PAM-0075I

High Performance

Pentium PCI ATX Mainboard

User's Guide

Edition 1.10

P/N: 155100-8484

EPA POLLUTION PREVENTER

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.

CONTENTS

CHAPTER 1 INTRODUCTION

Preface

The motherboard is a full ATX 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 Intel 82430TX System Chipset, ATI 3D RAGE II Accelerated Graphics and Video Chip, Creative ViBRA? 16CL CT2510 Stereo 16-bit Sound Chip and SMC 669 Super I/O Chip.

Features

Processor

?? Intel Pentium/MMX, Cyrix 6x86/6x86L/6x86MX and AMD K5/K6 CPU.

?? The mainboard can run with following speeds:
90, 100, 110, 120, 133, 150, 166, 200, 233 and 266 MHz

Chipset

?? Intel 82439TX (Intel 82430TX System Controller)

?? Intel 82371AB (PCI ISA IDE Xcelerator)

?? ATI 3D RAGE II (PCI 3D Graphics and Video Accelerators)

?? Creative ViBRA 16CL CT2510 (Stereo 16-bit Sound Chip)

?? SMC 669 (Super I/O Controller)

Cache Size

?? Built in 0/256/512KB 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), 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 (32 bit no-parity 72-pin SIMM module) and 2M*32 to 8M*32 SDRAM DIMM module.

?? DIMM socket for EDO or 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 keyboard and PS/2 mouse connector is provided.

?? IrDA or Fast IR is provided.

?? Two standard USB connectors are provided.

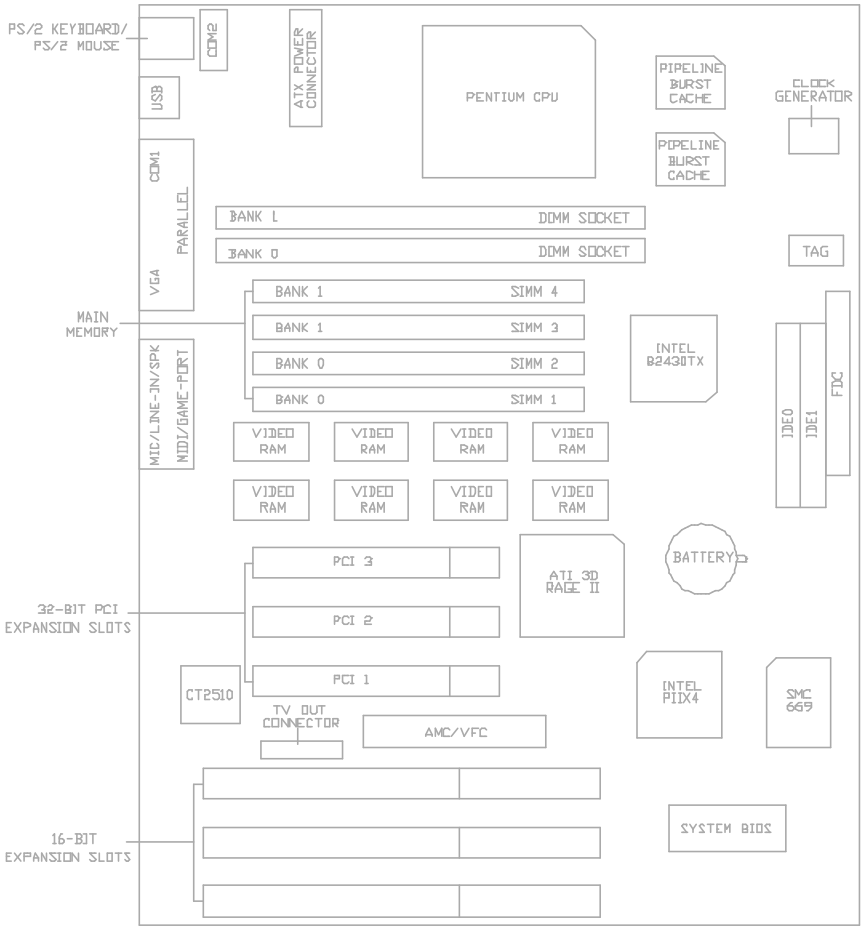


Fig. 1 Key Components of the Mainboard

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 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.

PCI Graphic and Video Accelerator

?? 64-bit 3D and 2D graphics accelerator.

?? On board 1MB or 2MB Video RAM, can be expanded to 4MB.

?? Support up to 1600x1200 resolution.

?? Optional TV output extension card for NTSC or PAL TV display.

Sound Controller

?? Compatible with all major PC sound standards, including Sound Blaster? 16, MPU-401 and Windows Sound System? .

?? Plug-and-Play support for Audio, Joystick, FM Controller, MPU-401.

?? Wave Audio support sample rates for 5KHz to 48KHz.

?? Full-duplex DMA allowing 8-bit or 16-bit data for record and playback.

System BIOS

?? Award BIOS (256KB Flash ROM).

Slots

?? Three PCI slots

?? Three ISA slots

Form Factor

?? 304mm (W) x 245mm (L) 4 Layer

Environment

Working Specifications

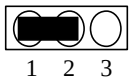
Actual Field MTBF (hours)	104,515 hours
Preventive Maintenance	Not Required

Environmental Limits

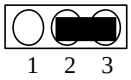
	Operating	Non-operating
Temperature	0 to 50 degree Celsius	-10 to 65 Degree Celsius
Relative Humidity (without condensation)	8 to 85%	5 to 95%
Altitude	10,000ft	40,000ft
Vibration	1,000Hz	
Electricity	4.75 ? 5.25V	

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.

Fig. 2a CPU Description (Bottom Side)

Description :

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

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

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

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.)

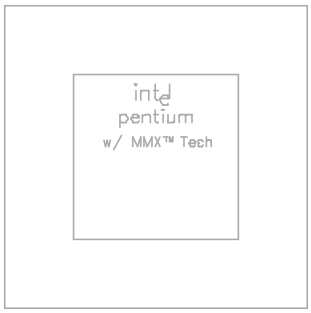


Fig. 2b CPU Description (Top Side)

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

2.2.3 AMD-K6 CPU

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

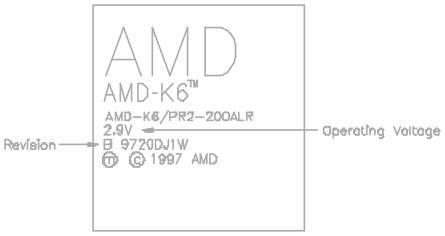


Fig. 2c CPU Description
(Top Side)

Operating Voltage	I/O Voltage	Core Voltage
2.9V	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.)

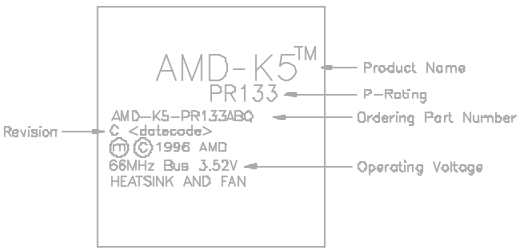


Fig. 2d CPU Description
(Top Side)

2.2.5 CYRIX 6x86 CPU

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

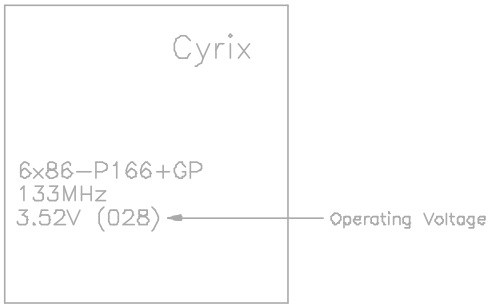


Fig. 2e CPU Description
(Top Side)

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 CPU	3.3V	2.9V
Cyrix 6x86L CPU	3.3V	2.8V

2.3 GRAPHICAL DESCRIPTION OF JUMPER SETTINGS

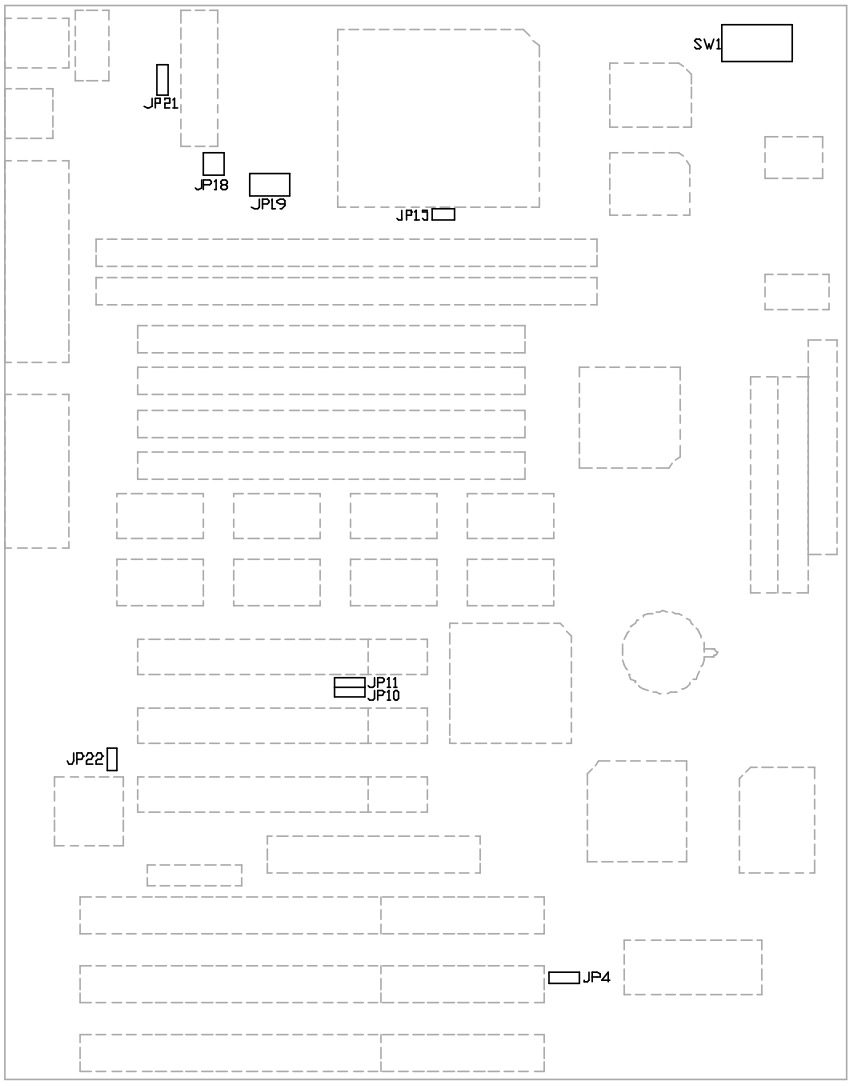


Fig. 3 Jumpers Location of the mainboard

2.4 CPU VOLTAGE

1. 3.3V Single Voltage CPU: P54C, P54CT

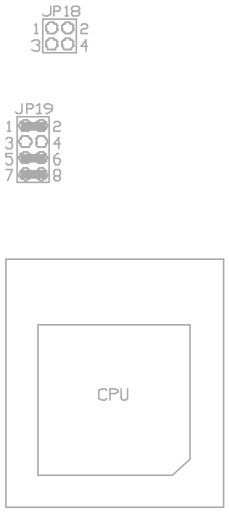


Fig. 4a CPU Type - 3.3V

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

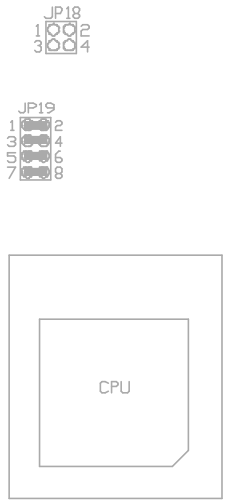


Fig. 4b CPU Type - 3.5V

3. 3.3V (I/O)/2.8V (core) Dual Voltage CPU: P55C, Cyrix 6x86L

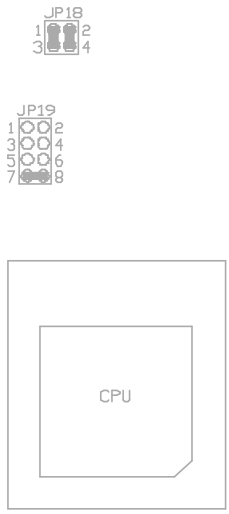


Fig. 4c CPU Type - 3.3V/2.8V

4. 3.3V (I/O)/2.9V (core) Dual Voltage CPU: AMD-K6/166 and 200, Cyrix 6x86MX

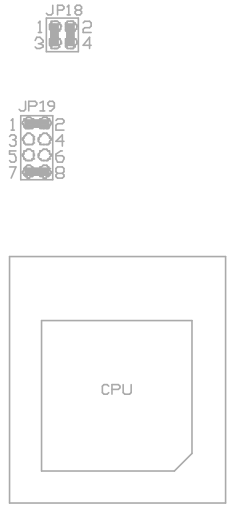


Fig. 4d CPU Type - 3.3V/2.9V

5. 3.3V (I/O)/3.2V (core) Dual Voltage CPU: AMD-K6/233

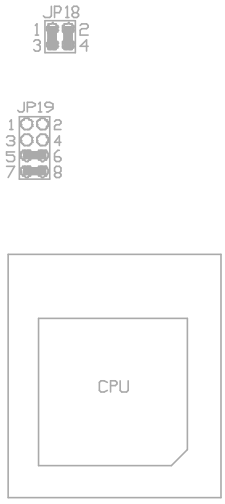


Fig. 4e CPU Type - 3.3V/3.2V

2.5 CPU SPEED (SW1)

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

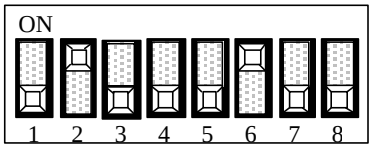


Fig 5a CPU Speed

2. For 100MHz and 233MHz Intel Pentium; AMD-K6/233, AMD-K5-PR100 and AMD-K5-PR150 CPU

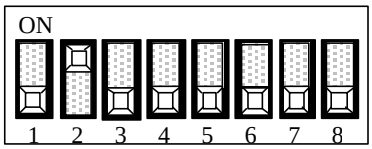


Fig. 5b CPU Speed

3. For 110MHz Cyrix 6x86-PR133+ CPU

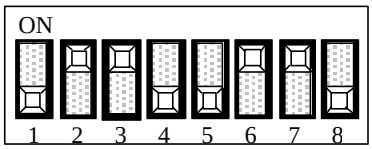


Fig. 5c CPU Speed

4. For 120MHz Intel Pentium and Cyrix 6x86-PR150+ CPU

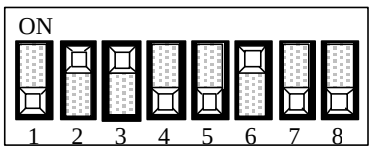


Fig. 5d CPU Speed

5. For 133MHz Intel Pentium, AMD-K5-PR133 (REV C) and Cyrix 6x86L-PR166+ CPU

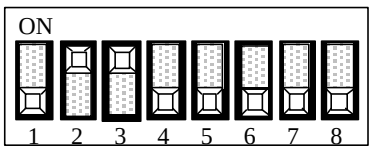


Fig. 5e CPU Speed

6. For 150MHz Intel Pentium and Cyrix 6x86MX-PR166+ CPU

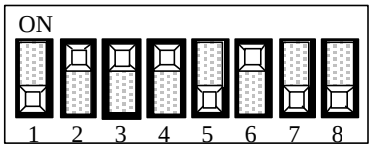


Fig. 5f CPU Speed

7. For 150MHz Cyrix 6x86L/MX-PR200+ CPU (for future support only)

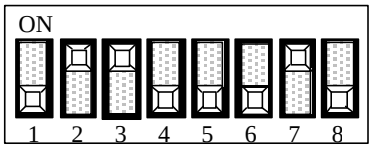


Fig. 5g CPU Speed

8. For 166MHz Intel Pentium, AMD-K6/166 and AMD-K5-PR166 CPU

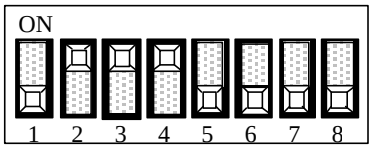


Fig. 5h CPU Speed

9. For 200MHz Intel Pentium and AMD-K6/200 CPU

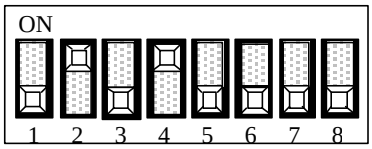


Fig. 5i CPU Speed

2.6 JP4 - VOLTAGE SELECTION FOR SYSTEM ROM

1. 5V Flash EPROM on System ROM

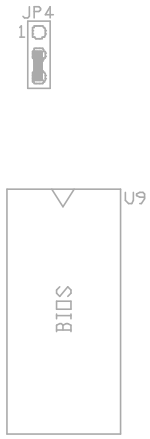


Fig. 6a

2. 12V Flash EPROM on System ROM

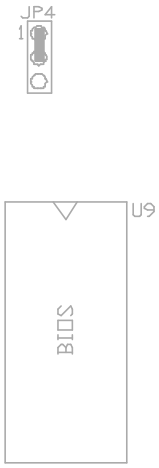


Fig. 6b

2.7 JP10 - ON BOARD VGA IRQ SELECT

JP10 is used to enable or disable the IRQ (Interrupt) signal shared by on board VGA chip.

1. To enable the VGA IRQ

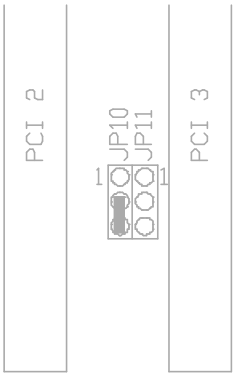


Fig. 7a

2. To disable the VGA IRQ

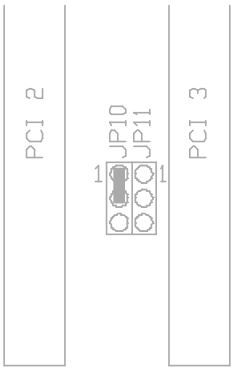


Fig. 7b

2.8 JP11 - ON BOARD VGA SELECT

JP11 is used to enable or disable the on board VGA chip.

1. To enable the on board VGA chip

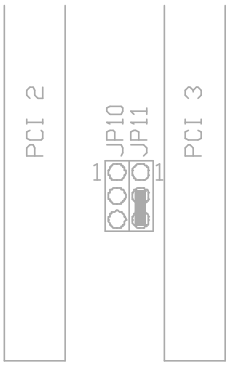


Fig. 8a

2. To disable the on board VGA chip

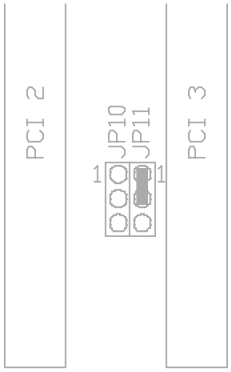


Fig. 8b

2.9 JP15 - RESERVED JUMPER

JP15 is reserved for future use. Default setting is open.

2.10 JP21 - RING IN SELECT

The motherboard will wake up from suspend mode when a ring in signal is detected from the com port.

1. Select for COM1

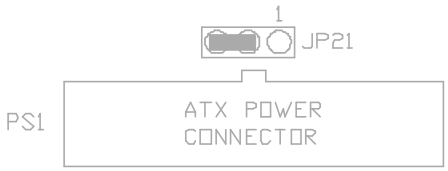


Fig. 9a

2. Select for COM2

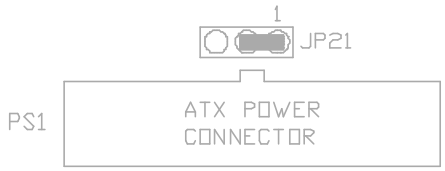


Fig. 9b

2.11 JP22 - ON BOARD AUDIO CHIP SELECT

JP22 is used to enable or disable the on board audio chip.

1. To enable on board audio chip

Fig. 10a

2. To disable on board audio chip

Fig. 10b

2.12 MEMORY CONFIGURATION

The mainboard lets user upgrade system memory via SIMM 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.
SIMM1/SIMM2 and DIMM1 cannot co-exist.
SIMM3/SIMM4 and DIMM2 cannot co-exist.

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

Onboard memory is located in two banks:

Bank 0: SIMM1 & SIMM2
OR
DIMM1

Bank 1: SIMM3 & SIMM4
OR
DIMM2

The total memory size is 4-256MB and various configuration of DRAM types in the following table are for reference:

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

Table 1

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.

2.13 VIDEO MEMORY UPGRADE

2MB video memory is built in with EDO DRAM on U28-U31. User can upgrade the video memory to 4MB with installing 4 pcs 40ns 256KBx16 (SOJ) EDO DRAM on U32-U35.

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

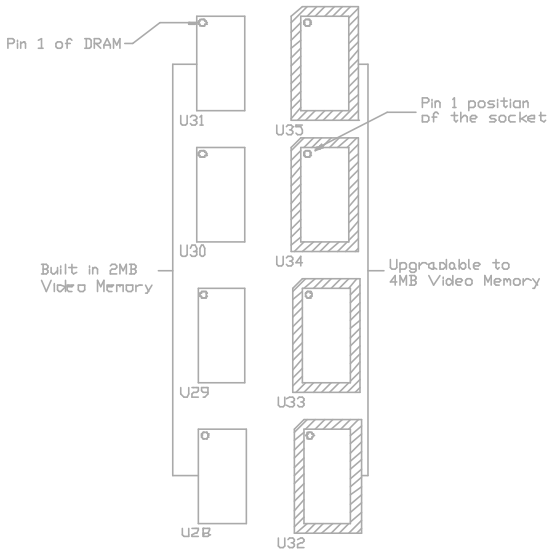


Fig. 11

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.

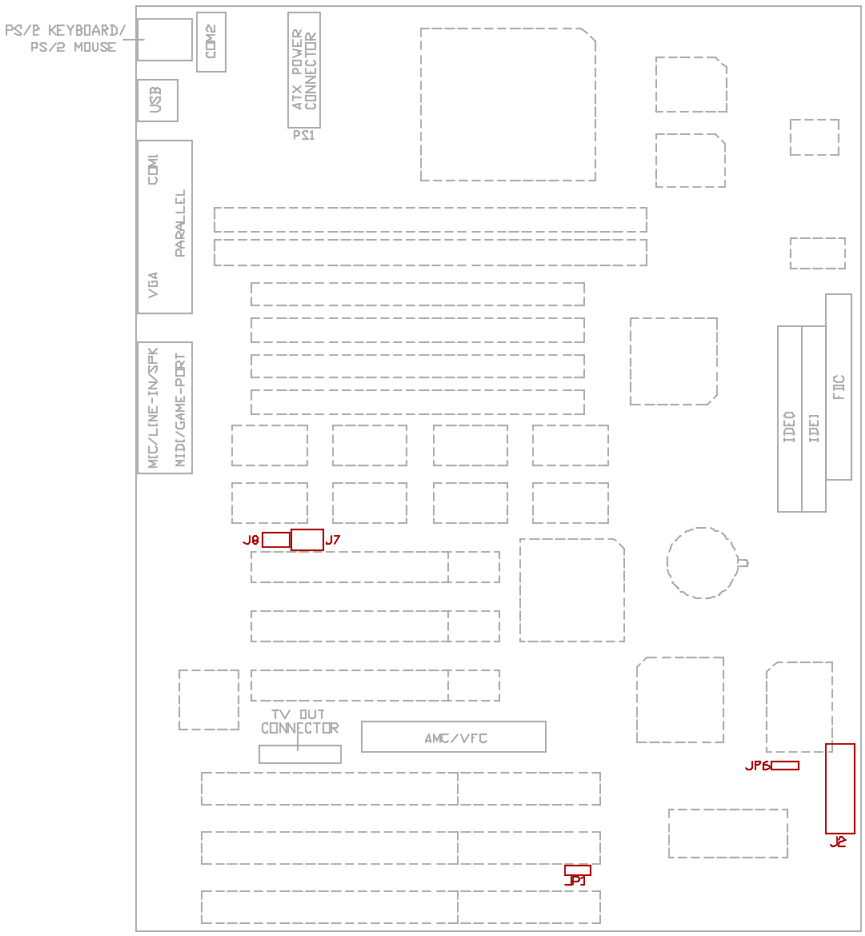


Fig. 12 Connector Location

3.1 PS1 - ATX POWER CONNECTOR

PS1 is a 2x10 pin male header connector. Plug the power connector of the ATX power supply onto the connector.

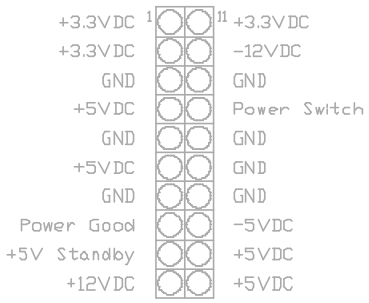


Fig. 13 ATX Power Connector

3.2 JP1 - INTERNAL MODEM RING-IN CONNECTOR

JP1 is a 3 pin connector which is used to connect the Internal Modem's Ring-In signal to the motherboard. Thus, the motherboard can be waked up from suspend mode through the internal modem ring-in.

Fig. 14 Internal Modem Ring-In Connector

3.3 JP6 - IrDA IR CONNECTOR

JP6 is a four pin connector, which use the UART2 as interface for IrDA. You must also configure the setting through "UART2 Mode" in Integrated Peripheral BIOS Setup to select the UART2 as HPSIR or ASKSIR. The pin definition menu is as following:

Fig. 15 IrDA IR Connector

3.4 J2 - MULTIPLE FUNCTION JUMPER

J1 is a front panel multi-function jumper include speaker, reset, keylock, Harddisk LED, ATX power button. The pin definition is as following figure.

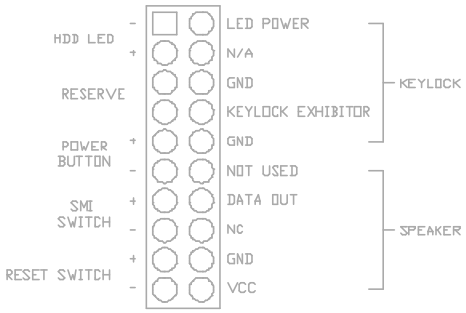


Fig. 16 Multiple Function Jumper

The power is turned on by short the power button once. It needs to **hold the power button about 4 seconds to turn it off** when it has not start to display.

3.5 J4 - TV OUTPUT EXTENSION CARD CONNECTOR

J4 is a 2x15 pin connector, which is used to connect the optional TV Output Extension Card to NTSC or PAL TV display.

3.6 J5 - ACM/VFC CONNECTOR

J5 is a 2x20 pin connector - ATI Multimedia Channel (AMC) connector. It is used to connect the ATI's TV tuner and Video capture module. The AMC provides the VGA Feature Connector (VFC) compatibility, and it also provides enhanced features for new multimedia devices.

3.7 J7 - CD-ROM AUDIO CONNECTOR (SONY)

J7 is a four pin connector, which is used to connect with the Sony CD-ROM audio output. This pin definition is as following:

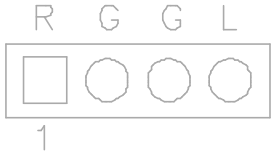


Fig. 17 CD-ROM Audio Connector

3.8 J8 - CD-ROM AUDIO CONNECTOR (MISUMI/PANASONIC)

J8 is four pin connector, which is used to connect with the Panasonic or Misumi CD-ROM audio output. The pin definition is as following:

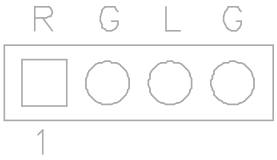


Fig. 18 CD-ROM Audio Connector

3.9 J10, J11 - PRIMARY/SECONDARY IDE CONNECTORS

J11 is the Primary IDE Connector and J10 is the 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.

3.10 J14 - 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.

3.11 J20 - SERIAL PORT COM2 CONNECTOR

This connector supports the attached serial port ribbon cable (without mounting bracket) to give a D-Type 9 pin male connector for connecting external serial devices.

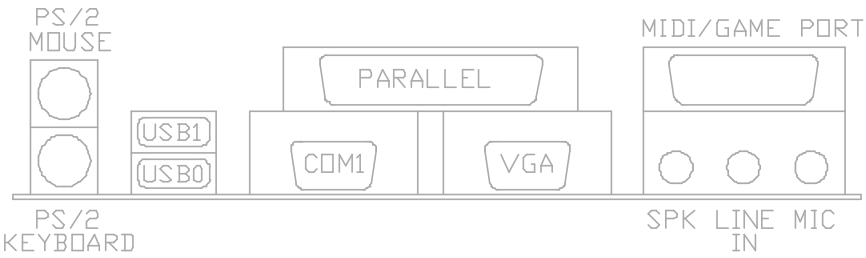


Fig. 19 Connectors

3.12 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.

3.13 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 mouse into this connector.

3.14 UNIVERSAL SERIAL BUS PORTS 0 & 1

These connectors are two four pin female sockets which are available for connecting USB device.

3.15 PARALLEL PORT CONNECTOR

This is a D-Type 25 pin female connector.

3.16 SERIAL PORT COM1

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

3.17 VGA MONITOR CONNECTOR

This is a D-Type 3 rows female connector for connecting to the VGA monitor.

3.18 AUDIO PORT CONNECTOR

Three 1/8" female connectors used as speaker, line in and microphones. **SPK** can be connected to headphones or preferably powered speakers. **Line In** allows tape players or other audio sources to be recorded by your computer or played through the SPK. **MIC** allows microphones to be connected for inputting voice.

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 (2A59ID1G)
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	? ? ? ? : 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 (2A59ID1G)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Wed, May 21 1997
Time (hh:mm:ss) : 20 : 27 : 55

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master :	Auto	0	0	0	0	0	0	AUTO
Primary Slave :	None	0	0	0	0	0	0	---------
Secondary Master :	None	0	0	0	0	0	0	---------
Secondary Slave :	None	0	0	0	0	0	0	---------

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

Video : EGA/VGA
Halt On : All Errors

Base Memory:	0K
Extended Memory:	0K
Other Memory:	512K
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

4.3 BIOS FEATURES SETUP

ROM PCI/ISA BIOS (2A59ID1G)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Enabled	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 Numlock Status	: Off	DC000-DFFFF Shadow	: Disabled
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		
OS Select For DRAM > 64MB	: Non-OS2		
		ESC: Quit	? ?? ?? ? : Select Item
		F1: Help	PU/PD/+/-: Modify
		F5: Old Values	(Shift)F2: Color
		F7: Load Setup Defaults	

Fig. 22 BIOS Setup Defaults

A short description of the screen items follows:

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", "C,A", "C,CDROM,A", "CDROM,C,A", "C only", "LS120,C".

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

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.

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.

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

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

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

4.4 CHIPSET FEATURES SETUP

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

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

ROM PCI/ISA BIOS (2A59ID1G)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	
DRAM Timing	: 70ns	
DRAM Leadoff Timing	: 10/6/4	
DRAM Read Burst (EDO/FP)	: x333/x444	
DRAM Write Burst Timing	: x333	
Fast EDO Lead Off	: Disabled	
SDRAM (CAS Lat/RAS-to-CAS)	: 3/3	
SDRAM Speculative Read	: Disabled	
System BIOS Cacheable	: Enabled	
Video BIOS Cacheable	: Enabled	
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. 23

A short description of the screen items follows:

Auto Configuration: When Auto Configuration is Enabled, BIOS will sets the CPU Clock according to CPU speed. Otherwise, set it manually.

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

DRAM Leadoff Timing: Select the combination of CPU clocks the DRAM on your board requires before each read from or write to memory. Changing the value from the setting determined by the board designer for the installed may cause memory errors.

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

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

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

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

Fast EDO Lead Off: Select Enabled only for EDO DRAMs in either a synchronous cache or a cacheless system. It causes a 1-HCCK pull-in all read leadoff latencies for EDO DRAMs. Select Disabled if any of the DRAM rows are populated with FPM DRAMs.

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

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

SDRAM Speculative Read: If Enabled, the CPU will issue predict commands to access the DRAM. If a miss occurs, the CPU will cancel this command. Some operating systems under certain situations have a problem utilizing this feature so it is normally Disabled.

System BIOS Cacheable: Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video BIOS Cacheable: Selecting Enabled allows caching of the video BIOS ROM at C0000h to C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

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

PCI 2.1 Compliance: Select Enabled to support compliance with PCI specification version 2.1. The chipset has an embedded 32-bit posted write-buffer to support delay transactions cycles.

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 (2A59ID1G)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: User Define	** Reload Global Timer Events **	
PM Control by APM	: Yes	IRQ [3-8, 9-15], NMI	: Enabled
Video Off Method	: V/H SYNC+Blank	Primary IDE 0	: Enabled
Video off After	: Suspend	Primary IDE 1	: Enabled
MODEM Use IRQ	: 3	Secondary IDE 0	: Enabled
Suspend Mode	: Disabled	Secondary IDE 1	: Enabled
HDD Power Down	: Disabled	Floppy Disk	: Enabled
Suspend Mode Option	: PowerOn Suspend	Serial Port	: Enabled
VGA Active Monitor	: Enabled	Parallel Port	: Enabled
Soft-Off by PWR-BTTN	: Delay 4 Sec.		
Resume by Ring	: Enabled		
IRQ 8 Break Suspend	: Disabled		
		ESC: Quit	? ?? ?? ? : Select Item
		F1: Help	PU/PD/+/-: Modify
		F5: Old Values	(Shift)F2: Color
		F7: Load Setup Defaults	

Fig. 24

A short description of the screen items follows:

Power Management: Available selection are "Disabled", "User Define", "Max Saving" and "Min Saving":
"Disabled" will disable all the power saving functions.
"User Define" makes the time period waiting for Suspend Mode to be programmed.
"Max Saving" will set the time period waiting for Suspend Mode to be 1 minute.
"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 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 "Suspend" and "NA".

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.

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

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

Suspend Mode Option: Available options are "PowerOn Suspend" and "Suspend to Disk". For "PowerOn Suspend" option, the system will enter the suspend mode with the power supply still switching on. For "Suspend to Disk" option, the system will fully power off the system when it entering the suspend mode. With installing the Award Zero-Volt Data-Suspend Utility (**ZVHDD**), the system will resume back when the system power on again.

VGA Active Monitor: When Enabled, any video activity restarts the global timer for Standby Mode.

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 4 second later after the power button is pressed. **For "Suspend to Disk" feature, this option should be set to "Delay 4 sec." option**.

IRQ 8 Break Suspend: You can select Enabled or Disabled monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend Mode.

Reload Global Timer Event: When Enabled, an event occurring on each device listed below restarts the global time for Standby Mode:

IRQ[3-7,9-15], NMI
Primary IDE 0
Primary IDE 1
Secondary IDE 0
Secondary IDE 1
Floppy Disk
Serial Port
Parallel Port

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 (2A59ID1G)
PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed	: No	PCI IDE IRQ Map To	: PCI-AUTO
Resources Controlled By	: Manual	Primary IDE INT#	: A
Reset Configuration Data	: Disabled	Secondary IDE INT#	: A
IRQ-3 assigned to	: PCI/ISA PnP	Used MEM base addr	: C800
IRQ-4 assigned to	: PCI/ISA PnP	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	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.

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

Primary/Secondary IDE INT#: Each PCI peripheral connection is capable of activating up to four interrupts: INT#A, INT#B, INT#C and INT#D. By default, a PCI connection is assigned INT#A. Assign INT#B has no meaning unless the peripheral device requires two interrupt services them just one.

Used MEM Base Addr/USE 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 "User 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 Memo 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 Integrated Peripherals setup option is need to change the values of the I/O chipset registers for I/O functions.

ROM PCI/ISA BIOS (2A59ID1G)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Disabled	ECP Mode Use DMA	: 1
IDE Primary Master PIO	: Auto	EPP Mode Select	: EPP1.9
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		
On-Chip Primary IDE	: Enabled		
On-Chip Secondary IDE	: Enabled		
USB Keyboard Support	: Disabled		
Onboard FDD Controller	: Enabled		
Onboard Serial Port 1	: 3F8/IRQ4		
Onboard Serial Port 2	: 2F8/IRQ3		
Onboard UART2 Mode	: Standard	ESC: Quit	? ⁇ ⁇ ? : Select Item
		F1: Help	PU/PD/+/-: Modify
		F5: Old Values	(Shift)F2: Color
Onboard Parallel Port	: 3BC/IRQ7	F7: Load Setup Defaults	
Parallel Port Mode	: ECP+EPP		

Fig. 26

A short description of the screen items follows:

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

IDE 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.

On-Chip Primary/Secondary PCI IDE: This item is used to set the onboard IDE controller. The settings are Primary, Secondary, Both or Disabled. The default setting is Both.

USB Keyboard Support: Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

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 or IRQ 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 or IRQ conflict with other I/O device. The default setting is 2F8/IRQ3.

Onboard UART2 Mode: Choose Standard set UART2 in RS232 mode, choose ASKIR (Auplitude Shift Keyed Infrared Port) or HPSIR (IrDA-compliant Serial Infrared Port) for IrDA serial interface mode.

IR Duplex Mode: This item will be shown only when **UART2 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 (simultaneous two-direction transmission) or half duplex mode (transmission in one-direction only at a time) correspondingly.

Use IR Pins: This item will be shown only when **UART2 Mode** is selected to ASKIR or HPSIR. If use JP6 (IrDA IR Connector) as IR Interfacee, choose the "IR-RX2TX2" option. If use JP20 (Serial Port COM2 Connector) as IR Interface, choose the "IR-RX TX" option.

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 or IRQ 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 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.

4.13 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 SOFTWARE INSTALLATION

In order to let the system board to work efficiently, a series of drivers have to installed according to the operating system used. The drivers are distributed by CD-ROM or by Floppy diskette. For CD-ROM version, users have to go through the **README.TXT** file on the CD-ROM root directory before installation.

For floppy diskette version, please refer to the following section:

5.1 PCI IDE DRIVER INSTALLATION

Please refer to the **README.TXT** file in PCI IDE Driver Diskette for detail installation procedures to be used in various kind of operating system (DOS, Netware, Windows 95, Windows 3.1, Windows NT, OS/2).

5.2 PCI VGA DRIVER INSTALLATION

5.2.1 INSTALLATION OF WINDOWS 95 VGA DRIVER

a) Under Windows 95, insert the **ATI 3D RAGE II PCI VGA Driver Windows 95** into a floppy drive.

b) Click **Start** on the taskbar in Windows 95.

c) Click **Run** on the menu bar in Windows 95.

d) Type the following:

A:\SETUP (A: being the letter of your floppy drive)

e) Follow the on screen instructions to complete the installation.

f) After the installation is completed, Windows 95 should be restarted to let the drivers take function.

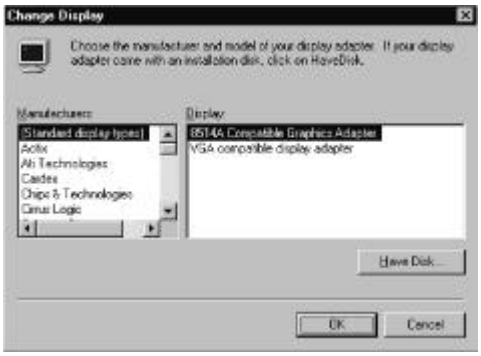
5.2.2 INSTALLATION OF THE WINDOWS NT 4.0

a) Under Windows NT 4.0, click **Start**, **Settings**, **Control Panel**, to select **Display** icon.

b) Double click the **Display** icon and select the **Settings** tab.

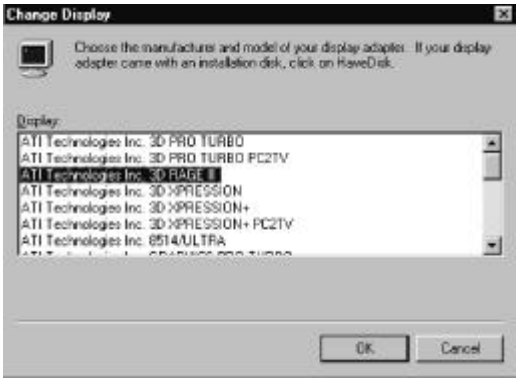
c) Click **Display Type** and select **Change**.

d) Insert the **ATI 3D RAGE II Windows NT 3.5/3.51/4.0 PCI VGA Driver** to the floppy driver, then click **Have Disk**.



e) Type **A:\NT40** (let A: be the floppy drive in use)

f) The *Change Display* dialog box will be shown, the select **ATI Technologies Inc. 3D RAGE II** and click **OK**.



g) Click **Yes** to proceed when the *Third-party Drivers* dialog box shown.

h) After the installation is completed, Windows 95 should be restarted to let the drivers take function.

5.3 SOUND DRIVER INSTALLATION

5.3.1 INSTALLATION OF WINDOWS 95 SOUND DRIVER AND APPLICATIONS

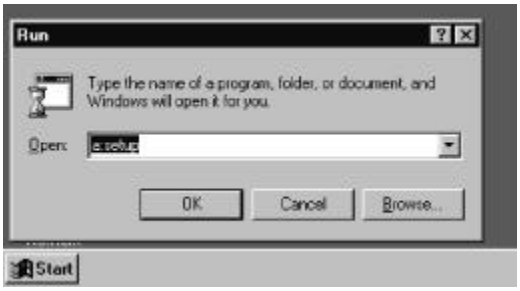
a) Under Windows 95, insert the **Creative Lab 2510 WIN 95 Sound Driver Installation Diskette** into a floppy drive (say drive A:).

b) Click **Start** on the Windows 95 taskbar.

c) Click **Run** on the menu bar in Windows 95.

d) Type the following:

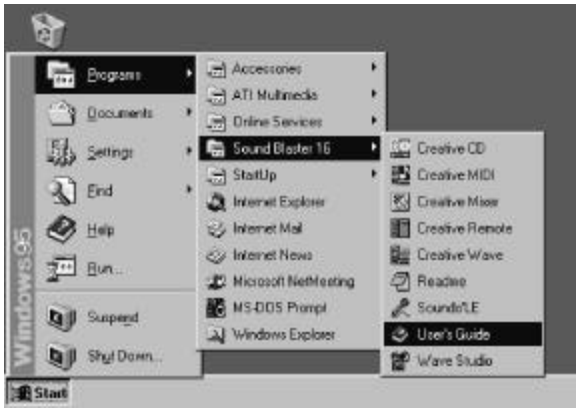
A:\SETUP (A: being the letter of your floppy drive)



e) Follow the on screen instructions to complete the installation.

f) After the installation is completed, Windows 95 should be restarted to let the drivers take function.

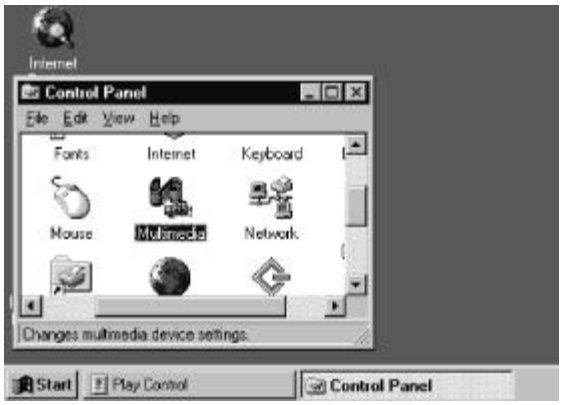
g) The *Creative CD, Creative MIDI, Creative Mixer, Creative Remote, Creative Wave, Soundo' LE and Wave Studio* are also installed in the Windows 95 with the Sound Driver Installation. For the usage and information of the above applications, please refer to the *Creative On-line documentation*. Just click the **Start** button on the Windows 95 taskbar. Select **Program**, followed by a **Sound Blaster 16** and the **User Guide** to access the On-line document.



5.3.2 INSTALLATION OF WINDOWS NT 4.0 SOUND DRIVER

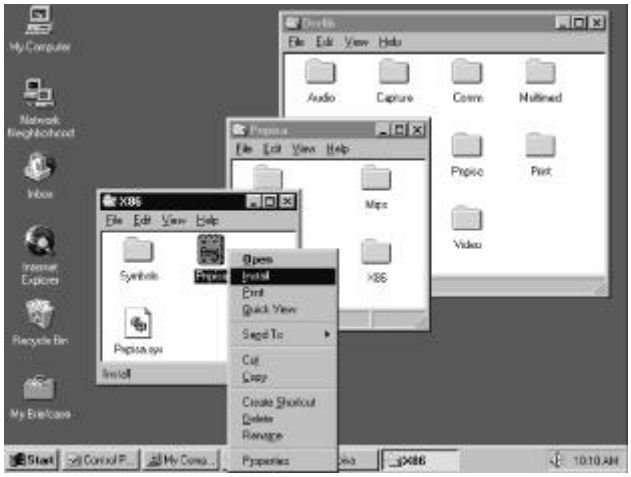
a) Log on to Windows NT 4.0 as an Administrator.

b) Under Windows NT 4.0, click **Start**, **Settings**, **Control Panel** to select the **Multimedia** icon.



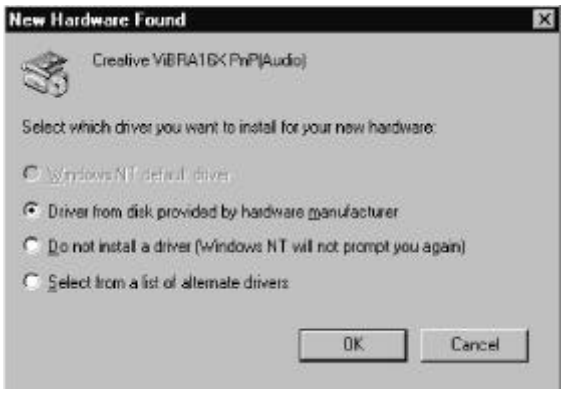
c) Double click the **Multimedia** icon and bring the *Multimedia Properties* dialog box, the select the **Device** Tab. If legacy drivers or PnP drivers is previously installed, remove entries with the term "Multimedia Drivers" from under **Audio Device** to **MIDI Devices and Instruments**.

d) Insert the **Windows NT 4.0 CD-ROM** in the CD-ROM Drive, then select **<CD-ROM Drive>:/drvlib/pnpisa/x86**, and right-click **PNPISA.INF**, and then click **Install**.

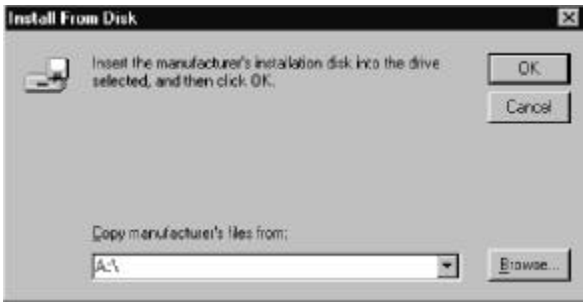


e) Restart the computer.

f) After computer is restarted, the *New Hardware Found* message box will be displayed, then select **Drive from disk provided by hardware manufacturer**, press **OK**.



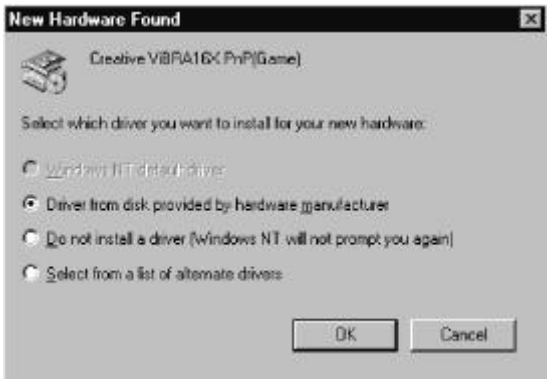
g) Insert the **Creative Lab 2510 Windows NT 4.0 Sound Driver** to a floppy Drive (say A:), type **A:** and click **OK** to proceed.



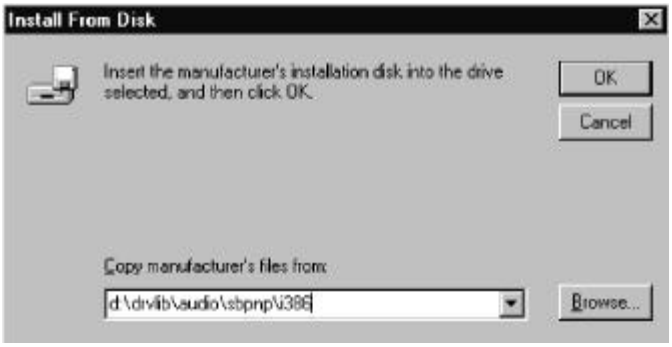
h) When the *Select Device* dialog box comes out, select **Creative Sound Blaster 16 Plug and Play**, click **OK**.

i) The default setting of Creative SB16 will be shown. Accept the default settings by clicking **OK**.

j) Another *New Hardware Found* message box will be displayed, then *Creative ViBRA16X PnP(Game)* dialog box will came out. Select **Driver from disk provided by hardware manufacturer**, press **OK**.

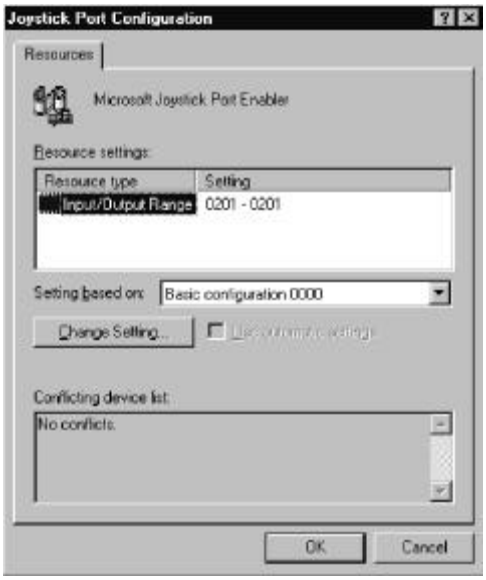


k) Insert **Windows NT 4.0 CD**, change path **\drvlib\audio\sbpnp\i386**, press **OK**.



l) Select **Microsoft Joystick Port Enabler**, press **OK**.

m) Show the default setttings of *Microsoft Joystick Port Enabler*. Accept the default settings, press **OK**.



n) After the installation is completed, restart the computer to let the drivers take function.

CHAPTER 6 AWARD ZERO-VOLT DATA-SUSPEND UTILITY

6.1 INTRODUCTION

The zero-volt data-suspend utility, **ZVHDD.EXE**, stores all the information about your current operating session on your hard drive when you turn off your system, using just one Windows function to replace the sometimes tedious process of closing data files, applications, and the Windows environment. Next time you turn your system on, the complete session resumes, just as it was.

The saves session data includes all the programs and data files loaded into system memory during the session. For example, you may be running multiple applications, such as Microsoft Excel, WordPerfect, and CorelDraw, under Windows 95. Normally, to turn off your computer, you must close all open data files and applications and then exit Windows. When you want to resume work where you left off, you must boot the computer, wait for Windows to open, open your application(s), and load the data file(s) you were editing.

Think how quick and convenient it would be if you could issue just one command to end your current session. And how quick and convenient it would also be if your session resumed exactly where you left off next time you turned on the computer! The Award Zero-Volt Data-Suspend utility offers this convenience.

6.2 PREPARATION

1. In the **BIOS Power Management Setup Menu** set the **Suspend Mode** feature to **Suspend to Disk** option and **Soft-Off by PWR-BTTN** feature to **Delay 4 sec.**.

2. The Award zero-volt data-suspend utility runs under DOS, Windows 3.1, and Windows 95. However, **you should install the ZVHDD.EXE under DOS - before installing Windows 3.1 or Windows 95**.

6.3 RUNNING THE PROGRAM

6.3.1 INSTALLATION

There is no special installation program. You may run the program ZVHDD.EXE from your hard drive or from a diskette.

When you install ZVHDD, it creates either a binary file or a hard drive partition as you select, in which to store a saved session.

Note: ***If you plan to store session data in a separate partition, create a bootable diskette and run ZVHDD from the bootable diskette, because partitioning the hard drive may destroy all existing data on the drive.***

To install the program, type the following at the DOS prompt.

```
ZVHDD/C /file /M:memory_size
                OR
ZVHDD/C /partition/M:memory_size
```

where

/C	Creates a file or a disk partition for session data storage
/file	Specifies a storage file name SAVE2DSK.BIN. This is a hidden file.
/partition	Specifies a disk partition for storage of session data.

Note: ***Creating a disk partition may cause loss of existing data on the hard drive. We recommend this method only for new systems with no data on the hard drive.***

/M:memory_size	Specifies a number from 1 to 256 to select the size in megabytes of the file or partition.

(I) Creating a Storage File

Here is an example of creating a storage file. The specified memory size, 8MB, is an example only.

1. At the DOS command line, type
   ZVHDD/C /file /M:8 ?

2. A screen similar to this appears:

ZVHDD 1.31--Award EliteBIOS? v4.51GPM Zero-Volt Partition Utility Copyright (c) Award Software Inc. 1996. All Rights Reserved.

The file c:\SAVE2DSK.BIN has been created.

The system will now be reset to allow the BIOS to recognize the changes. If the system fails to reboot, please power off the power.

Press any key to reset the system.....

3. Press any key

(II) Creating a Storage Partition on the Hard Disk

Here is an example of creating a storage partition on the hard disk. The specified memory size, 8MB, is an example only.

1. At the DOS command line, type
   ZVHDD/C /partition /M:8 ?

2. If you have adequate space on your hard drive, a screen similar to this appears:

ZVHDD 1.31--Award EliteBIOS? v4.51GPM Zero-Volt Partition Utility Copyright (c) Award Software Inc. 1996. All Rights Reserved.

Formatting xxxxxxxxxxxxx Bytes.

Press any key to reset the system.....

If you don't have adequate free space on your hard drive, a screen similar to this appears:

ZVHDD 1.31--Award EliteBIOS? v4.51GPM Zero-Volt Partition Utility Copyright (c) Award Software Inc. 1996. All Rights Reserved.

Warning: Not enough free disk space exists to create the partition.

If you wish to make space for the partition, that will DESTROY ALL the data on your hard disk!!

OK to proceed, Answer Yes / No?

3. Answer **Yes** to proceed with the disk partitioning. You will then have to install an operating system on your main partition.

6.3.2 SAVING SESSION DATA

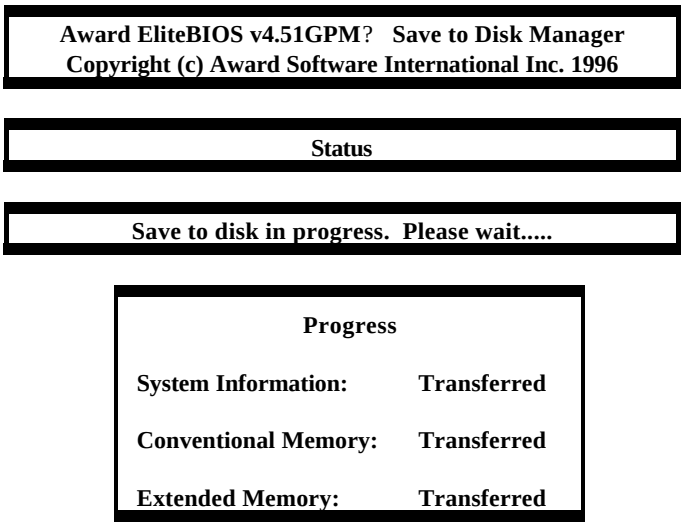
After you implement the suspend function in Setup and install a storage file or partition on the hard drive, you can save your session data at any time.

To save session data, just let the system entering to suspend mode:

- ?? press **Power** button on your computer.
- ?? you may let the system time-out according to the Power Management Setting on the BIOS Menu.
- ?? if you a Windows 95 user, just click the **Suspend** icon on Windows 95 Start Menu.

If your system has a built-in software power-off function, the system simply turns itself off.

In systems that do not have a built-in software power-off function, a screen similar to this appears:



When all data is transferred, the system will be turned off.

When you restart your system, it first runs through the system initialization routine (POST), then returns to the session you were previously running.

6.4 PROGRAM FUNCTIONS

6.4.1 USAGE

You can view a ZVHDD parameters by typing: ZVHDD/? at the DOS prompt. A screen similar to this appears:

```
Usage: ZVHDD [Options]
Options:
    /C (FILE or /PARTITION)[/M:memosize]   --Create 0V file or
                                               partition
    /D (FILE or /PARTITION                 -- Delete 0V file or
                                               partition
    /R                                     --Reformat 0V partition
Parameters:
    /Mspecifies the memory size (MB) of the Notebook system.
                    Available size is from 1 to 256.
```

6.4.2 REFORMATTING THE STORAGE PARTITION

If you suspect the storage partition has become corrupted, you can reformat it with the command

ZVHDD /r

6.4.3 DELETING THE STORAGE FILE OR PARTITION

You can delete the storage file or partition with the /D switch.

1. At the DOS prompt, type

ZVHDD /D /file
OR
ZVHDD /D /partition ?

2. A screen similar to this appears:

ZVHDD 1.31--Award EliteBIOS v4.51GPM? Zero-Volt Partition Utility
Copyright (c) Award Software Inc. 1996. All Rights Reserved.

The file c:\SAVE2DSK.BIN has been deleted.

The system will now be reset to allow the BIOS to recognize the changes.
If the system fails to reboot, please power off the power.

Press any key to reset the system.....

3. Press any key.

CHAPTER 7 FLASH AND DMI UTILITY

7.1 AWARD FLASH UTILITY

This section will provides 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:

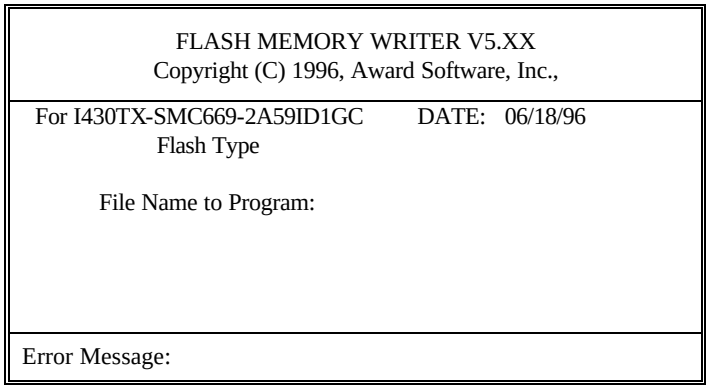


Fig. 27

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)?"

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**.

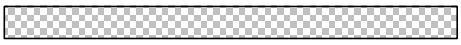
(Your old BIOS will be saved in the file name you create. In this case, the old BIOS is saved in the file name, 2A59F000.OLD).

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 ***"awdflash"***, and error message will appear:

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

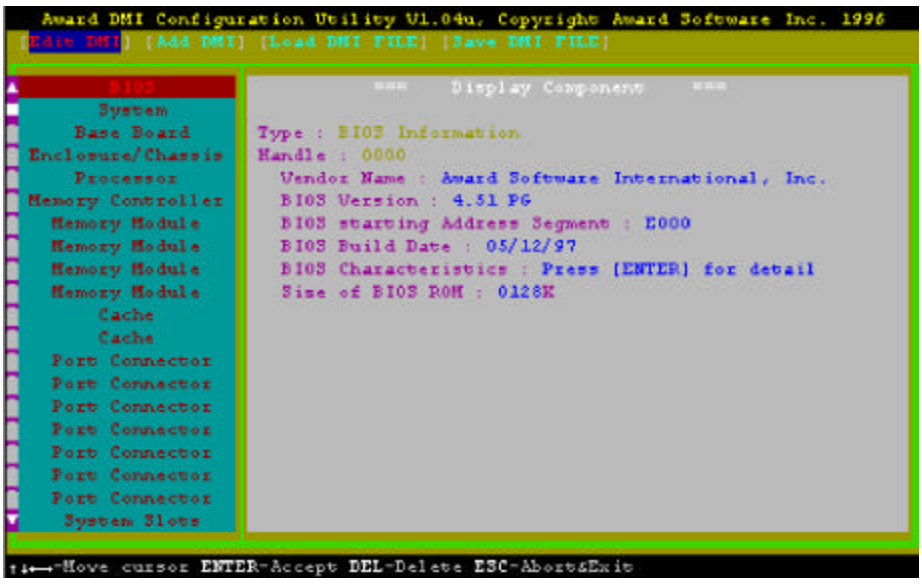
7.2 DESKTOP MANAGEMENT INTERFACE (DMI) OVERVIEW

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

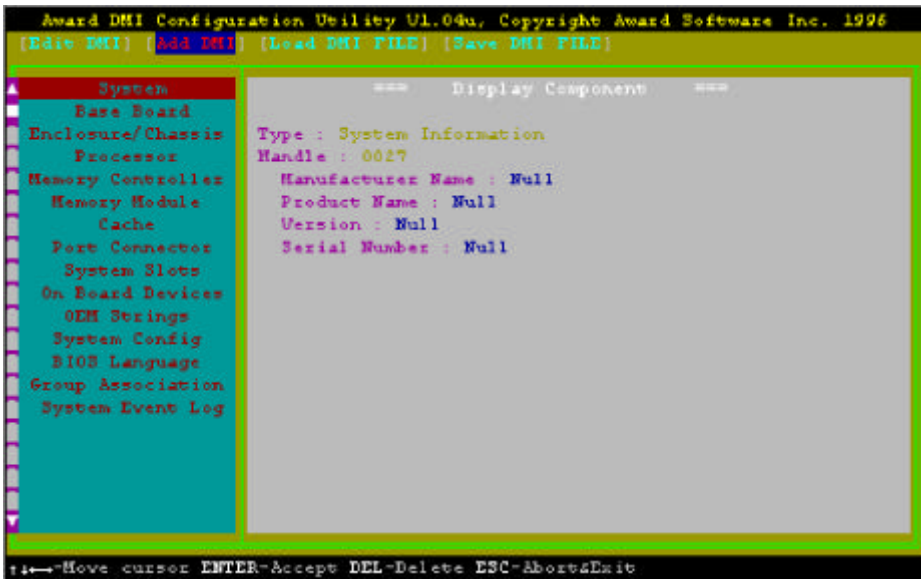
Edit DMI



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

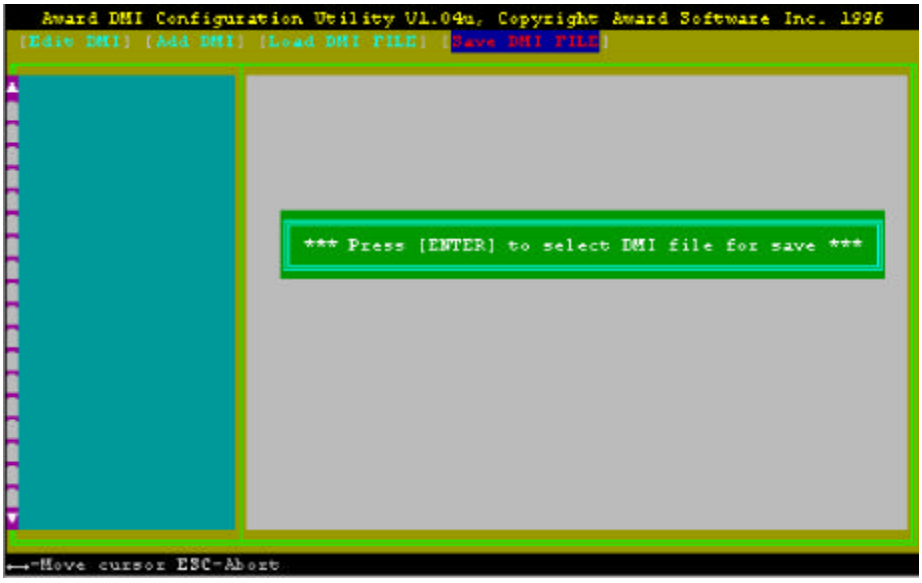


This DMI Configuration Utility also allows the system integrator or end user to add additional information into the DMI database such as serial numbers, housing configurations, and vendor information. Those information not detected by the motherboard BIOS and has to be manually entered through the DMI 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 P54C, P54CT	JP18: 1-3 open 2-4 open JP19: 1-2 short 3-4 open 5-6 short 7-8 short
	3.5V Single Voltage CPU For 54C-VRE, AMD-K5, Cyrix 6x86	JP18: 1-3 open 2-4 open JP19: 1-2 short 3-4 short 5-6 short 7-8 short
	3.3V (I/O)/2.8V (core) Dual Voltage CPU For P55C, Cyrix 6x86L	JP18: 1-3 short 2-4 short JP19: 1-2 open 3-4 open 5-6 open 7-8 short
	3.3V (I/O)/2.9V (core) Dual Voltage CPU For AMD-K6/166 and 200, Cyrix 6x86MX	JP18: 1-3 short 2-4 short JP19: 1-2 short 3-4 open 5-6 open 7-8 short
	3.3V (I/O)/3.2V (core) Dual Voltage CPU For AMD-K6/233	JP18: 1-3 short 2-4 short JP19: 1-2 open 3-4 open 5-6 short 7-8 short
CPU Speed Selection ***Reserve*** **SW1-1 OFF** **SW1-2 ON** **SW1-5 OFF** **SW1-8 OFF**	For 90MHz Intel Pentium, AMD-K5-PR90 and AMD-K5-PR120 CPU	SW1-3: OFF SW1-4: OFF SW1-6: ON SW1-7: OFF
	For 100MHz and 233MHz Intel Pentium, AMD-K6/233, AMD-K5-PR100 and AMD-K5-PR150 CPU	SW1-3: OFF SW1-4: OFF SW1-6: OFF SW1-7: OFF
To be continued...		

Function		Jumper Settings	
CPU Speed Selection ***Reserve*** **SW1-1 OFF** **SW1-2 ON** **SW1-5 OFF** **SW1-8 OFF**	For 110MHz Cyrix 6x86-PR133+ CPU	SW1-3: SW1-4: SW1-6: SW1-7:	ON OFF ON ON
	For 120MHz Intel Pentium and Cyrix 6x86-PR150+ CPU	SW1-3: SW1-4: SW1-6: SW1-7:	ON OFF ON OFF
	For 133MHz Intel Pentium, AMD-K5-PR133 (REV C) and Cyrix 6x86L-PR166+ CPU	SW1-3: SW1-4: SW1-6: SW1-7:	ON OFF OFF OFF
	For 150MHz Intel Pentium and Cyrix 6x86MX-PR166+ CPU	SW1-3: SW1-4: SW1-6: SW1-7:	ON ON ON OFF
	For 150MHz Cyrix 6x86L/MX-PR200+ CPU (for future support only)	SW1-3: SW1-4: SW1-6: SW1-7:	ON OFF OFF ON
	For 166MHz Intel Pentium, AMD-K6/166 and AMD-K5-PR166 CPU	SW1-3: SW1-4: SW1-6: SW1-7:	ON ON OFF OFF
	For 200MHz Intel Pentium and AMD-K6/200 CPU	SW1-3: SW1-4: SW1-6: SW1-7:	OFF ON OFF OFF
System ROM Selection	5V Flash EPROM	JP4:	2-3 short
	12V Flash EPROM	JP4:	1-2 short
On Board VGA IRQ Select	Enabled	JP10:	2-3 short
	Disabled	JP10:	1-2 short
On Board VGA Select	Enabled	JP11:	2-3 short
	Disabled	JP11:	1-2 short
Ring In Selection	COM1	JP21:	2-3 short
	COM2	JP21:	1-2 short
On Board Audio Chip	Enabled	JP22:	short
	Disabled	JP22:	open