ CPU



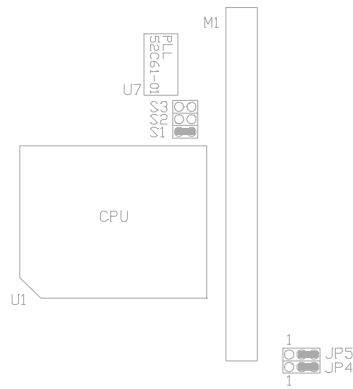
6. For 120MHz Intel Pentium, Cyrix 6x86-P150+ and AMD-K5-PR150 CPU



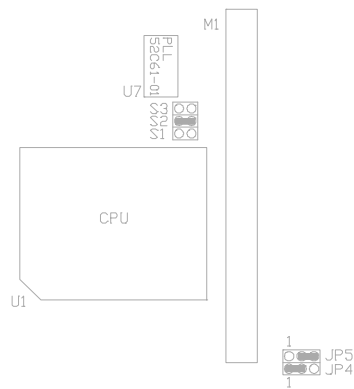
- 7. For 133MHz Intel Pentium, Cyrix 6x86-P166+ and AMD-K5-PR166 CPU



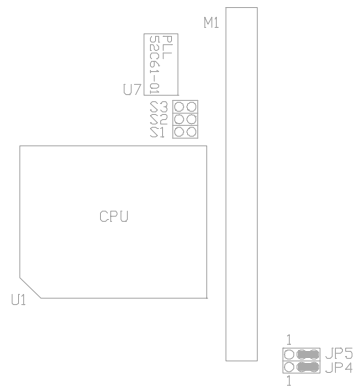
- 8. For 150MHz Intel Pentium CPU



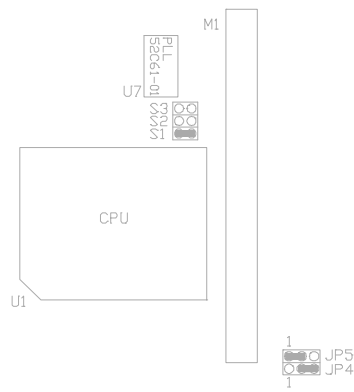
9. For 150MHz Cyrix 6x86-P200+ CPU



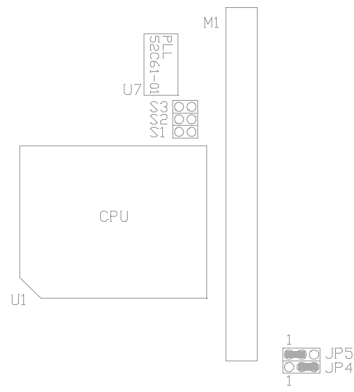
10. For 166MHz Intel Pentium CPU



11. For 180MHz Intel Pentium CPU

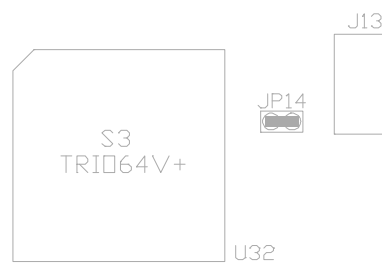


12. For 200MHz Intel Pentium CPU

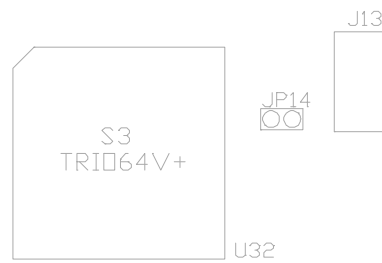


3.5.4 JP14 - (OPTIONAL) ON BOARD VGA SELECTION

1. On board VGA Enabled

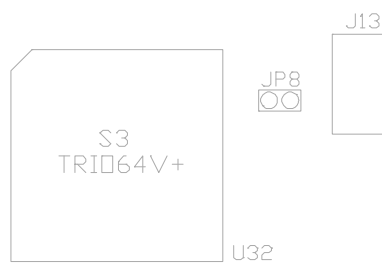


2. On board VGA Disabled

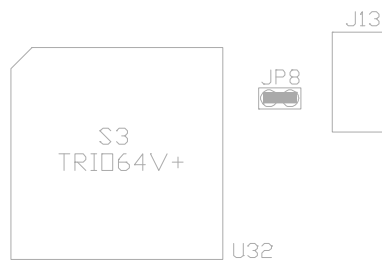


3.5.5 JP8 - S3 MPEG MODULE UPGRADE

1. Normal



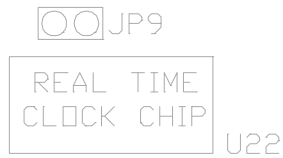
2. For S3 MPEG Module is installed on J13



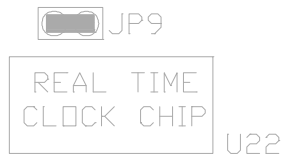
3.5.6 JP9 - DISCHARGE CMOS RAM

JP9 is used to clear the content of the CMOS Data in the Real Time Clock Chip.

1. Normal Mode



2. Reset Content of RTC



Procedures to clear the content on the RTC:

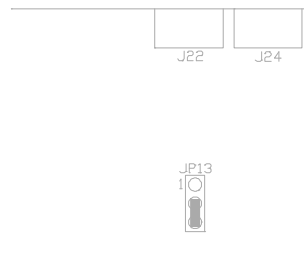
For DS12887A installed on U22: Power Off 6 short JP9 6 Power On

For DS12B887 installed on U22: Power On 6 short JP9 6 H/W Reset

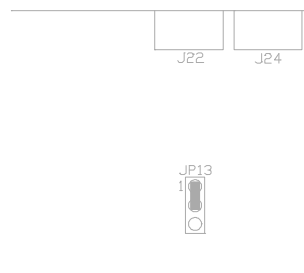
For MT48T86 installed on U22: Power On 6 short JP9 6 H/W Reset

3.5.7 JP13 - 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 key to enter the AWARD BIOS setup program and the following screen appears:

ROM PCI/ISA BIOS (2A59GG39)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	HDD LOW LEVEL FORMAT
LOAD SETUP DEFAULTS	SAVE & EXIT SETUP
	EXIT WITHOUT SAVING
Esc : Quit	8 9 6 7 : Select Item
F10 : Save & Exit Setup	(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 (2A59GG39)
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 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
Drive B : None	
Video : EGA/VGA	Extended Memory: 7168K
Halt On : All Errors	Other Memory: 384K
	<hr/> Total Memory: 8192K
Esc : Quit	8 9 6 7 : Select Item
F1 : Help	(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 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 (2A59GG39)
 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		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250	ESC: Quit	896 7: Select Item
Security Option	: Setup	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.

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 64MH, 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 (2A59GG39)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	
DRAM Timing	: 70 ns	
DRAM Read Burst (EDO/FP)	: x222/x333	
DRAM Write Burst Timing	: x222	
Fast EDO Path Select	: Disabled	
Refresh RAS# Assertion	: 4 Clks	
ISA Bus Clock	: PCICLK/3	
SDRAM (CAS Lat/RAS-to-CAS)	: 3/3	
System BIOS Cacheable	: Enabled	
Video BIOS Cacheable	: Enabled	
Memory Hole At 15M-16M	: Disabled	
Peer Concurrency	: 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: When Auto Configuration is Enabled, BIOS will sets the CPU Clock according to CPU speed. Otherwise, set it manually.

DRAM Timing: Choose 60ns or 70ns according to the DRAM SIMM Module on the motherboard.

DRAM Read Burst (EDO/FP): This sets the timing for burst mode reads from DRAM:

x444/x444	Read EDO and FP DRAM Timings are x-4-4-4.
x333/x444	Read EDO DRAM Timings are x-3-3-3, and FP DRAM's are x-4-4-4.
x222/x333	Read EDO DRAM Timings are x-2-2-2, and FP DRAM's are x-3-3-3.
x322/x333	Read EDO DRAM Timings are x-3-2-2, and FP DRAM's are x-3-3-3.

DRAM Write Burst Timing: This sets the timings for burst write to DRAM:

x444	Write DRAM timings are x-4-4-4
x333	Write DRAM timings are x-3-3-3
x222	Write DRAM timings are x-2-2-2

Fast EDO Path Select: Choose Enabled or Disabled. This feature is valid for using EDO DRAM only. Enabled this feature will select a fast path for CPU to DRAM read cycles for the lead off.

Refresh RAS# Assertion: "4 Clks" or "5 Clks" options are available. This is used to # set the number of clocks RAS# is asserted for refresh cycles of the DRAM.

ISA Bus Clock: It is used to select the bus clock for the ISA bus. The available options are "PCICLK/4" and "PCICLK/3", the suggested setting are:

CPU Clock	ISA Bus Clock
50/55MHz	PCICLK/4
60/66MHz	PCICLK/3

SDRAM (CAS Lat/RAS-to-CAS): It is used to set the CAS# latency and the RAS to CAS delay for all SDRAM cycles.

SDRAM (CAS Lat/RAS-to-CAS)	CAS# latency	RAS to CAS delay
3/3	3 Clock	3 Clock
2/2	2 Clock	2 Clock
3/2	3 Clock	2 Clock

System BIOS Cacheable: Choose Enabled or Disabled. "Enabled" allows system BIOS be cacheable.

Video BIOS Cacheable: Choose Enabled or Disabled. "Enabled" allows Video BIOS to be cacheable.

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.

Peer Concurrency: Choose Enabled or Disabled. To enable this option will let the system active more than one PCI Device at a time.

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 (2A59GG39)
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
Suspend Mode : Disabled	IRQ5 (LPT 2) : ON
HDD Power Down : Disabled	IRQ6 (Floppy Disk) : ON
	IRQ7 (LPT 1) : ON
	IRQ8 (RTC Alarm) : OFF
	IRQ9 (IRQ2 Redir) : ON
	IRQ10 (Reserved) : ON
	IRQ11 (Reserved) : ON
	IRQ12 (PS/2 Mouse) : ON
	IRQ13 (Coprocessor) : ON
	IRQ14 (Hard Disk) : ON
	IRQ15 (Reserved) : ON
	ESC: Quit 896 7: Select Item
	F1: Help PU/PD/+/-: Modify
	F5: Old Values (Shift)F2: Color
	F7: Load Setup Defaults

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 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.

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

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.

IRQ 3 - IRQ15: When it is enabled, the system will monitor the activity of the corresponded system IRQ to turn on or off the power management functions.

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 (2A59GG39)
PCI CONFIGURATION SETUP
AWARD SOFTWARE, INC.

Resources Controlled By	: Manual	PCI IRQ Activated By	: Level
Reset Configuration Data	: Disabled	PCI IDE IRQ Map To	: PCI-AUTO
IRQ-3 assigned to	: Legacy ISA	Primary IDE INT#	: A
IRQ-4 assigned to	: Legacy ISA	Secondary IDE INT#	: B
IRQ-5 assigned to	: PCI/ISA PnP		
IRQ-7 assigned to	: Legacy ISA		
IRQ-9 assigned to	: PCI/ISA PnP		
IRQ-10 assigned to	: PCI/ISA PnP		
IRQ-11 assigned to	: PCI/ISA PnP		
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.

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 (2A59GG39)
PCI CONFIGURATION SETUP
AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	
IDE 32-bit Transfer Mode	: Disabled	
IDE Primary Master PIO	: Auto	
IDE Primary Slave PIO	: Auto	
IDE Secondary Master PIO	: Auto	
IDE Secondary Slave PIO	: Auto	
On-Chip Primary PCI IDE	: Enabled	
On-Chip Secondary PCI IDE	: Enabled	
PCI Slot IDE 2nd Channel	: Enabled	
USB Controller	: Disabled	
Onboard FDD Controller	: Enabled	ESC: Quit 896 7: Select Item
Onboard Serial Port 1	: 3F8/IRQ4	F1: Help PU/PD/+/-: Modify
Onboard Serial Port 2	: 2F8/IRQ3	F5: Old Values (Shift)F2: Color
UART 2 Mode	: Standard	F6: Load BIOS Defaults
Onboard Parallel Port	: 378H/IRQ7	F7: Load Setup Defaults
Onboard Parallel Mode	: SPP	

A short description of the screen items follows:

IDE HDD Block Mode: This allows your hard disk controller to use the fast block mode to transfer data to your hard disk drive.

IDE 32-bit Transfer Mode: Enabling 32-bit transfer mode allows faster access to data on the hard disk drive.

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.

Some harddisks cannot work properly with its corresponding timing, please set a slower timing.

On-Chip Primary PCI IDE: 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.

On-Chip Secondary PCI IDE: 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.

PCI Slot IDE 2nd Channel: This item the user design at an IDE controller board inserted on the PCI Slots as your secondary IDE controller.

USB Controller: Choose Enabled or Disabled. "Enabled" allows the on board Universal Serial Bus (USB) Controller to be functioned.

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.

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

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)?

