PAM-0067V E1

High Performance

Pentium PCI Mainboard

User's Guide

Edition 3.00

© 1999 DTK Computer, Inc.
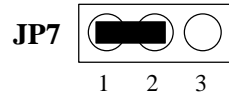
EPA POLLUTION PREVENTER

WARNING

For the system to operate normally, please make sure JP7 of the mainboard is set as below. Refer to Fig. 3 in this manual for the location JP7.

JP7 [■■■ ○]
　　　1　2　3

If JP7 is shorted to 2-3, no CMOS data can be retained.

Notice the JP12 should be selected properly for power type before power on. Please reference to the Quick Guide. And the BIOS setup also set to the correct power type used.

CAUTION

The motherboard is an electrostatic sensitive device. Don't open or handle except at a static-free workstation.

POWER OFF

It needs to hold the power switch 4 seconds to turn off the power if ATX power supply used.

Windows, MS-DOS, and MS Word are trademarks of Microsoft Corporation.

Novell, Netware are trademarks of Novell, Inc.

PC, AT, PC-DOS, OS/2 and Presentation Manager are trademarks of IBM Corporation.

Pentium is registered trademark of Intel Corp.

UNIX is the trademark of AT&T.

All other brand and product names are trademarks or registered trademarks of their respective companies.

The information presented in this publication has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies, whereas, specification is subjected to change without notice.

CONTENTS

CHAPTER 1   INTRODUCTION

Preface

The motherboard is a LPX form factor high performance all in one mainboard. It is developed around the pentium microprocessor with 64-bit access to data transfer and MMX technology. It includes VIA VT82C598MVP system chipset, ATI 3D Rage Turbo AGP/Rage II C AGP Integrated Graphics Accelerator, Winbond W83977EF-AW super I/O chip, Optional ESS 1869 Sound System.

Features

Processor
- Intel Pentium/MMX, Cyrix 6x86/6x86L/6x86MX/M II, AMD K5/K6/K6-2/K6-III and IDT C6 CPU.
- The mainboard can run with following speeds:
  90, 100, 110, 120, 133, 150, 166, 200, 233, 250, 266, 300, 333, 350, 400 and 450MHz or above base on 100MHz FSB

Chipset
- VIA VT82C598MVP PCI/AGP System Controller
- VIA VT82C586B PCI Integrated Peripheral Controller
- ATI 3D Rage Turbo AGP/Rage II C AGP Integrated Graphics Accelerator
- Winbond W83977EF-AW Super I/O Controller
- ESS 1869 Audio-Drive Sound Controller (Optional)

Cache Size
- Built in 512KB Synchronised Pipelined Burst Mode SRAM to achieve the high Pentium system performance.

Main Memory
- Support Mixed Memory Technologies: Extend Data Output (EDO), Standard Page Mode (SPM) and Fast Page Mode (FPM) and Synchronous DRAM (SDRAM) can work together.
- Memory configurations from 8MB to 256MB are possible using combination of 1M*32 to 8M*32 and 2M*32 to 8M*32 SIMM module (32 bit no-parity 72-pin SIMM module).

Graphics Controller
- Support AGP 2x Mode Transfer rate for Rage Turbo & AGP 1x mode for Rage II C.
- On board 2MB Video RAM, can be expanded to 4MB (with 2MB SGRAM module), or 4MB Video RAM on board (optional), can be expanded to 8MB (with 4MB SGRAM module).
- 3D, 66MHz/133MHz/266MHz, 532MB/s fast bus speed, Hardware Acceleration for DVD player for Rage Turbo AGP.
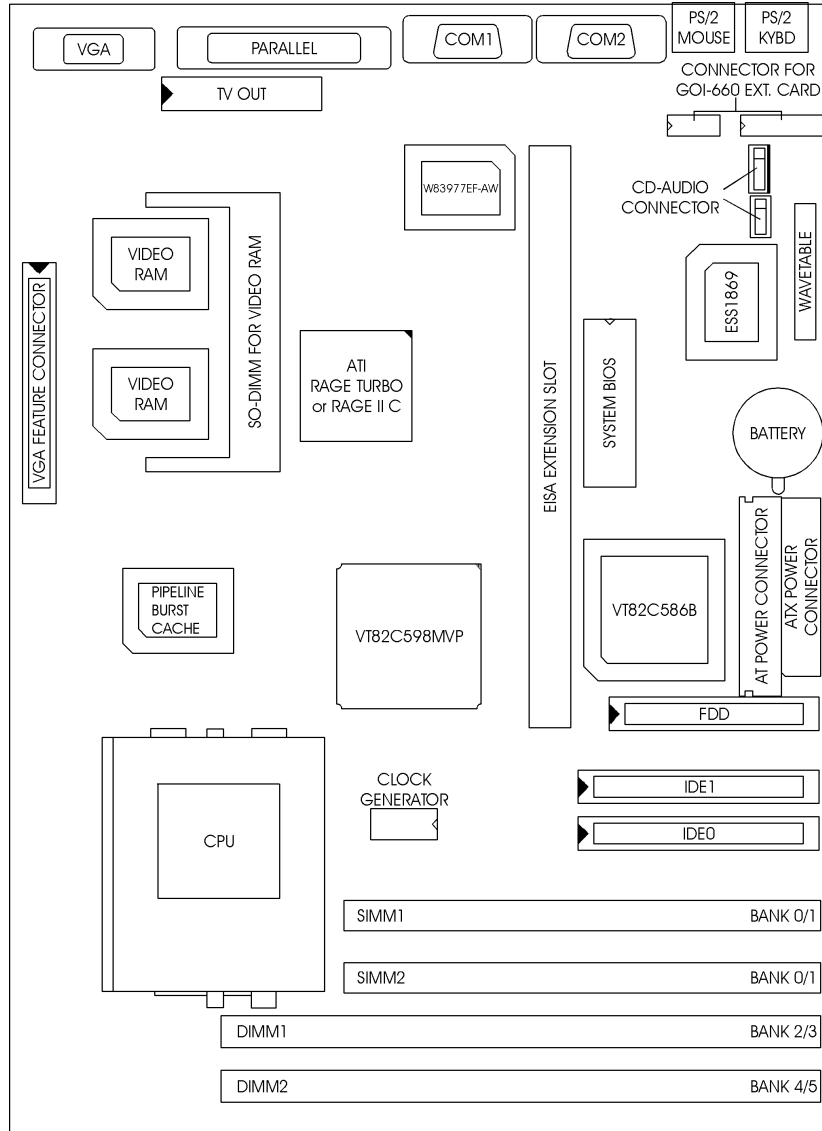
Fig. 1 Key Components of the Mainboard

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 keyboard and PS/2 mouse connector is provided.
- IrDA or Fast IR is provided.
- Two standard USB (Universal Serial Bus) supported.
- Support OnNow Keyboard wake up and PS/2 mouse wake up.

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 LS-120, etc.
- PCI Master IDE controller supports PIO Mode 3 and 4 devices, I/O data transfer rate can be up to 17Mb/s.
- Ultra DMA Mode supported. Transfer rate can be up to 33Mb/s.

Sound Controller
- Compatible with all major PC sound standards, including Sound Blaster™ Pro, MPU-401 and Windows Sound System™.
- Plug-and-Play support for Audio, Joystick, FM Controller, MPU-401.
- Wave Audio support sample rates from 4KHz to 44KHz.
- Full-duplex monophonic mode, half-duplex stereo mode.
- 3D stereo sound effect supported.
- Optional wavetable connector is provided.

System BIOS
- Award BIOS (256KB Flash EPROM).

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

LPX Form Factor
- 200mm (W) x 270mm (L) 4 Layer

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
Vibration	1,000Hz	
Electricity	4.75 ~ 5.25V	

CHAPTER 2   JUMPER SETTINGS

2.1   JUMPERS PRESENTATION
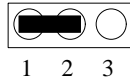
Pins 1 and 2 are shorted with a jumper cap.
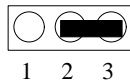
Pins 2 and 3 are shorted with a jumper cap.

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.

```
XXXXXXXXX
XXXXXXXXX
A80502-MMM



SXXX / XYZ
```
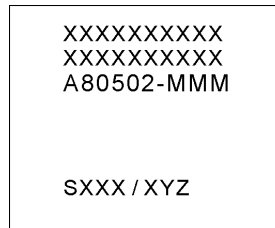
Fig. 2a CPU Description
(Bottom Side)

Description :

X = Voltage Specification (S or V)   Y = Timing Specification (S or M)
    S = Standard Voltage (3.4V)   S = Standard EDS timings
    V = VRE 3.4 - 3.6V (3.5V)   M = Min Valid Delay Spec.
Z = Dual Processing Support (S or U)
    S = Support DP/MP/UP
    U = Not tested to support DP

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.)

int_el
pentium
w/ MMX™ Tech
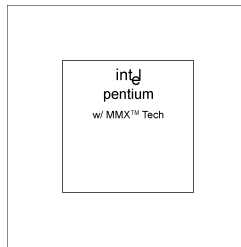
Fig. 2b CPU Description
(Top Side)

2.2.3 AMD-K6/K6-2/K6-III CPU

The AMD-K6 CPU family requires 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 requires 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.)

AMD
AMD-K6™-2
AMD-K6-2/450AHX
2.4V Core / 3.3V I/O ← Operating Voltage
Revision → A9909DPMW
Ⓜ Ⓒ 1998 AMD
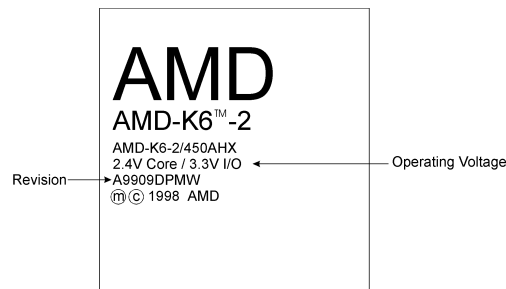
Fig. 2c CPU Description
(Top Side)

Operating Voltage	I/O Voltage	Core Voltage
2.2V	3.3V	2.2V
2.4V	3.3V	2.4V
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.)
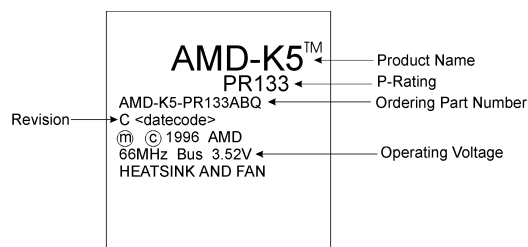
Fig. 2d CPU Description
(Top Side)

2.2.5   CYRIX 6x86 CPU

The Cyrix 6x86 has different nominal voltage depends on different lot. Please refer to the CPU marking.
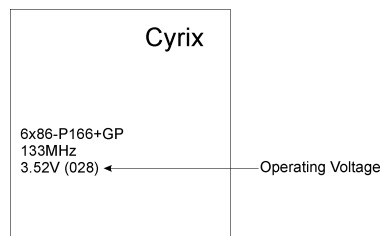
Fig. 2e CPU Description
(Top Side)

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/M II CPU

The Cyrix 6x86MX/M II 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
Cyrix M II	3.3V	2.9V

2.2.8   IDT WinCHIP C6/W2 CPU

The IDT WinChip C6/W2 CPU has different operating voltage. Please refer to the CPU marking to identify the operating voltage.

Fig. 2h CPU Description

2.3   GRAPHICAL DESCRIPTION OF JUMPER SETTINGS
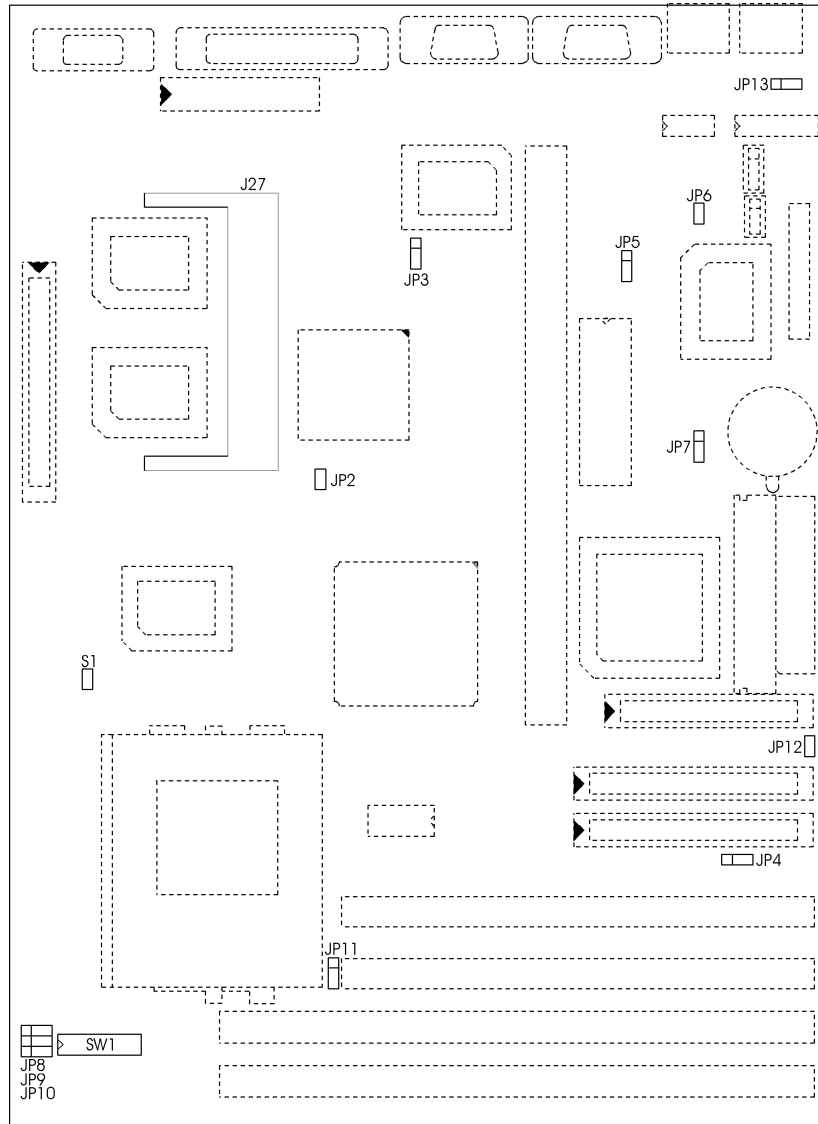
Fig. 3 Jumper Location of the mainboard

2.4   CPU VOLTAGE

2.4.1   CPU VOLTAGE AUTO SELECTION

The CPU voltage SW selection is developed on this motherboard. Set the SW1 to the proper positions reference to the voltage mark on the CPU or the listing as below.
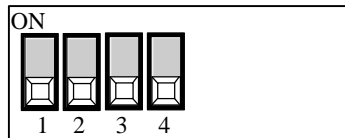
Fig. 4

2.4.2   CPU VOLTAGE BIOS SELECTION

The CPU Voltage can be selected through BIOS setup "CPU Core Voltage Selection". It can be set as following table:

2.2	AMD K6 (2.2V)/K6-2
2.4	AMD K6-2/450, AMD K6-III
2.8	Intel MMX (P55C); Cyrix 6x86L
2.9	AMD K6 (2.9V); Cyrix 6x86MX/M II; IBM6x86MX
3.2	AMD K6 (3.2V)
3.3	Intel Pentium
3.52	Cyrix 6x86; AMD K5, IDT C6/W2

Table 1

2.4.3 CPU VOLTAGE MANUAL SELECTION

The CPU Core Voltage can be selected by SW1-1,2,3,4 when the BIOS "CPU Core Voltage" be set as Disabled.
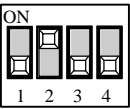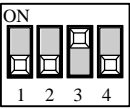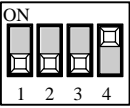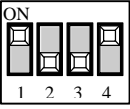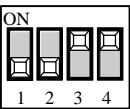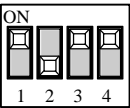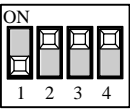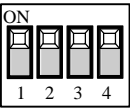
Voltage	SW1	CPU Type
2.2V		2.2V AMD K6, AMD K6-2
2.4V		AMD K6-2/450 or above, AMD K6-III
2.8V		Intel Pentium w/MMX (P55C); Cyrix 6x86L
2.9V		2.9V AMD K6; Cyrix 6x86MX/M II; IBM6x86MX
3.2V		3.2V AMD K6
3.3V		Intel Pentium (P54C)
3.4V		AMD K6-2/475
3.5V		Cyrix 6x86; AMD K5, IDT C6/W2

Table 2

Note: S1 only "short" for Single Voltage CPU such as IDT WinChip C6, W2 and W2A series.

2.5   CPU BUS FREQUENCY RATIO (SW1-5,6,7)

These switches set the frequency ratio 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 above jumpers CPU External (Bus) Frequency Selection.

2.6   CPU EXTERNAL (BUS) FREQUENCY SELECTION (SW1-8,9,10)

These switches 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   CHIPSET BUS CLOCK SETTING (JP9, JP10)

These jumpers set the chipset timing according the CPU external bus frequency selection.

2.8   CPU SPEED

CPU Type	Freq.	Ratio	Bus Freq.	Freq. Ratio Setting			Bus Freq. Setting			JP9	JP10
				1-5	1-6	1-7	1-8	1-9	1-10		
Intel Pentium	90MHz	1.5x	60MHz	OFF	OFF	OFF	ON	ON	ON	2-3	1-2
Intel Pentium	100MHz	1.5x	66MHz	OFF	OFF	OFF	OFF	ON	ON	2-3	1-2
Intel Pentium	120MHz	2.0x	60MHz	ON	OFF	OFF	ON	ON	ON	2-3	1-2
Intel Pentium	133MHz	2.0x	66MHz	ON	OFF	OFF	OFF	ON	ON	2-3	1-2
Intel Pentium	150MHz	2.5x	60MHz	ON	ON	OFF	ON	ON	ON	2-3	1-2
Intel Pentium	166MHz	2.5x	66MHz	ON	ON	OFF	OFF	ON	ON	2-3	1-2
Intel Pentium	200MHz	3.0x	66MHz	OFF	ON	OFF	OFF	ON	ON	2-3	1-2
Intel Pentium w/MMX	166MHz	2.5x	66MHz	ON	ON	OFF	OFF	ON	ON	2-3	1-2
Intel Pentium w/MMX	200MHz	3.0x	66MHz	OFF	ON	OFF	OFF	ON	ON	2-3	1-2
Intel Pentium w/MMX	233MHz	3.5x	66MHz	OFF	OFF	OFF	OFF	ON	ON	2-3	1-2
AMD-K5-PR120	120MHz	2.0x	60MHz	ON	OFF	OFF	ON	ON	ON	2-3	1-2
AMD-K5-PR133	133MHz	2.0x	66MHz	ON	OFF	OFF	OFF	ON	ON	2-3	1-2
AMD-K5-PR166	166MHz	2.5x	66MHz	ON	ON	OFF	OFF	ON	ON	2-3	1-2
AMD-K6/166	166MHz	2.5x	66MHz	ON	ON	OFF	OFF	ON	ON	2-3	1-2
AMD-K6/200	200MHz	3.0x	66MHz	OFF	ON	OFF	OFF	ON	ON	2-3	1-2
AMD-K6/233	233MHz	3.5x	66MHz	OFF	OFF	OFF	OFF	ON	ON	2-3	1-2
AMD-K6/266	266MHz	4.0x	66MHz	ON	OFF	ON	OFF	ON	ON	2-3	1-2
AMD-K6/300	300MHz	4.5x	66MHz	ON	ON	ON	OFF	ON	ON	2-3	1-2
To be continued..											

Table 3a

CPU Type	Freq.	Ratio	Bus Freq.	Freq. Ratio Setting			Bus Freq. Setting			JP9	JP10
				1-5	1-6	1-7	1-8	1-9	1-10		
AMD-K6-2/250	250MHz	2.5x	100MHz	ON	ON	OFF	OFF	OFF	OFF	1-2	2-3
AMD-K6-2/266	266MHz	4.0x	66MHz	ON	OFF	ON	OFF	ON	ON	2-3	1-2
AMD-K6-2/300	300MHz	3.0x	100MHz	OFF	ON	OFF	OFF	OFF	OFF	1-2	2-3
AMD-K6-2/333	333MHz	3.5x	95MHz	OFF	OFF	OFF	ON	OFF	OFF	1-2	2-3
AMD-K6-2/350	350MHz	3.5x	100MHz	OFF	OFF	OFF	OFF	OFF	OFF	1-2	2-3
AMD-K6-2/400	400MHz	4.0x	100MHz	ON	OFF	ON	OFF	OFF	OFF	1-2	2-3
AMD-K6-2/450	450MHz	4.5x	100MHz	ON	ON	ON	OFF	OFF	OFF	1-2	2-3
AMD-K6-2/475	475MHz	5.0x	95MHz	OFF	ON	ON	ON	OFF	OFF	1-2	2-3
AMD-K6-III/400	400MHz	4.0x	100MHz	ON	OFF	ON	OFF	OFF	OFF	1-2	2-3
AMD-K6-III/450	450MHz	4.5x	100MHz	ON	ON	ON	OFF	OFF	OFF	1-2	2-3
Cyrix 6x86L-PR150	120MHz	2.0x	60MHz	ON	OFF	OFF	ON	ON	ON	2-3	1-2
Cyrix 6x86L-PR166	133MHz	2.0x	66MHz	ON	OFF	OFF	OFF	ON	ON	2-3	1-2
Cyrix 6x86L-PR200	150MHz	2.0x	75MHz	ON	OFF	OFF	ON	ON	OFF	1-2	1-2
Cyrix 6x86MX-PR166	150MHz	2.5x	60MHz	ON	ON	OFF	ON	ON	ON	2-3	1-2
Cyrix 6x86MX-PR200	150MHz	2.0x	75MHz	ON	OFF	OFF	ON	ON	OFF	1-2	1-2
Cyrix 6x86MX-PR200	166MHz	2.5x	66MHz	ON	ON	OFF	OFF	ON	ON	2-3	1-2
Cyrix 6x86MX-PR233	188MHz	2.5x	75MHz	ON	ON	OFF	ON	ON	OFF	1-2	1-2
Cyrix 6x86MX-PR233	200MHz	3.0x	66MHz	OFF	ON	OFF	OFF	ON	ON	2-3	1-2
Cyrix M II-300	225MHz	3.0x	75MHz	OFF	ON	OFF	ON	ON	OFF	1-2	1-2
Cyrix M II-300	233MHz	3.5x	66MHz	OFF	OFF	OFF	OFF	ON	ON	2-3	1-2
Cyrix M II-333	249MHz	3.0x	83MHz	OFF	ON	OFF	OFF	ON	OFF	1-2	1-2
Cyrix M II-366	250MHz	2.5x	100MHz	ON	ON	OFF	OFF	OFF	OFF	1-2	2-3
IDT WinChip C6-180	180MHz	3.0x	60MHz	OFF	ON	OFF	ON	ON	ON	2-3	1-2
IDT WinChip C6-200	200MHz	3.0x	66MHz	OFF	ON	OFF	OFF	ON	ON	2-3	1-2
IDT WinChip 2A-266	250MHz	3.0x	83MHz	OFF	ON	OFF	OFF	ON	OFF	1-2	1-2
IDT WinChip 2A-300	250MHz	2.5x	100MHz	ON	ON	OFF	OFF	OFF	OFF	1-2	2-3
IDT WinChip 2A-300	266MHz	2.66x	100MHz	OFF	OFF	ON	OFF	OFF	OFF	1-2	2-3
IBM 6x86MX-PR266	208MHz	2.5x	83MHz	ON	ON	OFF	OFF	ON	OFF	1-2	1-2
IBM 6x86MX-PR300	225MHz	3.0x	75MHz	OFF	ON	OFF	ON	ON	OFF	1-2	1-2
IBM 6x86MX-PR300	233MHz	3.5x	66MHz	OFF	OFF	OFF	OFF	ON	ON	2-3	1-2
IBM 6x86MX-PR333	250MHz	3.0x	83MHz	OFF	ON	OFF	OFF	ON	OFF	1-2	1-2

Table 3b

2.9   JP5 - VOLTAGE SELECTION FOR SYSTEM ROM

1.   5V Flash EPROM on System ROM
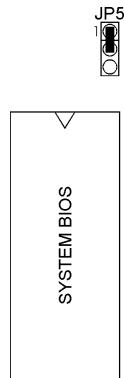
Fig. 5a

2.   12V Flash EPROM on System ROM
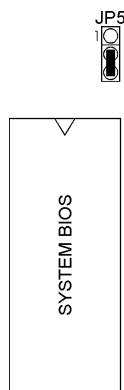
Fig. 5b

2.10   JP7 - CLEAR CMOS DATA

JP7 is used to clear the content of the CMOS Data in the RTC

1.   Normal Mode
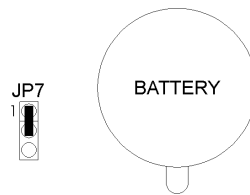
Fig. 6a

2.   Reset Content of RTC
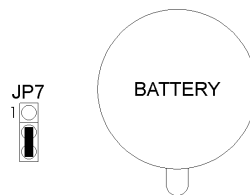
Fig. 6b

2.11   JP2 - ONBOARD VGA SELECT

JP2 is used to set the onboard VGA enabled or disabled.

JP2	Description
▭	Eanble
○ ○	Disable

Table 4: Onboard VGA Select

2.12   JP6 - ONBOARD AUDIO SELECT (OPTIONAL)

JP6 is used to set the onboard Audio enabled or disabled.

JP6	Description
▭	Eanble
○ ○	Disable

Table 5:Onboard Audio Select

2.13   JP8, JP11 SDRAM CLOCK SETTING

JP8, JP11 are used to set the frequency of the SDRAM clock. Default setting is JP8: 2-3 shorted, JP11: 1-2 shorted.

CPU Bus	SDRAM Clock (MHz)			
Freq. (MHz)	JP8 (2-3)	JP11 (1-2)	JP8 (1-2)	JP11 (2-3)
100	100		66	
83.3	83.3		66	
75	75		66	
66	66		66	
60	60		60	
95	95		66	

Table 6

2.14   JP12 - POWER SUPPLY SELECTION

JP12	Description
▭	AT Power
○ ○	ATX Power

Table 7: Power Supply Selection

Note: You should set the 'Power Supply Type' (Section 4.4) correctly to match this jumper setting.

2.15   JP3, JP13 – KEYBOARD WAKE-UP/PASSWORD

JP3 and JP13 are used for ATX power wake-up by keyboard password which is set by BIOS setup.

2.16   JP4 – CPU OVERHEAT ALARM

JP4 is an optional jumper (it may not be installed on the mainboard when the optional CPU overheat alarm system not installed). When JP4 is set as pin 2-3 shorted, the optional CPU overheat alarm system will be enabled. If it is set to all pins are opened, the optional CPU overheat alarm system will be disabled.

2.17   MEMORY CONFIGURATION

The mainboard lets user upgrade system memory via SIMM or DIMM sockets on the mainboard. On board memory is located in six banks: Bank 0 - Bank 5. Two SIMM sockets (SIMM1, SIMM2) are provided for SPM, FPM and EDO RAM SIMM and two DIMM sockets (DIMM1, DIMM2) are available for the 3.3V unbuffered SDRAM and EDO DIMM.

Note: The type of SIMM1/SIMM2 must be same.
Only 3.3V unbuffered DIMM can be used.
Both single sided and double sided SIMM or DIMM can be supported.

Table 8 provides the typical memory configurations supported by the mainboard.

Bank 0/1 (SIMM1/2)	Bank 2/3 (DIMM1)	Bank 4/5 (DIMM2)
Installed	None	None
Installed	Installed	None
None	Installed	None
Installed	None	Installed
None	None	Installed
Installed	Installed	Installed
None	Installed	Installed

Table 8

The memory size of SIMM can be 8MB, 16MB, 32MB or 64MB. The memory of DIMM can be 8MB, 16MB, 32MB, 64MB or 128MB.

SIMM & DIMM co-exist are not suggested for over 83MHz FSB CPU clock.

2.18   VIDEO MEMORY CONFIGURATION

SO-DIMM connector is built on J27 to let end user expanding the video memory size.   2MB video memory is built in with SGRAM on U27 and U28.   User can upgrade the video memory to 4MB with the 2MB SGRAM module.   Optionally, 4MB video memory may be installed on the mainboard, in such case, user have to upgrade the video memory to 8MB with the 4MB SGRAM module (100MHz).
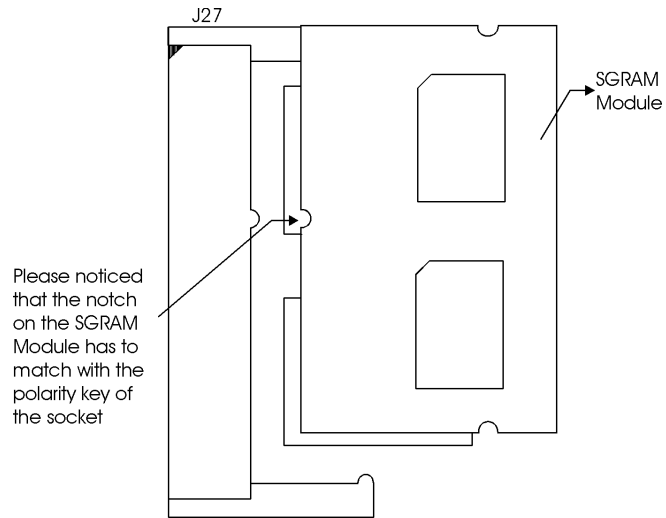
Fig. 7 GOI-607 Extension Card

CHAPTER 3   CONNECTOR 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.
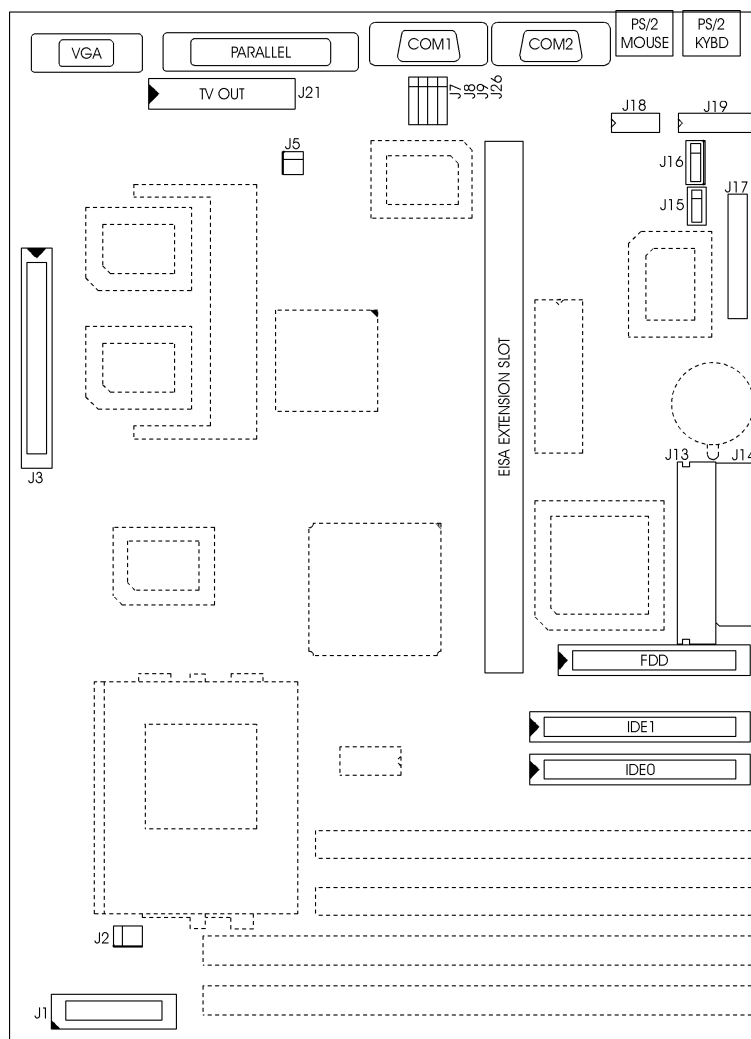
Fig. 8 Connector Location
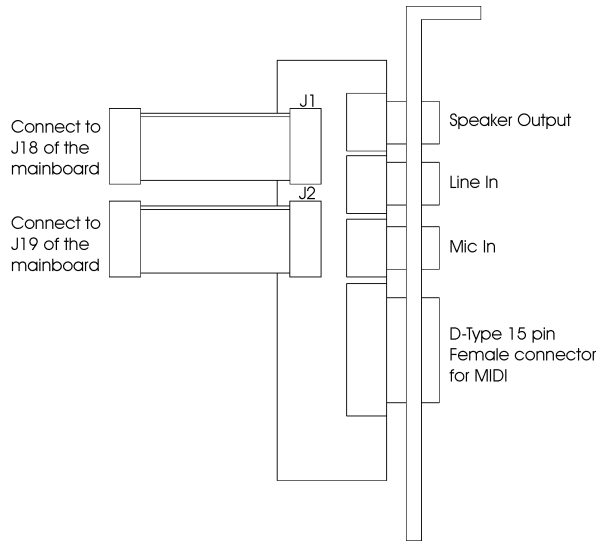
Fig. 9a Optional GOI-660 Extension Card
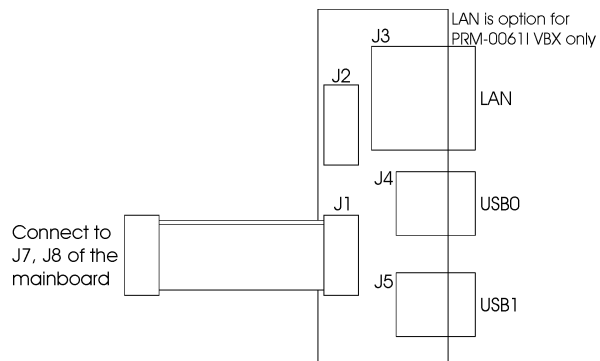
Fig. 9b Optional GOI-611 Extension Card

3.1   J1 – MULTIPLE FUNCTION JUMPER

J1 is a front panel multi-function jumper include speaker, reset, keylock, harddisk, LED, ATX power switch, ACPI (suspend) LED and power button (suspend switch). The pin definition is as following figure.
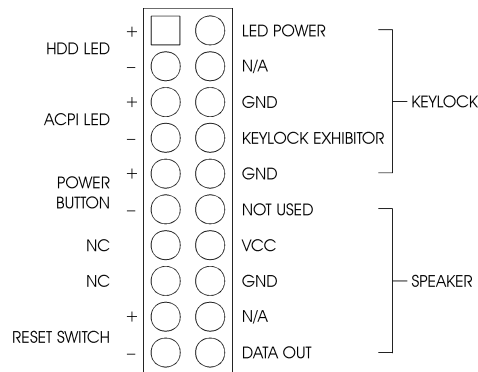
Fig. 10 Multiple Function Jumper

3.2   J2 – CPU FAN CONNECTION

J2 is a three pin connector, which is used to connect with the CPU FAN power cable.
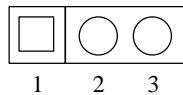
Fig. 11 CPU Fan Connector

3.3   J3 – FEATURE CONNECTOR

This connector is the feature connector for VGA controller. Optional for multimedia extension.

3.4   J5 – INTERNAL MODEM RING-IN CONNECTOR

J5 is a three pin connector which is used to connect the Internal Modem Card's Ring-in signal to the mainboard. Thus, the mainboard can be wake up from suspend mode through the Internal Modem Ring-in.

1   ◯ 5V STANDBY

◯ GND
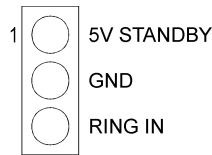
◯ RING IN

Fig. 12 Internal Modem Ring-in Connector

3.5   J7, J8 - USB CONNECTOR

Use the 10-way cable to connect the J7, J8 with J5 of GOI-603 extension card.

VCC □   □ VCC
USB0 -Data ◯   ◯ USB1 -Data
USB0 +Data ◯   ◯ USB1 +Data
GND ◯   ◯ GND
Not Used ◯   ◯ Not Used
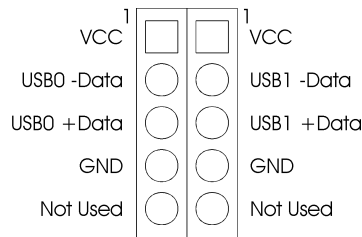
Fig. 13 USB Connector

3.6   J9 - IrDA/FAST IR CONNECTOR

J9 is a five pin connector, which use the UART2 as interface for IrDA. You must also configure the setting through "UART2 Mode" is Integrated Peripheral Setup to select whether UART2 is used for COM2 or HPSIR/SKSIR. The pin definition is as following:

□ VCC
◯ NC
◯ IR-RX
◯ GND
1 ◯ IR-TX
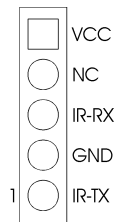
Fig. 14 IrDA/Fast IR Connector

3.7   J10, J11 - PRIMARY/SECONDARY IDE CONNECTOR

These connectors support the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to your hard disk.

3.8   J12 - FLOPPY DRIVE CONNECTOR

This connector supports the floppy drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drive.

3.9   J13 - AT POWER CONNECTOR

J13 is a 12 pin male connector. Plug the power connector of AT power supply onto the connector.

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

Table 9: AT Power Connector

3.10   J14 - ATX POWER CONNECTOR

J14 is a 2x10 pin male connector. Plug the power connector of the ATX power supply onto the connector.

+3.3VDC		+3.3VDC
+3.3VDC		-12VDC
GND		GND
+5VDC		Power Switch
GND		GND
+5VDC		GND
GND		GND
Power Good		-5VDC
+5V Standby		+5VDC
+12VDC		+5VDC
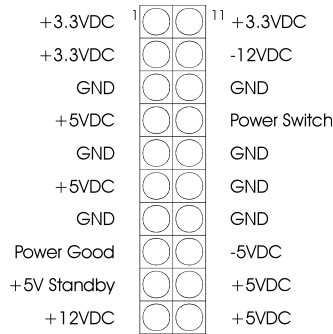
Fig. 15 ATX Power Connector

3.11   J15 - CD-ROM AUDIO CONNECTOR (MISUMI/ PANASONIC)

J15 is four-pin connector, which is used to connect with the Panasonic or Misumi CD-ROM audio output. The pin definition is as following:

L   G   R   G
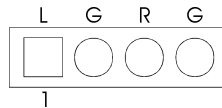
Fig. 16 CD-ROM Audio Connector

3.12   J16 - CD-ROM AUDIO CONNECTOR (SONY)

J16 is a four-pin connector, which is used to connect with the Sony CD-ROM audio output. This pin definition is as following:

L   G   G   R
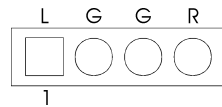
Fig. 17 CD-ROM Audio Connector

3.13 J17 - WAVETABLE EXPANSION CONNECTOR

J17 is a 2x13 pin male connector, which is used to connect the hardware wavetable expansion card.

3.14 J18, J19 - AUDIO EXTENSION CARD GOI-660 CONNECTOR (OPTIONAL)

Use the 9-way cable to connect the J18 with J1 of GOI-660.
Use the 15-way cable to connect the J19 with J2 of GOI-660.

3.15 J21 – TV OUT CONNECTOR

This is a reserved connector for TV-OUT extension which is a MPEGTV2 chip on the card to encode the VGA signals to TV composite signals.

3.16 J26 – CUSTOMER IR CONNECTOR

J26 is a five-pin connector for the customer Infrared device. The pin definition is listed as follows:
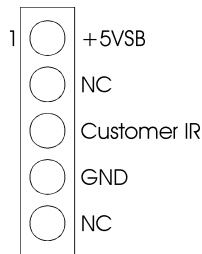
Fig. 18 Customer IR Connector
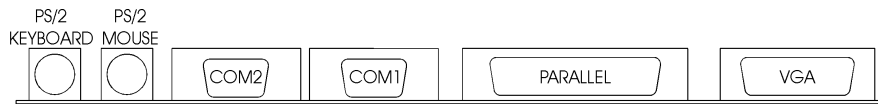
Fig. 19 Feature Connector

3.18   PS/2 KEYBOARD CONNECTOR

This connector is a six-pin female mini DIN connector using a PS/2 plug. If a standard AT size keyboard plugs, you may use the DIN to mini DIN adaptor.

3.19   PS/2 MOUSE CONNECTOR

This connector is a six-pin female mini DIN connector using a PS/2 plug. Plug the jack on the PS/2 keyboard cable into this connector.

3.20   PARALLEL PRINTER CONNECTOR

This connector is a DB-25 parallel printer connector.

3.21   SERIAL PORT COM1/COM2

This is a D-Type 9 pin male connector for pointing devices or other serial devices.

3.22   VGA CONNECTOR

This is a D-Type 15 pin male connector for monitor.

CHAPTER 4   AWARD BIOS SETUP GUIDE

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

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

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

4.1   AWARD BIOS SETUP

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

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

"Press DEL to enter SETUP"

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

ROM PCI/ISA BIOS (2A5LEG3B)
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   ↑ ↓ → ← : Select Item
F10 : Save & Exit Setup   (Shift)F2 : Change Color

Time, Data, Hard Disk Type...

Fig. 20

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 (2A5LEG3B)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

```
Date (mm:dd:yy) : Mon, Sep 8 1997
Time (hh:mm:ss) : 19 : 1 : 14

 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.                   Base Memory:       0K
 Drive B : None                         Extended Memory:       0K
 Floppy 3 Mode Support : Disabled          Other Memory:      512K

 Video  : EGA/VGA
 Halt On : All Errors                       Total Memory:      512K

 Esc : Quit         ↑↓→← : Select Item           PU/PD/+/- : Modify
 F1  : Help         (Shift)F2 : Change Color
```

Fig. 21

Date(mm/dd/yy)	Type the current date.
Time(hh:mm:ss)	Type the current time.
Hard Disks	Choose from the standard hare disk types 1 to 45. Type 47 is user definable. Type Auto is for auto detect the hard disk type.
Drive A&B	Choose 360K, 5.25in.; 1.2M, 5.25in.; 720K, 3.5in.; 1.44M, 3.5in.; 2.88MB 3.5in. 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
Floppy 3 Mode Support	Choose Enable to allow floppy drive support 3 mode

4.3   BIOS FEATURES SETUP

ROM PCI/ISA BIOS (2A5LEG3B)
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, SCSI	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		
Memory Parity/ECC Check	: Disabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
IDE Second Channel Control	: Disabled		
PCI/VGA Palette Snoop	: Disabled	ESC: Quit ↑↓→←: Select Item	
OS Select For DRAM > 64MB	: Non-OS2	F1: Help PU/PD/+/-: Modify	
HDD S.M.A.R.T. Capability	: Disabled	F5: Old Values (Shift)F2: Color	
Report No FDD For WIN 95	: No	F7: Load Setup Defaults	

Fig. 22 BIOS Setup Defaults

<u>**A short description of the screen items follows:**</u>

Virus Warning: When enable, you received a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program.

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 select other boot up sequence. Available sequences are "A,C,SCSI", "C,A,SCSI", "C,CDROM,A", "CDROM,C,A", "D,A,SCSI", "E,A,SCSI', "F,A,SCSI", "SCSI,A,C", "SCSI,C,A", "C Only", "LS/ZIP,C".

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 (chipset handled) or Normal (keyboard handled). The gate A20 is a device used to address memory above 1Mbytes. Initially, the gate A20 was handled via a pin on the keyboard. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Memory Parity/ECC Check: Choose Enabled or Disabled. If memory modules with Parity of ECC is installed.

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

Typematic Rate (Chars/Sec): 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.

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

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

Report No FDD For WIN 95: Select Yes or No, value is No. If no floppy is connected, the BIOS will not report to Windows 95.

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 (2A5LEG3B)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Bank 0/1 DRAM Timing	: FP/EDO 70ns	OnChip USB	: Disabled
Bank 2/3 DRAM Timing	: SDRAM 10ns		
Bank 4/5 DRAM Timing	: FP/EDO 70ns		
SDRAM Cycle Length	: 3		
DRAM Read Pipeline	: Enabled		
Cache Rd+CPU Wt Pipeline	: Enabled		
Cache Timing	: Fast		
Video BIOS Cacheable	: Enabled		
System BIOS Cacheable	: Enabled		
Memory Hole At 15MB Addr.	: Disabled		
AGP Aperture Size	: 128M		

ESC: Quit   ↑↓→←: Select Item
F1: Help   PU/PD/+/-: Modify
F5: Old Values   (Shift)F2: Color
F6: Load BIOS Defaults
F7: Load Setup Defaults

Fig. 23

<u>**A short description of the screen items follows:**</u>

Bank 0/1 DRAM Timing, Bank 2/3 DRAM Timing, Bank 4/5 DRAM Timing: Available options are Normal, Medium, Fast, Turbo, FP/EDO 70ns, FP/EDO 60ns. It is set the DRAM Timing of the corresponding Memory Bank.

SDRAM Cycle Length: It is used to set the SDRAM timing. The default setting is 2 and it may be set to 3 for slower SDRAM.

DRAM Read Pipeline: You may select Enabled for this field when PBSRAMS are installed. Pipeling improves system performance.

Cache Timing: This option is used to control the cache timing. The available options are Fast and Fastest.

Video BIOS Cacheable: When enabled, the Video BIOS cache will cause access to video BIOS addressed at C0000H to C7FFFH to be cached, if the cache controller is also enabled.

System BIOS Cacheable: As with caching the video BIOS above, enabling this selection allows accesses to the system BIOS ROM addressed at F0000H – FFFFFH to be cached, provided that the cache controller is enabled.

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

Aperture Size: It is used to setup the maximum aperture size used by the AGP Graphic Card. The available options are 4M, 8M, 16M, 32M, 64M, 128M, 256M.

CPU Core Voltage: This feature is implemented to simplify the jumper setting for end user. Set it at Auto, the motherboard can auto detect the core voltage of any CPU and switching power will generate the correct voltage to support the CPU. User also can select the CPU core voltage through the BIOS. The option is 2.1, 2.2, 2.8, 2.9, 3.2, 3.3, 3.52. If this option is set at Disabled, user should select the CPU core voltage by JP1, SW1-1 and SW1-2 (Refer to Section 2.4)

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

USB Keyboard Support: This option only shown when OnChip USB Controller is enabled. Choose Enabled or Disabled to support the USB keyboard.

TV OUT Mode: Available choice is "NTSC" and "PAL". It is used to select the TV-Out System. Please choose the option according to the TV system connected to the TV-Out.

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 (2A5LEG3B)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: User Define	Primary INTR	: ON
PM Control by APM	: Yes	IRQ3 (COM2)	: Disabled
Video Off Option	: V/H SYNC+Blank	IRQ4 (COM1)	: Disabled
Video Off Method	: Standby	IRQ5 (LPT2)	: Disabled
MODEM Use IRQ	: 3	IRQ6 (Floppy Disk)	: Disabled
Soft-off by PWRBTN	: Delay 4 Sec.	IRQ7 (LPT1)	: Disabled
		IRQ8 (RTC Alarm)	: Disabled
PM Timers		IRQ9 (IRQ2 Redir)	: Disabled
HDD Power Down	: Disabled	IRQ10 (Reserved)	: Disabled
Suspend Mode	: Disabled	IRQ11 (Reserved)	: Disabled
PM Events		IRQ12 (PS/2 Mouse)	: Disabled
VGA	: OFF	IRQ13 (Coprocessor)	: Disabled
LPT & COM	: None	IRQ14 (Hard Disk)	: Disabled
HDD & FDD	: OFF	IRQ15 (Reserved)	: Disabled
DMA/Master	: OFF		
		ESC: Quit ↑↓→←: Select Item	
		F1: Help PU/PD/+/-: Modify	
		F5: Old Values (Shift)F2: Color	
		F7: Load Setup Defaults	

Fig. 24

<u>**A short description of the screen items follows:**</u>

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 10 seconds.
"Min Saving" will set the time period waiting for Suspend Mode to be 1 hour.

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

Video Off Option: Choose the mode in which you want the monitor to blank. The options are "Always On", "Suspend → Off", "Susp, Stby → Off", "All mode → Off".

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.

MODEM Use IRQ: Available options are 3, 4, 5, 7, 9, 10, 11 and NA. It is used to choose the interrupt line that the Modem is used. "NA" means not available.

Soft-Off by PWR-BTTN: Available options are "Instant-Off" and "Delay 4 sec.". For "Instant-Off" option, the power of the system will be switched off at once when the power button is pressed for turn it off. For "Delay 4 sec." option, the power of the system will be switched off with holding the power button for 4 second.

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

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

VGA/LPT&COM/HDD&FDD/DMA/Master: All of these functions are used to control the wake up event from the Suspend Mode. Once the function is enabled, the corresponded activity will trigger the system back to the Normal Mode from the Suspend Mode.

Primary INTR: To turn on this feature will enable the system to monitor the IRQs for power management.

IRQ3 – 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

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 (2A5LEG3B)
PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed	: Yes	CPU to PCI Write Buffer	: Enabled
Resources Controlled By	: Manual	PCI Dynamic Bursting	: Enabled
Reset Configuration Data	: Disabled	PCI Master 0 WS Write	: Enabled
ACPI I/O Device Node	: Enabled	PCI Delay Transaction	: Enabled
IRQ-3 assigned to	: PCI/ISA PnP	PCI Master Read Prefetch	: Enabled
IRQ-4 assigned to	: PCI/ISA PnP	PCI #2 Access #1 Retry	: Disabled
IRQ-5 assigned to	: PCI/ISA PnP	AGP Master 1 WS Write	: Enabled
IRQ-7 assigned to	: PCI/ISA PnP	AGP Master 1 WS Read	: Disabled
IRQ-9 assigned to	: PCI/ISA PnP		
IRQ-10 assigned to	: PCI/ISA PnP	PCI IRQ Actived By	: Level
IRQ-11 assigned to	: PCI/ISA PnP	Assign IRQ For USB	: Disabled
IRQ-12 assigned to	: PCI/ISA PnP	Assign IRQ For VGA	: Enabled
IRQ-14 assigned to	: PCI/ISA PnP		
IRQ-15 assigned to	: PCI/ISA PnP		
DMA-0 assigned to	: PCI/ISA PnP	ESC: Quit ↑↓→←: Select Item	
DMA-1 assigned to	: PCI/ISA PnP	F1: Help PU/PD/+/-: Modify	
DMA-3 assigned to	: PCI/ISA PnP	F5: Old Values (Shift)F2: Color	
DMA-5 assigned to	: PCI/ISA PnP	F6: Load BIOS Defaults	
DMA-6 assigned to	: PCI/ISA PnP	F7: Load Setup Defaults	
DMA-7 assigned to	: PCI/ISA PnP		

Fig. 25

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

A short description of the screen items follows:

PNP OS Installed: Set this option to Yes if the operating system installed in the computer is Plug and Play-aware (e.g. Windows 95).

Resources Controlled By: The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them..

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

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

CPU to PCI Write Buffer: It is used to enable or disable the CPU to PCI Write Buffer.

PCI Dynamic Bursting: It is used to enable or disable the PCI dynamic bursting cycles.

PCI Master 0 WS Write: Choose enable to let the PCI Master using 0 wait state in write cycle.

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

PCI Delay Transaction: Select Enabled to use the write buffer for the delay transaction cycles. It is selected to support the compliance of PCI Specification Version 2.1.

PCI Master Read Prefetch: It is used to enable or disable the PCI master read prefetch cycle.

AGP Master 1 WS Write/AGP Master 1 WS Read: These items are used to enable or disable the AGP master device 1 wait state Write and Read cycle correspondingly.

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

Assign IRQ For USB: It is used to choose the IRQ that the USB is used.

Assign IRQ For VGA: It is used to choose the IRQ that the VGA is used.

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 (2A5LEG3B)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

OnChip IDE First Channel	: Enabled	UART Mode Select	: Normal
OnChip IDE Second Channel	: Enabled		
IDE Prefetch Mode	: Enabled	Onboard Parallel Port	: 378/IRQ7
IDE HDD Block Mode	: Enabled	Parallel Port Mode	: SPP
IDE Primary Master PIO	: Auto		
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto		
IDE Primary Master UDMA	: Auto		
IDE Primary Slave UDMA	: Auto		
IDE Secondary Master UDMA	: Auto		
IDE Secondary Slave UDMA	: Auto		
Init Display First	: PCI Slot		
POWER ON Function	: Button Only		
KBC input clock	: 8MHz	ESC: Quit ↑↓→←: Select Item	
Onboard FDD Controller	: Enabled	F1: Help PU/PD/+/-: Modify	
Onboard Serial Port 1	: 3F8/IRQ4	F5: Old Values (Shift)F2: Color	
Onboard Serial Port 2	: 2F8/IRQ3	F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

Fig. 26

A short description of the screen items follows:

OnChip IDE First Channel/OnChip IDE Second Channel: These items are used to enable or disable the onboard IDE Channel.

IDE Prefetch Mode: Choose Enabled to set the onboard IDE controller to access the IDE device with faster Prefetch Mode.

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 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.

IDE Primary Master UDMA/IDE Primary Slave UDMA/IDE Secondary Master UDMA/IDE Secondary Slave UDMA: Available selection are "Auto" or "Disabled". To choose "Auto", the system BIOS will scan the IDE device and decide Ultra DMA supported or not.

Init Display First: To select priority of initialization the PCI display card or the AGP display card.

POWER ON Function: To support PS/2 mouser power on (hit the left key or the right key of the mouse two times) and keyboard password power on.

KBC input clock: To select the keyboard controller frequency 6, 8, 12, 16MHz.

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

Onboard Serial Port 1: Choose Auto, Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4 and 2E8/IRQ3. While choosing proper I/O Address/IRQ, be sure not to cause Address conflict with other I/O devices. The default setting is 3F8/IRQ4.

Onboard Serial Port 2: Choose Auto, Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4 and 2E8/IRQ3. While choosing proper I/O Address/IRQ, be sure not to cause Address conflict with other I/O device. The default setting is 2F8/IRQ3.

UART Mode Select: Available selection are "Normal", "IrDA" and "ASKIR".

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.

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

ECP Mode Use DMA: Choose "1" or "3" to select the DMA channel used for the ECP device. This item is shown if the **Onboard Parallel Mode** is chosen as "ECP" or "ECP/EPP" option.

ECP Mode Select: Choose "EPP1.7" or "EPP1.9", which is used to configure the EPP using either EPP1.7 or 1.9 timing specification. This item is shown if the **Parallel Mode** is chosen as "EPP" or "ECP+EPP" option.

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 HDD LOW LEVEL FORMAT MENU

Three utilities are provided in the HDD Low Level Format memu:

(1) SELECT DRIVE
(2) BAD TRACK LIST
(3) PREFORMAT

```
┌──────────────────────────────────────────────────┬─────────────────────┐
│        Hard Disk Low Level Format Utility          │  BAD TRACKS TABLE   │
│                                                    │    NO. CYLS HEAD    │
│              ┌─────────────────────┐               │                     │
│              │    SELECT DRIVE     │               │                     │
│              │   BAD TRACK LIST    │               │                     │
│              │      PREFORMAT      │               │                     │
│              └─────────────────────┘               │                     │
│                                                    │                     │
│                                                    ├                     │
│           Current select drive is : C              │                     │
│                                                    │                     │
│       DRIVE : C    CYLINDER : 0    HEAD : 0        │                     │
├────────────────────────────────────────────────────┴─────────────────────┤
│                   SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR    MODE         │
│ Primary Master   :  3228  6256   16    65535    6255    63      AUTO       │
│ Primary Slave    :     0     0    0        0       0     0    ---------    │
│ Secondary Master :     0     0    0        0       0     0    ---------    │
│ Secondary Slave  :     0     0    0        0       0     0    ---------    │
├───────────────────────────────────────────────────────────────────────────┤
│ Up/Down-Select item            ENTER-Accept              ESC-Exit/Abort    │
│        Copyright (c) Award Software, Inc. 1992-98 All Rights Reserved      │
└───────────────────────────────────────────────────────────────────────────┘
```

Fig. 27

```
┌─────────────────────────────────────────────────────────┬──────────────────┐
│       Hard Disk Low Level Format Utility                │ BAD TRACKS TABLE │
│                                                         │  NO. CYLS HEAD   │
│         ┌───────────────────────────────┐               │                  │
│         │      SELECT DRIVE             │               │                  │
│         │      BAD TRACK LIST           │               │                  │
│         │      PREFORMAT                │               │                  │
│         └───────────────────────────────┘               │                  │
│                                                         │                  │
│                                                         │                  │
│              Auto scan bad track                        │                  │
│                Add bad track                            │                  │
│               Modify bad track                          │                  │
│               Delete bad trac                           │                  │
│             Clear bad track table                       │                  │
│      DRIVE : C    CYLINDER : 0     HEAD : 0             │                  │
├─────────────────────────────────────────────────────────┴──────────────────┤
│                  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR    MODE            │
│ Primary Master   : 3228  6256   16    65535    6255    63     AUTO          │
│ Primary Slave    :    0     0    0        0       0     0   ---------       │
│ Secondary Master :    0     0    0        0       0     0   ---------       │
│ Secondary Slave  :    0     0    0        0       0     0   ---------       │
├─────────────────────────────────────────────────────────────────────────────┤
│ Up/Down-Select item            ENTER-Accept           ESC-Exit/Abort        │
│       Copyright (c) Award Software, Inc. 1992-98 All Rights Reserved         │
└─────────────────────────────────────────────────────────────────────────────┘
```

Fig. 28

Setup Screen shown when "BAD TRACK LIST" option is selected

```
┌──────────────────────────────────────────────────────────┬─────────────────────┐
│      Hard Disk Low Level Format Utility                   │  BAD TRACKS TABLE   │
│                                                           │   NO. CYLS HEAD     │
│           ┌─────────────────────────────────┐             │                     │
│           │         SELECT DRIVE            │             │                     │
│           │       BAD TRACK LIST            │             │                     │
│           │         PREFORMAT               │             │                     │
│           └─────────────────────────────────┘             │                     │
│                                                           │                     │
│                                                           │                     │
├──────────────────────────────────────────────────────────┤                     │
│                                                           │                     │
│        Interleave (1-8) :   0 (0 for auto detect)         │                     │
│   Auto scan bad track :    N                              │                     │
│              START :    N                                 │                     │
│                                                           │                     │
├──────────────────────────────────────────────────────────┤                     │
│        DRIVE : C    CYLINDER : 0    HEAD : 0              │                     │
├──────────────────────────────────────────────────────────┴─────────────────────┤
│                   SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR    MODE               │
│   Primary Master   :  3228  6256   16    65535    6255    63     AUTO            │
│   Primary Slave    :    0     0    0        0       0      0    ---------        │
│   Secondary Master :    0     0    0        0       0      0    ---------        │
│   Secondary Slave  :    0     0    0        0       0      0    ---------        │
├──────────────────────────────────────────────────────────────────────────────┤
│  Up/Down-Select item            ENTER-Accept              ESC-Exit/Abort        │
│           Copyright (c) Award Software, Inc. 1992-98 All Rights Reserved         │
└──────────────────────────────────────────────────────────────────────────────┘
```

Fig. 29

Setup Screen shown when "PREFORMAT" option is selected

4.13 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.

4.14 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)?

4.15 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   SOFTWARE INSTALLATION

In order to let the system board to work efficiently, a series of drivers have to install according to the operating system used. The drivers may be delivered via CD-ROM or floppy diskettes. The device driver installation procedures from CD-ROM and floppy diskettes are similar. The only difference is the path of the driver location. Please refer to the following section for the installation procedures for floppy diskettes. For CD-ROM installation, please refer to the README.TXT file on the Root Directory of the CD-ROM.

5.1   SYSTEM CHIPSET DRIVERS INSTALLATION

IDE Driver	For Win9x Bus Master IDE Driver, enable or disable the Ultra DMA or PIO IDE Devices under Win9x
IRQ Routing Program	For PCI Mini port driver under Win9x
VxD Driver	Setup the Virtual Drivers for Win 9x to support the AGP features
ACPI Patch Program	Patch the VIA Power Management Controller for the ACPI function of Win9x

a) Under Windows9x, insert the All-In-One Multimedia CD-ROM into CD-ROM Driver (say d:)
b) Browse the CD ROM and click *Autorun.exe* in the directory \VIAAGP\
c) Follow the on screen instructions to complete the drivers installation as listed above

5.2   ATI VGA DRIVERS FOR WINDOWS 9x

a) Under Windows 9x, insert the CD into the CD-ROM (say d:)
b) Click *Start* on the taskbar in Windows 9x
c) Click *Run* on the menu bar in Windows 9x
d) Type *d:\Atiagp\win9X\setup*
e) Follow the on screen instructions to complete the installation
f) After the installation is completed, Windows 9x should be restarted to let the drivers take function

5.3   VCD PLAYER FOR WINDOWS 9x

a)   Under Windows 9x, insert the CD into the CD-ROM (say d:)
b)   Click *Start* on the taskbar in Windows 9x
c)   Click *Run* on the menu bar in Windows 9x
d)   Type *d:\Atiagp\VIDEO PLAYER\Disk1\setup*
e)   Follow the on screen instructions to complete the installation
f)   Upon successful completion of the VCD Player installation, the following message will be displayed

5.4   SOUND DRIVER INSTALLATION

This section is valid for the system with sound chip built in.

(I)   Windows 3.1

a)   Under Windows 3.1, insert CD into the CD-ROM (say d:)
b)   Click *File* on the menu bar in Windows 3.1
c)   Select Run command by clicking *Run*
d)   Type *d:\ESS1869\ES1869\W31\setup*
e)   Follow the on screen instructions to complete the installation
f)   After the installation is completed, Windows should be restarted to let the drivers take function

(II)   Windows 9x

For a newly installed Win9x system:

a)   Upon boot up, the system will detect the "ESS 1869 Plug and Play Audio Drive"
b)   Windows 9x will prompt for the driver diskette, then insert the CD into CD-ROM (say d:)
c)   When Windows 9x ask for driver, browse for driver D:\ESS1869\SOFT WAVE TABLE directory
d)   For the GamePort joy-stick setting, use the default driver provided from Windows 9x CD
e)   Insert the required Windows 9x distribution disk and click *OK*
f)   After the installation is completed, Windows 9x should be restarted to let the drivers take function
g)   When Win98 installed, the default Audio drivers will be installed, but with a little problem for midi play. So the Audio drivers should be updated with supported All-In-One CD-ROM Drivers. Click *ESS1869 Control Interface* & *ESS1869 Plug and Play Audio Drive* in Device Management of System and click *Drivers*, update drivers and browse to the CD-ROM \ESS1869\SOFTWAVE TABLE to update the drivers.

5.5   THE AUDIORACK32 FOR WIN9x

This section is valid for the system with sound chip built in.

5.5.1   INTRODUCTION

The *Audio***Rack**32 enables you to take advantage of your computer's audio capabilities with all of the controls conveniently in one compact space. You can play audio CDs, wave files (in .WAV and .AUD formats), and MIDI files (in .MID and .RMI formats). With the multi-source Audio Mixer, you can blend these sources with line-in and microphone sources any way you choose. Add tone control and spatialization to your computer with the 3-D/Tone Controller. You can then record your creations as wave files and edit them with the Audio Recorder.

The *Audio***Rack**32 has six main parts:

- Command Center—customizes the appearance of the Audio**Rack**32.
- 3-D/Tone Controller—adds 3-D stereo and tone controls to the *Audio***Rack**32.
- Audio Mixer—controls the volume and balance of the *Audio***Rack**32 devices.
- Digital Audio Player—plays and records files in the .WAV format.
- MIDI Player—enables you to play MIDI files.
- Compact Disk Player—enables you to play audio CDs on a CD-ROM drive.

In addition, the *Audio***Rack**32 has a miniature mode enabling you to control the *Audio***Rack**32 while using minimal screen space.

The Audio Recorder is a separate application from the *Audio***Rack**32. It can be used to add effects and edit files recorded with the Digital Audio Player or by the Audio Recorder itself. The Audio Recorder can be launched from the *Audio***Rack**32 Digital Audio Player or on its own.

5.5.2   INSTALLING THE *Audio***Rack32**
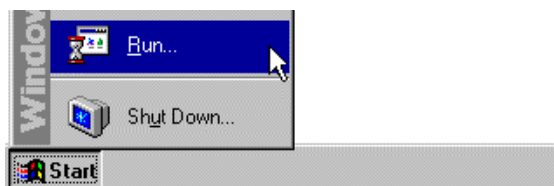
Placing the CD in a CD-ROM, click **Start** on the taskbar and choose **Run** from the popup menu.

In the Run dialog box, type the letter of the drive and setup (for example, D:\ES1869\AUDIORACK\setup), then click **OK**. The first Audio**Rack**32 Setup dialog box appears.
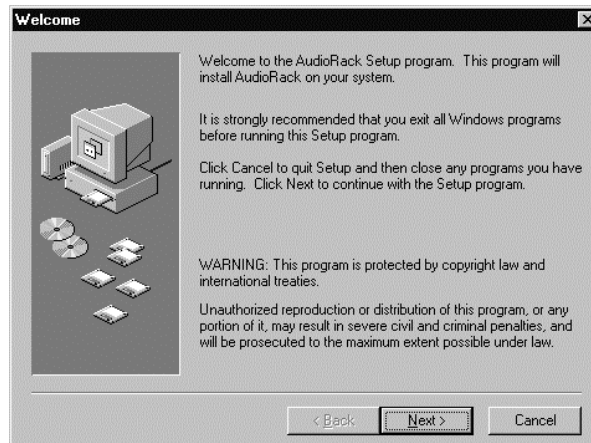
Note the instructions, then click **Next** to proceed or **Cancel** to leave Setup.

Next the Choose Destination Location dialog box appears.

Click **Next** to install the *Audio***Rack**32 in the default directory or **Browse** to choose a different directory. Click on **Cancel** to leave the Setup program or **Back** to return to the Welcome dialog box.

If you wish to install the *Audio***Rack**32 in a directory other than the default directory, enter the directory path in the Browse dialog box.

When you are done click **OK** or **Cancel** to return to the Choose Destination Location dialog box.

If the directory you designate doesn't exist, you will be asked to confirm your selection. Click **Yes** to proceed or **No** to go back and enter a new destination directory.
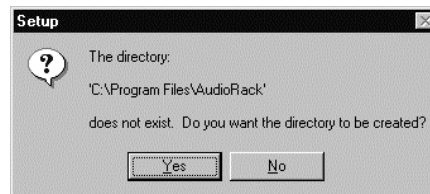
Once you have chosen the default directory or entered a directory of your own choosing, the Setup program will install *Audio***Rack**32.

Before completing installation of the *Audio***Rack**32, you will be given the option to view the README file before exiting the setup program
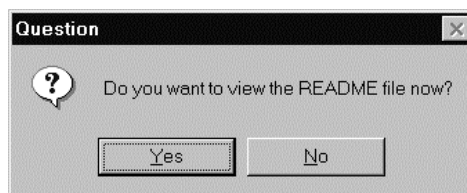
Click **Yes** to view the README file now or **No** to skip the README file and finish the installation.

Upon successful completion of the *Audio***Rack**32 installation, the following message will be displayed.

5.5.3   UNINSTALLING THE *Audio***Rack32**

To remove the *Audio***Rack**32 from your system, start by clicking on (but not releasing) **Start** on the task bar. Move the cursor to **Settings** and select **Control Panel**. From the Control Panel choose **Add/Remove Programs**. Select AudioRack 2.0 from the list and click **Add/Remove**. After you confirm your decision, the *Audio***Rack**32 will be uninstalled.

CHAPTER 6   FLASH AND DMI UTILITY

6.1   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 *"awdflash"* 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        DATE:  06/18/96    │
│        Flash Type                                │
│                                                  │
│      File Name to Program:                       │
│                                                  │
│                                                  │
│  ────────────────────────────────────────────── │
│  Error Message:                                  │
└────────────────────────────────────────────────┘
```

Fig. 30

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)?"

<u>If you do not wish to save the old BIOS:</u>

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.

<u>To save the old BIOS:</u>

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 - 1FF00 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 ***"awdflash"***, and error message will appear:

"Error Message: Fail - Due to EMM386 or QEMM!"

6.2 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

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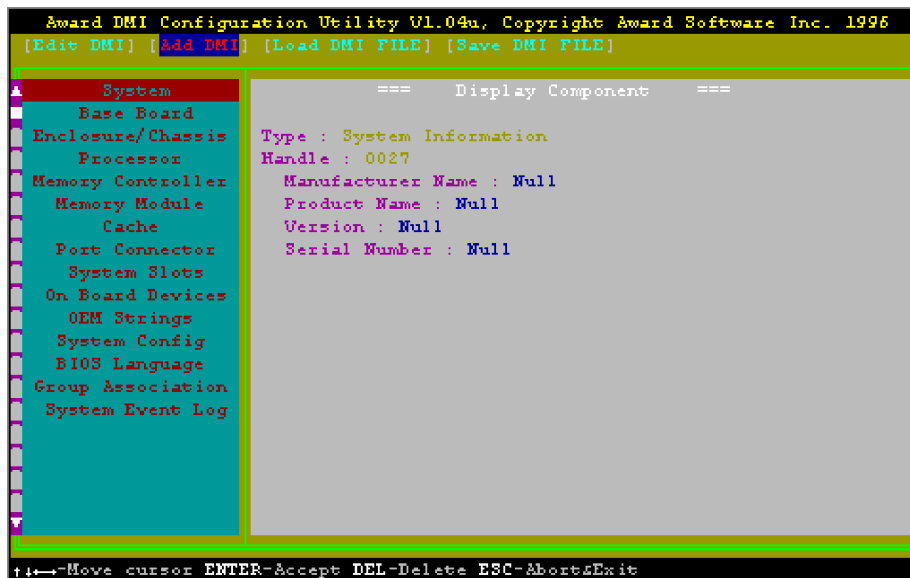
This DMI Configuration Utility also allows the system integrator or end user to add additional information into the DMI database such as serial numbers, housing configurations, and vendor information. Those information not detected by the motherboard BIOS and has to be manually entered through the DMI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

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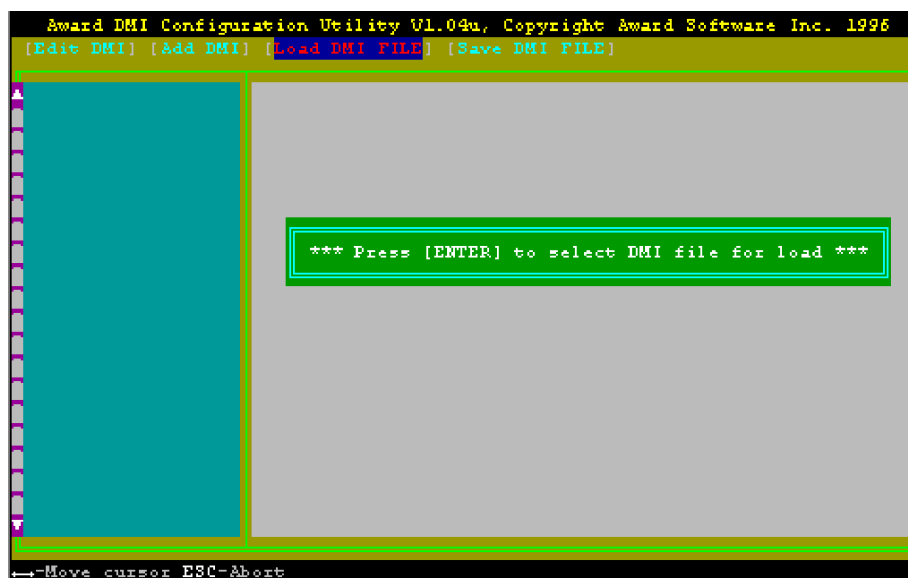
You can load the disk file to memory by entering a drive and path and file name here.

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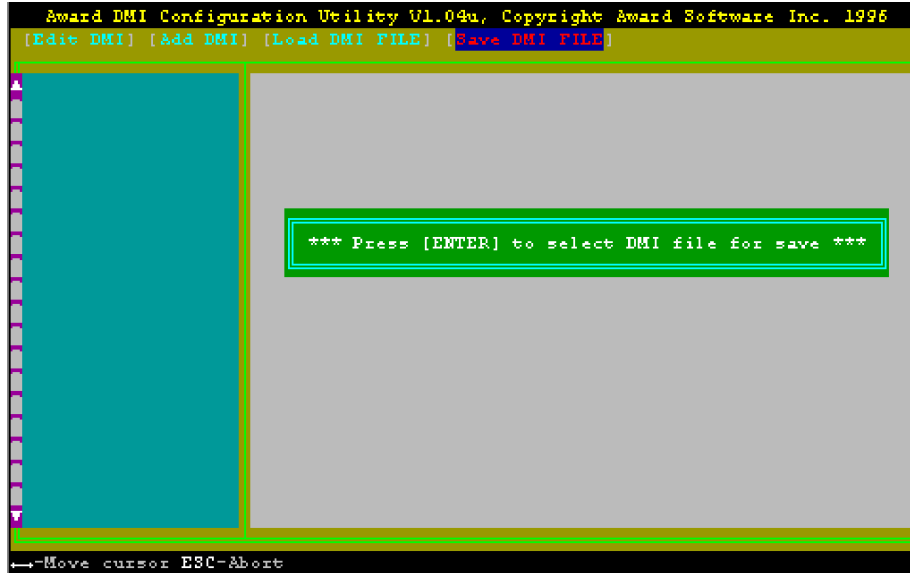
You can save the DMI (normally only saved to flash ROM) to a file by entering the drive and path here. If you want to cancel save, you may press ESC and a message "Bad File Name" appears here to show it was not saved.

APPENDIX A QUICK GUIDE

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

Function		Jumper Settings	
CPU Voltage Selection	3.3V Single Voltage CPU For Intel Pentium	SW1-1: SW1-2: SW1-3: SW1-4: S1:	ON OFF ON ON short
	3.5V Single Voltage CPU For Cyrix 6x86, AMD-K5, IDT WinChip C6, W2	SW1-1: SW1-2: SW1-3: SW1-4: S1:	ON ON ON ON short
	3.3V (I/O)/2.2V (core) Dual Voltage CPU For 2.2V AMD K6 and AMD K6-2	SW1-1: SW1-2: SW1-3: SW1-4: S1:	OFF ON OFF OFF open
	3.3V (I/O)/2.4V (core) Dual Voltage CPU For AMD K6-2/450 or above and AMD K6-III	SW1-1: SW1-2: SW1-3: SW1-4: S1:	OFF OFF ON OFF open
	3.3V (I/O)/2.8V (core) Dual Voltage CPU For Intel MMX (P55C) and Cyrix 6x86L	SW1-1: SW1-2: SW1-3: SW1-4: S1:	OFF OFF OFF ON open
	3.3V (I/O)/2.9V (core) Dual Voltage CPU For 2.9V AMD K6; Cyrix 6x86MX/M II; IBM6x86MX	SW1-1: SW1-2: SW1-3: SW1-4: S1:	ON OFF OFF ON open
	3.3V (I/O)/3.2V (core) Dual Voltage CPU For 3.2V AMD K6	SW1-1: SW1-2: SW1-3: SW1-4: S1:	OFF OFF ON ON open
	3.3V (I/O)/3.4V (core) Dual Voltage CPU For AMD K6-2/475	SW1-1: SW1-2: SW1-3: SW1-4: S1:	OFF ON ON ON open
To be continued...			

Function		Jumper Settings			
CPU Speed Selection	For 90MHz Intel Pentium, AMD-K5-PR90 CPU	SW1-5:	OFF	SW1-9:	ON
		SW1-6:	OFF	SW1-10:	ON
		SW1-7:	OFF	JP9:	2-3
		SW1-8:	ON	JP10:	1-2
	For 100MHz and 233MHz Intel Pentium, AMD-K6/233, AMD-K5-PR100, AMD-K5-PR150, Cyrix M II-300, using 66MHz and IBM6x86MX-PR300 CPU	SW1-5:	OFF	SW1-9:	ON
		SW1-6:	OFF	SW1-10:	ON
		SW1-7:	OFF	JP9:	2-3
		SW1-8:	OFF	JP10:	1-2
	For 120MHz Intel Pentium, AMD-K5-PR120 and Cyrix 6x86L-PR150 CPU	SW1-5:	ON	SW1-9:	ON
		SW1-6:	OFF	SW1-10:	ON
		SW1-7:	OFF	JP9:	2-3
		SW1-8:	ON	JP10:	1-2
	For 133MHz Intel Pentium, AMD-K5-PR133 (REV C) and Cyrix 6x86L-PR166 CPU	SW1-5:	ON	SW1-9:	ON
		SW1-6:	OFF	SW1-10:	ON
		SW1-7:	OFF	JP9:	2-3
		SW1-8:	OFF	JP10:	1-2
	For 150MHz Intel Pentium and Cyrix 6x86MX-PR166 CPU	SW1-5:	ON	SW1-9:	ON
		SW1-6:	ON	SW1-10:	ON
		SW1-7:	OFF	JP9:	2-3
		SW1-8:	ON	JP10:	1-2
	For 150MHz Cyrix 6x86L/MX-PR200, using 75MHz CPU	SW1-5:	ON	SW1-9:	ON
		SW1-6:	OFF	SW1-10:	OFF
		SW1-7:	OFF	JP9:	1-2
		SW1-8:	ON	JP10:	1-2
	For 166MHz Intel Pentium, AMD-K6/166, AMD-K5-PR166 and Cyrix 6x86MX-PR200, using 66MHz CPU	SW1-5:	ON	SW1-9:	ON
		SW1-6:	ON	SW1-10:	ON
		SW1-7:	OFF	JP9:	2-3
		SW1-8:	OFF	JP10:	1-2
	For 180MHz IDT WinChip C6-180 CPU	SW1-5:	OFF	SW1-9:	ON
		SW1-6:	ON	SW1-10:	ON
		SW1-7:	OFF	JP9:	2-3
		SW1-8:	ON	JP10:	1-2
	For 188MHz Cyrix 6x86MX-PR233 CPU	SW1-5:	ON	SW1-9:	ON
		SW1-6:	ON	SW1-10:	OFF
		SW1-7:	OFF	JP9:	1-2
		SW1-8:	ON	JP10:	1-2
	For 200MHz Intel Pentium, AMD-K6/200, Cyrix 6x86MX-PR233 and IDT WinChip C6-200 CPU	SW1-5:	OFF	SW1-9:	ON
		SW1-6:	ON	SW1-10:	ON
		SW1-7:	OFF	JP9:	2-3
		SW1-8:	OFF	JP10:	1-2
	For 208MHz IBM6x86MX-PR266 CPU	SW1-5:	ON	SW1-9:	ON
		SW1-6:	ON	SW1-10:	OFF
		SW1-7:	OFF	JP9:	1-2
		SW1-8:	OFF	JP10:	1-2
To be continued…					

	Function	Jumper Settings			
CPU Speed Selection	For 225MHz Cyrix M II-300 and IBM6x86MX-PR300, using 75MHz CPU	SW1-5: SW1-6: SW1-7: SW1-8:	OFF ON OFF ON	SW1-9: SW1-10: JP9: JP10:	ON OFF 1-2 1-2
	For 249MHz Cyrix M II-333 CPU	SW1-5: SW1-6: SW1-7: SW1-8:	OFF ON OFF OFF	SW1-9: SW1-10: JP9: JP10:	ON OFF 1-2 1-2
	For 250MHz AMD-K6-2/250, Cyrix M II-366 and IDT WinChip 2A-300 CPU	SW1-5: SW1-6: SW1-7: SW1-8:	ON ON OFF OFF	SW1-9: SW1-10: JP9: JP10:	OFF OFF 1-2 2-3
	For 250MHz IBM6x86MX-PR333 and IDT WinChip 2A-266 CPU	SW1-5: SW1-6: SW1-7: SW1-8:	OFF ON OFF OFF	SW1-9: SW1-10: JP9: JP10:	ON OFF 1-2 1-2
	For 266MHz IDT WinChip 2A-300, using 100MHz CPU	SW1-5: SW1-6: SW1-7: SW1-8:	OFF OFF ON OFF	SW1-9: SW1-10: JP9: JP10:	OFF OFF 1-2 2-3
	For 266MHz AMD-K6/266, AMD-K6-2/266 CPU	SW1-5: SW1-6: SW1-7: SW1-8:	ON OFF ON OFF	SW1-9: SW1-10: JP9: JP10:	ON ON 2-3 1-2
	For 300MHz AMD-K6/300 CPU	SW1-5: SW1-6: SW1-7: SW1-8:	ON ON ON OFF	SW1-9: SW1-10: JP9: JP10:	ON ON 2-3 1-2
	For 300MHz AMD-K6-2/300, using 100MHz CPU	SW1-5: SW1-6: SW1-7: SW1-8:	OFF ON OFF OFF	SW1-9: SW1-10: JP9: JP10:	OFF OFF 1-2 2-3
	For 333MHz AMD-K6-2/333 CPU	SW1-5: SW1-6: SW1-7: SW1-8:	OFF OFF OFF ON	SW1-9: SW1-10: JP9: JP10:	OFF OFF 1-2 2-3
	For 350MHz AMD-K6-2/350 CPU	SW1-5: SW1-6: SW1-7: SW1-8:	OFF OFF OFF OFF	SW1-9: SW1-10: JP9: JP10:	OFF OFF 1-2 2-3
	For 400MHz AMD-K6-2/400 and AMD-K6-III/400 CPU	SW1-5: SW1-6: SW1-7: SW1-8:	ON OFF ON OFF	SW1-9: SW1-10: JP9: JP10:	OFF OFF 1-2 2-3
To be continued…					

	Function	Jumper Settings			
CPU Speed Selection	For 450MHz AMD-K6-2/450 and AMD-K6-III/450 CPU	SW1-5: SW1-6: SW1-7: SW1-8:	ON ON ON OFF	SW1-9: SW1-10: JP9: JP10:	OFF OFF 1-2 2-3
	For 475MHz AMD K6-2/475 CPU	SW1-5: SW1-6: SW1-7: SW1-8:	OFF ON ON ON	SW1-9: SW1-10: JP9: JP10:	OFF OFF 1-2 2-3
On board VGA Chip Selection	Enabled	JP2:	short		
	Disabled	JP2:	open		
Clear RTC CMOS Data	Normal	JP7:	1-2 short		
	Clear	JP7:	2-3 short		
System ROM Selection	5V Flash EPROM	JP5:	1-2 short		
	12V Flash EPROM	JP5:	2-3 short		
Power Supply Selection	AT Power	JP12:	short		
	ATX Power	JP12:	open		
Onboard Audio Selection (optional)	Enabled	JP6:	short		
	Disabled	JP6:	open		
Keyboard Wake-up/ Password	Enabled	JP3: JP13:	2-3 short 2-3 short		
	Disabled	JP3: JP13:	1-2 short 1-2 short		

APPENDIX B   JUMPER SETTING
                      QUICK REFERENCE

I.   CPU Core Voltage

Voltage	SW1-1	SW1-2	SW1-3	SW1-4
2.2V	OFF	ON	OFF	OFF
2.4V	OFF	OFF	ON	OFF
2.8V	OFF	OFF	OFF	ON
2.9V	ON	OFF	OFF	ON
3.2V	OFF	OFF	ON	ON
3.3V	ON	OFF	ON	ON
3.4V	OFF	ON	ON	ON
3.5V	ON	ON	ON	ON

Notice: Set S1 'short' for Single Voltage CPU only

II.   CPU Bus Ratio

Ratio	SW1-5	SW1-6	SW1-7
2.0x	ON	OFF	OFF
2.5x	ON	ON	OFF
2.33x	OFF	ON	ON
2.66x	OFF	OFF	ON
3.0x	OFF	ON	OFF
3.5x	OFF	OFF	OFF
4.0x	ON	OFF	ON
4.5x	ON	ON	ON
5.0x	OFF	ON	ON
5.5x	OFF	OFF	ON

III.   CPU Front Side Bus Frequency

Bus Freq.	SW1-8	SW1-9	SW1-10	JP8	JP9	JP10	JP11
50MHz	ON	OFF	ON	2-3	2-3	1-2	1-2
60MHz	ON	ON	ON	2-3	2-3	1-2	1-2
66MHz	OFF	ON	ON	2-3	2-3	1-2	1-2
75MHz	ON	ON	OFF	2-3	1-2	1-2	1-2
83MHz	OFF	ON	OFF	2-3	1-2	1-2	1-2
95MHz	ON	OFF	OFF	2-3	1-2	2-3	1-2
100MHz	OFF	OFF	OFF	2-3	1-2	2-3	1-2

PIN ASSIGNMENTS OF EISA SLOT

SIGNAL NAME	PIN	PIN	SIGNAL NAME
GND	B1	A1	IOCHK
GND	F1	E1	GND
BRSTDRV	B2	A2	SD7
GND	F2	E2	GND
VCC	B3	A3	SD6
PIRQC-	F3	E3	PIRQA-
IRQ9	B4	A4	SD5
PIRQD-	F4	E4	PIRQB-
-5V	B5	A5	SD4
VCC	F5	E5	VCC
DRQ2	B6	A6	SD3
	K4	K1	
-12V	B7	A7	SD2
VCC	F7	E7	VCC
ZER0WS-	B8	A8	SD1
PCLK2	F8	E8	PCIRST-
+12V	B9	A9	SD0
GND	F9	E9	GNT0-
GND	B10	A10	IOCHRDY
GNT1-	F10	E10	REQ0-
SMEMW-	B11	A11	AEN
GND	F11	E11	GND
SMEMR-	B12	A12	SA19
REQ1-	F12	E12	PCLK1
IOW-	B13	A13	SA18
AD31	F13	E13	GND
IOR-	B14	A14	SA17
AD29	F14	E14	AD30
DACK3-	B15	A15	SA16
VC3	F15	E15	VC3
DRQ3	B16	A16	SA15
	K5	K2	
DACK1-	B17	A17	SA14
VC3	F17	E17	VC3
DRQ1	B18	A18	SA13
AD27	F18	E18	AD28
REFRESH-	B19	A19	SA12
AD25	F19	E19	AD26
SYSCLK	B20	A20	SA11
C_BE3	F20	E20	AD24
IRQ7	B21	A21	SA10
AD23	F21	E21	AD22
IRQ6	B22	A22	SA9
AD21	F22	E22	AD20
IRQ5	B23	A23	SA8
AD19	F23	E23	AD18
IRQ4	B24	A24	SA7
VC3	F24	E24	VC3
IRQ3	B25	A25	SA6
	K6	K3	
DACK2-	B26	A26	SA5
AD24	F26	E26	AD23
TC	B27	A27	SA4
AD17	F27	E27	AD16
BALE	B28	A28	SA3
RIRDY-	F28	E28	RFRAME-
VCC	B29	A29	SA2
RDEVSEL-	F29	E29	C_BE2
OSC1	B30	A30	SA1
PLOCK-	F30	E30	RTRDY-
GND	B31	A31	SA0
PERR-	F31	E31	RSTOP-

PCI 2 ID   PCI 1 ID

SIGNAL NAME	PIN	PIN	SIGNAL NAME
SERR-	H1	G1	SDONE
AD15	H2	G2	SB0-
MEMCS16-	D1	C1	SBHE-
AD14	H3	G3	C_BE1
IOCS16-	D2	C2	LA23
AD12	H4	G4	PAR
IRQ10	D3	C3	LA22
GND	H5	G5	GND
IRQ11	D4	C4	LA21
	K9	K7	
IRQ12	D5	C5	LA20
GND	H7	G7	GND
IRQ15	D6	C6	LA19
AD10	H8	G8	AD13
IRQ14	D7	C7	LA18
AD8	H9	G9	AD11
DACK0-	D8	C8	LA17
AD7	H10	G10	AD9
DRQ0	D9	C9	MEMR-
AD5	H11	G11	C_BE0
DACK5-	D10	C10	MEMW-
AD3	H12	G12	AD6
DRQ5	D11	C11	SD8
AD1	H13	G13	AD4
DACK6-	D12	C12	SD9
AD0	H14	G14	AD2
DRQ6	D13	C13	SD10
	K10	K8	
DACK7-	D14	C14	SD11
VCC	H16	G16	VCC
DRQ7	D15	C15	SD12
VCC	H17	G17	GNT2-
VCC	D16	C16	SD13
PCLK3	H18	G18	REQ2-
RMASTER-	D17	C17	SD14
GND	H19	G19	GND
GND	D18	C18	SD15