

***994AN/994AN-L
994AS/994AS-L
USER'S MANUAL***

***PCI/ AGP Mainboard
For Pentium® II/ III or Socket 370***

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**** Year 2000 compliant ****

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Chapter 1

1-1 Preface

Thank you for purchasing this multifunction motherboard. It has the most flexibility you can find in today's computer market. The mainboard integrates both Intel Pentium®II / Pentium®III & Celeron™(Slot 1) / Coppermine processor and Celeron™ (Socket 370) PPGA / FCPGA processor interface into a compact PC/ATX compatible system along with next generation of 4X AGP specification, 133MHz FSB, Ultra DMA66, and optional 3D Stereo Sound System audio chip. Moreover, this mainboard allows you conditionally approach 140MHz* of Front Side Bus Frequency to accelerate your CPU speed.

1-2 Feature of motherboard

This motherboard is design for the PC user who wants highest possible quality and value in a small package. It includes following main features :

1-2-1 Overview

- Support both Slot 1 & Socket 370 CPU interface (You can only use one CPU interface at a time).
- Support Ultra DMA 66 for newer hard disk interface.
- Support Jump-less solution for setting Front Side Bus Frequency (CPU Host Clock) and CPU ratio under CPU Host/PCI clock of CHIPSET FEATURES SETUP.
- Support CPU Host Clock and DRAM Clock Asynchronous/Synchronous mode, please refer [page 25](#) “ DRAM Clock”.
- Conditionally support 66MHz~140MHz* of Front Side Bus Frequency. This function allow user select CPU Bus Frequency by the BIOS to approach Over-Clock possibility.
- Provide PC Health Monitoring to track CPU temperature, system temperature, system voltage, and fan speed. When CPU current temperature is over CPU warning temperature, system will slow down automatically in order to reduce the CPU's temperature. (Option for motherboard that embedded PC Health chip)
- Logo-DIY: Provide CBROM utility for user to create their own loge in the BIOS.
- Built in high quality PCI-Based HRTF 3D Extension Positional Audio Chip (Option for motherboard that embedded Audio chip)
 - Supports rear side speakers, C3DX positional audio in 4 channels speaker mode.
 - Professional digital audio interface to support 24-bit SPDIF IN and OUT (44.1K and 48K format).
 - HRTF-base 3D positional audio, supporting DirectSound™ 3D and Aural A3D™ interface.
 - Digital functions that capable to provide hi-fi stereo, Dolby, 3D surround effects, and playing MP3 music.
- You can add our Optical kit (Option for motherboard that embedded Audio chip) to connect any optical Input/Output device for super high quality sound transaction, such as playing & recording MD(Mini Disk)/CD; CD-ROM directly recording to MD; combine with DVD player to create a home theater system (This upgrade kit includes Optical Module, Optical Cable, and Software DVD Driver).

1-2-2 Key Feature

-
- **Multi-Speed Support** : Provide 66/75*/83*/95*/100/112*/117*/124*/133*/140*MHz Front Side Bus Frequency to support Intel **Pentium®II** / **Pentium®III** / Coppermine / Celeron processor for Slot1 interface or Intel Celeron PPGA / FCPGA on a ZIP Socket 370 interface.
 - **Chipset** : VIA 82C694X Apollo Pro-133A Chipset.
 - **DRAM Memory Support** : Support 3 x 168-pin DIMM sockets (3.3V) for memory from 8M Byte to 1.5GB Byte in either EDO (66MHz only) or SDRAM (66MHz/100MHz/133 MHz) type module with ECC or parity check.
 - **AGP, ISA, and PCI expansion Slots** : Provide a 4X AGP slot, one 16-bit ISA slot, and four 32-bit PCI master slots.
 - **Super Multi-I/O**: Provides two high-Speed UART compatible serial ports and one parallel port with EPP and ECP capabilities. Two floppy drives of either 5.25" or 3.5" (1.44MB or 2.88MB) are also supported without an external card.
 - **PCI Bus Master IDE Controller and ULTRA DMA 33/66** : On-board PCI Bus Master IDE controller with two connectors that supports four IDE devices in two channels, provides faster data transfer rates, and supports Enhanced IDE devices such as Tape Backup, CD-ROM, ZIP, LS-120 Drives. This controller also supports PIO Modes and Bus Master IDE Ultra DMA 33/66Mbyte/Second.
 - **ACPI supporting for OS Directed Power Management.**
Ring-In Wake up: When Ring-In the system can wake up from SMI Mode.
Ring-In Power On: When Ring-In the system can power on automatic by this function.
RTC Power On: Enabled RTC Power On function, you can set RTC alarm to power on the system at the time length that correspond to your setting.
Power Button: Press the button will place the system power on/off.
Wake on LAN : The system can power on by server in Network.
Support Software Power Off function.
 - **Power Support**: Efficient PWM switching power instead of traditional Linear Voltage Regulator to prevent power component from being burned-out.
 - **PC 99 ready**
 - **PS/2 Mouse**: This mainboard support PS/2 mouse set.
 - **USB Port Connector**: This mainboard supports two USB port connectors for USB devices.
 - **Optional IrDA**: This mainboard supports an optional infrared port module for wireless interface, with independent 3rd UART (32-byte FIFO).
 - **4X AGP**: Accelerated Graphics Port to support up to 1GB/sec data transfer rate and 266MHz 4X mode for AD and SBA signaling.
 - **ATX Form Factor**: Dimensions 30.5cm x 19cm.
- * **Your memory module(s) must be PC133 compliant SDRAM chips and specified to run on 133MHz or 140MHz.**
- * **When you are running at 140MHz, make sure all of your PCI devices have enough tolerance to run on 37.5MHz . Otherwise, it may cause your system become very unstable.**

Chapter 2

Hardware Installation

2-1 Unpacking

This mainboard package should contain the following:

- The mainboard
- USER'S MANUAL for mainboard
- Cable set for Ultra DMA 66 IDE x1, Floppy x1
- CD for Drivers PACK

The mainboard contains sensitive electronic components that can be easily damaged by electron-static, so the mainboard should be left in its original packing until it is installed.

Unpacking and installation should be done on a grounded anti-static mat.

The operator should be wearing an anti static wristband, grounded at the same point as the anti-static mat.

Inspect the mainboard carton for obvious damage. Shipping and handling may cause damage to your board. Be sure there are no shipping and handling damages on the board before proceeding.

After opening the mainboard carton, extract the system board and place it only on a grounded anti-static surface component side up. Again inspect the board for damage.

Press down on the entire socket IC's to make sure that they are properly inserted. Do this only on with the board placed on a firm flat surface.

Warning: Do not apply power to the board if it has been damaged.

You are now ready to install your mainboard. The mounting hole pattern on the mainboard matches the ATX system board.

It is assumed that the chassis is designed for a standard ATX™ main board mounting. Place the chassis on the anti-static mat and remove the cover.

Take the plastic clips, Nylon stand-off and screws for mounting the system board, and keep them separate.

2-2 Mainboard Diagram

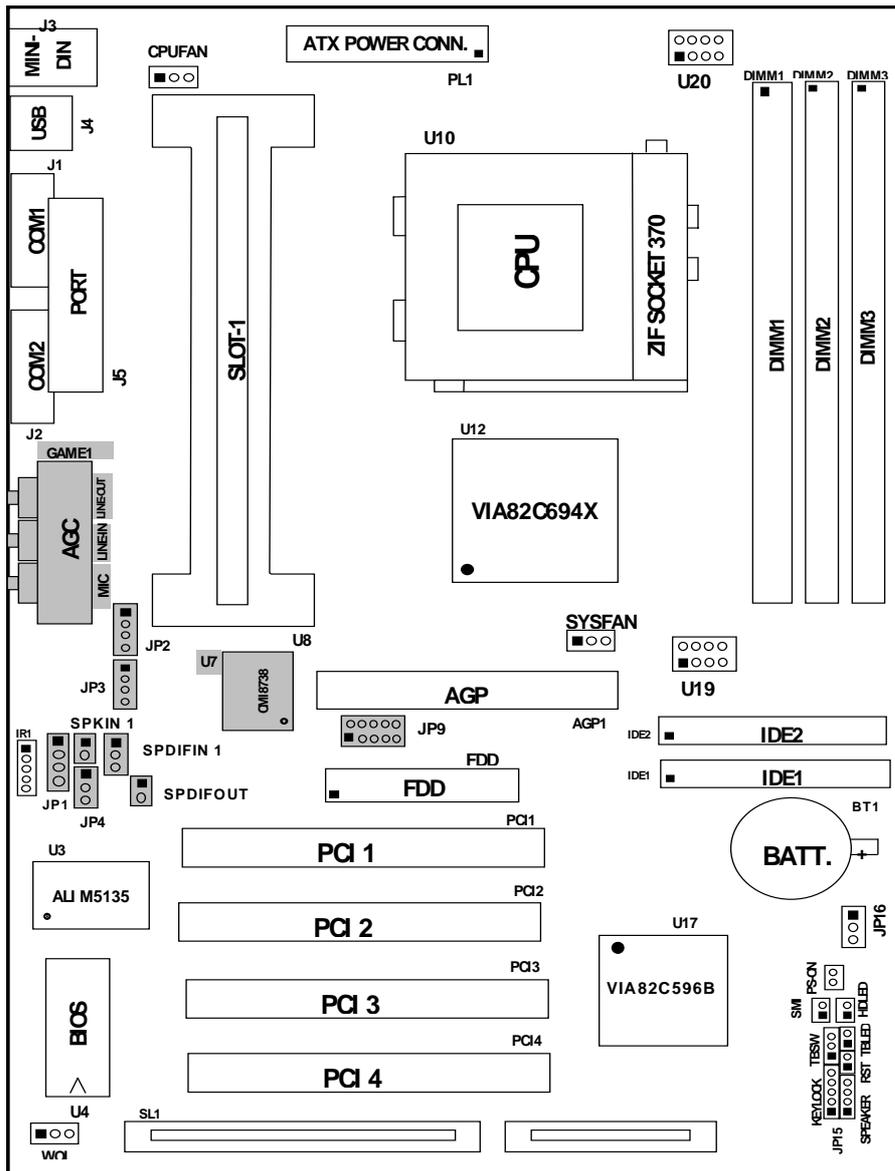


Figure 2-2

 Option for motherboard that embedded with Audio Chip

2-3 Quick Reference for Jumpers, Connectors & Expansion Socket Jumpers

Jumper	Name	Description	Page
U19	CPU Bus Frequency Selection	Refer to page 6	p. 6
U20	CPU Ratio Selector	Refer to page 6	p. 6
JP16	CMOS RAM Clear	1-2 Normal ,2-3 Clear CMOS	p. 7

Connectors

Connector	Name	Description	Page
PL1	ATX Power Connector	20-Pin Block	p.9
MINI-DIN	PS/2 Keyboard/PS/2 Mouse	6-Pin Female	p.9
USB	USB Port Connector	5-Pin Connector	p.9
PRINT	Parallel Port Connector	26-Pin Female	p.9
COM1, COM2	Serial Port COMA , COMB	9-Pin Connector	p.10
FDD	Floppy Driver Connector	34-Pin Block	p.10
IDE1	Primary IDE Connector	40-Pin Block	p.10
IDE2	Secondary IDE Connector	40-Pin Block	p.10
HDLED	IDE activity LED	2-Pin Connector	p.11
SMI	SMI Suspend Switch	2-Pin Connector	p.11
JP15	Front Panel Connector	16-Pin Block	p.11
IR1	Infrared Module Connector	10-Pin Block	p.12
CPUFAN, SYSFAN	FAN Connector	Extra fanning system connectors	p.12
PS-ON	ATX power button/soft power button	2-Pin Connector	p.12
WOL	Wake On LAN	3-pin Block	P.12

Jumpers & Connectors (Option for motherboard that embedded Audio chip)

Item number	Name	Description	Page
JP4	On-Board Sound Enable/Disable	1-2 : Disabled , 2-3 : Enabled	p.13
JP1	AUX IN	4-pin Block	p.13
JP2	CD-Audio	4-pin Block	p.13
JP3	CD-Audio	4-pin Block	p.13
AGC	Line IN/Line Out/MIC /Game Connector	15-pin Connector + 3 phone jack	p.13
SPKIN 1	PC Speaker In	2-pin Block	p.14
SPDIFIN 1	SPDIF (Sony/Philips Digital Interface) IN	3-pin Block	p.14
SPDIFOUT	SPDIF (Sony/Philips Digital Interface) OUT	2-pin Block	p.14
JP9	For Optional Optical Kit Connector	10-pin Connector	p.14

Expansion Sockets

Socket/Slot	Name	Description
DIMM1,DIMM2, DIMM3	DIMM Module Socket	168-Pins DIMM SDRAM Module Expansion Socket
Slot1	CPU Slot	Pentium II/III / Coppermine CPU Slot
Zip Socket370	CPU Socket	Celeron PPGA / FCPGA CPU Socket
AGP SLOT	4X AGP SLOT	AGP Expansion Slot
PCI1, PCI2,PCI3 ,PCI4	PCI Slot	32-bit PCI Local Bus Expansion slots
SL1	ISA Slot	16-bit ISA Bus Expansion slot

2-4 Installation Steps

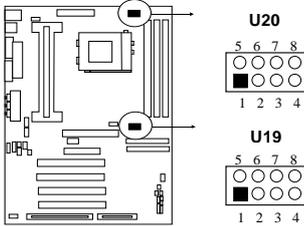
Before using your computer, you must follow the steps as follows:

1. Set Jumpers on the Mainboard

2. Install the CPU
3. Install DRAM Modules
4. Install Expansion card
5. Connect Cables, Wires, and Power Supply

2-5 Jumper Settings

1. CPU Bus Frequency Selection : U19



CPU External Frequency : U19				
CPU	1-5	2-6	3-7	4-8
66.8	OFF	OFF	ON	ON
75	OFF	ON	ON	ON
83	ON	OFF	ON	ON
100	OFF	OFF	OFF	ON
124	ON	OFF	OFF	OFF
133	OFF	OFF	OFF	OFF

**Your Memory must meet the requirement to run on 133MHz or 140MHz condition. In order to run 140MHz, Please set jumper at 133MHz condition and then change the setting to 140MHz from the BIOS.*

- Users also can setting the CPU Bus frequency in the “CPU Host/PCI clock” in CHIPSET FEATURES SETUP.(Please refer to page 25)

2. CPU Ratio Selector : U20

Ratio	1-5	2-6	3-7	4-8
3.0x	ON	OFF	ON	ON
3.5x	OFF	OFF	ON	ON
4.0x	ON	ON	OFF	ON
4.5x	OFF	ON	OFF	ON
5.0x	ON	OFF	OFF	ON

Ratio	1-5	2-6	3-3	4-8
5.5x	OFF	OFF	OFF	ON
6.0x	ON	ON	ON	OFF
6.5x	OFF	ON	ON	OFF
7.0x	ON	OFF	ON	OFF
7.5x	OFF	OFF	ON	OFF
8.0x	ON	ON	OFF	OFF

Table for the Pentium III and Celeron Socket 370 CPU

Celeron			Pentium III			Pentium III		
Speed	Bus	Ratio	Speed	Bus	Ratio	Speed	Bus	Ratio
300/66	66MHz	4.5x	500E/100	100MHz	5.0x	733/133	133MHz	5.5x
333/66	66MHz	5.0x	533EB/133	133MHz	4.0x	750/100	100MHz	7.5x
366/66	66MHz	5.5x	550E/100	100MHz	5.5x	800/100	100MHz	8.0x
400/66	66MHz	6.0x	600E/100	100MHz	6.0x	800EB/133	133MHz	6.0x
466/66	66MHz	7.0x	600EB/133	133MHz	4.5x	850/100	100MHz	8.5x
500/66	66MHz	7.5x	650/100	100MHz	6.5x	866/133	133MHz	6.5x
533/66	66MHz	8.0x	667/133	133MHz	5.0x	933/133	133MHz	7.0x
533A/66	66MHz	8.0x	700/100	100MHz	7.0x	1.0GHz/133	133MHz	7.5x
566/66	66MHz	8.5x						
600/66	66MHz	9.0x						
633/66	66MHz	9.5x						
667/66	66MHz	10.0x						
700/66	66MHz	10.5x						
733/66	66MHz	11.0x						
766/66	66MHz	11.5x						

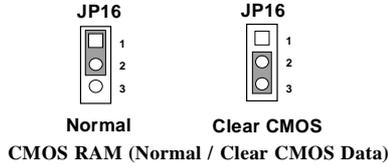
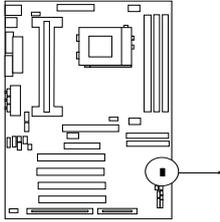
** Because the Ratio are fixed by CPU Manufacture, users don't need to setting ratio any more, this table just for reference use.*

2. CMOS RAM Clear: JP16 (Yellow color selector)

WARNING: Make sure your computer is POWER OFF when you CLEAR CMOS.

Connect a jumper Cap over this jumper for a few seconds, will clear information stored in the CMOS RAM Chip that input by user, such as hard disk information and passwords. After CLEAR CMOS, you must enter the BIOS setup (by holding down during power-up) to re-enter BIOS information (see BIOS SETUP).

Selections	JP16
Normal	1-2 (Default)
Clear CMOS	2-3 (momentarily)



2-6 System Memory (DRAM)

This mainboard supports three 168-pins DIMM modules, the Max Memory Size is 1.5GByte.

DIMM 1	DIMM 2	DIMM 3	System can be Accept or Not
168-pin DIMM	X	X	Accept
168-pin DIMM	168-pin DIMM	X	Accept
168-pin DIMM	168-pin DIMM	168-pin DIMM	Accept

2-7 Central Processing Unit (CPU)

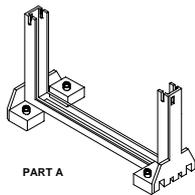
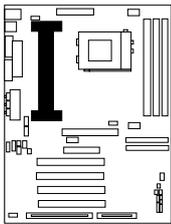
2-7-1 The mainboard provides a Slot-1 for Pentium II/III processor. The CPU on board must have a fan or heat sink attached to prevent overheating.

WARNING: Without a fan or heat sink, the CPU will overheat and cause damage to both the CPU and the mainboard.

To install a CPU, first turn off your system and remove its cover. Locate the Slot- 1 and place RETENTION MODULE as following:

IMPORTANT: You must set jumper U19,U20 for "Bus Frequency Selection" and "CPU Ratio" on page6 depending on the CPU that you install.

1. Attach heat sink to the CPU.
2. Place Part A on Slot-1 and gently screw four corners on top of the main- board.

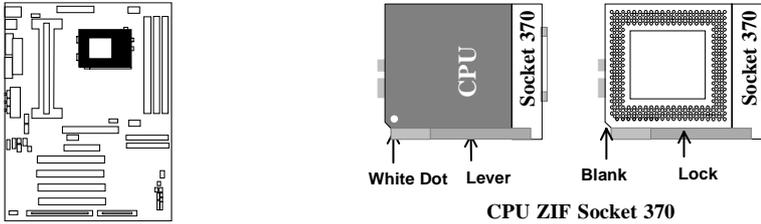


2-7-2 The mainboard also provides a 370-pin ZIF Socket 370. The CPU on mainboard must have a fan attached to prevent overheating.

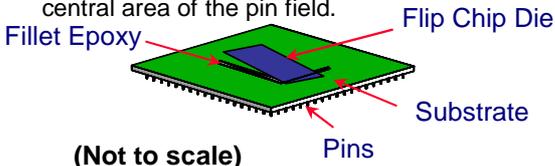
To install a CPU, first turn off your system and remove its cover. Locate the ZIF Socket and open it by first pulling the lever sideways away from the socket then upwards to a 90-degree

right angle. Insert the CPU with the white dot as your guide. The white dot should point towards the end of the level. The CPU has a corner pin for three of the four corners, the CPU will only fit in the one orientation as shown as follow. With the added weight of the CPU fan, no force is required to insert the CPU. Once completely inserted, hold down on the fan and close the Socket's lever.

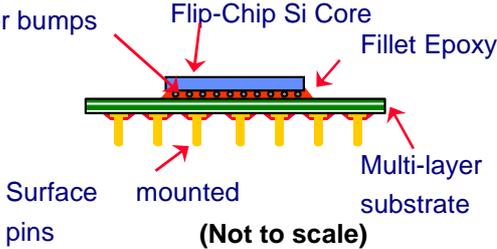
IMPORTANT: You can setting the CPU ratio and Host Frequency in the BIOS setup on page 18



2-7-3 Intel® Pentium® III Processor (256K) in the FC-PGA form factor: Mechanical Features
 The FC-PGA package has the processor's silicon die directly mounted to a pinned interposer substrate. The pin grid array is partially populated and there may be surface mount components in the unpopulated central area of the pin field.



Intel® Pentium® III Processor in the FC-PGA form factor: Mechanical Features



Reference Design: Heatsink



- Intel's reference design thermal solution is an active heatsink; an extruded aluminum heatsink base and a fan attached to the top on the fin array.
- Heatsinks for the PPGA will not work with the FC-PGA. A pedestal is required on the underside of the heatsink to clear the socket cam box
 - Recommended thermal interface material: Chomerics* XTS454.

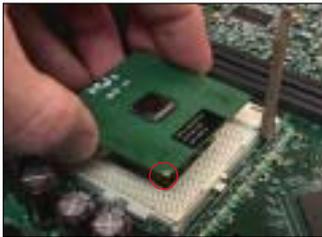
FC-PGA with a PPGA heatsink

CPU Insertion



Step 1

Open the socket by raising the actuation lever.



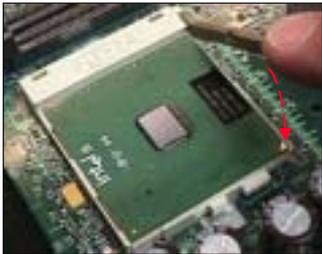
Step 2

Insert the processor.

Ensure proper pin 1 orientation by aligning the FC-PGA corner marking with the socket corner closest to the actuation arm tip. The pin field is keyed to prevent mis-oriented insertion.

Don't force processor into socket. If it does not go in easily, check for mis-orientation and debris.

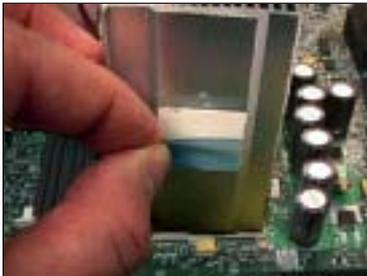
Make sure the processor is fully inserted into the socket on all sides.



Step 3

Close the socket by lowering and locking the actuation lever.

Heatsink Attachment



Step 1

Remove the protective liner from the thermal interface material on the underside of the heatsink.

This liner is not normally present on the Intel reference active heatsink.



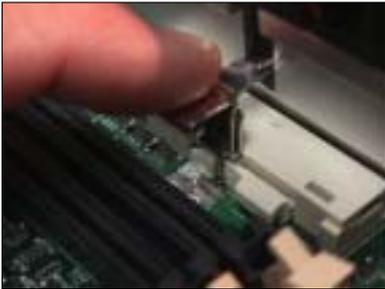
Step 2

Orient the heatsink with the keyed edge of heatsink along the cam box side of the processor.

~~The clip should be oriented so that the thumb tab will engage on the cam box side of the socket.~~

Step 3

Seat the heatsink onto the processor and engage the clip opposite from the cam box onto



2-8 Expansion Cards

You must read the documentation come with expansion card for any hardware or software settings that may be required to setup your specific card.

Installation Procedure:

1. Read the documentation from your expansion card.
2. Set any necessary jumpers on your expansion card.
3. Remove your computer's cover.
4. Remove the bracket on the slot you intend to use.
5. Carefully align the card's connectors and press firmly.
6. Secure the card on the slot with the screw you remove in step 4.
7. Replace the computer's cover.
8. Setup the BIOS if necessary.
9. Install the necessary software drivers for your expansion card.

Assigning IRQs for Expansion Cards

Some expansion cards may require an IRQ to operate. Generally an IRQ must be exclusively assigned to only one device. In a standard design there are 16 IRQs available but most of them are occupied by the system and leaves 6 free for expansion cards.

With most recent device, the BIOS automatically assign an IRQ number to PCI expansion cards. Please make sure there are no any of two devices use same IRQs, otherwise your computer may experience some problems when those two devices are in use at the same time.

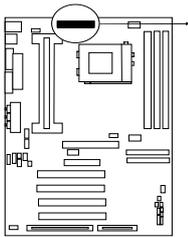
Assigning DMA Channels for Expansion Cards

Some devices may also need to use a DMA (Direct Memory Access) channel. DMA assignments for this mainboard are handled the same way as the IRQ assignment process described above. You can select a DMA channel in the PCI and PnP configuration section of the BIOS Setup utility.

2-9 External Connectors

1. Power Connector: ATX Power Connector (20-pin block): PL1

ATX Power Supply connector. This is a new defined 20-pins connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the mainboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.

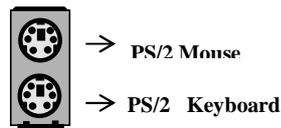
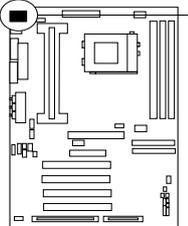


PIN	ROW2	ROW1
1	3.3V	3.3V
2	-12V	3.3V
3	GND	GND
4	Soft Power On	5V
5	GND	GND
6	GND	5V
7	GND	GND
8	-5V	Power OK
9	+5V	+5VSB (for Soft Logic)
10	+5V	+12V

ATX Power Connector

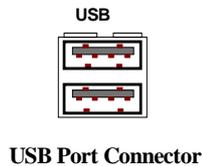
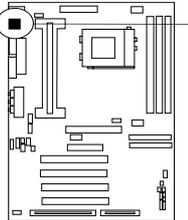
2. PS/2 Mouse & PS/2 Keyboard Connector: MINI-DIN

The connectors for PS/2 keyboard and PS/2 Mouse.



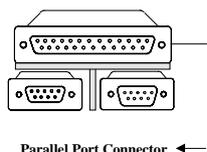
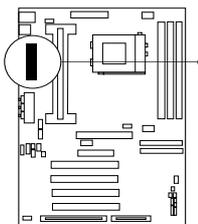
3. USB Port connector: USB

The connectors are 4-pins connector that connect USB devices to the system board.



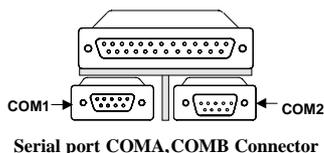
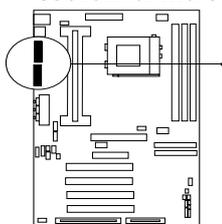
4. Parallel Port Connector (25-pin female): PRINT

Parallel Port connector is a 25-pin D-Subminiature Receptacle connector. The On-board Parallel Port can be disabled through the BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.



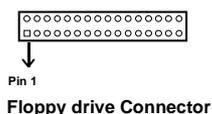
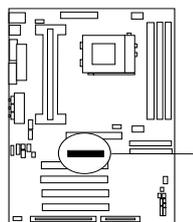
5. Serial Port COMA, COMB: COM1, COM2

COMA is the 9-pin D-Subminiature mail connector. The On-board serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.



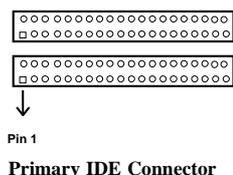
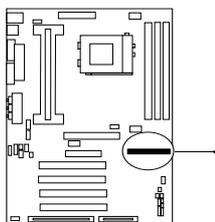
6. Floppy drive Connector (34-pin block): FDD

This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to mainboard, connect the two plugs at other end to the floppy drives.



7. Primary IDE Connector (40-pin block): IDE1

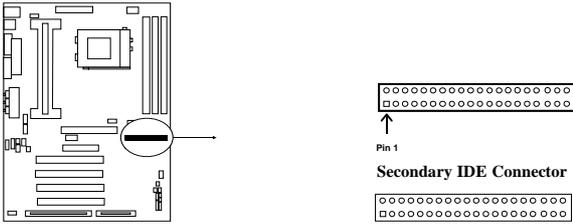
This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to mainboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.



8. Secondary IDE Connector (40-pin block): IDE2

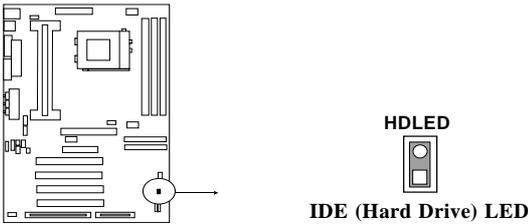
This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. You may also configure two hard disks

to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.



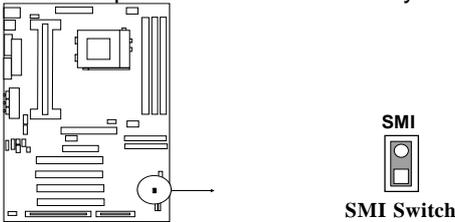
9. IDE activity LED: HDLED

This connector connects to the hard disk activity indicator light on the case.



10.SMI Switch : SMI

If your case has Suspend switch , you may connect the cable to this connector in order to have Suspend mode control from your case.



11. Turbo LED switch: TBLED

The mainboard's turbo function is always on. The turbo LED will remain constantly lit while the system power is on. You may wish to connect the Power LED from the system case to this lead. See the figure below.

12. Reset switch lead: RST

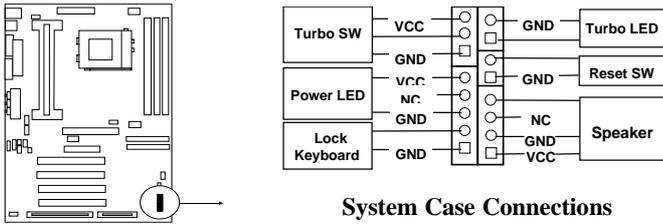
This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply. See the figure below.

13. Keyboard lock switch lead: KEYLOCK

This 5-pin connector connects to the case-mounted key switch for locking the keyboard for security purposes. See the figure below.

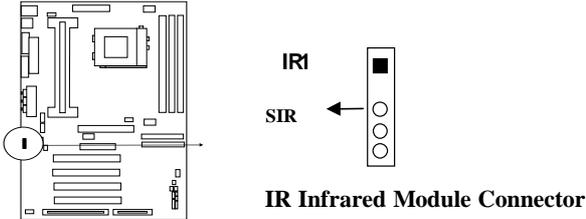
14. Speaker connector: SPEAKER

This 4-pins connector connects to the case-mounted speaker. See the figure below.

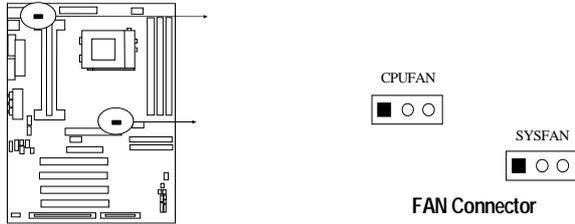


15. IR infrared module connector: IR1

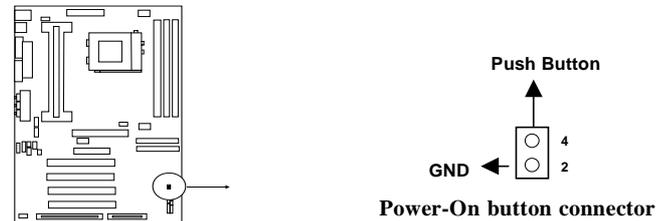
This connector supports the optional wireless transmitting and receiving infrared module. This module mounts to small opening on system cases that support this feature you must also configure the setting through BIOS setup. Use the four pins as shown on the Back View and connect a ribbon cable from the module to the mainboard according to the pin definitions.



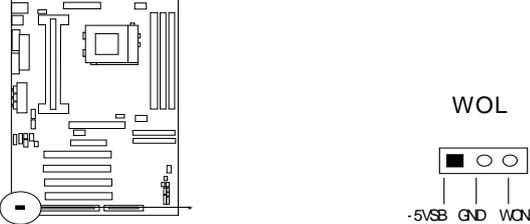
16. FAN connector: CPUFAN , SYSFAN



17. Power-On button connector: PS-ON



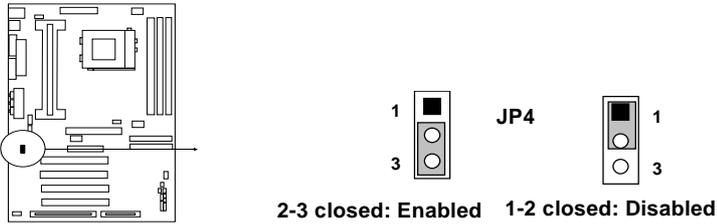
18. Wake On Lan connector: WOL



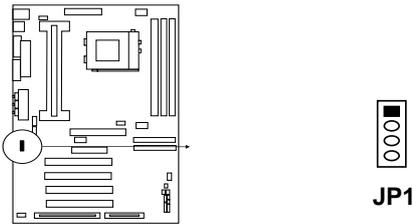
Wake On LAN Function worked only when power supply support 5VSB more than 750mA current.

Jumpers & Connectors (Option for motherboard that emedded Audio chip)

19. On Board Audio chip Enabled / Disabled connector: JP4

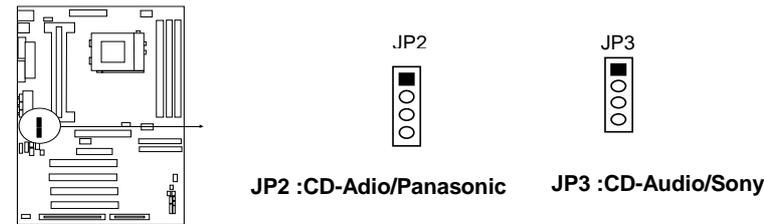


20. Auxiliary Input connector: JP1



21. CD Audio in connector : JP2,JP3

JP2 and JP3 are the connectors for CD-Audio Input signal, Please connect it to CD-ROM CD-Audio output connector



22. Audio and Game Connector : AGC

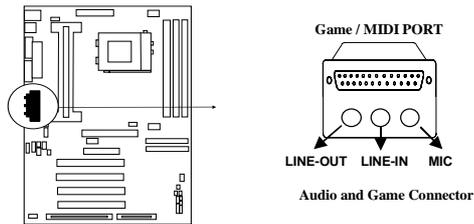
This Connector are 3 phone Jack for LINE-OUT,LINE-IN,MIC and a 15-pin D-Subminiature Receptacle Connector for joystick/MIDI Device.

Line-out : audio output to speaker

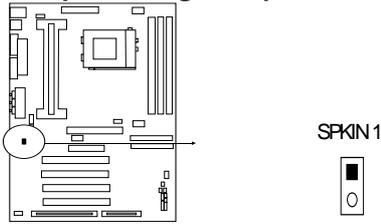
Line-in : audio input to sound chip **(Please plug here for second pair speakers as output channels when use 4 speakers)**

MIC : Microphone Connector

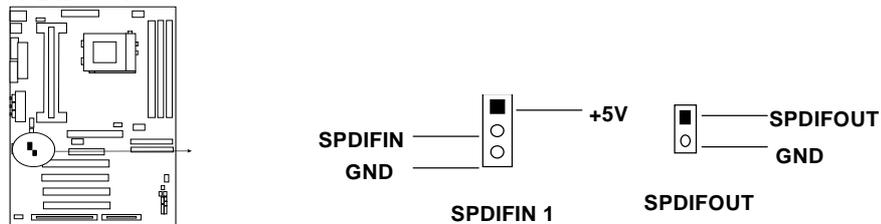
Game/MIDI : for joystick or MIDI Device



23. PC Speaker signal Input connector: SPKIN 1

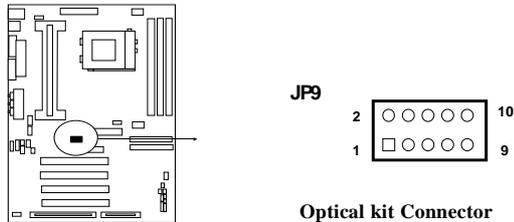


24. SPDIF (Sony / Philips Digital Interface) Input / Output Connectors: SPDIFIN 1 / SPDIFOUT



25. Optical kit connector: JP9

This connector is for user that has Optical kit(optional) to provide other set of SPDIF INPUT and SPDIF OUTPUT function.



Chapter 3

AWARD BIOS SETUP

This mainboard has previously set to its best stable status. If you are not an experienced user, please do not change the default setting. When you are encounter any problem, please choice "LOAD STANDARD DEFAULTS" to restore best setting.

Award's ROM BIOS provides a built-in Setup program which allows user modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS RAM so data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM stay unchanged unless here is configuration change in the system, such as hard drive replacement or new equipment is installed.

It is possible that CMOS had a battery failure which cause data lose in CMOS_RAM. If so, re-enter system configuration parameters become necessary.

To enter Setup Program

Power on the computer and press key immediately will bring you into BIOS **CMOS SETUP UTILITY**.

CMOS Setup Utility – Copyright (C) 1984-1999 Award Software

Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Optimal Defaults
Advanced Chipset Features	Load Standard Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
Esc : QUIT F 9: Menu in BIOS ↑↓←→ : Select Item	
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type....	

Figure 3

Note that a brief description of each highlighted selection is listed below. The main menu includes the following setup categories. Please recall that some systems may not include all entries.

- ♦ **Standard CMOS Features:** Use this menu for basic system configuration. See Section 3-1 for the details.
- ♦ **Advanced BIOS Features:** Use this menu to set the Advanced Features available on your system. See Section 3-2 for the details.
- ♦ **Advanced Chipset Features:** Use this menu to change the values in the chipset registers and optimize your system's performance. See section 3-3 for the details.
- ♦ **Integrated Peripherals:** Use this menu to specify your settings for integrated peripherals. See section 3-4 for the details.
- ♦ **Power Management Setup:** Use this menu to specify your settings for power management. See section 3-5 for the details.
- ♦ **PnP / PCI Configuration:** This entry appears if your system supports PnP / PCI. See section 3-6 for the details.
- ♦ **PC Health Status:** Use this menu to show the temperature, FAN Speed, Voltage of the PC Health. 3-7 for the details.
- ♦ **Frequency/Voltage Control:** Use this menu to specify your settings for frequency/voltage control. See section 3-8 for the details.

- ◆ **Load Optimal Defaults:** Use this menu to load the Optimal default values for the higher performance for your system to operate. See section 3-9 for the details.
- ◆ **Load Standard Defaults:** Use this menu to load the BIOS default values that are factory settings for normal/stable performance system operations. While Award has designed the custom BIOS to normal/stable performance, the factory has the right to change these defaults to meet their needs. See section 3-10 for the details.
- ◆ **Supervisor / User Password:** Use this menu to set User and/or Supervisor Passwords. See section 3-11 for the details.
- ◆ **Save & Exit Setup:** Save CMOS value changes to CMOS and exit setup. See section 3-12 for the details.
- ◆ **Exit Without Save:** Abandon all CMOS value changes and exit setup. See section 3-12 for the details.

3-1 STANDARD CMOS FEATURES

The items in Standard CMOS Features Menu are divided into many categories, and each category may includes more than one setup items. Please use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

CMOS Setup Utility-Copyright © 1984-1999 Award Software		
Standard CMOS Features		
		Item Help
Date: (mm:dd:yy)	Fri, DEC 10 1999	
Time: (hh:mm:ss)	10:52:22	
➤ IDE Primary Master	Press Enter None	Menu Level ➤
➤ IDE Primary Slave	Press Enter None	Change the day, month,
➤ IDE Secondary Master	Press Enter None	year and century
➤ IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors	
Based Memory	640K	
Extended Memory	60416K	
Total Memory	61440K	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 3-1

- ◆ **IDE Adapters:** The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive. Diagram below shows the IDE primary master sub menu.

CMOS Setup Utility – Copyright © 1984-1999 Award Software
IDE Primary Master

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto	Menu Level >>
Access Mode	Auto	To auto-detect the HDD's size, head... on this channel
Capacity	0 MB	
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure3-1-1 IDE Primary Master sub menu

Use the legend keys to navigate through this menu and exit to the main menu. Use Figure3-1-1 to configure the hard disk.

3-2 ADVANCED BIOS FEATURES

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

CMOS Setup Utility – Copyright © 1984 – 1999 Award Software
Advanced BIOS Features

Virus Warning	Disabled	Item Help
CPU Internal Cache	Enabled	
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	Menu Level >
Processor Number Feature	Enabled	
Quick Power On Self Test	Enabled	Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS/ZIP	
Boot other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	Off	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
X Typematic Rate (Chars/Sec)	6	
X Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	
HDD S.M.A.R.T. Capability	Disabled	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure3-2

- ♦ **Virus Warning:** Allow you choose the VIRUS Warning feature for the IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, BIOS will show a warning message on screen and alarm beep.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

- ◆ **CPU Internal Cache/External Cache:** These two categories speed up memory access. However, it depends on CPU/chipset design.
- ◆ **CPU L2 Cache ECC Checking:** This item allows you enable/disable CPU L2 Cache ECC checking.
The choice: Enabled, Disabled.
- ◆ **Quick Power On Self Test:** This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled	Normal POST

- ◆ **First/Second/Third/Other Boot Device:** The BIOS attempts to load the operating system from the devices in the sequence selected in these items.
The Choice: Floppy, LS/ZIP, HDD, SCSI, and CDROM.
Other Boot Device: If this option is enable the Bios will attempt to load operating system from other boot device that is available if the other fails.
- ◆ **Swap Floppy Drive:** If the system has two floppy drives, you can swap the logical drive name assignments.
The choice: Enabled/Disabled.
- ◆ **Boot Up Floppy Seek:** Seeks disk drives during boot up. Disabling speeds boot up.
The choice: Enabled/Disabled.
- ◆ **Boot Up NumLock Status:** Select power on state for NumLock.
The choice: Enabled/Disabled.
- ◆ **Gate A20 Option:** Select if chipset or keyboard controller should control GateA20.

Normal	A pin in the keyboard controller controls GateA20
Fast	Lets chipset control GateA20

- ◆ **Typematic Rate Setting:** Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.
The choice: Enabled/Disabled.
- ◆ **Typematic Rate (Chars/Sec):** Sets the number of times a second to repeat a keystroke when you hold the key down.
The choice: 6, 8, 10, 12, 15, 20, 24, 30.
- ◆ **Typematic Delay (Msec):** Sets the delay time after the key is held down before it begins to repeat the keystroke.
The choice: 250, 500, 750, 1000.
- ◆ **Security Option:** Select whether the password is required every time the system boots or only when you enter setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
--------	---

Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.
-------	--

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

- ◆ **OS Select For DRAM > 64MB:** Select the operating system that is running with greater than 64MB of RAM on the system.
The choice: Non-OS2, OS2.
- ◆ **Report No FDD For Win 95:** Whether report no FDD for Win 95 or not.
The choice: Yes, No.

3-3 ADVANCED CHIPSET FEATURES

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

CMOS Setup Utility – Copyright © 1984 – 1999 Award Software
Advanced Chipset Features

		Item Help
Bank 0/1 DRAM Timing	SDRAM 10ns	
Bank 2/3 DRAM Timing	SDRAM 10ns	
Bank 4/5 DRAM Timing	SDRAM 10ns	
SDRAM Cycle Length	3	Menu Level >
DRAM Clock	Host CLK	
Memory Hole	Disabled	
P2C/C2P Concurrency	Enabled	
Fast R-W Turn Around	Disabled	
System BIOS Cacheable	Enabled	
Video RAM Cacheable	Enabled	
AGP Aperture Size	64MB	
AGP Mode Select	4X	
AGP Drive Strength	0ECH	
OnChip USB	Enabled	
USB Keyboard Support	Disabled	
CPU to PCI Write Buffer	Enabled	
PCI Dynamic Bursting	Enabled	
PCI Master 0 WS Write	Enabled	
PCI Delay Transaction	Disabled	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 3-5

- ◆ **DRAM Timings:** These settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.
- ◆ **AGP Mode Select:** This function allows you choose suitable AGP mode.
The Choice: 1X, 2X, 4X AGP mode.

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

The Choice: Enabled, Disabled.

3-4 INTEGRATED PERIPHERALS

The "INTEGRATED PERIPHERALS" section mainly deals with I/O function. These functions will be necessary only when the system I/O malfunctioned or the system is unable to detects your CD-ROM or hard disk.

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Integrated Preipherals		Item Help
OnChip IDE Channe10	Enabled	
OnChip IDE Channel1	Enabled	
IDE Prefetch Mode	Enabled	Menu Level ▶
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UdMA	Auto	
Init Display First	PCI Slot	
IDE HDD Block Mode	Enabled	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UR2 Mode	Normal	
UR2 Duplex Mode	Disabled	
Half Duplex time-out	Enabled	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 3-4

- ♦ **OnChip IDE Channel 0/Channel 1:** The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.

The choice: Enabled, Disabled.

- ♦ **IDE Primary/Secondary Master/Slave PIO:** The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

- ♦ **Init Display First:** This item allows you decide to active whether PCI Slot or AGP VGA first.

The choice: PCI Slot, AGP.

- ♦ **Onboard FDC Controller:** Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field.

The choice: Enabled, Disabled.

- ◆ **Onboard Serial Port 1/Port 2:** Select an address and corresponding interrupt for the first and second serial ports.

The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

3-5 POWER MANAGEMENT SETUP

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.

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Power Management Setup

ACPI function	Enabled	Item Help
➤ Power Management	Press Enter	
PM Control by APM	Yes	Menu Level ➤
Video Off Option	Suspend -> Off	
Video Off Method	V/H SYNC+Blank	
MODEM Use IRQ	3	
Soft-off by PWRBTN	Instant-off	
➤ Wake Up Events	Press Enter	
↑↓←→Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 3-5

- ◆ **ACPI Function:** This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). (Please refer to [page 42](#) for installation procedure)
The choice: Enabled, Disabled.
- ◆ **Power Management:** This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Doze Mode
3. Suspend Mode

There are four selections for Power Management, three of which have fixed mode settings.

Disable (default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- ONLY AVAILABLE FOR SL CPU's . Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

- ◆ **Video Off Method:** This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

- ◆ **Video Off In Suspend:** This determines the manner in which the monitor is blanked.
The choice: Yes, No.

- ◆ **Suspend Type:** Select the Suspend Type.
The choice: PWRON Suspend, Stop Grant.
- ◆ **MODEM Use IRQ:** This determines the IRQ in which the MODEM can use.
The choice: 3, 4, 5, 7, 9, 10, 11, NA.
- ◆ **Suspend Mode:** When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.
The choice: Enabled, Disabled.
- ◆ **HDD Power Down:** When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
The choice: Enabled, Disabled.
- ◆ **Soft-Off by PWRBTN:** Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."
The choice: Delay 4 Sec, Instant-Off.
- ◆ **Power on by ring :** When you select *Enabled*, a signal from ring returns the system to Full On state.
- ◆ **Resume on by alarm :** When you select *Enabled*, the system will wake up from suspend mode as defined in Resume Time.
The choice: Enabled, Disabled.

3-6 PnP/PCI CONFIGURATION SETUP

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

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PnP/PCI Configurations

PNP OS Installed	NO	Item Help
Reset Configuration Data	Disabled	
Resources Controlled By	Manual	Menu Level ➤
➤IRQ Resources	Press Enter	Select Yes if you are using
➤DMA Resources	Press Enter	A Plug and Play capable
PCI/VGA Palette Snoop	Disabled	operating system Select
Assign IRQ For VGA	Enabled	No if you need the BIOS to
Assign IRQ For USB	Enabled	Configure non-boot devices
↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 3-6

- ◆ **PnP OS Installed:** This item allows you to determine installed PnP OS or not.
The choice: Yes, No.
- ◆ **Reset Configuration Data:** Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.
The choice: Enabled, Disabled .
- ◆ **Resource controlled by:** Auto will allow the Award Plug and Play BIOS to automatically configure all of the boot and Plug and Play compatible devices. If you have trouble in

assigning the interrupt resource automatically you can select “manual”, it will allow you to choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “>”).

The choice: Auto(ESCD), Manual .

- ♦ **IRQ Resources:** When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.
- ♦ **IRQ3/4/5/7/9/10/11/12/14/15 assigned to:** This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.
The Choice: *Legacy ISA* and *PCI/ISA PnP*.
- ♦ **DMA Resources:** When resources are controlled manually, assign each system DMA channel a type, depending on the type of device using the DM channel.
- ♦ **DMA 0/1/3/5/6/7 assigned to:** Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug and Play standard whether designed for PCI or ISA bus architecture.
Choices are *Legacy ISA* and *PCI/ISA PnP*.
- ♦ **PCI/VGA Palette Snoop:** Leave this field at *Disabled*.
Choices are Enabled, Disabled.

3-7 PC HEALTH STATUS

CMOS Setup Utility – Copyright © 1984-1999 Award Software
PC Health Status

CPU Warning Temperature	Disabled	Item Help
Current System Temp.	25°C	
Current CPU Temperature	50°C	Menu Level >
Current CPUFAN Speed	4200	
Current SYSFAN Speed	4200	
Vcore	2.0	
+3.3V	3.3	
+ 5 V	5.1	
+12V	12.1	
-12V	-11.98	
Shutdown Temperature	Disabled	
↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 3-7

CPU Warning Temperature: this item is to setting the Max. Temperature of CPU before it will have warning alarm.

Shutdown Temperature: this item is to setting the temperature for system shutdown , the choice: from 60° C to 90° C

3-8 FREQUENCY/VOLTAGE CONTROL

CMOS Setup Utility – Copyright © 1984-1999 Award Software
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Enabled	Item Help
Spread Spectrum	Disabled	
CPU Host/PCI Clock	Default	Menu Level ➤
↑↓←→ Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 3-8

- ◆ **DIMM/PCI CLK:** This item allows you to enable/disable auto detect DIMM/PCI Clock. The choice: Enabled, Disabled.
- ◆ **Spread Spectrum:** This item allows you to choice CPU clock/Spread Spectrum (ON,OFF) (66MHz,75MHz.....) enable/disable the spread spectrum modulate. The choice: Disabled (the CPU clock Depend on Jumper), 0.25%, 0.05%.
- ◆ **CPU Host/PCI Clock:** In this item you can choose the CPU HOST/PCI Clock. The setting are: Default ,66/33,75/37,83/41,100/33,103/34, 112/37,124/41, 124/31,133/33,133/44, 140/35. IF the setting is "default" , CPU HOST Clock will depend on the setting of U19.

If U19 is set to 66MHz, you have only the choice of 66/33, 75/37, 83/41 on screen.

If U19 is setting to 100MHz, you can have 100/33,103/34,112/37,124/41, 124/41.

If U19 is setting to 133MHz, you have the choice: 133/33,133/44,140/35.

*Please turn off system power if the screen does not have any display after change of the setting. Then press and hold down " INS " key, and turn on system power again (release " INS " key till the screen has display) to reset correct frequency of CPU HOST clock.

3-9 LOAD OPTIMAL DEFAULTS

- ◆ **Load Optimal Defaults:**
When you press <Enter> on this item you get a confirmation dialog box with a message similar to:
Load Optimal Defaults (Y/N) ? **N**
Pressing 'Y' loads the Optimal default values for the most stable, optimal performance system operations.

3-10 LOAD STANDARD DEFAULTS

- ◆ **Load Standard Defaults:**
When you press <Enter> on this item you get a confirmation dialog box with a message as:
Load Standard Defaults (Y/N) ? **N**
Pressing 'Y' loads the Standard default values that are factory settings for normal performance system operations.

3-11 SUPERVISOR/USER PASSWORD SETTING

In this section you can set either supervisor or user password, or both of them.

supervisor password : can enter and change the options of the setup menus.

user password : just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

3-12 EXIT SELECTING

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? **Y**

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? **Y**

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Chapter 4

4-1 Mainboard Driver Install in Win9X, WinNT

To install the mainboard driver please run

X:\VIA\Driver\SETUP.EXE.

After execute Setup .EXE the screen will depend on the OS (Operating System) to show the necessary Driver which you have to install in your system, such like IDE Driver, AGP VXD Driver, VIA chipset Feature Registry and IRQ Routing Miniport Driver . Follow the procedure to install the driver.

We recommend to install all the Driver which this utility show in Screen ,because it will increase the system performance and solve the compatibility problem between system chipset and other device.

For Example , You have to install this driver before you install AGP VGA driver otherwise it can't install your VGA Driver succeed.



4-2 PC HEALTH MONITOR-III (option for motherboard that embedded PC Health) Software for Windows 95/98

Please Run X : \VIA\HEALTH3\SETUP.EXE

- | | |
|-------|---|
| NOTES | <ol style="list-style-type: none">1. For Windows 95 user : You must run SETUP.EXE twice in order to complete this installation. The computer will install device identification at first time when you run SETUP.EXE. When you finish, you need re-start your computer manually and run SETUP.EXE once again to install correspond driver.2. Please follow on screen instruction to complete your installation.3. Please refer to HELP for Windows 95/98 related questions. |
|-------|---|

General Description

The PC HEALTH MONITOR-III Software, an application software based on Microsoft Windows 95, is used to control the PC HEALTH MONITOR CHIP. It can monitor the temperatures, power supply voltages and fan speeds via PC HEALTH MONITOR CHIP and show the information on screen periodically. User can use it to specify temperature, voltage and fan speed configurations used by monitor chip. By the way, the alarm warning events and polling interval could also be set by this software. If there is an abnormal event happens, it will pop up a window on screen to inform the user the abnormal situation.

註解:

Using the Software



General Function

1. Power Supply Voltage :

VCORE Low Limit/High Limit

3.3V Low Limit/High Limit

+5V Low Limit/High Limit

+12V Low Limit/High Limit

-12V Low Limit/High Limit

These values are used to specify the threshold values of detecting the abnormal condition of , 3.3V, +5V, +12V, -12V.

2. FAN Speed

CPUFAN/ SYSFAN

If the fan RPM is lower than this value and "CPUFAN/SYSFAN" is enabled in Monitoring Config. the PC Speaker will alarm and the monitor software will pop up a window to inform user.

3. Temperature

System/ CPU Low Limit/ High Limit

These values are used to specify the Temp-Over register/ Temp-under register of PC HEALTH MONITOR CHIP, If the temperature of the external thermistor is higher than this value and "System/CPU" is enabled in Monitoring Config. the monitor software will pop up a window to inform user.

Monitoring Config.



Enabled or Disabled: User can decide which item should be monitored or not by choosing the item in the configuration page.

Faults Count (1 or 3): User can decide the system to pop up the warning message when there is 1 fault detected or there are 3 consecutive faults detected.

Beep: In addition to pop up warning message user can choose to activate Beep tone if there is error detected. Beep tone will until the error is treated.

4-3 Sound Driver & Audio Rack Installation(Option for Motherboard That Embedded Audio Chip) :

Special Features for CMI8738 audio chip

- PCI Plug and Play (PnP) bus interface, 32 bit PCI bus master.
- Full duplex playback and recording, built-in 16 bits CODEC.
- HRTF 3D positional audio, supports both Direct Sound 3D® & A3D® interfaces, supports earphones, two and four channel speakers mode.
- Support Windows 3.1 / 95 / 98 and Windows NT 4.0.
- Built-in 32 OHM Earphone buffer and 3D surround.
- MPU-401 Game/Midi port and legacy audio SB16 support.
- Downloadable Wave Table Synthesizer, supports Direct Music®.

- **Digital Audio (SPDIF IN/OUT)**

Up to 24 bit stereo 44KHz sampling rate voice playback/recording.

Full duplex playback and recording, 120dB audio quality measured.
Auto detectable SPDIF/IN signal level from 0.5V to 5V.

- **Stereo Mixer and FM Music Synthesizer**

Stereo analog mixing from CD-Audio, Line-in
Stereo digital mixing from Voice, FM/Wave-table, Digital CD-Audio
Mono mixing from MIC and software adjustable volume
OPL3 FM synthesizer (4 operators)
Up to 15 melody sounds and 5 rhythm sounds (20 voices)

- **Game and Midi Interface**

Fully compatible with MPU-401 Midi UART and Sound Blaster Midi
mode/ Standard IBM PC joystick/game port (dual channels)

DOS Installation

Before beginning the installation, please make sure that your hard disk has sufficient space(min. 4MB). Insert the Driver CD into the CD-ROM Drive.

1. Change directory to PCI audio DOS drivers folder (ex. X:\CMI8738\DOSDRV) at DOS prompt, and type:

INSTALL [Enter]

2. Type DOS utilities path which you want to install.
3. Program will expand the file to the path which you've specified.
4. Install program will add initial drivers into AUTOEXEC.BAT file.

Win95/98 Installation

We recommend that you install Microsoft Windows before you install this PCI sound card, and you not install any other sound card device drivers in your current system.

1. Turn on the computer, and enter the Microsoft Windows 95/98
2. Before install sound card driver please double-click "My Computer" icon, "Control Panel" icon, "System" icon, and choose "Device Manager" item.
3. Check "Other Device" item, if there have "PCI Multimedia Audio Device", please remove it first, and Restart System again.
4. You will see a windows prompt like this:
"New Hardware Found PCI Multimedia Audio Device Windows has found new hardware and is installing the software for it", then the dialog box shown Click "Next" button to go on.
5. Click "Other Locations" button to specify drivers path:

" X:\CMI8738\Win9X\DRV"

6. Select "OK" to finish install.
7. Now, system is installing device drivers automatically. After a while, the system will finish the installation includes the following device drivers.
CMI8738/C3DX PCI Audio Device
CMI8738/C3DX PCI Audio Joystick Device
CMI8738/C3DX PCI Audio Legacy Device
DOS mode MPU-401 Emulator
8. Install Application Software : Click "start" key
9. Select "Run"
10. Key in the drive and path for Windows application installation program, for example,

in Win95 "X:\CMI8738\Win9X\APP\Win95\SETUP.EXE"

in Win98 "X:\CMI8738\Win9X\APP\Win98\SETUP.EXE"

11. Click "OK" to start the installation procedure, and follow the on-screen instructions to finish the installation. When all the application softwares have been installed, please shut down Windows 95/98 system, and reboot your system.

Win95/98 Un-Installation

If you install Win95/98 and a sound card at the same time, you might experience some technical difficulties(the device might not function properly). It is suggested that you proceed with the un-install procedure:

1. Click "start" button.
2. Select "run" item.
3. Find UINSTDRV.EXE in driver disk under Win95/98 drivers folder.
4. Run it.
5. Follow the on-screen instructions to re-install the hardware.

If you want to completely remove the drivers, you can also run the un-install procedure as described previously. Remove the sound card from the slot, and then reboot the system.

Windows NT 4.0 Installation

We recommend that you install Windows NT 4.0 before you install this PCI audio card, and you not install any other sound card device drivers in your current system.

1. Click "Start" button, move the highlight bar to "Setting" item, and select the "Control Panel".
2. Double-click "Multimedia" icon.
3. Select "Devices" page, and press "Add" button.
4. Select "Unlisted or Updated Driver" item in "List of Drivers".
5. Specify the drive and the path where NT drivers are in (such as X:\CMI8738\NT40\DRV).
6. Select "C-Media CM8738" item and press "OK" button.
7. Select proper I/O value.
8. Press "OK" button.
9. Restart the system when being asked.

10. Now, you have already installed the PCI Audio Adapter under Microsoft Windows NT 4.0 successfully. if you want to install the Windows applications, continue the following steps:

11. Click "start" key.
12. Select "Run" item.
13. Key in drive and path for Windows NT application installation program, for example, "X:\CMI8738\NT40\APP\SETUP.EXE"
14. Click "OK" to start the installation procedure, and follow the on-screen instructions to finish the installation. When all of application softwares have been installed, shut down the Windows NT system, and then reboot your system.

Windows Appc. (The Audio Rack)

Introduction

By means of a user-friendly interface(as easy as operating your home stereo system), this PCI audio rack provides you with the control over your PC's audio functions, including the advantage of four speakers mode enable/ disable, and perfect digital sound (SPDIF) input / output control.



This Audio Rack consists of several major components:

Control Center: Controls the display of the PCI Audio Rack's components.



MIDI Player: Plays MIDI music files, and allows you to create your personal song playlists, and play the song files.

Wave Player: Records and plays digital audio (wave) files. Allows you to create wave file playlists, and playback the wave files.

CD Player: Plays standard audio CDs. Allows you to create your favorite song playlists.

System Mixer: Controls the volume level of your audio inputs and outputs.

Showing or Hiding Audio Rack Components

To remove or add a component from the display, click on the component's button on the Control Center's Button Bar or toggle it off.



MIDI Player, Wave Player, and CD Player

CD Player (above, similar to Wave Player and MIDI Player)

Sel (or Trk) field: If you have multiple selections in your playlist, this shows the number of the current selection or CD track.

Current File or Track: The name of the current MIDI file, wave audio file, or CD track.

Total Length field: displays the total length of files or tracks in minutes and seconds.

Current Time field: displays the current time of files or tracks in minutes and seconds when playback or recording.

Please refer to the help screen for more detail button function descriptions. (click on help “” button on the player)

System Mixer

System Mixer allows you to control all the audio output and input levels.

System Mixer displays the volume controls which your audio drivers make available. *The names for these controls may vary.*



Mixer panel while the four speakers mode is enabled.



Mixer panel while the four speakers mode is disabled.

Volume Control: Clicking on this button shows and allows you to use the output level controls.

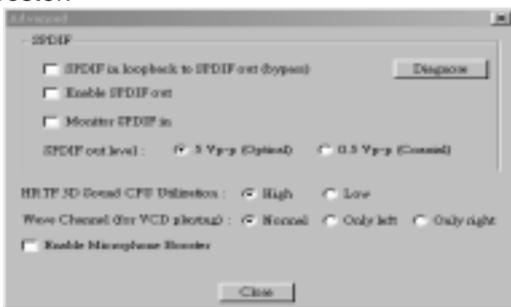
Recording Control: Clicking on this button shows and allows you use the input level controls.



Input and Output Level Sliders and Buttons: For each input or output signal type, the control slider controls the loudness whereas the horizontal slider controls the balance between the two speakers. The mute button temporarily stops input or output without changing slider positions.

Control types and names might vary. The common types are listed below:

- **Vol:** The master control for all outputs. The strength of an output signal is determined by both the Vol slider and the slider for the individual output. To affect *all* outputs, move the Vol slider. To change the output of an *individual* output type, move *its* slider.
- **Line-in/Rear:** Controls the audio hardware's Line In or Line Out levels. Line levels might be for an externally attached cassette player, for instance, while the four speakers mode is enabled, this control becomes the Rear speaker volume control.
- **Mic:** Controls the microphone input level.
- **Wave:** Controls wave (voice) playback or the recording levels.
- **FM:** Controls the FM music playback or the recording level.
- **Aux-in:** Controls the Aux-in music play or the recording level.
- **PC-SPK:** Controls the external PC speaker input level.
- **CD:** Controls the CD drive output level, for CD drives configured to play their audio output through the PC's audio hardware.
- **4SPK:** Turn on or turn off the Rear speakers effect.
- **Surround:** Turn on or turn off the 3D surround sound effect.
- **SPDIF-in:** Turn on or turn off the SPDIF digital signal input.
- **Advanced:** Check the SPDIF status, HRTF 3D sound CPU Utilization, turn on th Microphone Booster.



Mute Buttons: Toggle between muting and enabling the signal. A button with a lit LED is

enabled, and when it is not lit, it means it is mute. Several *output* signals can usually be enabled at once.

MP3 Player : MP3 player can play both wave files and MP3 files.



MP3 player while the loop function enables.



The settings' window while one of the SPDIF functions is enable.

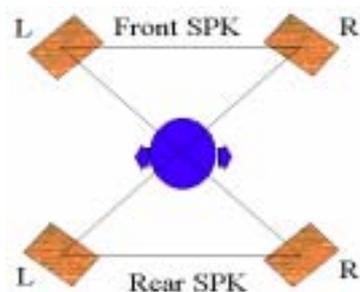
The 4 Speakers System

This Audio Adapter provides 2 wave channels(front/rear), known as the 4 speakers system. When games or application programs via DirectSound® 3D or A3D® interface locate the sound sources to the listener's back, the two rear speakers will work to enhance the rear audio positional effect, so as to complement the insufficiency of using only two front speakers to emulate the audio effect. The following is the hardware installation and the software setups:

1.The speaker installation.

Connect the front pair speakers to the Line-out jack of the audio adapter, and then connect rear pair speakers to Line-in/Rear jack of the audio adapter. The original Line-in can be moved to Aux-in.

2.The positions of the speakers



Put your speakers the way the following picture suggests, so as to avail yourself to the best audio result.

3. The mixer setup

There is a 4 speakers option in the volume control of the mixer, and when you enable this option, it means the rear speakers are connected to Line-in/Rear jack. When Line-in/Rear jack is connected to other external Line-in sources, please DO NOT enable this option in order to avoid hardware conflicts. Regarding rear speaker option, you can turn on or turn off the output of the back speakers, and adjust the volume, to have the rear/front speakers have the same volume.

4.The demo

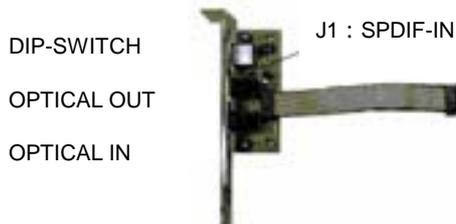
Execute the "Helicopter" demo within the C3D HRTF Positional Audio Demos of this audio adapter. When the helicopter flies behind you, the rear speakers will work.

Optical Kid for SPDIF/OUT (Option for motherboard that embedded PC Health chip)

The Optical Kid includes :

- Optical Module
- Optical Cable
- Software DVD driver

OPTICAL MODULE

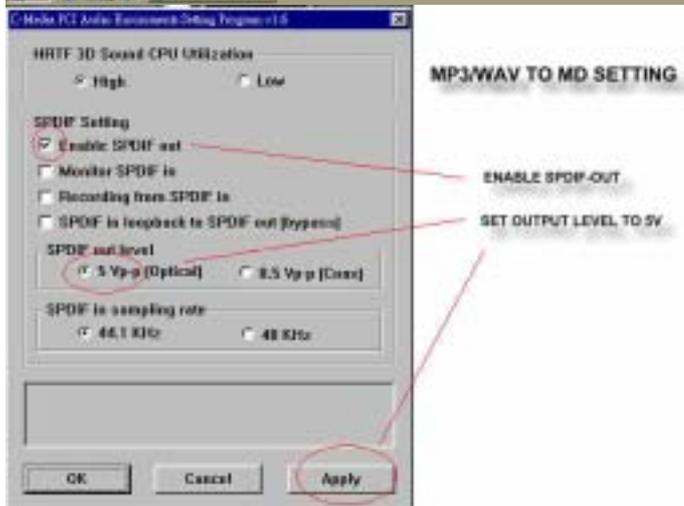


An example of optical kit with MD connection.



The application program setup(please install CMI8738 application program first)

When the connection is done, please go to the Start menu and select PCI Audio Applications\Audio Environment Setting



When all the procedures have been completed, there will be an infrared signal coming from the SPDIF/OUT of the optical fiber of the sound card.



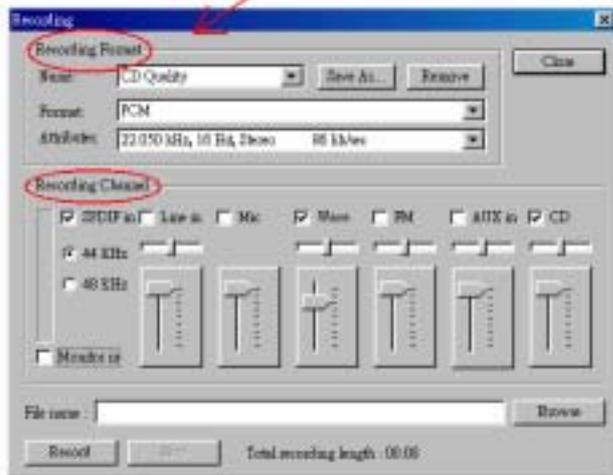
Please note that signal beam may cause severe damage to the eyes. For your safety, please point the output end to a piece of white paper to check if the beam is in function. Please connect the output signal to the MD input, then play the music via the MP3 player.





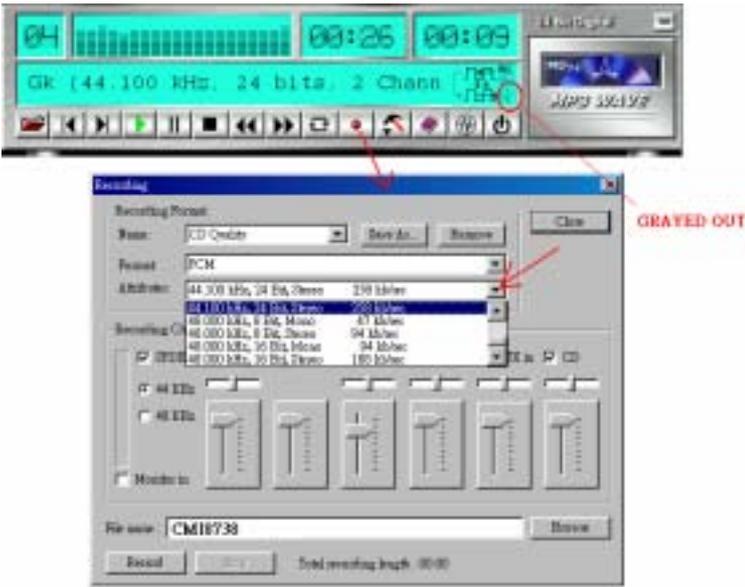
CHANGE DELAY TIME FOR MD AUTO-SYNC MODE

Please note that in playback, if there is no gap longer than three seconds between each track, the MD can not recognize the tracks and will record all of them into one. It is recommended that you set the gap time to 3~5 seconds to meet all type of MD requirements.



RECORDING FORMAT AND RECORDING CHANNEL SETTING

About Recording 24bit Audio Setting



24-bit audio can only be applied to SPDIF IN/OUT mode; it does not apply to other modes such as the four channels or the analog. No sound will be heard while in playback, yet it can be recorded.



The un-selected area will be gray out.



The un-selected area will be gray out.



The un-selected area will be gray out.

You can double-click this circuit icon to have the following setting box. By means of this setting box, you can also complete the above-mentioned setting procedures.

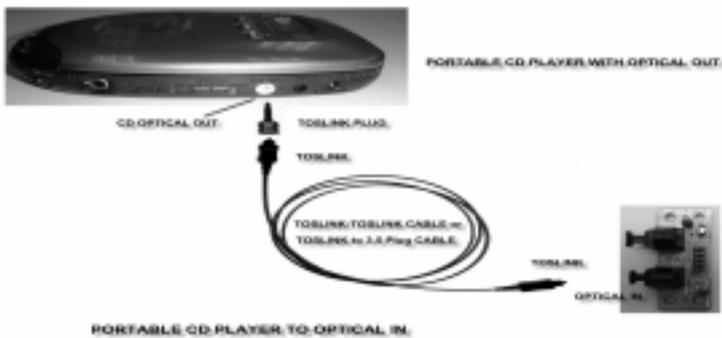


DOUBLE CLICK IT



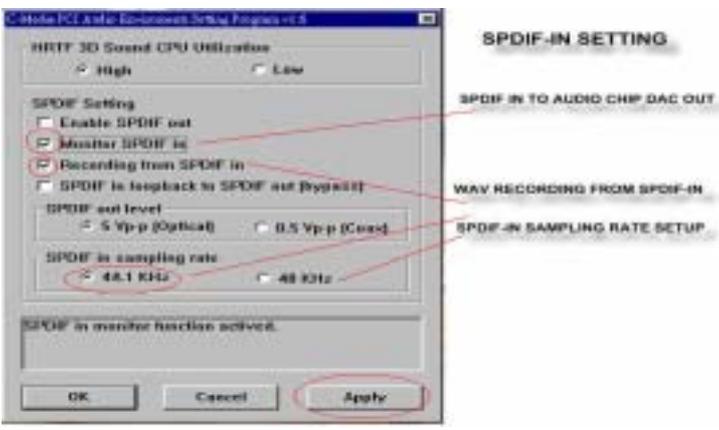
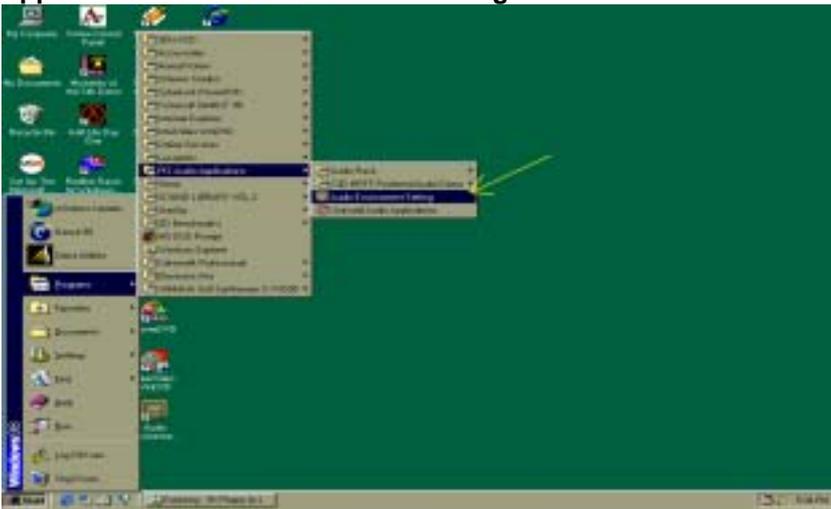
SPDIF/IN for motherboard that embedded Audio chip

An example of Portable CD Player(Output) to Main Board (Optical Input)Setup

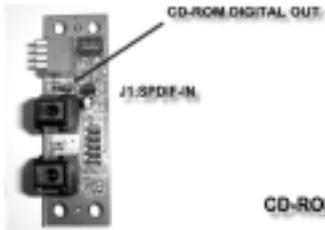




When the connection is done, please go to the Start menu and select PCI Audio Applications\Audio Environment Setting



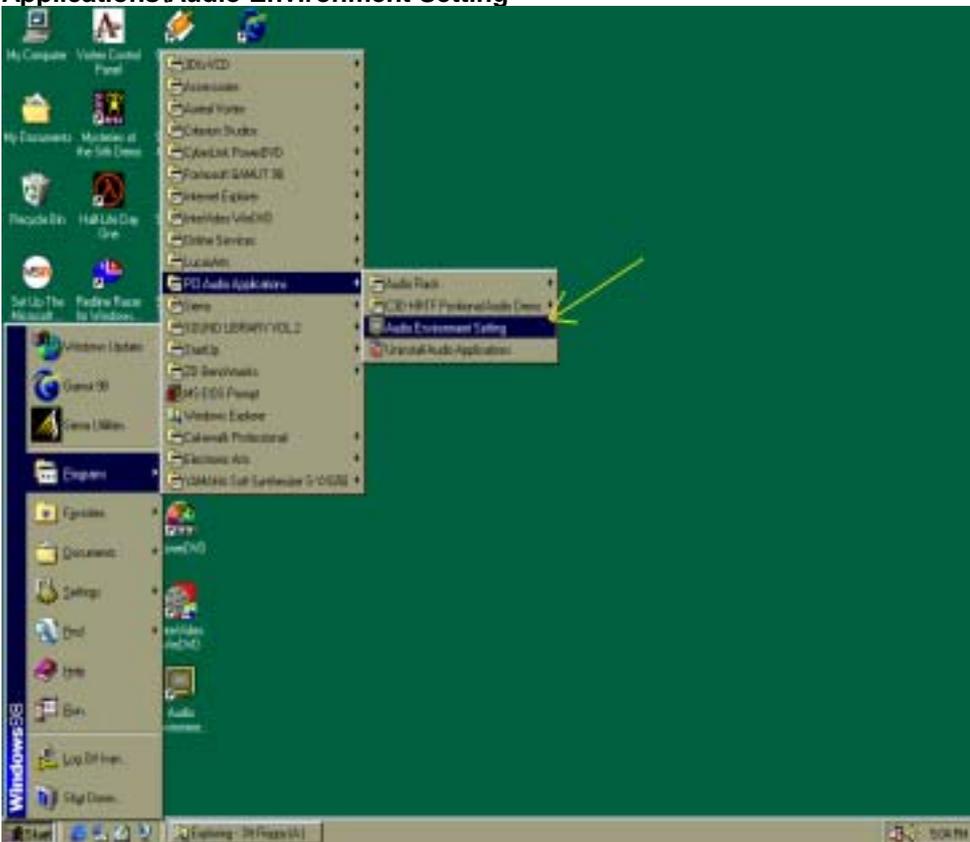
Loopback(bypass)mode setup
CD ROM(Digital Output) to SPDIF/IN Setup



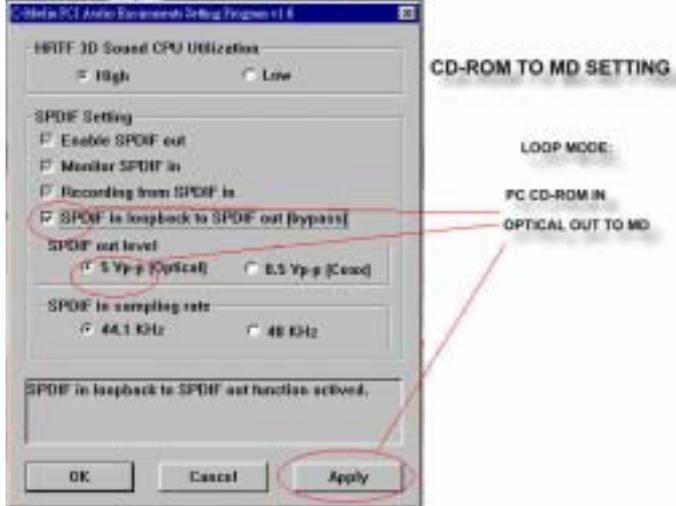
CD-ROM DIGITAL OUT TO SPDIF-IN



When the connection is done, please go to the Start menu and select **PCI Audio Applications\Audio Environment Setting**



Please follow these setting procedures.



Now you can insert the CD into the CD ROM drive, then activate C-MEDIA CD player and push the "play" button to do the recording job.



Please note that you have to set the MD in the simultaneous-recording mode.

Magic Install

This installation program automatic detects the motherboard you are using and shows you all the available drivers for this motherboard at right side of screen (please refer to diagram below). For installation procedure, please follow instructions on screen to install all the correspond drivers.
 An example of Magic Install (This installation program only supports Windows 95/98)



Version 1.0 : Shows you the version of Magic Install.
xxxx-xxxx : Identify which motherboard you are using.

Possible driver for Magic Install	
Driver Name	Description
IDE	Allows you install corresponding IDE driver, AGP Bus driver.
VGA	This item appeared when your motherboard embedded VGA chip and allows you install corresponding display driver. You will not see this item appear on the screen if your motherboard does not contain VGA chip.
SOUND	This item appeared when your motherboard embedded SOUND chip and allows you install corresponding audio driver. You will not see this item appear on the screen if your motherboard does not contain SOUND chip.
PC Health	This item appeared when motherboard supported PC Health Monitoring function. You will not see this item appear on the screen if your motherboard does not support PC Health Monitoring function.
Explore	Allows you browse and access the contains of this CD-Title.
Exit	Exit the CD-Title.