

PAM-0057I

High Performance
Pentium PCI Mainboard
User's Guide



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P/N: 155100-8624



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CHAPTER 1

INTRODUCTION

Preface

The motherboard is a 4-layer, 2/3 baby AT size high-performance mainboard. It includes Intel 82430TX system chipset, Winbond W83877F/W83877TF Super I/O controller.

Features

Processor

- Intel Pentium P54C, P55C series.
- Cyrix 6x86, Cyrix 6x86L; AMD-K5 and AMD-K6 series 64-bit microprocessors.
- The mainboard can run with following speeds:
90, 100, 110, 120, 133, 150, 166, 200, 233, 266 and 300MHz

Chipset

- Intel 82439TX (Intel 82430TX System Controller)
- Intel 82371AB (PCI ISA IDE Xcelerator)
- Winbond W83877F (Super I/O Controller)

Cache Size

- Synchronised Pipelined Burst Mode SRAM to achieve the high Pentium system performance.
- Cache size is 0/256/512KB.

Main Memory

- Support Mixed Memory Technologies: EDO (Extend Data Output), Standard Page Mode (SPM), Fast Page Mode (FPM), and Synchronous DRAM (SDRAM) SIMM can work together.
- Memory configurations from 4MB to 256MB are possible using combination of 512K*32 to 8M*32 SIMM module (32Bits no-parity 72-pin SIMM Module) and 2M*32 to 8M*32 SDRAM DIMM Module.
- DIMM socket for SDRAM (3.3V unbuffered).

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 supported.
- Dual standard USB (Universal Serial Bus) ports supported.

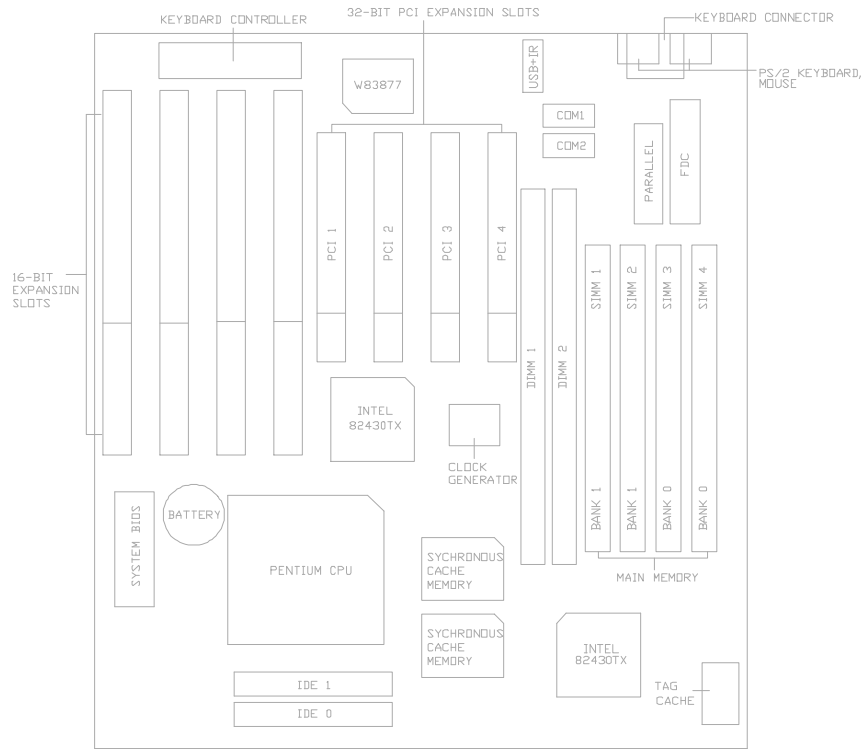


Fig. 1 Key Components of the Mainboard

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.
- Ultra DMA mode supported. Transfer rate can be up to 33Mb/s.

System BIOS

- Award BIOS (128KB Flash EPROM).

Slots

- Four PCI slots
- Four ISA slots

Board

- 4 Layer

Form Factor

- 2/3 Baby AT Size (220 x 260mm)

Environment

Working Specifications

Actual Field MTBF (hours)	104,515 hours
Preventive Maintenance	Not Required

Environmental Limits

	Operating	Non-operating
Temperature	0 to 50 Degree Celsius	-10 to 65 Degree Celsius
Relative Humidity (without condensation)	8 to 85%	5 to 95%
Altitude	10,000ft	40,000ft

Power Specifications

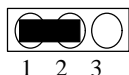
Configuration: 133MHz Intel P54C CPU, 16MB 60ns EDO SIMM, 256KB Cache, 3.5 inch floppy drive, 840MB Hard Disk, running at DOS prompt.

DC Voltage	Tolerance	Consumption (mA)
+5V	+/- 5%	860
+5V Stand by	+/- 5%	0.5
+5V	+/- 5%	0
+12V	+/- 5%	200
-12V	+/- 5%	30

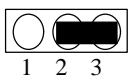
CHAPTER 2

JUMPER SETTINGS

2.1 JUMPERS 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.

2.2 CPU TYPE

2.2.1 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)

Z = Dual Processing Support (S or U)

S = Support DP/MP/UP

U = Not tested to support DP

Y = Timing Specification (S or M)

S = Standard EDS timings

M = Min Valid Delay Spec.

2.2.2 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 (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.)

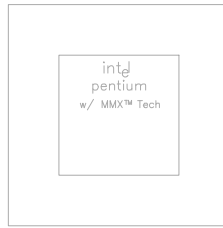


Fig. 2b CPU Description (Top Side)

2.2.3 AMD-K6 CPU

The AMD-K6 CPU family require dual voltage power for operation. The AMD-K6/166, 200 require a voltage of 2.9V core and 3.3V I/O. The AMD-K6/233 require a voltage of 3.2V core and 3.3V I/O. (The following diagram is provided as an example only. It does not necessarily indicate a valid product marking.)

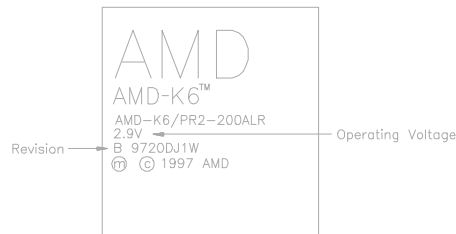


Fig. 2c CPU Description (Top Side)

Operating Voltage	I/O Voltage	Core Voltage
2.2V	3.3V	2.2V
2.9V	3.3V	2.9V
3.2V	3.3V	3.2V

2.2.4 AMD-K5 CPU

The AMD-K5 family CPU operates 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.)

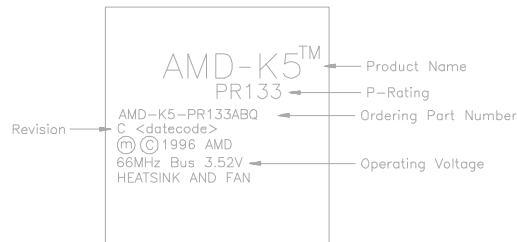


Fig. 2d CPU Description (Top Side)

2.2.5 CYRIX 6x86 CPU

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

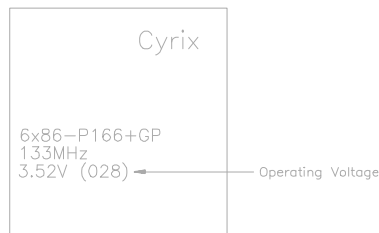


Fig. 2e CPU Description (Top Side)

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

2.2.6 CYRIX 6x86L CPU

The Cyrix 6x86L has different I/O and core voltage. Please refer to the CPU marking.



**Fig. 2f CPU Description
(Top Side)**

2.2.7 CYRIX 6x86MX CPU

The Cyrix 6x86MX has different I/O and Core Voltage. Please refer to the CPU marking.



**Fig. 2g CPU Description
(Top Side)**

	I/O Voltage	Core Voltage
Cyrix 6x86MX	3.3V	2.9V
Cyrix 6x86L	3.3V	2.8V

2.2.8 IDT WinCHIP C6 CPU

The IDT WinChip C6 CPU has different operation voltage. Please refer to the CPU marking to identify the operating voltage.



Fig. 2h CPU Description

2.3 GRAPHICAL DESCRIPTION OF JUMPER SETTINGS

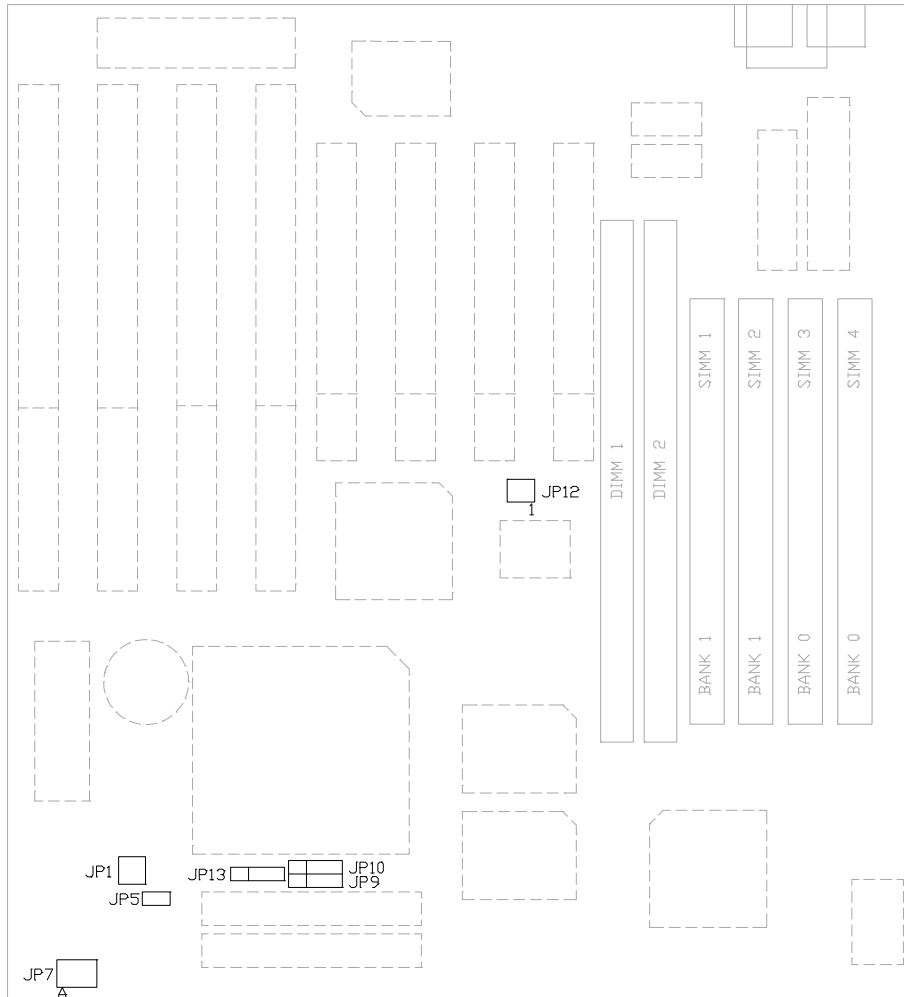


Fig. 3 Jumper Location

2.4 CPU VOLTAGE SELECTION

1. 3.3V Single Voltage CPU: P54C, P54CT, 3.3 IDT WinChip C6

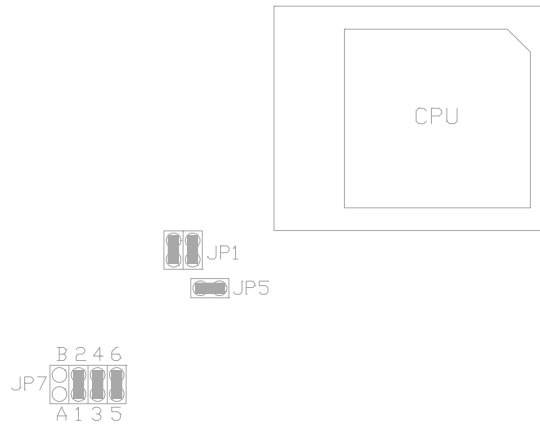


Fig. 4a CPU Type - 3.3V

2. 3.5V Single Voltage CPU: P54C-VRE, AMD-K5, Cyrix 6x86, 3.5V IDT WinChip C6

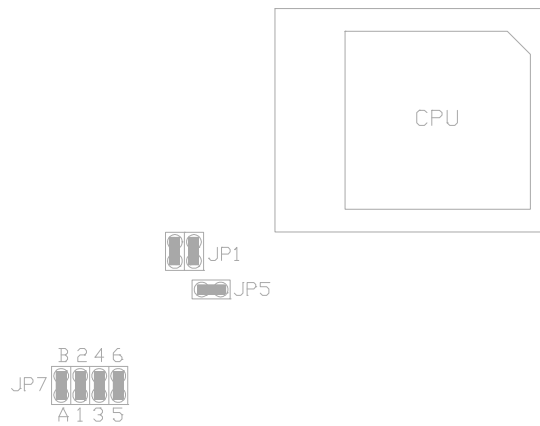


Fig. 4b CPU Type - 3.5V

Chapter 2

3. 3.3V (I/O)/2.2V (core) Dual Voltage CPU: 2.2V AMD-K6 and AMD-K6-2

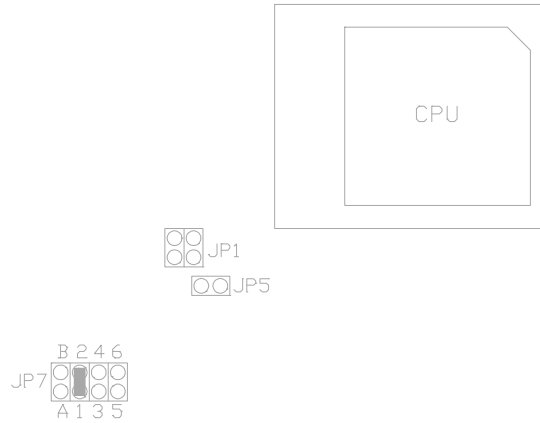


Fig. 4c CPU Type – 3.3V/2.2V

4. 3.3V (I/O)/2.8V (core) Dual Voltage CPU: P55C, Cyrix 6x86L

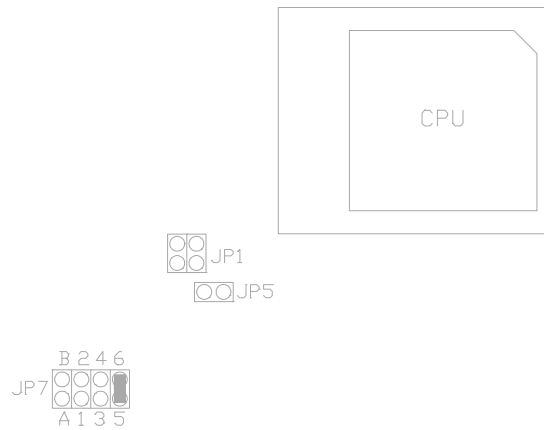


Fig. 4d CPU Type - 3.3V/2.8V

5. 3.3V (I/O)/2.9V (core) Dual Voltage CPU: 2.9V AMD-K6, Cyrix 6x86MX and Cyrix M II

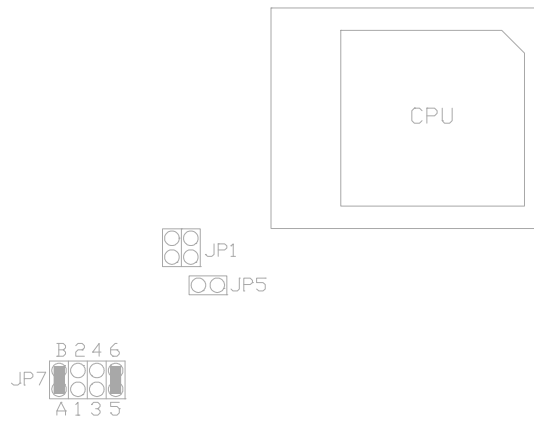


Fig. 4e CPU Type - 3.3V/2.9V

6. 3.3V (I/O)/3.2V (core) Dual Voltage CPU: 3.2V AMD-K6/233

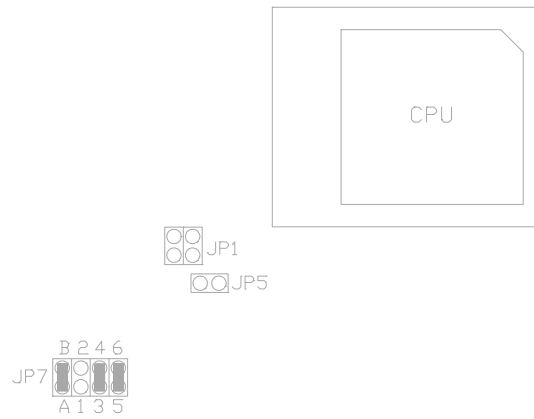


Fig. 4f CPU Type - 3.3V/3.2V

2.5 CPU TO BUS FREQUENCY RATIO (JP12)

JP12 set the frequency ration between the Internal frequency of the CPU and the External frequency (called the Bus clock) within the CPU. These must be set together with the below jumpers CPU External (Bus) Frequency Selection.

2.6 CPU EXTERNAL (BUS) FREQUENCY SELECTION (JP9, JP10, JP13)

JP9, JP10, JP13 tell the clock generator what frequency to send to the CPU. The Bus clock times the Bus Ratio equals the CPU's Internal frequency.

2.7 CPU SPEED

CPU Type	Freq.	Ratio	Bus Freq.	Ratio Setting			Bus Freq. Setting (JP12)	
				JP9	JP10	JP13	1-2	3-4
Pentium	90MHz	1.5x	60MHz	1-2	1-2	1-2	close	open
Pentium	100MHz	1.5x	66MHz	1-2	1-2	1-2	open	open
Pentium	120MHz	2.0x	60MHz	2-3	1-2	1-2	close	open
Pentium	133MHz	2.0x	66MHz	2-3	1-2	1-2	open	open
Pentium	150MHz	2.5x	60MHz	2-3	2-3	1-2	close	open
Pentium	166MHz	2.5x	66MHz	2-3	2-3	1-2	open	open
Pentium	200MHz	3.0x	66MHz	1-2	2-3	1-2	open	open
Pentium w/MMX	166MHz	2.5x	66MHz	2-3	2-3	1-2	open	open
Pentium w/MMX	200MHz	3.0x	66MHz	1-2	2-3	1-2	open	open
Pentium w/MMX	233MHz	3.5x	66MHz	1-2	1-2	1-2	open	open
AMD-K5-PR166	166MHz	2.5x	66MHz	2-3	2-3	1-2	open	open
AMD-K5-PR133	133MHz	2.0x	66MHz	2-3	1-2	1-2	open	open
AMD-K5-PR120	120MHz	2.0x	60MHz	2-3	1-2	1-2	close	open
AMD-K6/300	300MHz	4.5x	66MHz	2-3	2-3	2-3	open	open
AMD-K6/266	266MHz	4.0x	66MHz	2-3	1-2	1-2	open	open
AMD-K6-2/266	266MHz	4.0x	66MHz	2-3	1-2	2-3	open	open
AMD-K6/233	233MHz	3.5x	66MHz	1-2	1-2	1-2	open	open
AMD-K6/200	200MHz	3.0x	66MHz	1-2	2-3	1-2	open	open
To be continued...								

Table 1a

Jumper Settings

CPU Type	Freq.	Ratio	Bus Freq.	Ratio Setting			Bus Freq. Setting (JP12)	
				JP9	JP10	JP13	1-2	3-4
AMD-K6/166	166MHz	2.5x	66MHz	2-3	2-3	1-2	open	open
Cyrix M II-300	233MHz	3.5x	66MHz	1-2	1-2	1-2	open	open
Cyrix M II-300	225MHz	3.0x	75MHz	1-2	2-3	1-2	open	close
Cyrix 6x86MX-PR233	200MHz	3.0x	66MHz	1-2	2-3	1-2	open	open
Cyrix 6x86MX-PR233	188MHz	2.5x	75MHz	2-3	2-3	1-2	open	close
Cyrix 6x86MX-PR200	166MHz	2.5x	66MHz	2-3	2-3	1-2	open	open
Cyrix 6x86MX-PR200	150MHz	2.0x	75MHz	2-3	1-2	1-2	open	close
Cyrix 6x86MX-PR166	150MHz	2.5x	60MHz	2-3	2-3	1-2	close	open
Cyrix 6x86L-PR200	150MHz	2.0x	75MHz	2-3	1-2	1-2	open	close
Cyrix 6x86L-PR166	133MHz	2.0x	66MHz	2-3	1-2	1-2	open	open
Cyrix 6x86L-PR150	120MHz	2.0x	60MHz	2-3	1-2	1-2	close	open
IDT WinChip C6-180	180MHz	3x	60MHz	1-2	2-3	1-2	close	open
IDT WinChip C6-200	200MHz	3x	66MHz	1-2	2-3	1-2	open	open

Table 1b

Reserve for future support

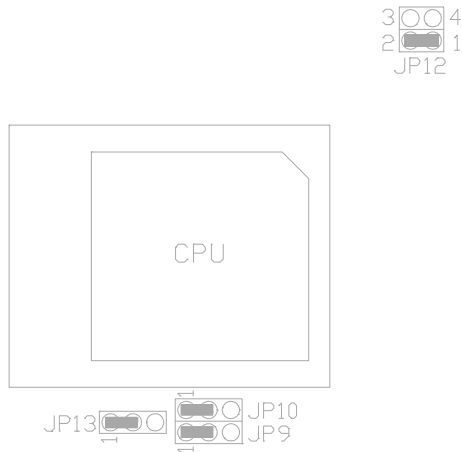


Fig. 5 Example: CPU speed jumper setting for 90MHz Intel Pentium CPU

2.8 MEMORY CONFIGURATION

The Mainboard lets user upgrade system memory via SIMM sockets and DIMM sockets on the mainboard.

Four SIMM sockets (SIMM1, SIMM2, SIMM3, SIMM4) are provided for SPM, FPM and EDO RAM SIMM and two DIMM sockets (DIMM1, DIMM2) are available for the SDRAM or 3.3V EDO DIMM.

Note: *The type of SIMM1/SIMM2 must be same.
The type of SIMM3/SIMM4 must be same.
SIMM3/SIMM4 and DIMM1 cannot co-exist.
SIMM1/SIMM2 and DIMM2 cannot co-exist.*

Table 1 provides some typical memory configurations supported by the mainboard.

Onboard memory is located in two banks:

Bank 0: SIMM3 & SIMM4
OR
DIMM1

Bank 1: SIMM1 & SIMM2
OR
DIMM2

The total memory size is 8-256MB and various configuration of DRAM types in the following table are for reference:

Bank 0 (SIMM 3,4/DIMM1)	Bank 1 (SIMM 1,2/DIMM2)
Single	None
None	Single
Single	Single
Single	Double
Double	Single
Double	None
None	Double
Double	Double

Table 2: Memory Configuration

Single means Single side SIMM Module or Single side DIMM Module. The size of Single side SIMM can be 4MB, 16MB, 64MB and the size of Single side DIMM can be 8MB, 32MB, 128MB.

Double means Double side SIMM Module or Double side DIMM Module. The size of Double side SIMM can be 8MB, 32MB and the size of Double side DIMM can be 16MB, 64MB.

****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 installed the 5V SIMM and 3.3V DIMM at the same time.*

2.9 CACHE MEMORY CONFIGURATION

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

Cache Tag RAM Location: U9

Synchronous Pipeline Burst SRAM Location: U5, U6

Cache Size	Tag RAM (U9)	Data RAM (U5, U6)
256K	8Kx8/16Kx8	32Kx32
512K	16Kx8	64Kx32

Table 3: Secondary Cache Configuration

***Note:** *Tag RAM are all 5V device, Pipeline Burst data RAM are 3.3V device e.g. Winbond W259022AF.*

CHAPTER 3

CONNECTORS CONFIGURATION

Once the mainboard has been fastened into system case, the next step is to connect the internal cables and external cables. The mainboard connectors have varying numbers of pins and are the points of contact between the mainboard and other parts of the computer.

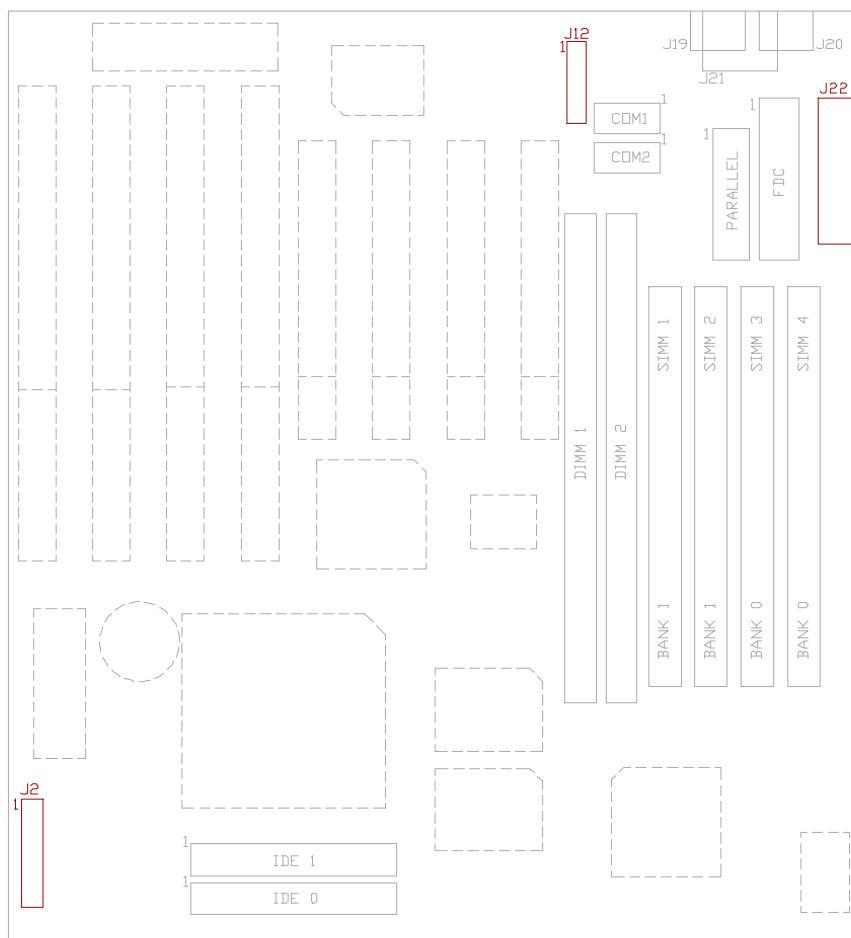


Fig. 6 Connector Location

3.1 J2 - RESET SWITCH, SMI SWITCH, SPEAKER, TURBO LED, KEYLOCK AND HDD LED CONNECTOR

J2 is a 2x10 pin header for Hard Disk LED, Keyboard Lock, Turbo LED, Suspend Switch, Reset Switch and Speaker Connector.

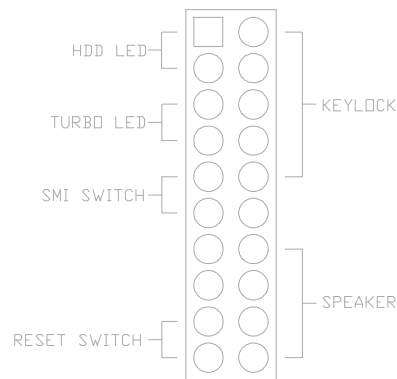


Fig. 7

- **RESET SWITCH CONNECTOR**

Attach the Reset switch cable to this connector. The Reset switch restarts the system. Please refer to Fig. 7.

	Reset
	Normal (default)

Table 4: Reset Switch Connector

- **SMI SWITCH**

Trigger this switch will put the system into suspend immediately. Please refer to Fig. 7.

- **SPEAKER CONNECTOR**

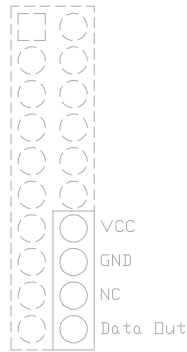


Fig. 8 Speaker Connector

- **TURBO LED CONNECTOR**

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

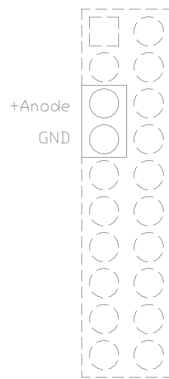


Fig. 9 Turbo LED

- **KEYLOCK CONNECTOR**

Close this jumper will disable the keyboard.

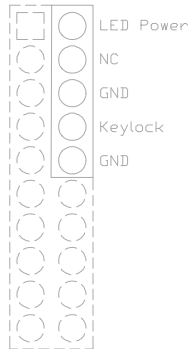


Fig. 10 Keylock Connector

- **HDD LED CONNECTOR**

Connected this jumper to the HDD LED on front of the system case. If the HDD is in operation, the indicator lights during operation.

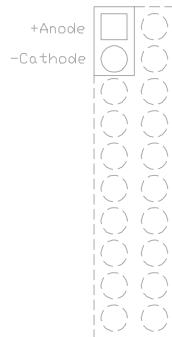


Fig. 11 HDD LED

3.2 J10 - PRIMARY IDE CONNECTOR

It locates below the CPU socket with pin 1 on the left.

3.3 J11 - SECONDARY IDE CONNECTOR

J11 locates above the J10, the primary IDE connector with pin 1 on the left.

3.4 J12 - USB0, USB1, PS/2 MOUSE EXTENSION, IrDA AND FAST IR CONNECTOR

J12 is a 2x10 pin header for USB0, USB1, PS/2 mouse extension, IrDA and Fast IR connector, and it is also designed as the connector for the optional USB extension card.

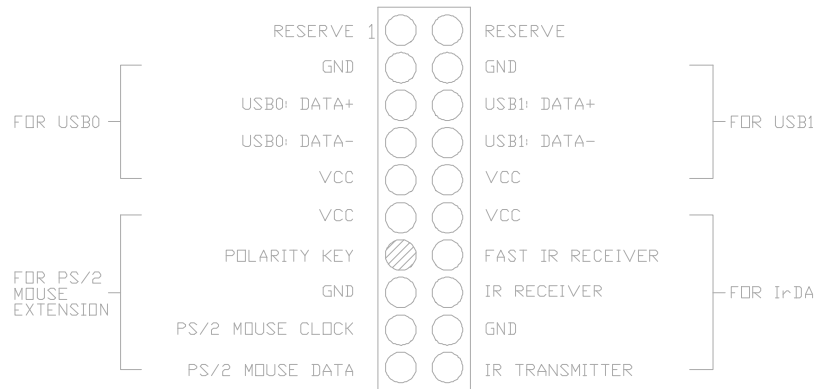


Fig. 12a

The attached PS/2 mouse extension cable is installed as follows:

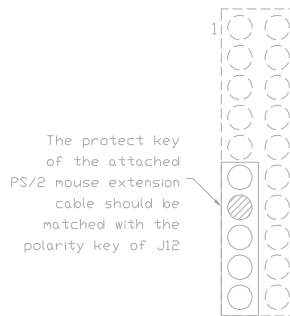


Fig. 12b

3.5 J13 - SERIAL PORT 2

J13 is left to J14. Pin 1 is on the right.

3.6 J14 - SERIAL PORT 1

Both COM1 and 2 are 16550 fast UART compatible. J14 is located right of J15 Parallel Connector. Pin 1 is on the right.

3.7 J15 - PARALLEL PORT

J15 is up to DRAM SIMM Module connector. Pin 1 is on the up left hand side.

3.8 J16 - FLOPPY DRIVE CONTROLLER

J16 locates right to Parallel Connector. This Floppy drive controller also supports 2.88M FDD format.

3.9 J19 - PS/2 STYLE MOUSE CONNECTOR (OPTIONAL)

A PS/2 Standard six-pin female DIM connector for mouse is located at left of the J20.

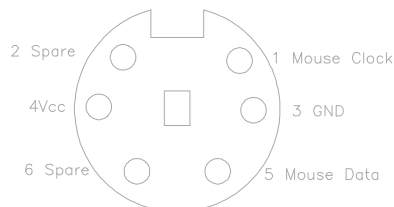


Fig. 13 J19 - PS/2 Mouse Connector

3.10 J20 - KEYBOARD CONNECTOR

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

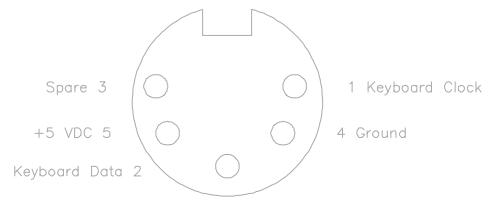


Fig. 14 J20 Keyboard Connector

3.11 J21 - PS/2 STYLE KEYBOARD CONNECTOR (OPTIONAL)

A PS/2 Standard six-pin female DIM connector for keyboard is located at right to J20.

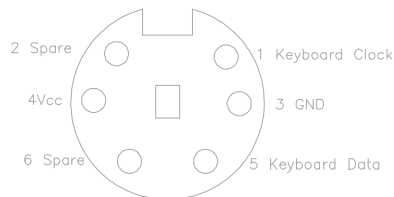


Fig. 15 J21 - PS/2 Keyboard Connector

3.12 J22 - POWER SUPPLY CONNECTOR

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

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

Table 5: J22 - Power Supply Connector

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 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”

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

ROM PCI/ISA BIOS (2A59ID19)
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 BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item (Shift)F2 : Change Color
Time, Data, Hard Disk Type...	

Fig. 16

3. Choose an option and press <Enter>. Modify the system parameters to reflect the options installed in the system. (see the following sections for more information).
4. Press <ESC> at anytime to return to the Main Menu.
5. In the Main Menu, choose "SAVE AND EXIT SETUP" to save change and reboot the system. Choosing "EXIT WITHOUT SAVING" to ignore all changes and exists the program.

4.2 STANDARD CMOS SETUP

ROM PCI/ISA BIOS (2A59ID19)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Mon, Feb 03 1997																		
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.				<table border="1"> <tr> <td>Base Memory:</td> <td>640K</td> </tr> <tr> <td>Extended Memory:</td> <td>7168K</td> </tr> <tr> <td>Other Memory:</td> <td>384K</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>Total Memory:</td> <td>8192K</td> </tr> </table>					Base Memory:	640K	Extended Memory:	7168K	Other Memory:	384K	<hr/>		Total Memory:	8192K
Base Memory:	640K																	
Extended Memory:	7168K																	
Other Memory:	384K																	
<hr/>																		
Total Memory:	8192K																	
Drive B : None																		
Video : EGA/VGA																		
Halt On : All Errors																		
Esc : Quit			↑ ↓ → ← : Select Item			PU/PD/+/- : Modify												
F1 : Help			(Shift)F2 : Change Color															

Fig. 17 Standard CMOS Setup Menu

- 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 (2A59ID19)
 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		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		
Assign IRQ For VGA	: Enabled		
OS Select For DRAM > 64MB	: Non-OS2		
HDD S.M.A.R.T. Capability	: Disabled	ESC: Quit	↑ ↓ → ←: Select Item
Report No FDD For Win95	: No	F1: Help	PU/PD/+/-: Modify
		F5: Old Values (Shift)	F2: Color
		F7: Load Setup Defaults	

Fig. 18 BIOS Setup Defaults

A short description of the screen items follows:

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

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

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

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

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

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

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

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

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

Gate A20 Option: Choose Fast or Slow. The system switch back and 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: Choose Enabled or Disabled. Enabled will assign an IRQ to Graphic Controller.

OS Select For DRAM > 64MB: This item allows you to access the memory that over 64MB is OS/2. The choice: Non-OS2, OS2.

HDD. S.M.A.R.T. Capability: Choose Enabled or Disabled. Enabled will support the hard driver S.M.A.R.T. feature (Self-Monitoring, Analysis and Reporting Technology).

Report No FDD For Win95: Choose Yes or No. Yes will show a removable disk in Windows 95 when the floppy drive is set as None.

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

C8000-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 (2A59ID19)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	
DRAM Timing	: 60 ns	
System BIOS Cacheable	: Disabled	
Video BIOS Cacheable	: Disabled	
8 Bit I/O Recovery Time	: NA	
16 Bit I/O Recovery Time	: NA	
Memory Hole At 15M-16M	: Disabled	
PCI 2.1 Compliance	: Disabled	
		ESC: Quit ↑ ↓ → ←: Select Item F1: Help PU/PD/+/-: Modify F5: Old Values (Shift)F2: Color F7: Load Setup Defaults

Fig. 19 Chipset Feature Setup Menu

A short description of the screen items follows:

Auto Configuration: Pre-defined values for DRAM, cache, timing according to CPU type & system clock. Choose Enabled or Disabled.

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

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.

8 Bit I/O Recovery Time: This item allows you to determine the recovery time allowed for 8 bit I/O. Choices are from NA, 1 to 8 CPU clocks. 1 clock is the default.

16 Bit I/O Recovery Time: This item allows you to determine the recovery time allowed for 16 bit I/O. Choices are from NA, 1 to 4 CPU clocks. 1 clock is the default.

Memory Hole At 15M-16M: In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16MB. Disabled is the default.

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 (2A59ID19)	
POWER MANAGEMENT SETUP	
AWARD SOFTWARE, INC.	
ACPI Function	: Enabled
Power Management	: User Define
PM Control by APM	: No
Video Off Method	: Blank Screen
Video Off After	: N/A
Suspend Mode	: Disabled
HDD Power Down	: Disabled
VGA Active Monitor	: Disabled
IRQ 8 Clock Event	: Disabled
** Reload Global Timer Events **	
IRQ (3-7, 9-15), NMI	: Disabled
Primary IDE 0	: Disabled
Primary IDE 1	: Disabled
Secondary IDE 1	: Disabled
Secondary IDE 2	: Disabled
Floppy Disk	: Disabled
Serial Port	: Disabled
Parallel Port	: Disabled
ESC: Quit ↑ ↓ → ←: Select Item F1: Help PU/PD/+/-: Modify F5: Old Values (Shift)F2: Color F7: Load Setup Defaults	

Fig. 20 Power Management Setup Menu

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

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A short description of the screen items follows:

ACPI Function: To enable feature for supporting the operating system with Advanced Configuration and Power Interface. (such as Windows 98)

Power Management: Available selection are “Disabled”, “User Define”, “Max Saving” and “Min Saving”:

“Disabled” will disable all the power saving function.

“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 10 seconds.

“Min Saving” will set the time period waiting for Suspend Mode to be 1 hour.

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

Video Off After: As the system moves from lesser to greater power-saving modes. Select the mode in which you want the monitor to blank. The available options are “Standby”, “Suspend”, “Doze” and “NA”.

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. Access the HDD again will take a few seconds for HDD to spin back to normal speed for data.

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

4.6 PnP/PCI CONFIGURATION

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 (2A59ID19)
 PNP/PCI CONFIGURATION
 AWARD SOFTWARE, INC.

PNP OS Installed	: Yes	PCI IDE IRQ Map To	: PCI-AUTO
Resources Controlled By	: Manual	Primary IDE INT#	: A
Reset Configuration Data	: Disabled	Secondary IDE INT#	: B
IRQ-3 assigned to	: Legacy ISA	Used MEM Base Addr.	: C800
IRQ-4 assigned to	: Legacy ISA	Used MEM Length	: 8K
IRQ-5 assigned to	: PCI/ISA PnP		
IRQ-7 assigned to	: PCI/ISA PnP		
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	: PCI/ISA PnP		
IRQ-15 assigned to	: PCI/ISA PnP		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP		
DMA-3 assigned to	: PCI/ISA PnP	ESC: Quit	↑ ↓ → ←: Select Item
DMA-5 assigned to	: PCI/ISA PnP	F1: Help	PU/PD/+/-: Modify
DMA-6 assigned to	: PCI/ISA PnP	F5: Old Values	(Shift)F2: Color
DMA-7 assigned to	: PCI/ISA PnP	F7: Load Setup Defaults	

Fig. 21 PnP/PCI Configuration Setup Menu

A short description of the screen items follows:

PNP OS Installed: Choose "Yes" to configure the BIOS that the Operating System installed support the Plug and Play standard.

Resources Controlled By: The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95.

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

IRQ3/4/5/7/9/10/11/12/14/15, DMA0/1/3/5/6/7 assigned to: This item allows you to determine the IRQ/DMA assigned to the ISA bus and is not available to any PCI slot. Choices are Legacy ISA and PCI/ISA PnP.

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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.

Used MEM Base Addr/Used MEM Length: These items will be shown only when “Resources Controlled By” option is set to “Manual”. They are used to reserve the memory space for the memory installed on the ISA card in the specified memory segment (such as some network card). The available options for “Used Mem Base Addr” are “N/A”, “C800”, “CC00”, “D000”, “D400”, “D800” and “DC00”, which is used to select the base memory address of the ISA card used. With the “Used Mem Base Addr” is selected, the size of the memory installed on ISA card is chosen by “Used Mem Length”: “8K”, “16K”, “32K” or “64K”.

4.7 INTEGRATED PERIPHERALS SETUP MENU

The setup option is need to change the values of the integrated IDE and the I/O chipset register for I/O functions.

ROM PCI/ISA BIOS (2A59ID19)
 INTEGRATED PERIPHERALS
 AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Disabled	ECP Mode Use DMA	: 1
IDE Primary Master PIO	: Auto	Parallel Port EPP Type	: EPP1.9
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto		
IDE Primary Master UDMA	: Disabled		
IDE Primary Slave UDMA	: Disabled		
IDE Secondary Master UDMA	: Disabled		
IDE Secondary Slave UDMA	: Disabled		
On-Chip Primary PCI IDE	: Disabled		
On-Chip Secondary PCI IDE	: Disabled		
Onboard FDD Controller	: Enabled		
Onboard Serial Port 1	: 3F8/IRQ4		
Onboard Serial Port 2	: 3F8/IRQ4		
UART 2 Mode	: HPSIR		
IR Function Duplex	: Full	ESC: Quit	↑↓ → ←: Select Item
RxD, TxD Active	: Hi, Hi	F1: Help	PU/PD/+/-: Modify
Onboard Parallel Port	: 3BC/IRQ7	F5: Old Values	(Shift)F2: Color
Onboard Parallel Mode	: ECP/EPP	F7: Load Setup Defaults	

Fig. 22 Integrated Peripherals Menu

A short description of the screen items follows:

IDE HDD Block Mode: This allows your hard controller to use the fast block mode to transfer data to and from your hard disk drive (HDD). Enabled is the default.

IDE PIO: PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. This simpler and more efficient (and faster).

Your system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

IDE UDMA: UDMA means Ultra DMA Mode. When a Ultra DMA Device is connected to the IDE connectors, set these options enabled.

On-Chip Primary PCI IDE: This setup item allows you either to enable or disable the primary controller. You might choose to disable the controller if you were to add a higher performance or specialized controller.

On-Chip Secondary PCI IDE: This setup item you either to enable or disable the secondary controller. You might choose to disable the controller if you were to add a higher performance or specialized controller. Enabled is the default.

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.

IR Function Duplex: This item will be shown only when **UART 2 Mode** is selected to ASKIR or HPSIR. The available options are "Full" and "Half". It is used to choose the IR function working in full duplex mode or half duplex mode correspondingly.

RxD, TxD Active: This item will be shown only when **UART 2 Mode** is selected to ASKIR or HPSIR. The available options are "Hi, Hi", "Hi, Lo", "Lo, Hi" and "Lo, Lo". It is used to configure the logic level of Receive and Transmit signal in IrDA interface.

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

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

Parallel Port EPP Type: Choose EPP1.7 or EPP1.9.

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 SUPERVISOR PASSWORD

Two level of password is supported. Depending on the setting of the "Security Option" in the "BIOS FEATURES SETUP", the system BIOS will ask for password every time booting up the System or entering BIOS Setup. With the supervisor password, both the system booting and BIOS setup changing is allowed.

This main menu item lets the user to set up the Supervisor Password.

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 USER PASSWORD

With the user password, only booting up the system is accepted, but changing the BIOS setup is not allowed.

4.11 IDE HDD AUTO DETECTION

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

4.12 SCSI HARD DISK INSTALLATION

In Standard CMOS Setup Utility, select hard disk type to "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.

4.13 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)?

4.14 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)?

CHAPTER 5

FLASH AND DMI UTILITY

5.1 AWARD FLASH UTILITY

This section will provide instructions to guide you through updating your old BIOS. The file name we use to program here is *test.bin*, and the file name to save old BIOS is *2A59F000.OLD*. Please note that those file names are not absolute. They are only examples to let you have a more clear understanding of the updating process.

How to Begin

1. Please type "*awdf flash*" and press the **ENTER** key to begin the updating process.
2. Once you enter, you will see a main menu displaying:

FLASH MEMORY WRITER V5.XX Copyright (C) 1996, Award Software, Inc.,	
For I430HX-2A59F000 Flash Type	DATE: 06/18/96
File Name to Program:	
Error Message:	

Fig. 23

3. Type the program name "*test.bin*", and then press the **ENTER** key.
4. At the bottom of the menu, you will be requested to answer:

"Do You Want to Save BIOS (Y/N)?"

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If you do not wish to save the old BIOS:

5. Please type “N”, and then press the ENTER key.
6. Then you will be request to answer:

“Are You Sure to Program?”

7. Answer “N” if you do not want to program, and then it will exit.

To save the old BIOS:

8. Please respond “Y”, and then press the ENTER key.
9. Move the cursor to “File Name to Save:”
10. Type file name “**2A59F000.OLD**”, and then press the **ENTER**.
(Your old BIOS will be saved in the file name you create. In this case, the old BIOS is saved in the file name, 2A59F000.OLD).
11. Then you will be requested to answer:

“Are You Sure to Program (Y/N)?”

12. Type “Y” to begin programming, and press the **ENTER** key.
13. When the programming is finished, the showing message will appear:

“Programming Flash Memory - 3FF00 0K

Message: Please Power off or Reset System”

14. Once you see the showing message “**Power Off or Reset System**”, please re-start your system.
15. When you power on the computer again, you will find your old BIOS has already been successfully updated.

Warning

Please note that Award Flash Utility cannot run under EMM386 or QEMM. Thus, when executing the command “*awdf*lash”, and error message will appear:

“Error Message: Fail - Due to EMM386 or QEMM!”

5.2 DESKTOP MANAGEMENT INTERFACE (DMI) OVERVIEW

This motherboard can support DMI within the BIOS level. DMI is able to auto-detect and record information pertinent to a computer's system such as the CPU type, CPU speed, and internal/external frequencies, and memory size. The onboard BIOS will detect as many system information as possible and store those collected information in a 4KB block in the motherboard's flash EPROM and allow the DMI to retrieve data from this database.

The DMI Configuration Utility (DMICFG.EXE) must be used in real mode in order for the program to run, the base memory must be at least 180K. Memory managers like HIMEM.SYS (required by windows) must not be installed. You can boot up from a system diskette without AUTOEXEC.BAT and CONFIG.SYS files, "REM" HIMEM.SYS in the CONFIG.SYS, or press <F5> during bootup to bypass your AUTOEXEC.BAT and CONFIG.SYS files.

Using the DMI Configuration Utility

Edit DMI

```

Award DMI Configuration Utility V1.04u, Copyright Award Software Inc. 1996
[Edit DMI] [Add DMI] [Load DMI FILE] [Save DMI FILE]

===  Display Component  ===
BIOS
System
Base Board      Type : BIOS Information
Enclosure/Chassis Handle : 0000
Processor       Vendor Name : Award Software International, Inc.
Memory Controller BIOS Version : 4.51 PG
Memory Module   BIOS starting Address Segment : E000
Memory Module   BIOS Build Date : 05/12/97
Memory Module   BIOS Characteristics : Press [ENTER] for detail
Memory Module   Size of BIOS ROM : 0128K
Cache
Cache
Port Connector
Port Connector
Port Connector
Port Connector
Port Connector
Port Connector
Port Connector
Port Connector
System Slots

↑↓-Move cursor ENTER-Accept DEL-Delete ESC-Abort&Exit

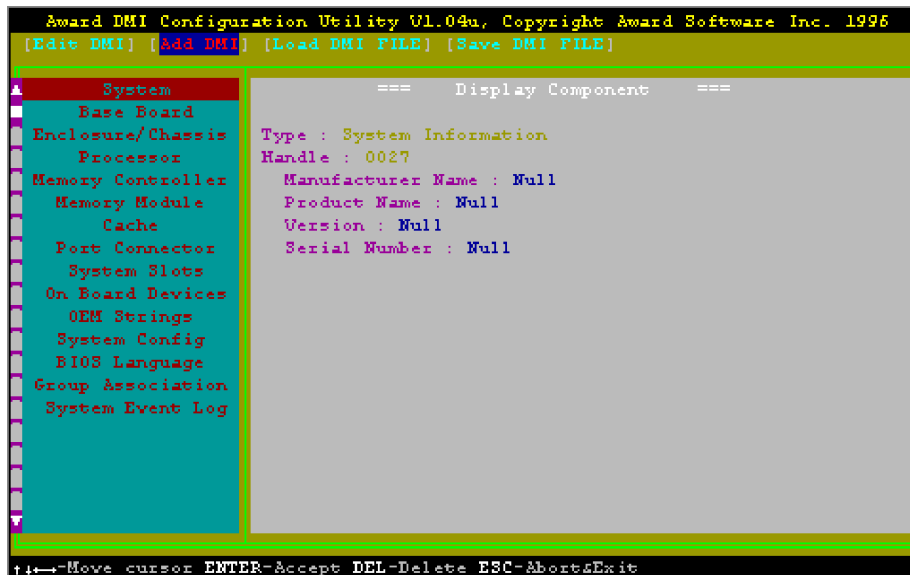
```

Chapter 5

Use the ←→ (left-right) cursors to move the top menu items and the ↑↓ (up-down) cursor to move between the left hand menu items. The bottom of the screen will show the available keys for each screen. Press enter at the menu item to enter the right hand screen for editing. “Edit component” appears on top. The reversed color field is the current cursor position and the blue text are available for editing. The orange text shows auto-detected information and are not available for editing. The blue text “Press [ENTER] for detail” contains a second pop-up menu is available, use the + - (plus-minus) keys to change the settings. Enter to exit and save, ESC to exit and not save.

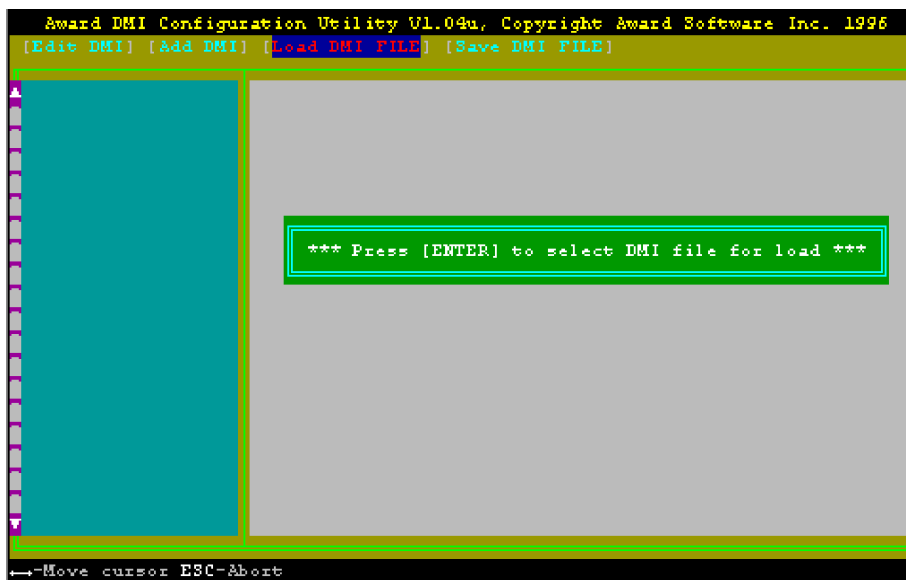
If the user has made changes, ESC will prompt you to answer Y or N. Enter Y to go back to the left-hand screen and save, enter N to go back to left-hand screen and not save. If editing has not been made, ESC will send you back to the left hand menu without any messages.

Add DMI



This DMI Configuration Utility also allows the system integrator or end user to add additional information into the DMI database such as serial numbers, housing configurations, and vendor information. Those information not detected by the motherboard BIOS and has to be manually entered through the DMI Configuration Utility and updated into the DMI database.

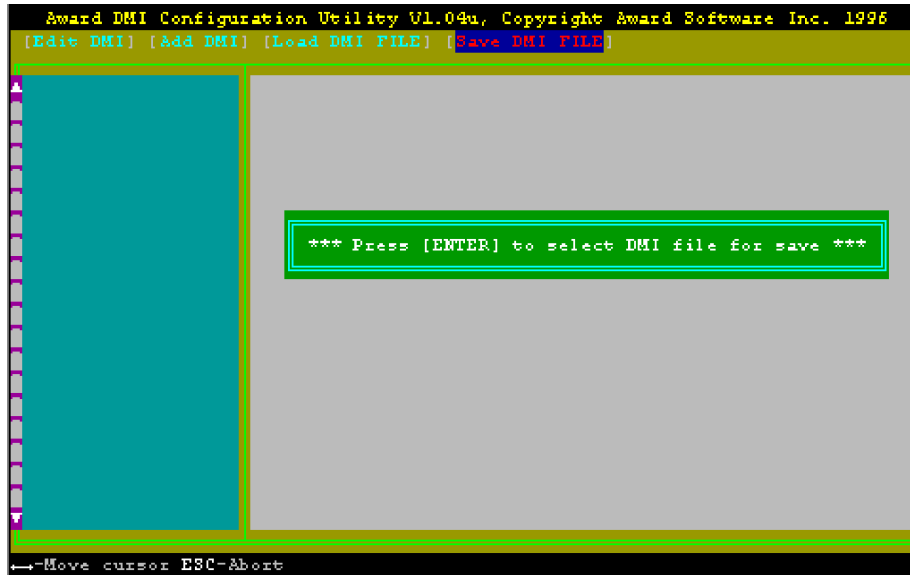
Load DMI File



You can load the disk file to memory by entering a drive and path and file name here.

Chapter 5

Save DMI File



You can save the DMI (normally only saved to flash ROM) to a file by entering the drive and path here. If you want to cancel save, you may press ESC and a message "Bad File Name" appears here to show it was not saved.

APPENDIX A

QUICK GUIDE

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

Function		Jumper Settings	
CPU Voltage Selection	3.3V Single Voltage CPU: For P54C, P54CT, 3.3V IDT WinChip C6	JP1: short JP5: short	JP7: A-B open 1-2 short 3-4 short 5-6 short
	3.5V Single Voltage CPU: For P54C-VRE, AMD-K5, Cyrix 6x86, 3.5V IDT WinChip C6	JP1: short JP5: short	JP7: A-B short 1-2 short 3-4 short 5-6 short
	3.3V (I/O)/2.2V (core) Dual Voltage CPU: For 2.2V AMD-K6 and AMD-K6-2	JP1: open JP5: open	JP7: A-B open 1-2 short 3-4 open 5-6 open
	3.3V (I/O)/2.8V (core) Dual Voltage CPU: For P55C, Cyrix 6x86L	JP1: open JP5: open	JP7: A-B open 1-2 open 3-4 open 5-6 short
	3.3V (I/O)/2.9V (core) Dual Voltage CPU: For 2.9V AMD-K6, Cyrix 6x86MX and Cyrix M II	JP1: open JP5: open	JP7: A-B short 1-2 open 3-4 open 5-6 short
	3.3V (I/O)/3.2V (core) Dual Voltage CPU For 3.2V AMD-K6/233	JP1: open JP5: open	JP7: A-B short 1-2 open 3-4 short 5-6 short
CPU Speed Selection	For 90MHz Intel Pentium, AMD-K5-PR90 and AMD-K5-PR120 CPU	JP9: 1-2 short JP10: 1-2 short JP13: 1-2 short	JP12: 1-2 short 3-4 open
	For 100MHz and 233MHz Intel Pentium, AMD-K6/233, AMD-K5-PR100, AMD-K5-PR150 and Cyrix M II-300, using 66MHz, (for future support only) CPU	JP9: 1-2 short JP10: 1-2 short JP13: 1-2 short	JP12: 1-2 open 3-4 open
	For 120MHz Intel Pentium and Cyrix 6x86-PR150 CPU	JP9: 2-3 short JP10: 1-2 short JP13: 1-2 short	JP12: 1-2 short 3-4 open
	For 133MHz Intel Pentium, AMD-K5-PR133 (REV C) and Cyrix 6x86L-PR166 CPU	JP9: 2-3 short JP10: 1-2 short JP13: 1-2 short	JP12: 1-2 open 3-4 open
To be continued...			

Appendix A

	Function	Jumper Settings	
CPU Speed Selection	For 150MHz Intel Pentium and Cyrix 6x86MX-PR166 CPU	JP9: 2-3 short JP10: 2-3 short JP13: 1-2 short	JP12: 1-2 short 3-4 open
	For 150MHz Cyrix 6x86L/MX-PR200 CPU	JP9: 2-3 short JP10: 1-2 short JP13: 1-2 short	JP12: 1-2 open 3-4 short
	For 166MHz Intel Pentium, AMD-K6/166 and AMD-K5-PR166 CPU	JP9: 2-3 short JP10: 2-3 short JP13: 1-2 short	JP12: 1-2 open 3-4 open
	For 180MHz IDT WinChip C6-180 CPU	JP9: 1-2 short JP10: 2-3 short JP13: 1-2 short	JP12: 1-2 short 3-4 open
	For 200MHz Intel Pentium, AMD-K6/200, IDT WinChip C6-200 and Cyrix 6x86MX-PR233 (for future support only) CPU	JP9: 1-2 short JP10: 2-3 short JP13: 1-2 short	JP12: 1-2 open 3-4 open
	For Cyrix M II-300, using 75MHz, (for future support only) CPU	JP9: 1-2 short JP10: 2-3 short JP13: 1-2 short	JP12: 1-2 open 3-4 short
	For 266MHz AMD-K6/266 CPU	JP9: 2-3 short JP10: 1-2 short JP13: 1-2 short	JP12: 1-2 open 3-4 open
	For 266MHz AMD-K6-2/266 (for future support only) CPU	JP9: 2-3 short JP10: 1-2 short JP13: 2-3 short	JP12: 1-2 open 3-4 open
	For 300MHz AMD-K6/300 CPU	JP9: 2-3 short JP10: 2-3 short JP13: 2-3 short	JP12: 1-2 open 3-4 open
System ROM Selection	5V Flash EPROM	JP4: 1-2 short	
	12V Flash EPROM	JP4: 2-3 short	

Appendix A
