

***993AS-L/993AS  
/993AN  
USER'S MANUAL***

***PCIAGP Mainboard  
For Pentium® II/ III or Socket 370***

**The author assumes no responsibility for any errors or omissions which may appear in this document nor does it make a commitment to update the information contained herein.**

***NO. G03-993ANR3A***

**Release date: NOV 2000**

**\*\* Year 2000 compliant \*\***

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## APPENDIX-A Magic Install

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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 & Socket 370) processor interface into a compact PC/AT compatible system along with 3D Stereo Sound System audio chip. Moreover, this mainboard allows you conditionally approach 150MHz \* of Front Side Bus Frequency.

## 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 18 “ DRAM Clock”.**
- **Conditionally support 66MHz~150MHz \* 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).**

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## 1-2-2 Key Feature

- **Multi-Speed Support** : Provide 66/75\*/83\*/95\*/100/112\*/117\*/124\*/133\*/150\*MHz Front Side Bus Frequency to support Intel **Pentium®II / Pentium®III**, Celeron processor for Slot1 interface or Intel Celeron PPGA on a ZIP Socket 370 interface.
- **Chipset** : VIA Apollo Pro AGPset .
- **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 an 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).
- **AGP**: Accelerated Graphics Port, for to 533MB/sec data transfer rate and 66/133MHz Bus clock to improve graphic functions.
- **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 150MHz.**
- \* **When you are running at 150MHz, make sure all of your PCI devices have enough tolerance to run on 37.5MHz . Otherwise, it may cause your system become very unstable.**

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## 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

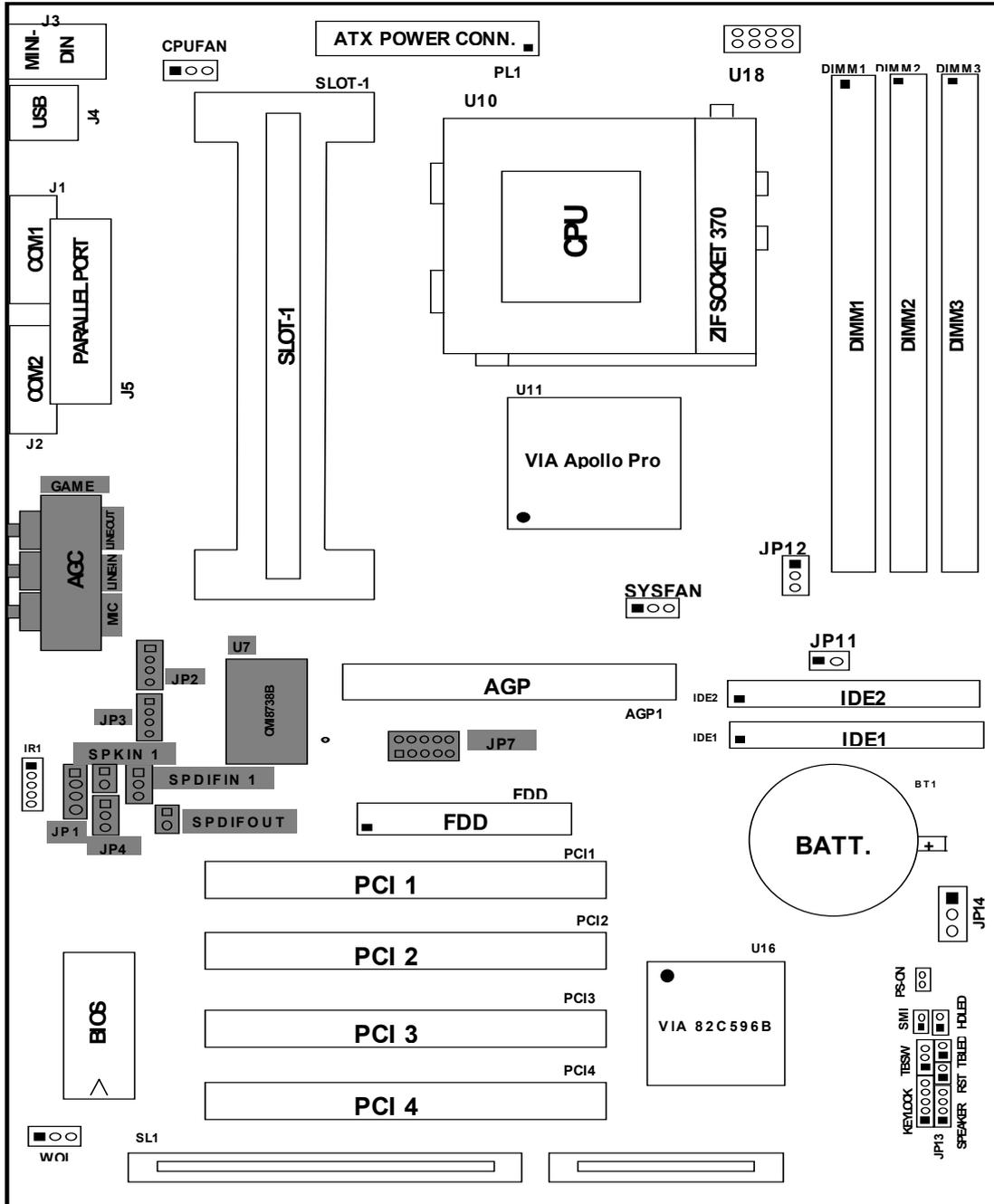


Figure 2-2

 Option for motherboard that embedded Audio chip

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

### *Jumpers*

Jumper	Name	Description	Page
JP11,JP12	CPU Bus Frequency Selection	Refer to <a href="#">page 6</a>	<a href="#">p. 6</a>
U18	CPU Ratio Selector	Refer to <a href="#">page 6</a>	<a href="#">p. 6</a>
JP14	CMOS RAM Clear	1-2 Normal ,2-3 Clear CMOS	<a href="#">p. 7</a>

### *Connectors*

Connector	Name	Description	Page
PL1	ATX Power Connector	20-Pin Block	<a href="#">p.9</a>
MINI-DIN	PS/2 Keyboard/PS/2 Mouse	6-Pin Female	<a href="#">p.9</a>
USB	USB Port Connector	5-Pin Connector	<a href="#">p.9</a>
PRINT	Parallel Port Connector	26-Pin Female	<a href="#">p.9</a>
COM1, COM2	Serial Port COMA , COMB	9-Pin Connector	<a href="#">p.10</a>
FDD	Floppy Driver Connector	34-Pin Block	<a href="#">p.10</a>
IDE1	Primary IDE Connector	40-Pin Block	<a href="#">p.10</a>
IDE2	Secondary IDE Connector	40-Pin Block	<a href="#">p.11</a>
HDLED	IDE activity LED	2-Pin Connector	<a href="#">p.11</a>
SMI	SMI Suspend Switch	2-Pin Connector	<a href="#">p.11</a>
JP13	Front Panel Connector	16-Pin Block	<a href="#">p.11</a>
IR1	Infrared Module Connector	10-Pin Block	<a href="#">p.12</a>
CPUFAN, SYSFAN	FAN Connector	Extra fanning system connectors	<a href="#">p.12</a>
PS-ON	ATX power button/soft power button	2-Pin Connector	<a href="#">p.12</a>
WOL	Wake On LAN	3-pin Block	<a href="#">P.13</a>

### *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	<a href="#">p.13</a>
JP1	AUX IN	4-pin Block	<a href="#">p.13</a>
JP2	CD-Audio	4-pin Block	<a href="#">p.13</a>
JP3	CD-Audio	4-pin Block	<a href="#">p.13</a>
AGC	Line IN/Line Out/MIC /Game Connector	15-pin Connector + 3 phone jack	<a href="#">p.13</a>
SPKIN 1	PC Speaker In	2-pin Block	<a href="#">p.14</a>
SPDIFIN 1	SPDIF (Sony/Philips Digital Interface) IN	3-pin Block	<a href="#">p.14</a>
SPDIFOUT	SPDIF (Sony/Philips Digital Interface) OUT	2-pin Block	<a href="#">p.14</a>
JP7	For Optional Optical Kit Connector	10-pin Connector	<a href="#">p.14</a>

### *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 CPU Slot
Zip Socket370	CPU Socket	Celeron PPGA CPU Socket
AGP SLOT	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

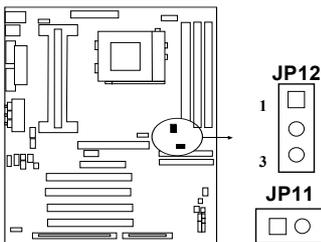
## 2-4 Installation Steps

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 : JP12, JP11



CPU External Frequency : JP12, JP11			
CPU	JP12	JP11	BIOS Setting
66MHz	2-3	ON	Default
100MHz	1-2	ON	Default
133MHz*	1-2	OFF	Default
150MHz*	1-2	OFF	150MHz

\* Your Memory must meet the requirement to run on 133MHz or 150MHz condition. In order to run 150MHz, Please set jumper at 133MHz condition and then change the setting to 150MHz 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 18)

### 2. CPU Ratio Selector : U18

Ratio	1	2	3	4
2.0x	ON	ON	ON	ON
2.5x	OFF	ON	ON	ON
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	2	3	4
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						

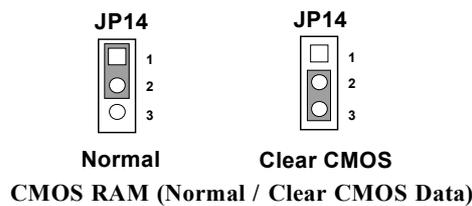
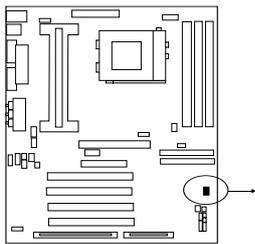
\* Because the Ratio are fixed by CPU Manufacture, users don't need to setting ratio any more, this table just for reference use.

## 2. CMOS RAM Clear: JP14 (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 <DEL> during power-up) to re-enter BIOS information (see BIOS SETUP).

<u>Selections</u>	<u>JP14</u>
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 1.5GB.

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)

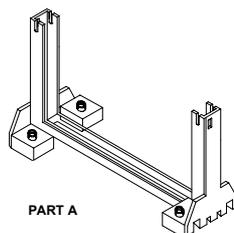
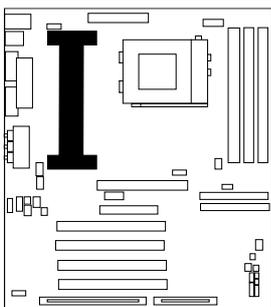
**2-7-1** The mainboard provides a Slot-1 for Pentium II/III processor. The CPU on board must have a fan or heat sink attached to prevent overheating.

**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 JP11,JP12 for "Bus Frequency Selection" 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.



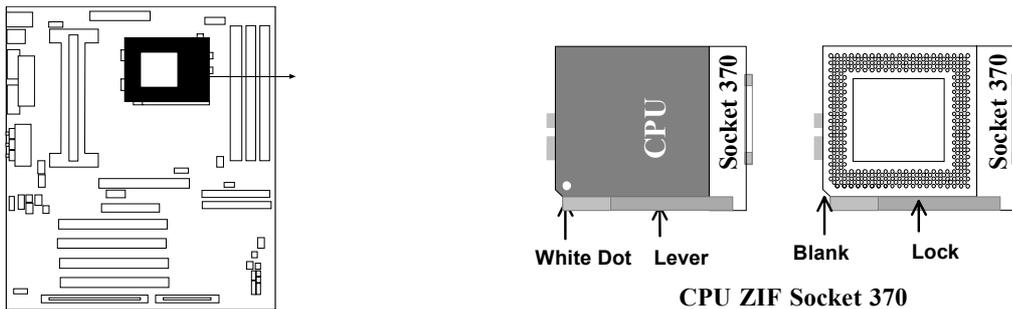
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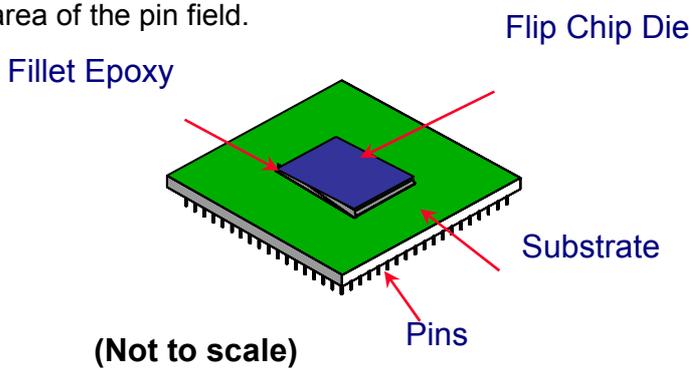
**2-7-2** The mainboard also provides a 370-pin ZIF Socket 370. The CPU on mainboard must have a fan attached to prevent overheating.

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.

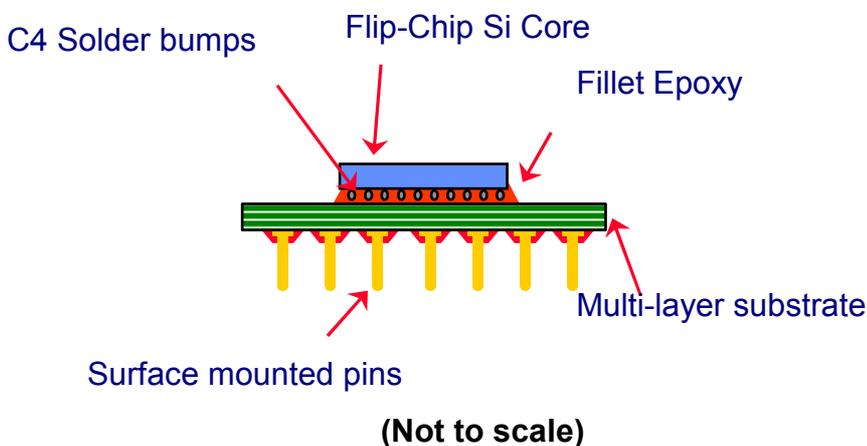
**IMPORTANT:** You can setting the CPU ratio and Host Frequency in the BIOS setup on page 18



**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



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## Reference Design: Heatsink

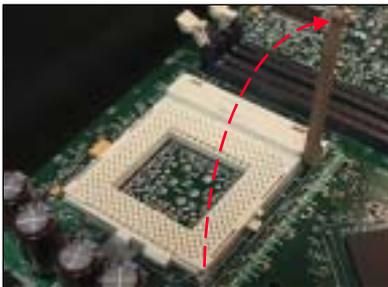


- Intel's reference design thermal solution is an active heatsink; an extruded aluminum heatsink base and a fan attached to the top on the fin array.
- Heatsinks for the PPGA will not work with the FC-PGA. A pedestal is required on the underside of the heatsink to clear the socket cam box.
  - Recommended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



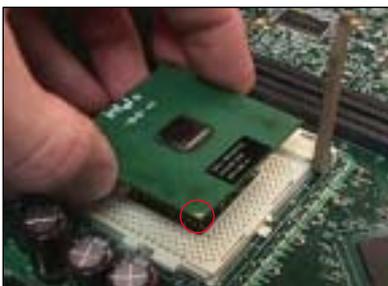
FC-PGA with a PPGA heatsink

## 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.

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## 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.

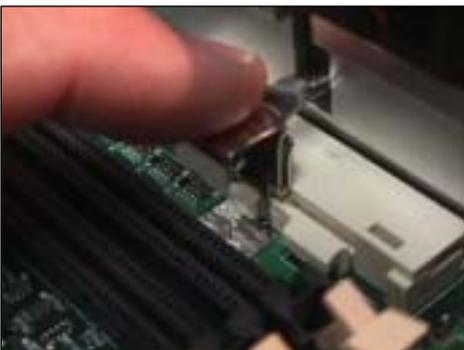
The clip should be oriented so that the thumb tab will engage on the cam box side of the socket.



### Step 3

Seat the heatsink onto the processor and engage the clip opposite from the cam box onto its socket tab first.

**CAUTION:** Do not slide the heatsink once it is attached to the processor as the thermal interface material will tear. Instead lift the heatsink off and reseal it back down onto the processor if required for proper alignment.



### Step 4

Engage the thumb tab side of the clip onto the cam box socket tab second.

Connect the fan cable to the appropriate header on the motherboard.

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## 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 an 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.

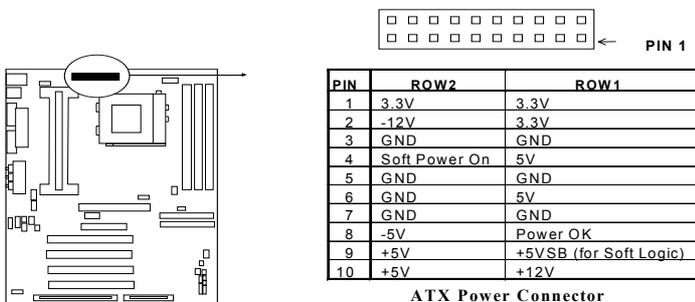
### Assigning DMA Channels for Expansion Cards

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.

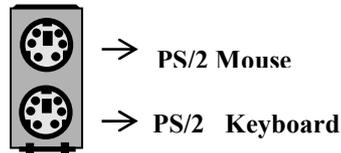
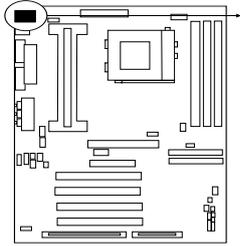


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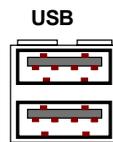
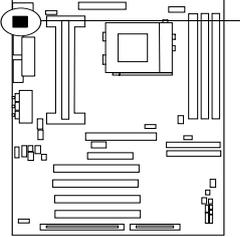
## 2. PS/2 Mouse & PS/2 Keyboard Connector: MINI-DIN

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



## 3. USB Port connector: USB

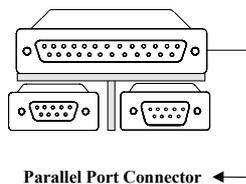
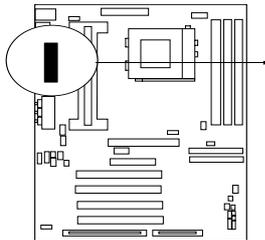
The connectors are 4-pins connector that connect USB devices to the system board.



USB Port Connector

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

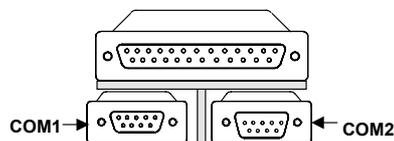
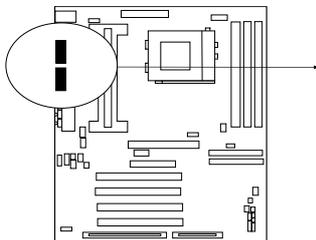
Parallel Port connector is a 25-pin D-Subminiature Receptacle connector. The On-board Parallel Port can be disabled through the BIOS SETUP. Please refer to Chapter 3 “INTEGRATED PERIPHERALS SETUP” section for more detail information.



Parallel Port Connector

## 5. Serial Port COMA, COMB: COM1, COM2

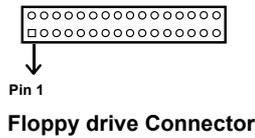
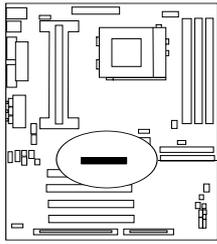
COMA is the 9-pin D-Subminiature mail connector. The On-board serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 “INTEGRATED PERIPHERALS SETUP” section for more detail information.



Serial port COMA, COMB Connector

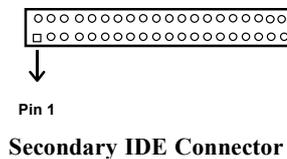
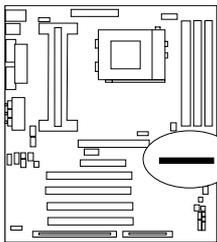
## 6. Floppy drive Connector (34-pin block): FDD

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.



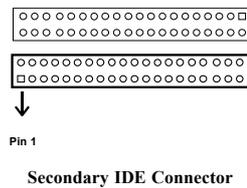
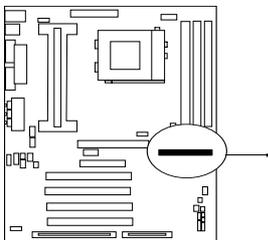
**7. Primary IDE Connector (40-pin block): IDE1**

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.



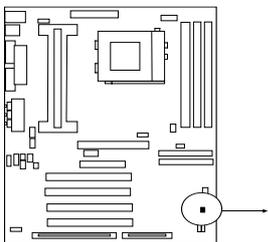
**8. Secondary IDE Connector (40-pin block): IDE2**

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.



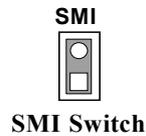
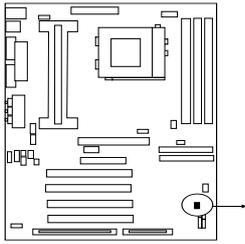
**9. IDE activity LED: HDLED**

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**

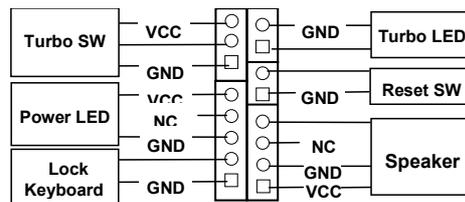
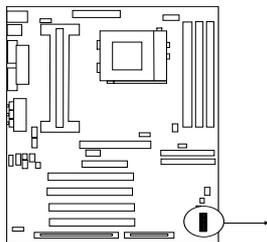
This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply. See the figure below.

**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**

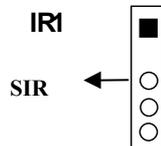
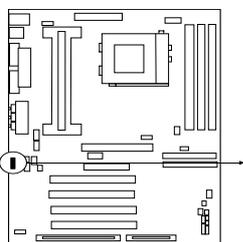
This 4-pins connector connects to the case-mounted speaker. See the figure below.



**System Case Connections**

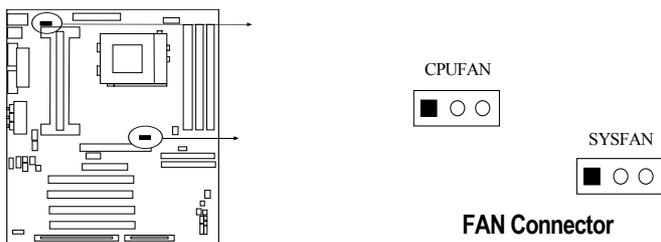
**15. IR infrared module connector: IR1**

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.



**IR Infrared Module Connector**

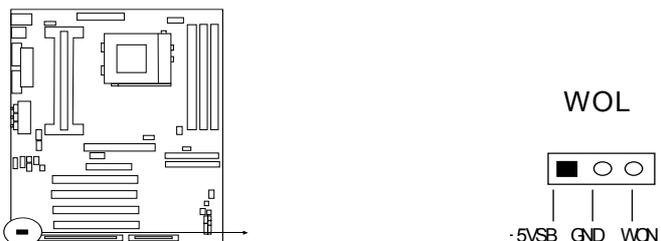
**16. FAN connector: CPUFAN , SYSFAN**



**17. Power-On button connector: PS-ON**



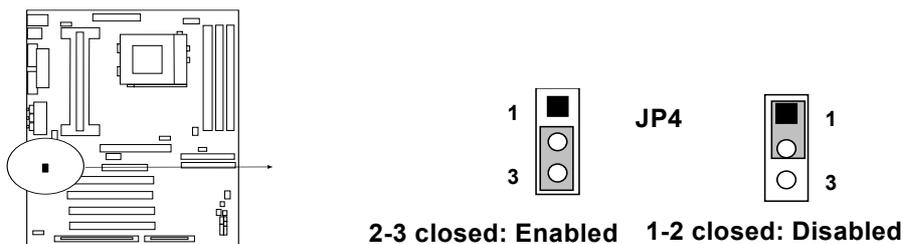
**18. Wake On Lan connector: WOL**



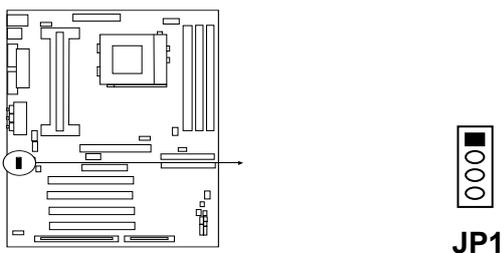
※ Wake On LAN Function worked only when power supply support 5VSB more than 750mA current.

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

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



**20. Auxiliary Input connector: JP1**

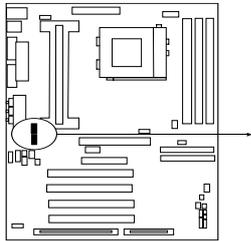


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### 21. CD Audio in connector : JP2,JP3

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



JP2 :CD-Adio/Panasonic



JP3 :CD-Audio/Sony

### 22. Audio and Game Connector : AGC

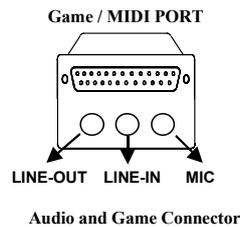
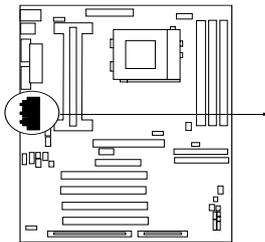
This Connector are 3 phone Jack for LINE-OUT,LINE-IN,MIC and a 15-pin D-Subminiature Receptacle Connector for joystick/MIDI Device.

Line-out : audio output to speaker

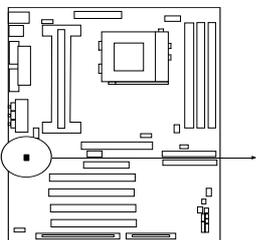
Line-in : audio input to sound chip (***Please plug here for second pair speakers as output channels when use 4 speakers***)

MIC : Microphone Connector

Game/MIDI : for joystick or MIDI Device



### 23. PC Speaker signal Input connector: SPKIN 1



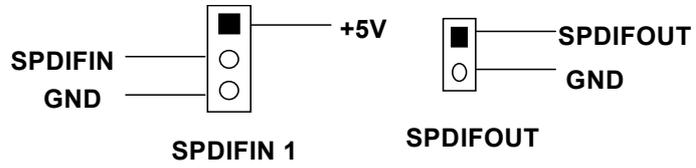
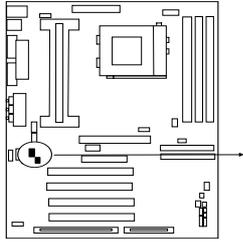
SPKIN 1



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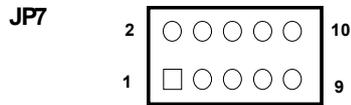
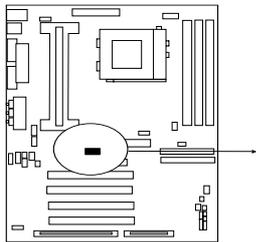
---

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



**25. Optical kit connector: JP7**

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



Optical kit Connector

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## 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 <Del> key immediately will bring you into BIOS **CMOS SETUP UTILITY**.

ROM PCI/ISA BIOS (2A6LGJ1F)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
PNP/PCI CONFIGURATION	EXIT WITHOUT SAVING
LOAD OPTIMAL DEFAULTS	
LOAD STANDARD DEFAULTS	
Esc : QUIT	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type...	

Figure 3-1

The menu displays all the major selection items and allow user to select any one of shown item. The selection is made by moving cursor (press any direction key) to the item and press <Enter> key. An on\_line help message is displayed at the bottom of the screen as cursor is moving to various items which provides user better understanding of each function. When a selection is made, the menu of selected item will appear so the user can modify associated configuration parameters.

## 3-1 STANDARD CMOS SETUP

**STANDARD CMOS SETUP** (Figure 3-2) allows user to configure system setting such as current date and time, type of hard disk drive installed in the system, floppy drive type, and the type of display monitor. Memory size is auto-detected by the BIOS and displayed for your reference. When a field is highlighted (direction keys to move cursor and <Enter> key to select), the entries in the field will be changed by pressing <PgDn> or <PgUp> keys or user can enter new data directly from the keyboard.

```

ROM PCI/ISA BIOS (2A6LGJ1F)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.
Date (mm:dd:yy) : Wed, Sep, 10 1997
Time (hh:mm:ss) : 10 : 33 : 52

HARD DISKS      TYPE  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE
Primary Master  : Auto   0     0     0     0       0     0     0 Auto
Primary Slave   : Auto   0     0     0     0       0     0     0 Auto
Secondary Master : Auto   0     0     0     0       0     0     0 Auto
Secondary Slave : Auto   0     0     0     0       0     0     0 Auto

Drive A : 1.4M , 3.25 in.
Drive B : None

Video  : EGA/VGA
Halt On : All Errors

Base Memory : 640K
Extended Memory : 7168K
Other Memory : 384K
-----
Total Memory : 8192K

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

Figure 3-2

**NOTE:** *If hard disk Primary Master/Slave and Secondary Master/Slave were used Auto, than the hard disk size and model will be auto-detect on display during POST.*

**NOTE:** *The "Halt On:" field is to determine when to halt the system by the BIOS is error occurred during POST.*

## 3-2 BIOS FEATURES SETUP

Select the “**BIOS FEATURES SETUP**” option in the CMOS SETUP UTILITY menu allows user to change system related parameters in the displayed menu. This menu shows all of the manufacturer’s default values of this mainboard. Again, user can move the cursor by pressing direction keys and <PgDn> of <PgUp> keys to modify the parameters. Pressing [F1] key to display help message of the selected item.

This setup program also provide 2 convenient ways to load the default parameter data from BIOS [F6] or CMOS [F7] area if shown data is corrupted. This provides the system a capability to recover from any possible error.

ROM PCI/ISA BIOS (2A6LGJ1F)  
 BIOS FEATURES SETUP  
 AWARD SOFTWARE, INC.

Virus Warning	: Disabled	OS Select For DRAM > 64MB	: Non-OS2
CPU Internal Cache	: Enabled	HDD S.M.A.R.T Capability	: Disabled
External Cache	: Enabled	Video BIOS Shadow	: Enabled
CPU L2 Cache ECC Checking	: Enabled	C8000-CBFFF Shadow	: Disabled
Processor Number Feature	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
IDE HDD Block Mode	: Enabled		
Gate A20 Option	: Fast		
Memory Parity/ECC Check	: Disabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		
Esc: Quit    ↑ ↓ → ← : Select Item		F6 : Load Optimal Defaults	
F1 : Help        PU/PD/+/-:Modify		F7 : Load Standard Defaults	
F5 : Old Values    (Shift)F2 : Color			

Figure 3-2

**NOTE:** The Security Option contains “*setup*” and “*system*”. The “*setup*” indicates that the password setting is for CMOS only while the “*system*” indicates the password setting is for both CMOS and system boot up procedure.

- **Security Option:** This category allows you to limit access to the system and Setup, or just to Setup. The default value is 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 incorrect password is 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.

### 3-3 CHIPSET FEATURES SETUP

This section describes features of the VIA Apollo Pro AGPset. If your system contains a different chipset, this section will bear little resemblance to what you see on your screen.

ADVANCED OPTIONS. The parameters in this screen are for system designers, service personnel, and technically competent users only. Do not reset these values unless you understand the consequences of your changes.

ROM PCI/ISA BIOS (2A6LGJ1F)  
CHIPSET FEATURES SETUP  
AWARD SOFTWARE, INC.

Bank 0/1 DRAM Timing	: SDRAM 10ns	Auto Detect DIMM/PCI Clk	: Enabled
Bank 2/3 DRAM Timing	: SDRAM 10ns	Spread Spectrum	: Disabled
Bank 4/5 DRAM Timing	: SDRAM 10ns	CPU Host/PCI Clock	: Default
SDRAM Cycle Length	: 3	Current System Temp.	: 34°C/93°F
DRAM Clock	: Host CLK	Current CPU Temperature	: 44°C/111°F
Memory Hole	: Disabled	Current CPUFAN Speed	: 0 RPM
Read Around write	: Disabled	Current SYSFAN Speed	: 0 RPM
Concurrent PCI/Host	: Disabled	Core : 2.80V	+3.3V : 3.3V
System BIOS Cacheable	: Enabled	+5V : 5.10V	+12V : 12 V
Video RAM Cacheable	: Enabled	-12V : 12 V	
AGP Aperture Size	: 64M	Shutdown Temperature	: 75°C/167°F
AGP-2X Mode	: Enabled		
OnChip USB	: Enabled		
USB Keyboard Support	: Disabled		
Esc: Quit		↑ ↓ → ←: Select Item	
F1 : Help		PU/PD/+/-:Modify	
F5 : Old Values		(Shift)F2 : Color	
		F6 : Load Optimal Defaults	
		F7 : Load Standard Defaults	

Figure 3-3

- 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, 105/35,110/36,115/38,  
120/40,133/33,140/35,150/37.  
When the setting is :”default” the CPU HOST Clock will depend on the setting of JP12 and JP11.  
If JP12,JP11 are set to 66MHz only have the choice of 66/33, 75/37, 83/41 on screen.  
If the JP12,JP11 are setting at 100MHz, then you can have 100/33,103/34,112/37,124/41,  
105/35,110/36,115/38,120/40.  
If JP12,JP11 are setting at 133MHz, the you have the choice: 133/33,140/35,150/37.  
\*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.
- **DRAM Clock:** In this item you have the choice : Host CLK , HCLK+33M, HCLK –33M. We recommend the Max. DRAM clock ≤ 133MHz otherwise the system will not stable.
- **Vcore , +3.3V,+5V,+12V,-12V, are show the status of system voltages.**

### 3-4 POWER MANAGEMENT SETUP

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

ROM PCI/ISA BIOS (2A6LGJ1F)  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE, INC.

ACPI function : Enabled Power Management : User Define PM Control by APM : Yes Video Off After : Suspend Video Off Method : V/H SYNC+Blank MODEM Use IRQ : 3 Soft-off by PWRBTN : Instant-off HDD Power Down : Disabled Doze Mode : Disabled Suspend Mode : Disabled ** PM Events ** VGA : OFF LPT & COM : LPT/COM HDD & FDD : ON DMA/master : OFF Modem Ring Resume : Disabled RTC Alarm Resume : Disabled	Primary INTR : ON IRQ3 (COM 2) : Primary IRQ4 (COM 1) : Primary IRQ5 (LPT 1) : Primary IRQ6 (Floppy Disk) : Primary IRQ7 (LPT 1) : Primary IRQ8 (RTC Alarm) : Disabled IRQ9 (IRQ2 Redir) : Secondary IRQ10 (Reserved) : Secondary IRQ11 (Reserved) : Secondary IRQ12 (PS/2 Mouse) : Primary IRQ13 (Coprocessor) : Primary IRQ14 (Hard Disk) : Primary IRQ15 (Reserved) : Disabled
Esc: Quit      ↑ ↓ → ←: Select Item      F6 : Load Optimal Defaults F1 : Help      Pu/Pd/+/-: Modify      F7 : Load Standard Defaults F5 : Old Values      (Shift)F2 : Color	

**Figure 3-4**

- **Power Management:** This category allows you to select the type (or degree) of power saving and is directly related to the following modes:  
Doze Mode , Standby Mode ,Suspend Mode , HDD Power Down

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 -- <b>ONLY AVAILABLE FOR SL CPU'S</b> . 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.

- **PM Control APM:** When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock.  
If the Max. Power Saving is not enabled, this will be preset to *No*.
- **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 After:** When enabled, this feature allows the VGA adapter to operate in a power saving mode.

N/A	Monitor will remain on during power saving modes.
Suspend	Monitor blanked when the systems enters the Suspend mode.
Standby	Monitor blanked when the system enters Standby mode.
Doze	Monitor blanked when the system enters any power saving mode.

- **MODEM Use IRQ:** Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.  
The choices: NA, 3, 4, 5, 7, 9, 10, 11
- **PM Timer:** The following four modes are Green PC power saving functions which are only user configurable when *User Defined Power Management* has been selected see above for available selections.
- **Doze Mode:** When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.
- **Standby Mode:** When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.
- **Suspend Mode:** When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.
- **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.
- **Throttle Duty Cycle:** When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.  
The Choice: 12.5%, 25.0%, 37.5%, 50.0%, 62.5%, 75.0%
- **ZZ Active in Suspend:** When Enabled, the ZZ signal is active during Suspend mode.  
The Choice: Enabled, Disabled.
- **VGA Active Monitor:** When Enabled, any video activity restarts the global timer for Standby mode.  
The Choice: Enabled, Disabled.
- **Soft-Off by PWR-BTTN:** When Enabled, turning the system off with the on/off button places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity.  
The Choice: Instant-Off, Delay 4 Sec.
- **Resume by Ring:** An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state..  
The Choice: Enabled, Disabled.
- **IRQ 8 Break Suspend:** You can Enable or Disable monitoring of IRQ8 so it does not awaken the system from Suspend mode.  
The Choice: Enabled, Disabled.

#### Reload Global Timer Events:

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

### 3-5 PnP/PCI CONFIGURATION SETUP

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, 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.

ROM PCI/ISA BIOS (2A6LGJ1F)  
 PNP/PCI CONFIGURATION SETUP  
 AWARD SOFTWARE, INC.

PNP OS Installed : No	CPU to PCI Write Buffer : Enabled
Resources Controlled By : Manual	PCI Dynamic Bursting : Enabled
Reset Configuration Data: Disabled	PCI Master 0 WS Write : Enabled
IRQ-3 assigned to : PCI/ISA PnP	PCI Delay Transaction : Disabled
IRQ-4 assigned to : PCI/ISA PnP	PCI#2 Access #1 Retry : Disabled
IRQ-5 assigned to : PCI/ISA PnP	AGP Master 1 WS Write : Enabled
IRQ-7 assigned to : PCI/ISA PnP	AGP Master 0 WS Read : Disabled
IRQ-9 assigned to : PCI/ISA PnP	Assign IRQ For USB : Enabled
IRQ-10 assigned to : PCI/ISA PnP	Assign IRQ For VGA : Enabled
IRQ-11 assigned to : PCI/ISA PnP	
IRQ-12 assigned to : PCI/ISA PnP	
IRQ-14 assigned to : PCI/ISA PnP	
IRQ-15 assigned to : PCI/ISA PnP	
DMA-0 assigned to : PCI/ISA PnP	
DMA-1 assigned to : PCI/ISA PnP	Esc: Quit ↑ ↓ → ← : Select Item
DMA-3 assigned to : PCI/ISA PnP	F1 : Help Pu/Pd/+/-:Modify
DMA-5 assigned to : PCI/ISA PnP	F5 : Old Values (Shift)F2 : Color
DMA-6 assigned to : PCI/ISA PnP	F6 : Load Optimal Defaults
DMA-7 assigned to : PCI/ISA PnP	F7 : Load Standard Defaults

Figure 3-5

### 3-6 LOAD OPTIMAL DEFAULTS

The “LOAD OPTIMAL DEFAULTS” function loads the system Optimal default data directly from ROM and initialize associated hardware properly. This function will be necessary only when the system CMOS data is corrupted.

ROM PCI/ISA BIOS (2A6LGJ1F)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGE	TECTION
PNP/PCI CON	ORMAT
LOAD OPTIMAL DEFAULTS	SAVE & EXIT SETUP
LOAD STANDARD DEFAULTS	EXIT WITHOUT SAVING
Esc : QUIT	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type...	

Figure 3-6



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## 3-9 SUPERVISOR/USER PASSWORD

This item lets you configure the system so that a password is required each time the system boots or an attempt is made to enter the Setup program (Refer to Figure 3-3 for the details). Supervisor Password allows you to change all CMOS settings but the User Password setting doesn't have this function. The way to set up the passwords for both Supervisor and User are as follow:

1. Choose either Supervisor Password or User Password in the Main Menu and press <Enter>. The following message appears:  
**"Enter Password:"**
  1. The first time you run this option, enter your password up to only 8 characters and press <Enter>. The screen does not display the entered characters. For no password just press <Enter>.
  2. After you enter the password, the following message appears prompting you to confirm the password:  
**"Confirm Password:"**
  4. Enter exact the same password you just typed again to confirm the password and press <Enter>.
  5. Move the cursor to Save & Exit Setup to save the password.
  6. If you need to delete the password you entered before, choose the Supervisor Password and Press <Enter>. It will delete the password that you bad before.
  7. Move the cursor to Save & Exit Setup to save the option you did, otherwise the old password will still be there when you turn on your machine next time.

## 3-10 SAVE & EXIT SETUP

The "SAVE & EXIT SETUP" option will bring you back to boot up procedure with all the changes you just made which are recorded in the CMOS RAM.

## 3-11 EXIT WITHOUT SAVING

The "EXIT WITHOUT SAVING" option will bring you back to normal boot up procedure without saving any data into CMOS RAM. All of the old data in the CMOS will not be destroyed.

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## Chapter 4

### 4-1 Mainboard Driver Install in Win9X,WinNT

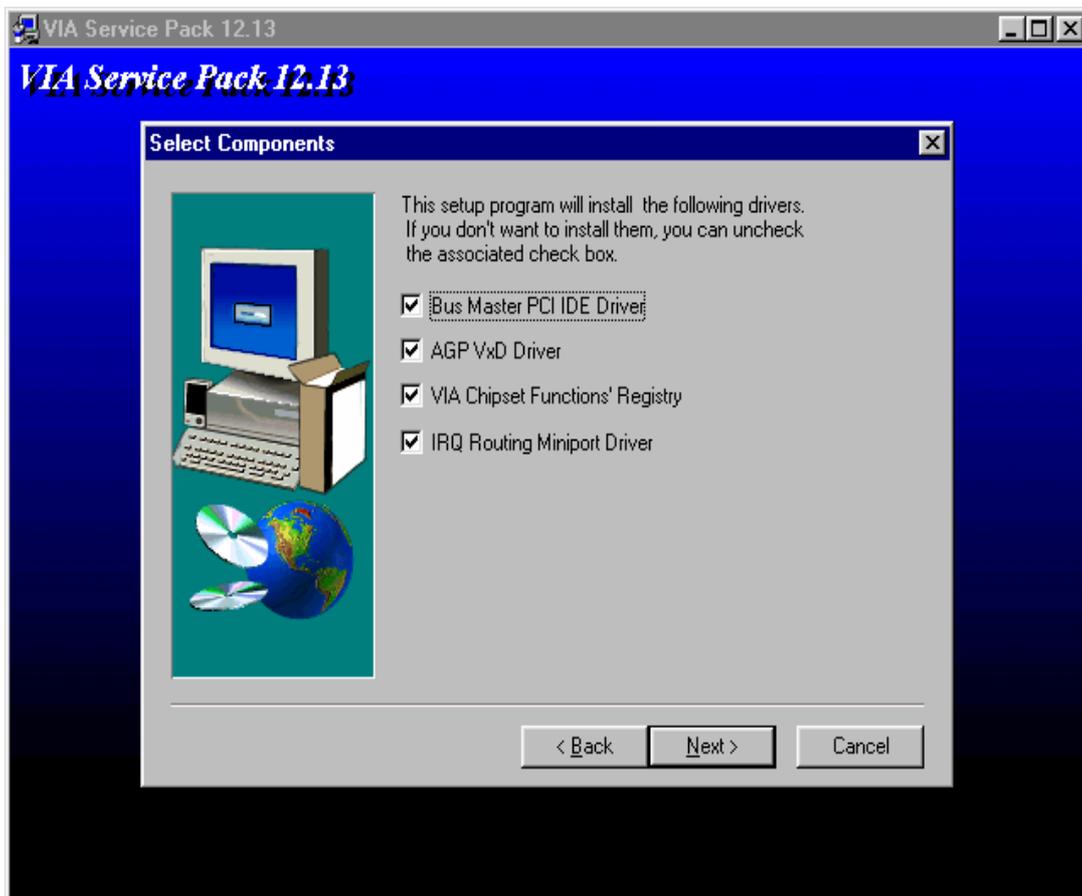
To install the mainboard driver please run

***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.



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## 4-2 PC HEALTH MONITOR-III (OPTION FOR MOTHERBOARD THAT EMBEDDED PC Health) Software for Windows 95/98

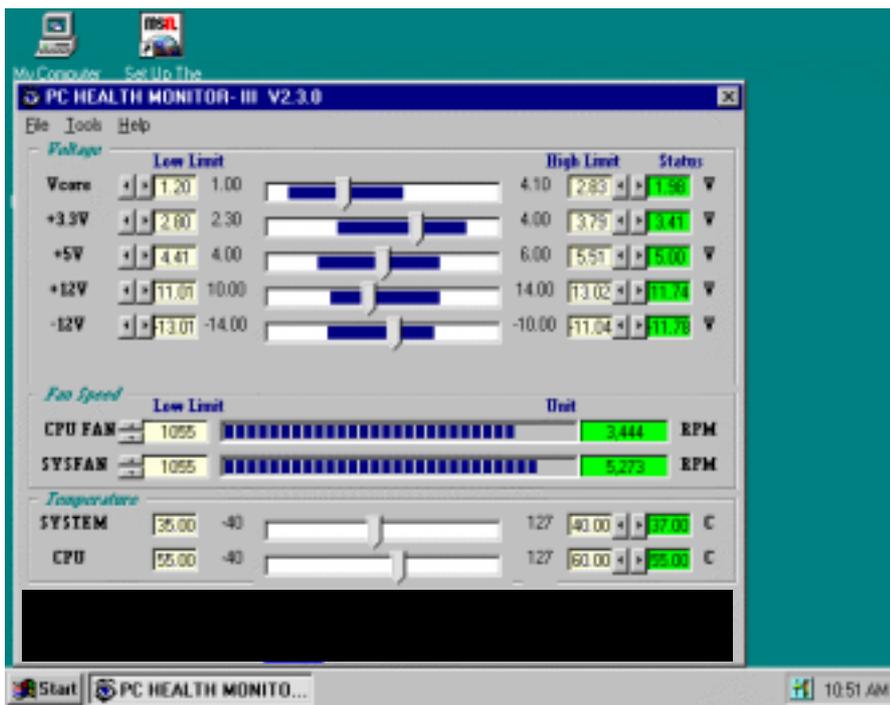
Please Run X : \VIA\HEALTH3\SETUP.EXE

NOTES	<ol style="list-style-type: none"><li>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.</li><li>2. Please follow on screen instruction to complete your installation.</li><li>3. Please refer to HELP for Windows 95/98 related questions.</li></ol>
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### 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.

### 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

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### -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 PC Health Chip ) :

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## 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.

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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,

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"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.

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**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.

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**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.

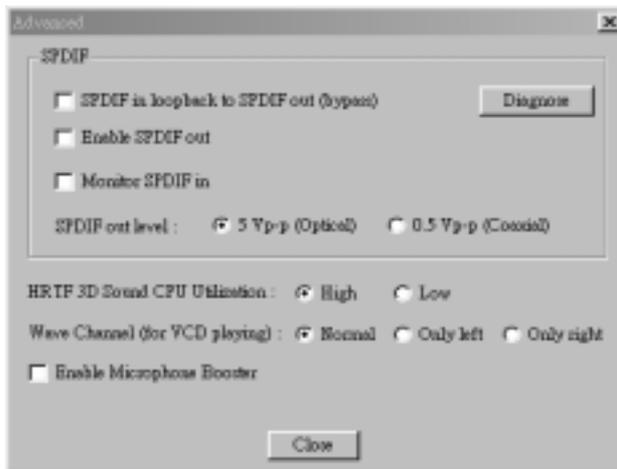
**Recording Control:** Clicking on this button shows and allows you use the input level controls.



**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.

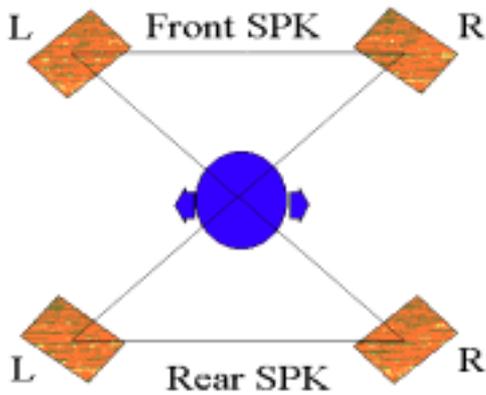
2.The positions of the speakers

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

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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.

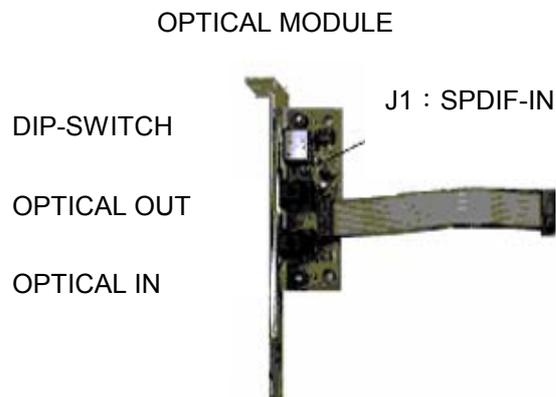
### 3.The demo

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

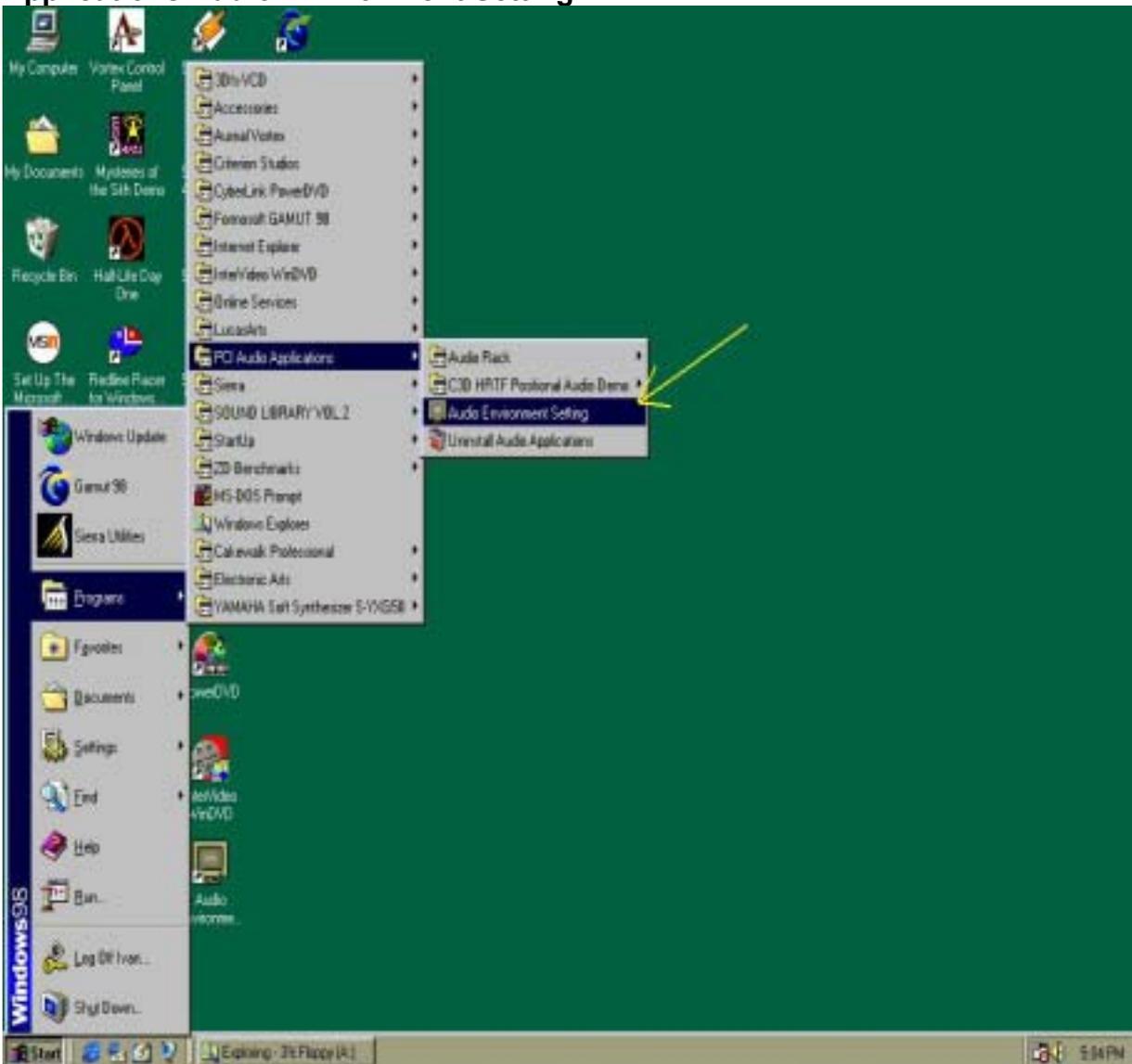


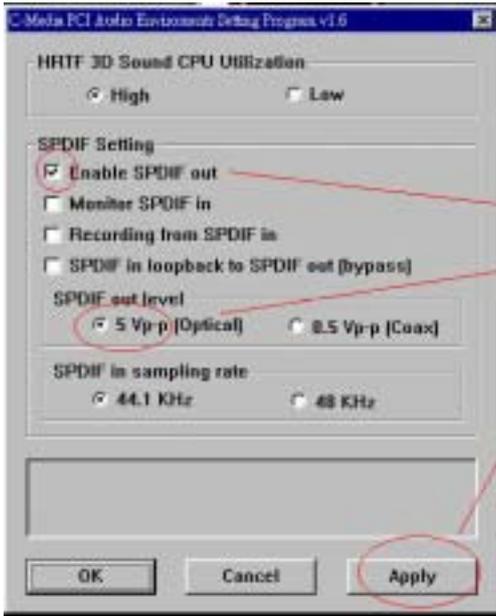
An example of optical kit with MD connection.



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**





### MP3/WAV TO MD SETTING

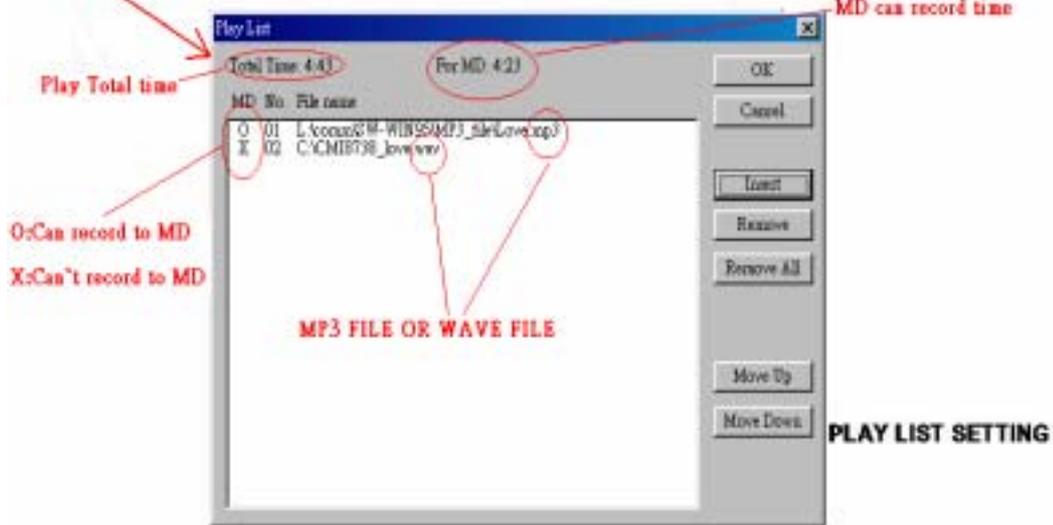
ENABLE SPDIF-OUT

SET OUTPUT LEVEL TO 5V

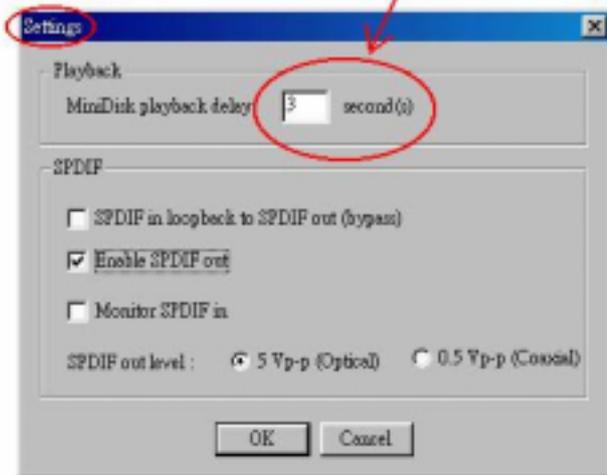
When all the procedures have been completed, there will be an infrared signal coming from the SPDIF/OUT of the optical fiber of the sound card.



**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.**

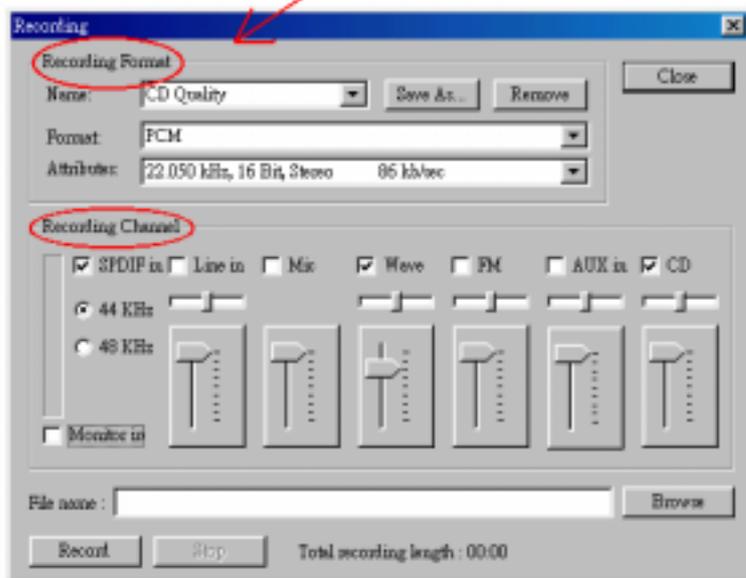


PLAY LIST SETTING



**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.

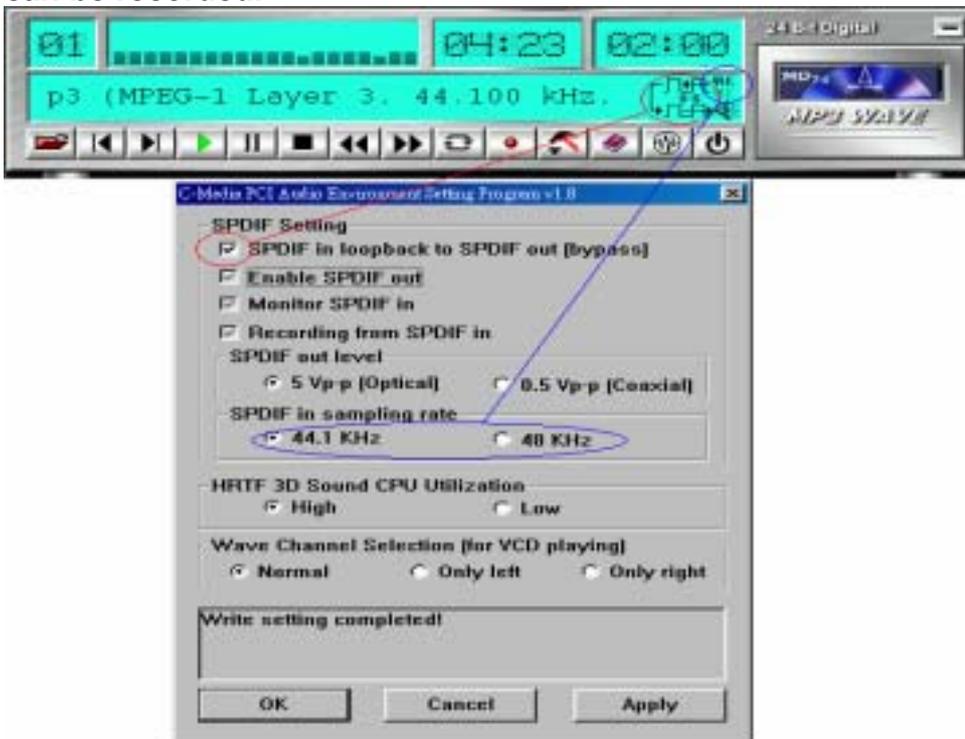


RECORDING FORMAT AND RECORDING CHANNEL SETTING

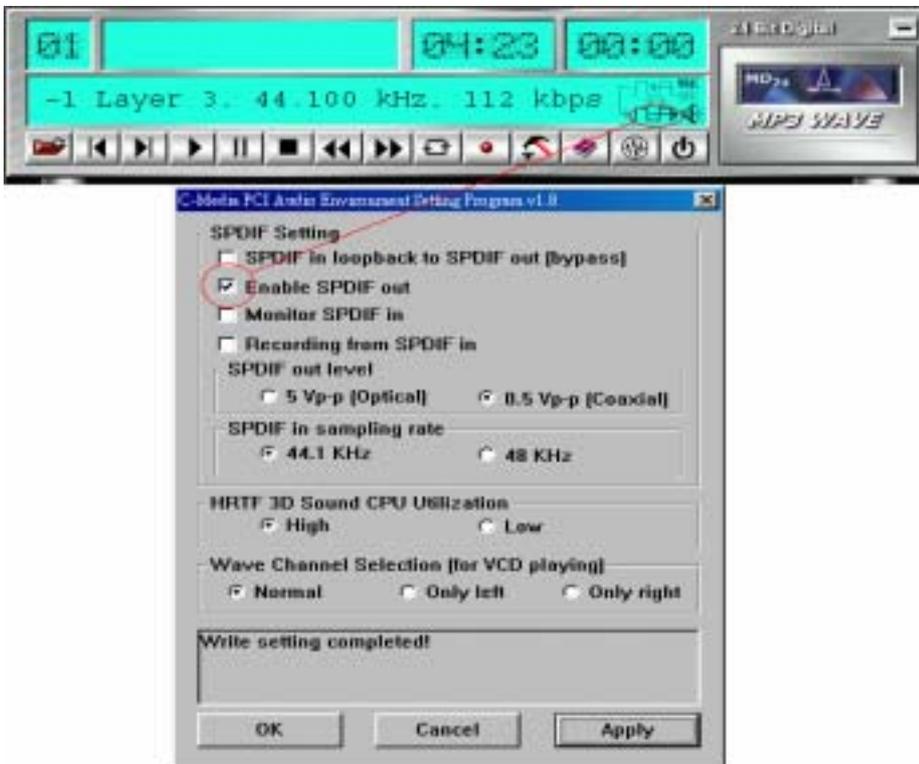
### About Recording 24bit Audio Setting



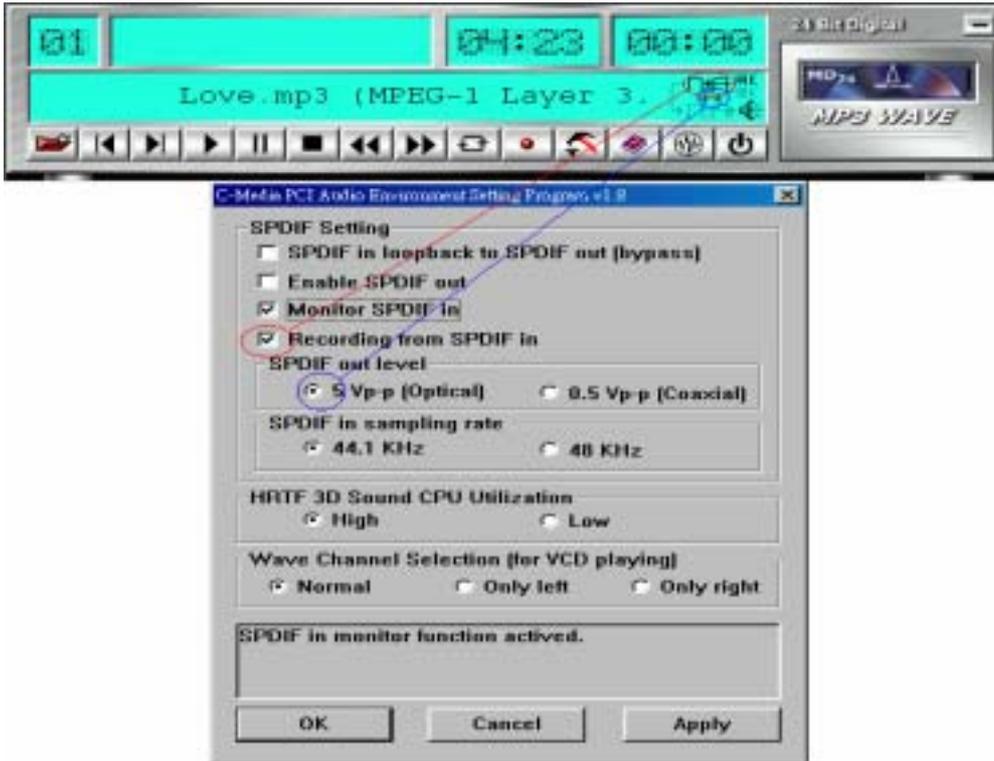
24-bit audio can only be applied to SPDIF IN/OUT mode; it does not apply to other modes such as the four channels or the analog. No sound will be heard while in playback, yet it can be recorded.



The un-selected area will be gray out.



The un-selected area will be gray out.

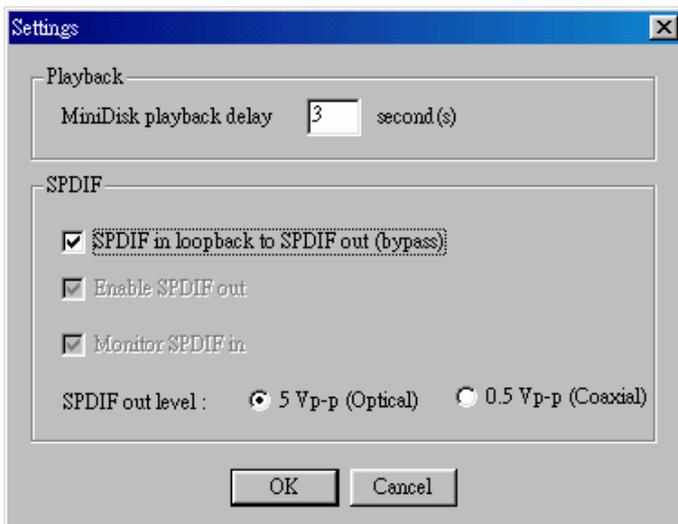


The un-selected area will be gray out.

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**

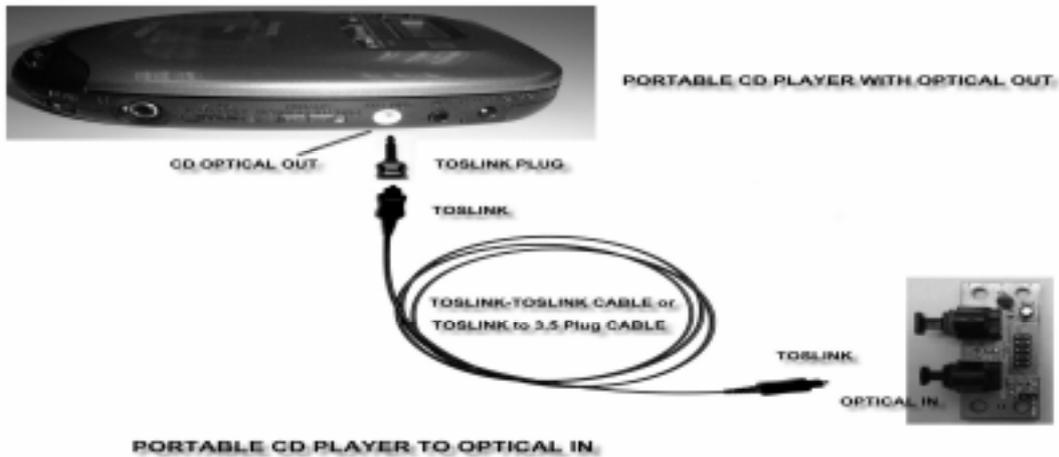


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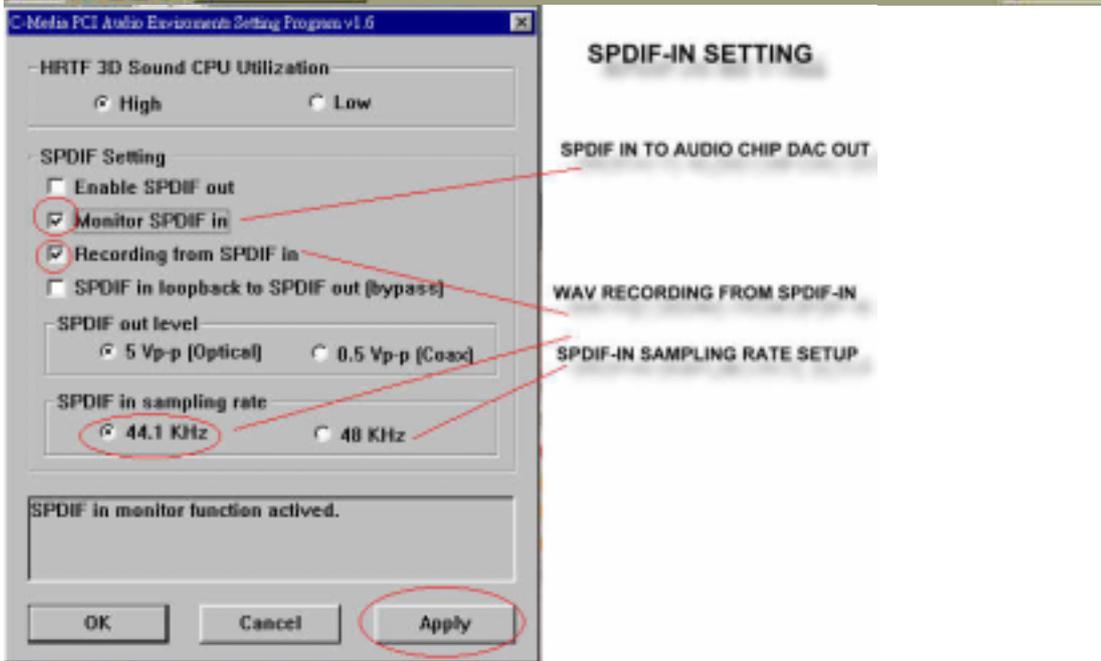
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## SPDIF/IN for motherboard that embedded Audio chip

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



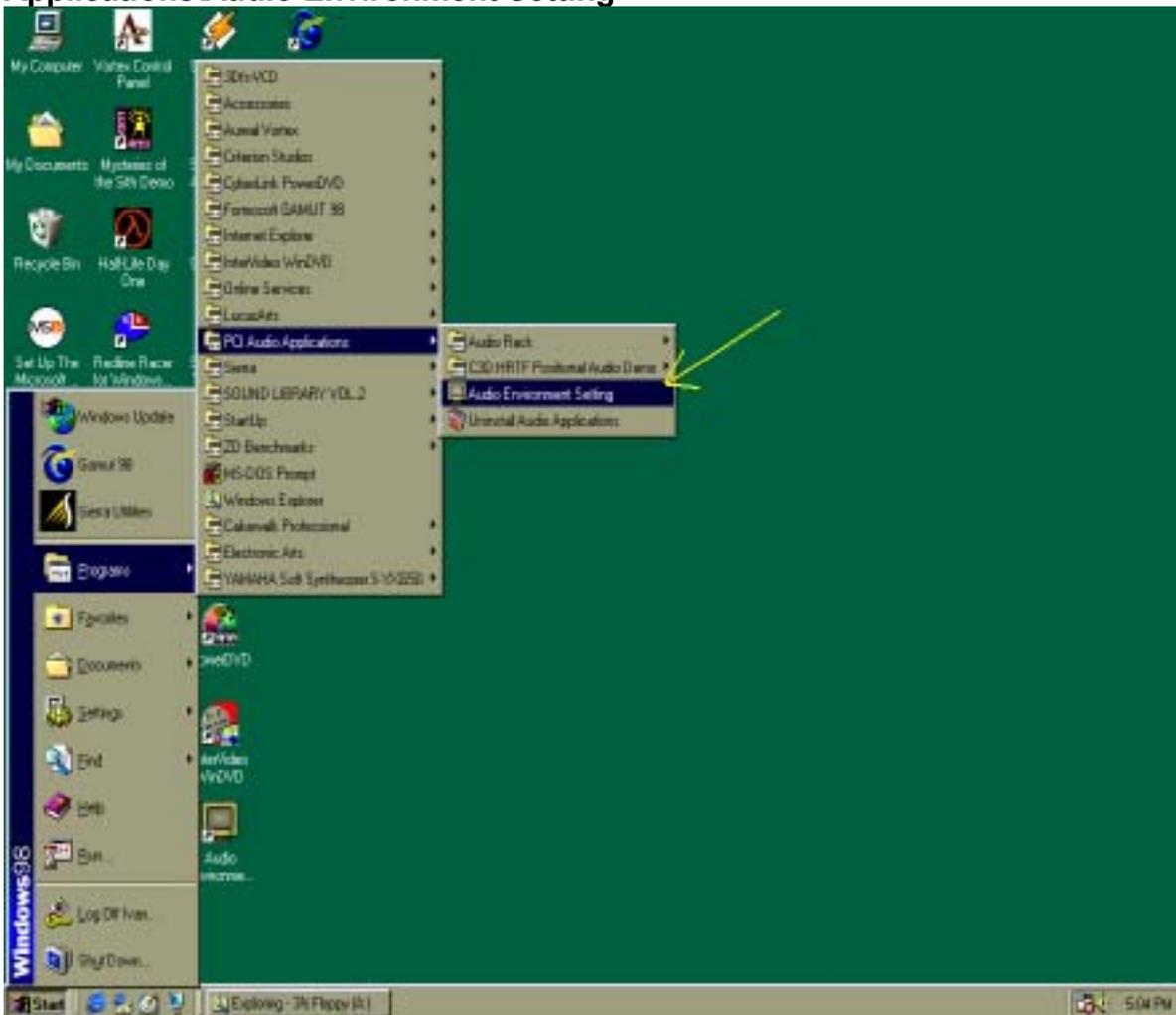
**Loopback(bypass)mode setup  
CD ROM(Digital Output) to SPDIF/IN Setup**



CD-ROM DIGITAL OUT TO SPDIF-IN

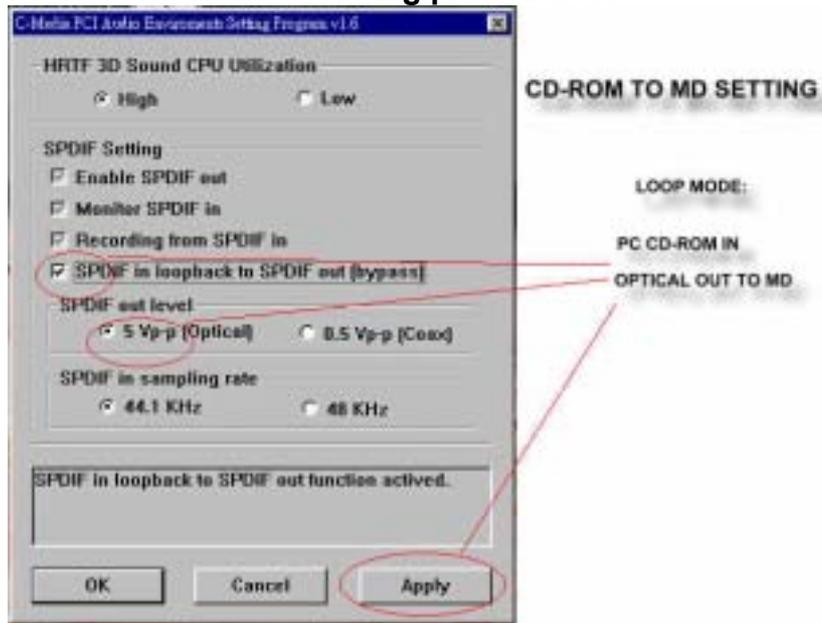


When the connection is done, please go to the Start menu and select PCI Audio Applications/Audio Environment Setting



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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.