

# ***920BF/920BN USER'S MANUAL***

## ***3D-AGP VGA / 3D-Audio M/B FOR Pentium<sup>®</sup> II / III***

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. G03-920BFR3A**

**Release date: DEC 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. This board integrates both Intel Pentium®II /Pentium®III & Celeron™(Slot 1) / Coppermine processor and Celeron™ (Socket 370) PPGA / FCPGA processor interface into a compact PC/AT compatible system along with share memory type 3D AGP VGA on-board, 3D PCI Audio on-board to support 4 channels speaker(If on-board embedded Audio chip only), Ultra DMA 66, ACPI/AMP power management, and many other powerful functions.

## 1-2 Key Feature

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

- **Supports both Slot 1 & Socket 370 CPU interface (only for one CPU interface at a time).**
- **Supports Jumpless solution for setting of Front Side Bus Frequency (CPU Host Clock),and CPU ratio in BIOS SETUP “CHIPSET FEATURES SETUP“.**
- **Multi-Speed Support :** Provides 66/75/83/95/100MHz Front Side Bus Frequency to support Intel Pentium®II / Pentium®III / Coppermine / Celeron processor processor for slot1 interface or Intel Celeron PPGA / FCPGA or a ZIP Socket 370 interface.
- **Built-In High performance 3D AGP VGA:**
  - \* Support share memory 2MB to 8MB selectable in BIOS SETUP.
  - \* Integrated programmable 24-bit true-color RAMDAC up to 230MHz pixel clock.
  - \* Integrated two 96x64 video line buffers for MPEG video playback.
  - \* Support 64 bit memory data bus interface; Support DIC, Direct Draw Driver.
  - \* Integrated a high performance and high quality 3D engine.
  - \* Support AGP Spec.1.0 compliant, 1xmode(66MHz), 2xmode(133MHz)**The VGA Share Memory Size can be 2MB/4MB/8MB selectable in the “INTEGRATED PERIPHERALS Setup “ under BIOS Setup.**
- **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;**

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combine with DVD player to create a home theater system (This upgrade kit includes Optical Module, Optical Cable, and Software DVD Driver).

- **Chipset:** SiS 620/5595 AGPset chip with I/O subsystems; CMI 8738 3D PCI Audio chip (Option for motherboard that embedded Audio chip).
- **DRAM Memory Support:** supports 2 168-pin DIMMS(3.3V)from a memory size between 16MB to 1.0GB.
- **ISA and PCI expansion Slots:** Three PCI slots ,Privodes one 16-bit ISA slot.
- **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 drives and LS-120. This controller also supports PIO Modes 3 and 4 and Bus Master IDE DMA 33/66Mbyte/Second.
- **ACPI supporting for OS Directed Power Management**
  - Keyboard Power On:** When use ATX power supply and JP1 1-2 closed,choose power on function by password in BIOS , can control power supply on by keyboard instead of power button .
  - 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 by use of ATX power supply.
  - RTC Power On:** When use of ATX power supply and Enabled RTC Power On function, you can setting RTC alarm to power on the system at the time length you setting .
  - Power Button:** Press the button will place the system power on/off when use ATX power supply .
  - Software off when use ATX power supply.**
- **Power Support:** Efficient PWM switching power instead of traditional Linear Voltage Regulator to prevent power component from being burned-out.
- **Meets PC99 Requirements.**
- **Optional IRDA and PS/2 Mouse Connector:** This motherboard supports an dedicated 16C550 standard UART,supporting infrared communication module for wireless interface and PS/2 mouse cable set.
- **Optional USB DEVICE Connector:** This motherboard supports two USB port connectors for USB devices.
- **DMI Function Supporting.**
- **PC Health Monitoring :** Allows you track PC's CPU temperature, system voltage and fan speed. When current temperature over warning temperature, the system will warning you by alarm.
- **Baby AT Form Factor:** Dimensions 22cm x 25cm.

## Chapter 2

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# Hardware Installation

## 2-1 Unpacking

This mainboard package should contain the following:

- The mainboard
- USER'S MANUAL for mainboard
- Cable set for Ultra DMA 33 IDE x1, Floppy x1, COM1 & COM2 x1, LPT x1, VGA x1, Audio and Game x1(For motherboard that embedded Audio chip)
- CD for Drivers PACK

The mainboard contains sensitive electronic components which 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 all of the 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 Baby AT system board.

It is assumed that the chassis is designed for a Baby AT 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 Motherboard Diagram

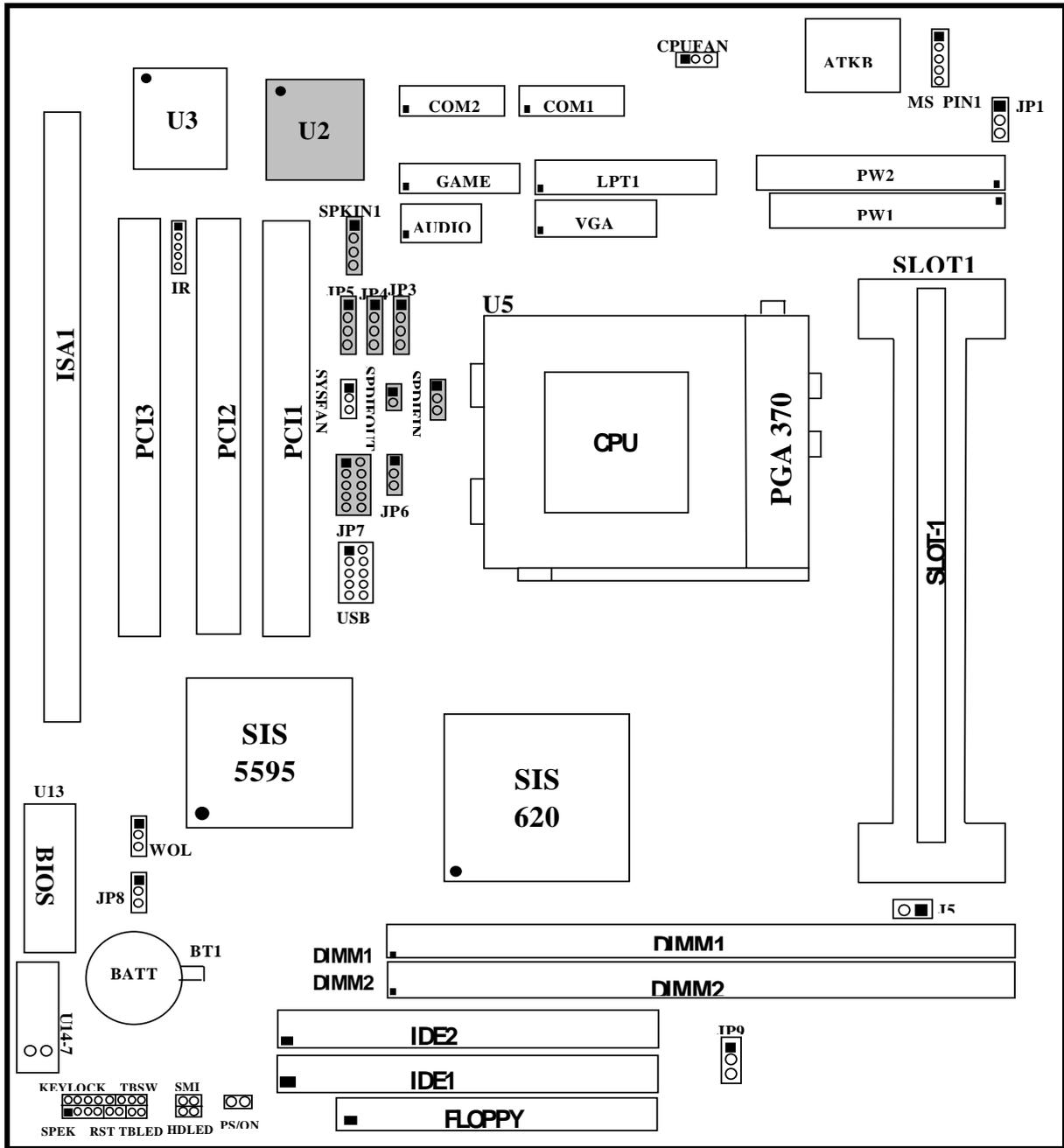


Figure 2-1

 Optional connector for motherboard that embedded with Audio Chip

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

Jumper	Name	Description	Page
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U14-7	CPU Bus Frequency Selection	Open:100MHZ(off), Closed:66MHz(on)	p.6
JP8	CMOS RAM Clear	1-2 Clear CMOS, 2-3 Normal	p.7
J5	On board VGA Enabled/Disabled	open : Enabled,closed : Disabled	p.7
JP1	Keyboard power on function	1-2 : Enabled , 2-3 : Disabled	p.7
JP9	VIO Voltage Selection	1-2 : 3.45V , 2-3 : 3.52V	p.7

## Connectors

Connector	Name	Description	Page
PW1	AT Power Connector	12-Pin Block	p. 12
PW2	ATX Power Connector	20-Pin Block	p. 12
ATKB	Keyboard Connector	5-Pin Female	p.12
MS_PIN1	PS/2 Mouse Connector	5-Pin Block	p.12
LPT1	Parallel Port Connector	26-Pin Block	p.13
COM1,COM2	Serial Port COMA & COMB	10-Pin Block	p.13
FDD	Floppy Driver Connector	34-Pin Block	p.13
IDE1	Primary IDE Connector	40-Pin Block	p.14
IDE2	Secondary IDE Connector	40-Pin Block	p.14
HDLED	IDE activity LED	2-Pin Connector	p.14
FPC	Front Panel Connector	16-Pin Block	p.14
IR	Infrared Module Connector	5-Pin Block	p.15
USB	USB Port Connector	10-Pin Block	p.15
CPUFAN,SYSFAN	FAN Connector	Fanning system connectors	p.15
PS-ON	ATX power button/soft power button	2-Pin Connector	p.15
VGA	VGA Connector	16-Pin Block	p.16
WOL	Wake On Lan	3-pin Block	p.16

## Jumpers & Connectors (Option for motherboard that embedded Audio Chip)

Item number	Name	Description	Page
JP6	Audio Chip Enabled/Disabled	1-2 Enabled, 2-3 Disabled	p.7
Audio	Line IN / Line OUT / MIC	10-pin Connector	p.16
Game	Game port Connector	16-pin Connector	p.16
JP3	CD-Audio IN	4-pin Block	p.17
JP4	CD-Audio IN	4-pin Block	p.17
JP5	AUX IN	4-pin Block	p.17
SPDIFIN	SPDIN(Sony/Philips Digital Interface) IN	4-pin Block	p.17
SPDIFOUT	SPDIN(Sony/Philips Digital Interface) OUT	4-pin Block	p.17
JP7	For Optional Optical Kit Connector	10-pin Block	p.17

## Expansion Sockets

Socket/Slot	Name	Description	Page
Slot1	CPU Slot	Pentium®II/III/Coppermine CPU Slot	p.8
Zip Socket 370	CPU Socket	Celeron PPGA / FCPGA CPU Socket	p.9
DIMM1,DIMM2	DIMM Module Socket	168-Pins DIMM SDRAM Module Expansion Socket	p.9
PCI1, PCI2, PCI3	PCI Slot	32-bits PCI Local Bus Expansion slots	p.11
ISA1	ISA Slot	16-bits ISA Bus Expansion slot	p.11

## 2-4 Installation Steps

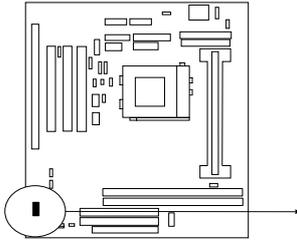
Before using your computer, you must follow the steps as follows:

1. Set Jumpers on the Motherboard

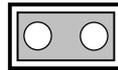
2. Install the CPU
3. Install DRAM Modules
4. Install Expansion card
5. Connect Cables, Wires, and Power Supply

## 2-5 Jumper Settings

### 1. CPU Bus Frequency Selection : U14-7



**U14-7**



66MHz : Closed



100MHz : Open

You can also set the CPU Bus frequency and CPU ratio from the “CHIPSET FEATURES SETUP” under BIOS SETUP.

**Table for the Pentium III and Celeron Socket 370 CPU**

Celeron			Pentium III		
Speed	Bus	Ratio	Speed	Bus	Ratio
300/66	66MHz	4.5x	500E/100	100MHz	5.0x
333/66	66MHz	5.0x	550E/100	100MHz	5.5x
366/66	66MHz	5.5x	600E/100	100MHz	6.0x
400/66	66MHz	6.0x	650E/100	100MHz	6.5x
466/66	66MHz	7.0x	700/100	100MHz	7.0x
500/66	66MHz	7.5x	750/100	100MHz	7.5x
533/66	66MHz	8.0x	800/100	100MHz	8.0x
533A/66	66MHz	8.0x	850/100	100MHz	8.5x
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			

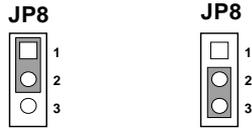
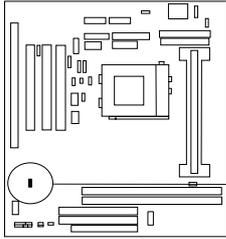
\* Because the Ratio are fixed by CPU Manufacture, users don't need to setting ratio any more, this table just for reference use.

### 2. CMOS RAM Clear: JP8 (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 clears 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>JP8</u>
Normal	2-3 (Default)
Clear CMOS	1-2 (momentarily)

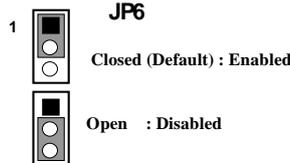
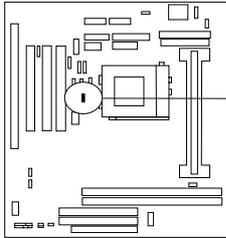


Clear CMOS

Normal

CMOS RAM (Normal / Clear CMOS Data)

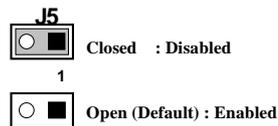
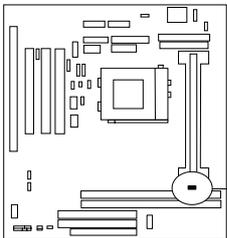
### 3. On Board Audio Chip Enabled / Disabled connector: JP6



Closed (Default) : Enabled

Open : Disabled

### 4. On board VGA function Enabled / Disabled connector: J5

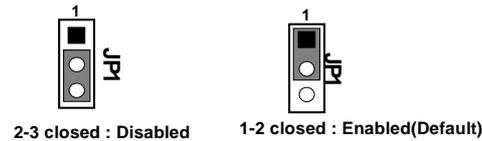
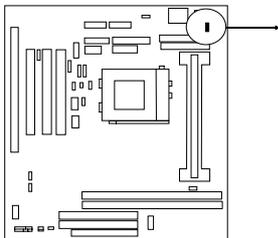


Closed : Disabled

Open (Default) : Enabled

### 5. Keyboard Power on function: JP1

This function only support when use ATX power supply . When choose 1-2 closed and use ATX power supply , you can choice power on system by power button or keyboard in “KB Power ON Password” item under “Power Management Setup”.

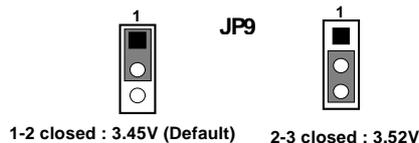
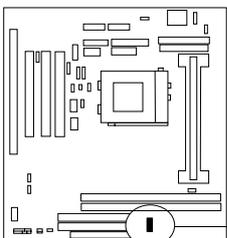


2-3 closed : Disabled

1-2 closed : Enabled(Default)

### 6. VIO Voltage Setting Connector : JP9

The VIO Voltage Jumper Allow you to Select the Voltage Supplied to the DRAM , Chipset and the CPU'S I/O buffer.



1-2 closed : 3.45V (Default)

2-3 closed : 3.52V

## 2-6 System Memory (DRAM)

This main board supports **two** 168-pins DIMM modules, the Max Memory Size is 1.0GB. Because of the VGA share memory function, the system must always occupy BANK0 (DIMM1) to booting the system.

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

\* *Because of share memory function, the system must always occupy DIMM1 first to boot up the system .*

## 2-7 Central Processing Unit (CPU)

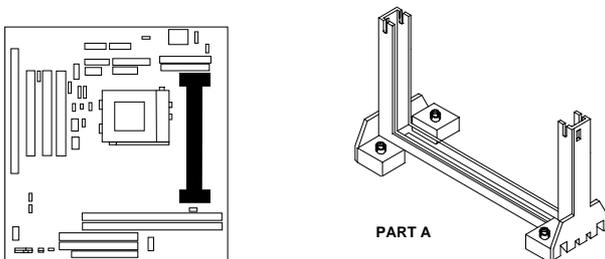
**2-7-1** The motherboard provides a Slot-1 for Pentium II/III processor. The CPU on board must have a fan or heat sink attached to prevent overheating.

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

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 U14-7 for “Bus Frequency Selection” on [page 6](#) depending on the CPU that you install.*

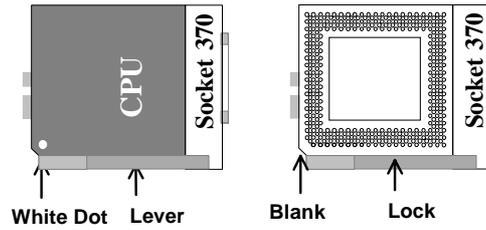
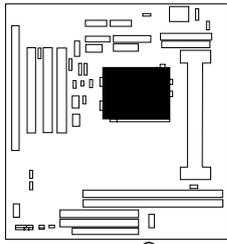
1. Attach heat sink to the CPU.
2. Place Part A on slot-1 and gently screw four corners on top of the mother- board.



**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.

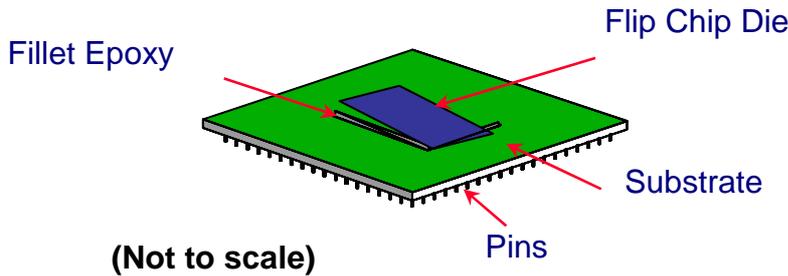
To install a CPU, first turn off your system and remove its cover. Locate the ZIF Socket and open it by first pulling the lever sideways away from the socket then upwards to a 90-degree right angle. Insert the CPU with the white dot as your guide. The white dot should point towards the end of the level. 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 under “Chipset Features Setup”.*

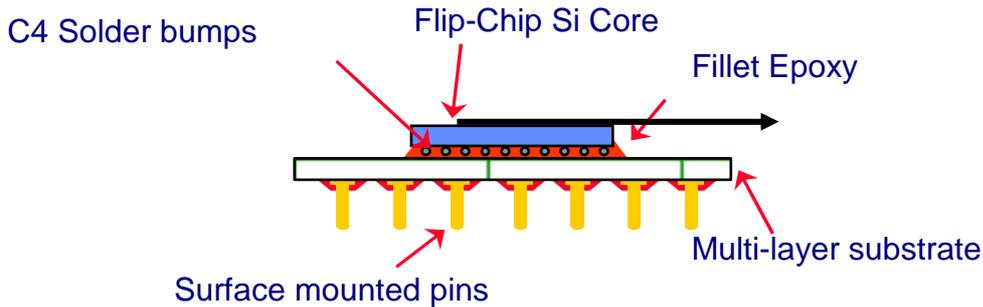


CPU ZIF Socket 370

**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



(Not to scale)

Reference Design: Heatsink



FC-PGA with the reference



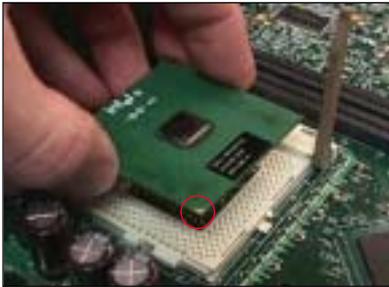
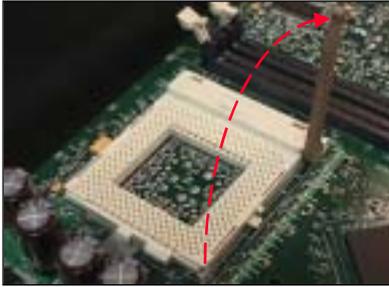
- Intel's reference design thermal solution is an active heatsink; an extruded aluminum heatsink base and a fan attached to the top on the pin array.
- Heatsinks for the PPGA will not work with the FC-PGA. A pedestal is required on the underside of the heatsink to clear the socket cam box
- Recommended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

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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

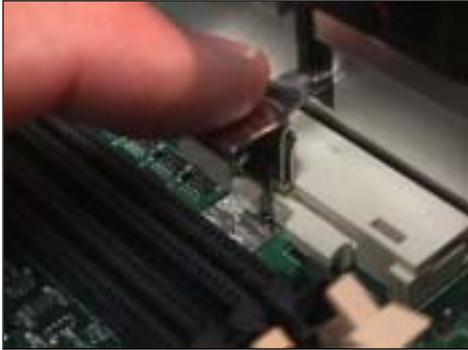
Orient the heatsink with the keyed edge of heatsink along the cam box side of the processor.

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 its socket tab first.

CAUTION: Do not slide the heatsink once it is attached to the processor as the thermal interface



## 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 moset 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 IRQ, otherwise your computer may experience some problem when those two devices are in use at the same time.

### Assigning DMA Channels for ISA Cards

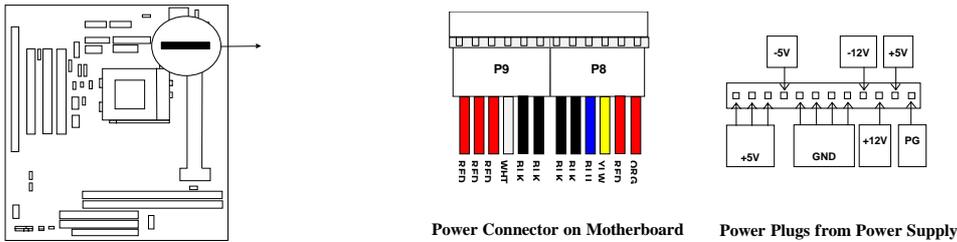
Some devices may also need a DMA (Direct Memory Access) channel. Its assignments for this motherboard are handled same way as the IRQ assignment process described above. The DMA channel is selectable in the PCI and PNP configuration section under BIOS Setup utility.

## 2-9 External Connectors

**1. Power connector: AT Power Connector (12-pin block): PW1**

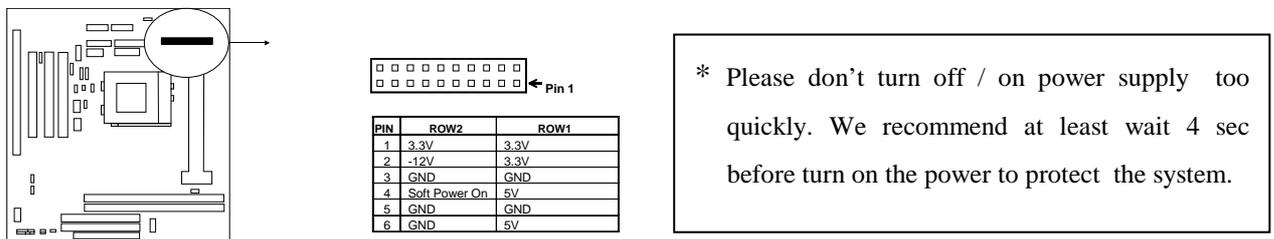
This connector connects to a standard AT power supply. To connect the leads from the power supply, ensure first that the power supply is not plugged. Most power supplies provide two plugs (P8 and P9), each containing six wires, two of which are black. Orient the connectors so that the black wires are located in the middle.

Using a slight angle, align the plastic guide pins on the lead to their receptacles on the connector. Once aligned, press the lead onto the connector until the lead locks into place.



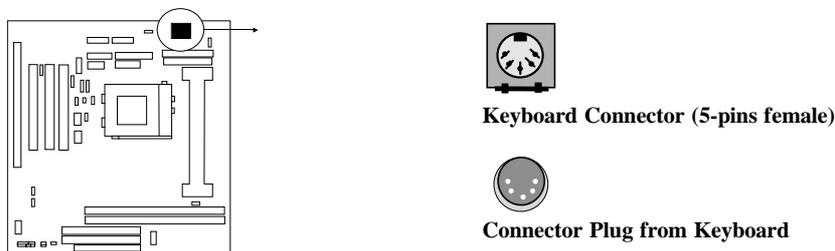
**2. Power Connector: ATX Power Connector (20-pin block): PW2**

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 motherboard. 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.



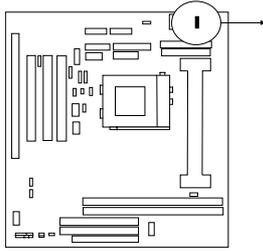
**3. Keyboard Connector (5-pin female): ATKB**

This connection is for a standard IBM-compatible keyboard. May also be known as a 101 enhanced keyboard.

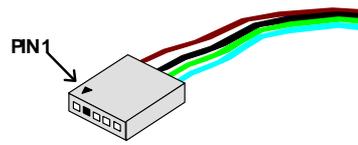


**4. PS/2 Mouse Connector (5-pin block): MS\_PIN1**

If you are using a PS/2 mouse, you must purchase an optional PS/2 mouse set which connects to the 5-pins block and mounts to an open slot on your computer's case.



□	1: DATA
○	2: NC
○	3: GND
○	4: VCC
○	5: CLK



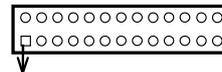
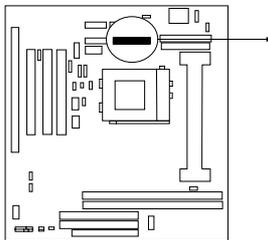
PS/2 Mouse Module Connector

### 5. Parallel Printer Connector (26-pin Block): LPT1

Connection for the enclosed parallel port ribbon cable with mounting bracket. Connect the ribbon cable to this connection and mount the bracket to the case on an open slot. It will then be available for a parallel printer cable.

**NOTE:** Serial printers must be connected to the serial port. You can enable the parallel port and choose the IRQ through BIOS Setup.

LPT

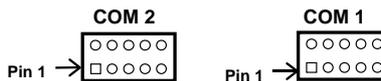
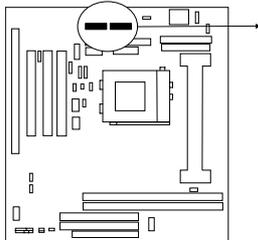


Pin 1

Parallel Printer Connector

### 6. Serial port COMA and COMB Connector (Two 10-pin blocks): COM1, COM2

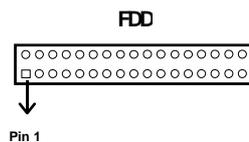
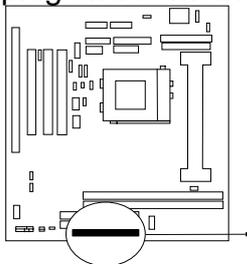
These connectors support the provided serial port ribbon cables with mounting bracket. Connect the ribbon cables to these connectors and mount the bracket to the case on an open slot. The two serial ports on the mounting bracket will then be used for pointing devices or other serial devices. See BIOS configuration of "Onboard Serial Port"



Serial port COMA and COMB Connector

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

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

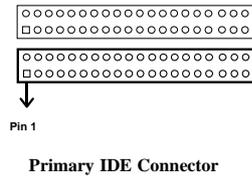
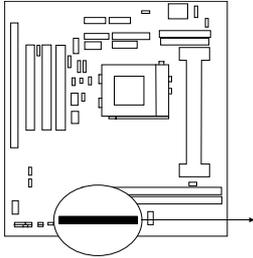


Pin 1

Floppy Drive Connector

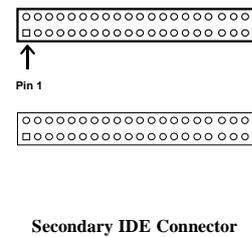
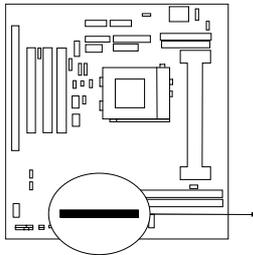
### 8. Primary IDE Connector (40-pin block): IDE1

This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, 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.



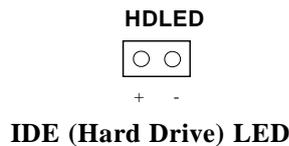
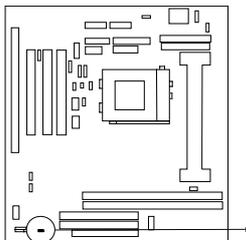
**9. Secondary IDE Connector (40-pin block): IDE2**

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.



**10. IDE activity LED: HDLED**

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



**11. Front Panel Connector:** This 16-pin connector to connect to case front panel switch.

**A. Turbo LED switch: TBLED**

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

**B. Reset switch lead: RST**

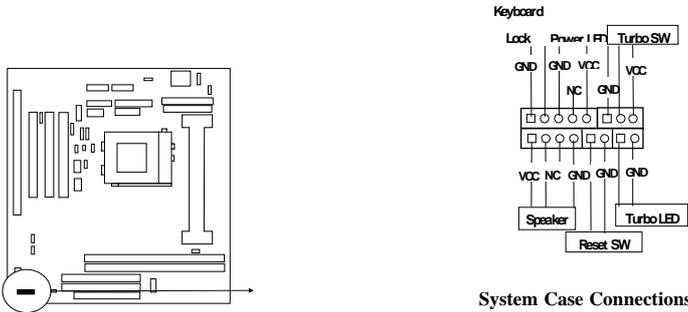
This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply. See the figure below.

**C. Keyboard lock switch lead & Power LED: KEYLOCK & PW**

This 5-pin connector connects to the case-mounted key switch for locking the keyboard for security purposes and Power LED together.

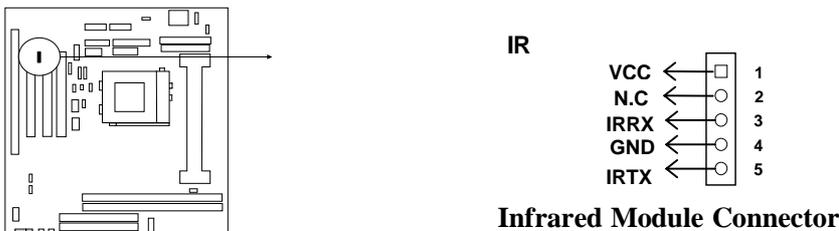
## D. Speaker connector: SPEAKER

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



## 12. IR infrared module connector: IR

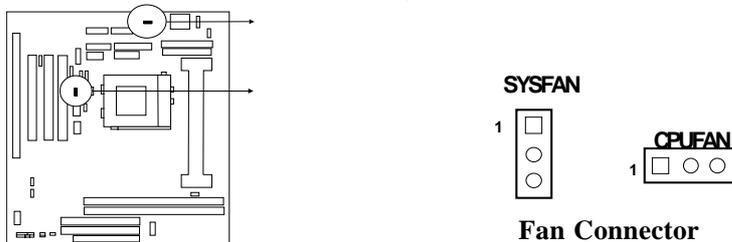
This connector supports the optional wireless transmitting and receiving infrared module. This module mounts to small opening on system cases that support this feature you must also configure the setting through BIOS setup. Use the five pins as shown on the Back View and connect a ribbon cable from the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



## 13. USB Port connector: USB



## 14. FAN connector: CPUFAN , SYSFAN



## 15. ATX Power button/ Soft Power button: PS-ON

When using ATX power, the system power can be controlled by a momentary switch connected to PS-ON. Pushing the button once will switch the system between ON and

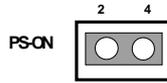
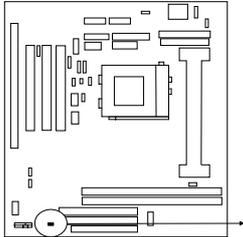
SLEEP. Pushing the switch while in the ON mode more than 4 seconds will turn the system off. The system Power LED shows the status of the system's power.

**Selections**

One touch Power ON/OFF

**PS-ON**

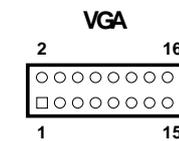
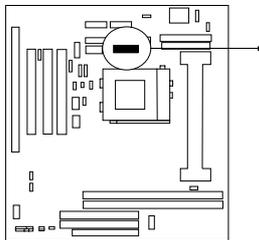
2-4



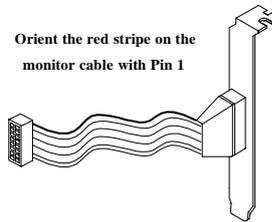
ATX Power button/Soft Power button

**16. VGA connector: VGA**

This connector supports the provided VGA cable with mounting bracket. Connect the ribbon cable to connector and mount the bracket to the case on an open slot .

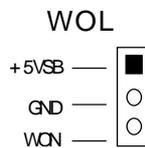
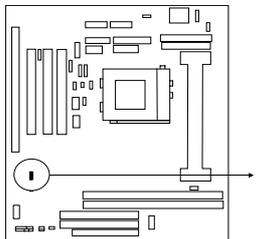


VGA Connector



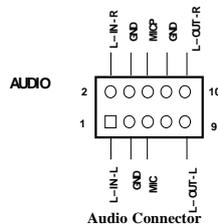
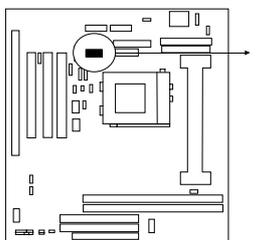
Orient the red stripe on the monitor cable with Pin 1

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

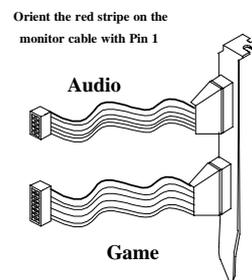


**Jumpers & Connectors (Option for motherboard that embedded Audio Chip)**

**18. Audio connector: Audio**



Audio Connector

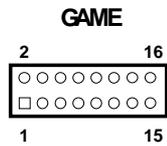
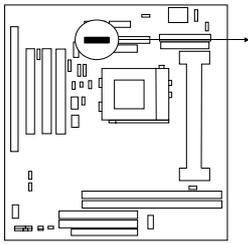


Orient the red stripe on the monitor cable with Pin 1

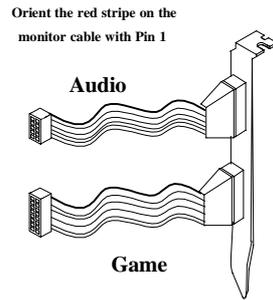
Audio

Game

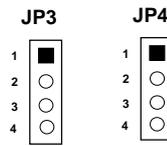
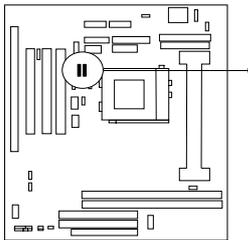
**19. Game Port connector: GAME**



GAME PORT Connector

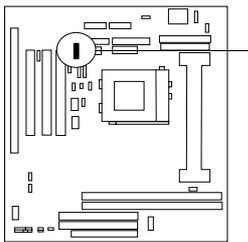


**20. CD-ROM Audio connector: JP3,JP4**

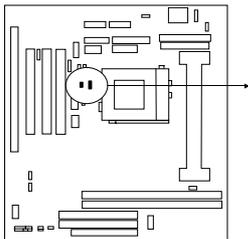


CD-ROM Audio connector

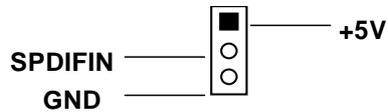
**21. PC Speaker signal Input connector: SPKIN 1**



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

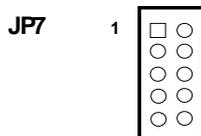
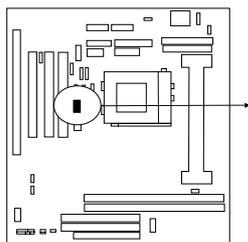


SPDIFOUT



SPDIFIN 1

**23. Optical kit connector: JP7**



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## Chapter 3

### AWARD BIOS SETUP

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 (2A6INJ19)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	PASSWORD SETTING
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
PNP/PCI CONFIGURATION	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
Esc : QUIT : Select Item	
F10 : Save & Exit Setup (Shift) F2 : Change Color	

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

Choose "**STANDARD CMOS SETUP**" in the CMOS SETUP UTILITY Menu (Figure 3-1). The STANDARD CMOS SETUP 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 (2A61MJ19)  
STANDARD CMOS SETUP  
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Tue, Feb, 23 1999	
Time (hh:mm:ss) : 13 : 43 : 56	
<b>HARD DISKS</b>	
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 : 1.44M , 3.5 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 motherboard. Again, user can move the cursor by pressing direction keys and <PgDn> or <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 (2A61NJ19)  
BIOS FEATURES SETUP  
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Enabled	D0000-D3FFF Shadow	: Disabled
Processor Number Feature	: Enabled	D4000-D7FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D8000-DBFFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	DC000-DFFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Enabled		
Boot Up NumLock Status	: On		
Memory Parity Check	: Enabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250	Esc: Quit	: Select Item
Security Option	: Setup	F1 : Help	Pu/Pd/+/-:Modify
PCI/VGA Palette Snoop	: Disabled	F5 : Old Values (Shift)	F2 : Color
OS Select For DRAM > 64MB	: Non-OS2	F6 : Load BIOS Defaults	
HDD S.M.A.R.T capability	: Disabled	F7 : Load Setup Defaults	
Report No FDD For WIN 95	: Yes		

Figure 3-3

*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.*

- Virus Warning:** This category flashes on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, you can run an anti-virus program to locate the problem. Default value is Disabled
 

**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 to 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. The default value is Enable. If your CPU without Internal Cache then this item "CPU Internal Cache" will not be show.
 

**Enabled:** Enable cachehis category speeds up Power On Self Test. (POST) after you power on the computer.

**Disabled:** Disable cache
- Quick Power On Self Test:** If it is set to Enable, BIOS will shorten or skip some check items during POST.
 

**Enabled:** Enable quick POST

**Disabled:** Normal POST
- Boot Sequence:** This category determines which drive computer searches first for the DOS (Disk Operating System). Default value is A,C,SCSI.
 

System will first search for floppy disk drive, then hard disk drive and then SCSI device. The options are: C, A, SCSI; C, CDROM, A; CDROM, C, A; D, A, SCSI; E, A, SCSI; F, A, SCSI; SCSI, A, C; SCSI, C, A; C only; LS/ZIP, C.
- Swap Floppy Drive:** The swap floppy drive. Default value is Disabled.

- Enabled:** Floppy A & B will be swapped under the DOS
- Disabled:** Floppy A & B will be not swap
- **Boot Up Floppy Seek:** During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks. The default value is Enabled.
  - Enabled:** BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks.  
Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
  - Disabled:** BIOS will not search for the type of floppy disk drive by track number.  
Note that there will not be any warning message if the drive installed is 360K.
- **Boot Up NumLock Status:** The default value is On.
  - On:** Keypad is number keys.
  - Off:** Keypad is arrow keys.
- **Boot UP System Speed:** It selects the default system speed-the speed that the system will run at immediately after power up.
  - High:** Set the speed to high.
  - Low:** Set the speed to low.

**NOTE:** The board default value is *LOW* in the field. Boot the system to controller turbo or De-turbo by Onboard (Turbo Switch).

- **Typematic Rate Setting:** This determines the typematic rate.
  - Enabled:** Enable typematic rate and typematic delay programming.
  - Disabled:** Disable typematic rate and typematic delay programming. The system BIOS will use default value of this 2 items and the default is controlled by keyboard.
- **Typematic Rate (Chars/Sec):**

6 : 6 characters per second	8 : 8 characters per second
10 : 10 characters per second	12 : 12 characters per second
15 : 15 characters per second	20 : 20 characters per second
24 : 24 characters per second	30 : 30 characters per second
- **Typematic Delay (Msec):** When holding a key, the time between the first and second character displayed.
  - 250 : 250 msec
  - 500 : 500 msec
  - 750 : 750 msec
  - 1000 : 1000 msec
- **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.

- **Video BIOS Shadow:** It determines whether video BIOS will be copied to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed.

**Enabled:** Video shadow is enabled

**Disabled:** Video shadow is disabled

- C8000 - CBFFF Shadow:
- CC000 - CFFFF Shadow:
- D0000 - D3FFF Shadow:
- D4000 - D7FFF Shadow:
- D8000 - DBFFF Shadow:
- DC000 - DFFFF Shadow:

These categories determine whether optional ROM will be copied to RAM by 16K byte or 32K byte per/unit and the size depends on chipset.

**Enabled:** Optional shadow is enabled.

**Disabled:** Optional shadow is disabled.

### 3-3 CHIPSET FEATURES SETUP

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.

ROM PCI/ISA BIOS (2A6INJ19)  
CHIPSET FEATURES SETUP  
AWARD SOFTWARE , INC

Auto Configuration	: Disabled	PCI Delay Transation	: Disabled
RAS Pulse Width Refresh	: 5T	Auto Detedt DIMM/PCI Ck	: Enabled
RAS Precharge Time	: 3T	Spread Spectrum	: Disabled
RAS to CAS Delay	: 3T	CPU Host/SDRAM Clock	: Default
ISA Bus Clock Frequency	: PCICLK/4	CPU Clock Ratio Jumpless	: Disabled
Starting Point of Paging	: 1T	Processor Core Frequency	: x1.5
SDRAM CAS Latency	: 3T		
SDRAM WR Retite Rate	: X-1-1-1		
CPU to PCI Burst Mem. WR	: Disabled		
System BIOS Cacheable	: Enabled	Esc: Quit	: Select Item
Video RAM Cacheable	: Enabled	F1 : Help	Pu/Pd/+/-:Modify
Memory Hole at 15M-16M	: Disabled	F5 : Old Values (Shift)	F2 : Color
AGP Aperture Size	: 64MB	F6 : Load BIOS Defaults	
Concurrent function(MEM)	: Disabled	F7 : Load Setup Defaults	
Concurrent function(PCI)	: Enabled		
CPU Pipeline Control	: Enabled		

Figure 3-4

- **DRAM Settings:** The first chipset 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 well 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.
- **SDRAM CAS Latency:** When synchronous DRAM is installed, the number of

clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

The choice: 2T, 3T.

- **AGP Aperture Size** : Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. See [www.agpforum.org](http://www.agpforum.org) for APG information.  
The choice: 4 MB, 8MB, 16 MB, 32 MB, 64 MB, 128 MB, 256MB.
- **CPU Host/SDRAM Clock** : Choose CPU Front side Bus clock (Host Clock)/SDRAM Clock  
The choice: 66/66,75/75,83/83,95/95,100/100.
- **CPU Clock Ration Jumpless** : Enable/disable the CPU Clock ration control.  
The choice: Enabled, Disabled.
- **Processor Core Frequency** : Select Ratio.  
The choice: X2.0,X2.5,X3.0,X3.5,X4.0,X4.5,X5.0,X5.5,X6.0,X6.5,X7.0,X7.5,X8.0

### 3-4 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.

ROM PCI/ISA BIOS (2A61NJ19)

POWER MANAGEMENT SETUP

AWARD SOFTWARE, INC.

ACPI function	: Enabled	<b>** PM Events **</b>
Power Management	: User Define	HDD Ports Activity
PM Control by APM	: Yes	: Enabled
Video Off Option	: Susp Stby-> Off	COM Ports Activity
Video Off Method	: V/H SYNC+Blank	: Enabled
Switch Function	: Break/Wake	LPT Ports Activity
Doze Speed (div by)	: 2/8	: Enabled
Stdby Speed(div by)	: 1/8	VGA Activity
MODEM Use IRQ	: 3	: Enabled
Hot Key Function As	: Power OFF	IRQ [3-7 , 9-15], NMI
<b>** PM Monitor **</b>		: Enabled
HDD Off After	: Disable	IRQ 8 Brek Suspend
Doze Mode	: Disable	: Disabled
Standby Mode	: Disable	Power Button Over Ride
Suspend Mode	: Disable	: Instant OFF
		Ring Power Up Control
		: Disabled
		KB Power ON Password
		: Enter
		Power Up by Alarm
		: Disabled
		Esc: Quit
		: Select Item
		F1 : Help
		Pu/Pd/+/-: Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

Figure 3-5

- **ACPI function**: Select *Enabled* if your system has an ACPI function.  
The choice: Enabled, Disabled.
- **Switch Function**: You can choose whether or not to permit your system to enter complete Suspend mode. Suspend mode offers greater power savings, with a correspondingly longer awakening period..  
The choice: Break/Wake, Disabled.
- **Doze Speed (div by)** : Sets the CPU's speed during Doze mode. The speed is reduced to a fraction of the CPU's normal speed. The divisors range from 1 to 8  
The choice: 1~8.

- 
- **Stdby Speed (div by)** : Select a divisor to reduce the CPU speed during *Standby* mode to a fraction of the full CPU speed. The speed is reduced to a fraction of the CPU's normal speed. The divisors range from 1 to 8-0.  
The choice: 1~8
  - **Hot Key Function** : Select *Enabled* your system has a hot key for pany Function.  
The choice: Power off, Suspend, Disabled.
  - **PM Timers** : 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.
  - **HDD Off After** : By default, this item is Disabled, meaning that no matter the mode the rest of the system, the hard drive will remain ready. Otherwise, you have a range of choices from 1 to 15 minutes or Suspend. This means that you can elect to have your hard disk drive be turned off after a selected number of minutes or when the rest of the system goes into a Suspend mode.
  - **HDD Ports Activity** : When set to *On* (default), any event occurring at a HDD (serial) port will awaken a system which has been powered down.
  - **COM Ports Activity** : When set to *On* (default), any event occurring at a hard or floppy drive port will awaken a system which has been powered down.
  - **LPT Ports Activity** : When set to *On* (default), any event occurring at a LPT (printer) port will awaken a system which has been powered down.
  - **VGA Activity** : When set to *On* (default), any event occurring at VGA will awaken a system which has been powered down.  
The following is a list of IRQ's, Interrupt **Re**Quests, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.  
As above, the choices are *On* and *Off*.  
When set *On*, activity will neither prevent the system from going into a power management mode nor awaken it.
    - **IRQ [ 3-7, 9-15], NMI**
    - **IRQ 8 Break Suspend** : You can *Enable* or *Disable* monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend mode.
  - **KB Power ON Password** : When you set a password for keyboard, The password you set the keyboard that returns the system to Full On state.
  - **Power Button Over Ride** : You could press the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."  
The choice: Soft-Off, Delay 4 Sec.
  - **Ring Power Up Control** : When you select *Enabled*, a signal from ring returns the system to Full On state.
  - **Power Up by Alarm** : When you select *Enabled*, the following fields appear. They let you set the alarm that returns the system to Full On state.  
The choice: Enabled, Disabled.

### 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 (2A6INJ19)  
PNP/PCI CONFIGURATION SETUP  
AWARD SOFTWARE, INC.

Resources Controlled By : Manual	
Reset Configuration Data: Disabled	
IRQ-3 assigned to : PCI/ISA PnP	
IRQ-4 assigned to : PCI/ISA PnP	
IRQ-5 assigned to : PCI/ISA PnP	
IRQ-7 assigned to : PCI/ISA PnP	
IRQ-9 assigned to : PCI/ISA PnP	
IRQ-10 assigned to : PCI/ISA PnP	
IRQ-11 assigned to : PCI/ISA PnP	
IRQ-12 assigned to : PCI/ISA PnP	
IRQ-14 assigned to : Legacy ISA	
IRQ-15 assigned to : Legacy ISA	
DMA-0 assigned to : PCI/ISA PnP	
DMA-1 assigned to : PCI/ISA PnP	
DMA-3 assigned to : PCI/ISA PnP	
DMA-5 assigned to : PCI/ISA PnP	
DMA-6 assigned to : PCI/ISA PnP	
DMA-7 assigned to : PCI/ISA PnP	
	Esc: Quit : Select Item
	F1 : Help Pu/Pd/+/-:Modify
	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

Figure 3-6

- **Resource controlled by :**  
The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95.  
The choice: Auto, Manual.
- **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 .
- **IRQ3/4/5/7/9/10/11/12/14/15:**  
When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:  
Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt ( such as IRQ4 for serial port 1). PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.  
The choice: Legacy ISA, PCI/ISA PnP.
- **DMA0/1/3/5/6/7 assigned to:**  
When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:  
Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt ( such as IRQ4 for serial port 1). PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.  
The choice: Legacy ISA, PCI/ISA PnP.

### 3-6 LOAD BIOS DEFAULTS

The "**LOAD BIOS DEFAULTS**" function loads the system 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 (2A6INJ19)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

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

Figure 3-7

### 3-7 LOAD SETUP DEFAULTS

The "LOAD SETUP DEFAULTS" function loads the system 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 (2A6INJ19)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	FORMAT
LOAD BIOS DEFAULTS	UP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : QUIT : Select Item	
F10 : Save & Exit Setup (Shift) F2 : Change Color	
Time, Date, Hard Disk Type...	

Figure 3-8

### 3-8 INTEGRATED PERIPHERALS SETUP

ROM PCI/ISA BIOS (2A6INJ19)  
 INTEGRATED PERIPHERALS  
 AWARD SOFTWARE, INC.

Internal PCI	: Both	PS/2 mouse function	: Enabled
IDE Primary Master PIO	: Auto	USB Controller	: Enabled
IDE Primary Slave PIO	: Auto	USB Keyboard Support	: Disabled
IDE Secondary Master PIO	: Auto	Init Display Frist	: AGP
IDE Secondary Slave PIO	: Auto	VGA Shared Memory Size	: 2MB
Primary Master UltraDMA	: Auto	MDA Support	: Disabled
Primary Slave UtraDMA	: Auto	Current CPU Temperature	: 40°C
Secondary Master UtraDMA	: Auto	Current CPUFAN Speed	: 4500
Secondary Slave UtraDMA	: Auto	Current SYSFAN Speed	: 0
IDE Burst Mode	: Enabled	VCC(V): 5V	Vcc3 : 3.3V
IDE HDD Block Mode	: Enabled	Vcc25 : 2.51V	Vcore : 2.01V
Onboard FDC Controller	: Enabled	Esc: Quit	: Select Item
Onboard Serial Port 1	: 3F8/IRQ4	F1 : Help	Pu/Pd/+/- :Modify
Onboard Serial Port 2	: 2F8/IRQ3	F5 : Old Values	(Shift)F2 : Color
IR Address Select	: Disabled	F6 : Load BIOS Defaults	
Onboard Parallel Port 1	: 378/IRQ7	F7 : Load Setup Defaults	
Parallel Port Mode	: SPP		

Figure 3-9

- **Internal PCI / IDE:** This chipset contains an internal PCI IDE interface with support for two IDE channels.  
The choice: Primary, Secondary, Both.
- **IDE Primary 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, and Mode 4.
- **Primary Master/Slave UltraDMA:** UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. When you select *Auto* in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device.  
The choice: Auto, Disabled.
- **IDE Burst Mode :** Selecting *Enabled* reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to *Disabled*. This field does not appear when the Internal PCI/IDE field, above, is *Disabled*.  
The choice: Enabled, Disabled.
- **Onboard FDD Controller:** This should be enabled if your system has a floppy disk drive (FDD) installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.  
The choice: Enabled, Disabled.
- **Onboard Serial Port 1/Port 2 :** This item allows you to determine access onboard serial port 1/port 2 controller with which I/O address.  
The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.
- **IR Address Select :** Select IR Address.  
Choices are: Disabled, 2F8H, 3E8H, 2E8H.
- **IR Mode :** Select IR Mode.  
Choices are: HP SIR, ASKIR.
- **IR IRQ Select :** Select IRQ for IR.  
Choices are: IRQ3, IRQ4, IRQ10, IRQ11.
- **Onboard Parallel Port 1 :** This item allows you to determine access onboard parallel port controller with which I/O address.  
The choice: 3BC/IRQ7, 378/IRQ7, 278/IRQ5, Disabled.

- **Parallel Port Mode** : Select an operating mode for the onboard parallel (printer) port. Select *Normal*, *Compatible*, or *SPP* unless you are certain your hardware and software both support one of the other available modes.  
The choice: SPP, EPP, ECP, ECP+EPP.
- **ECP Mode Use DMA** : Select a DMA channel for the parallel port for use during ECP mode.  
The choice: 3, 1.
- **PS/2 mouse function** : If your system has a PS/2 mouse port and you install a serial pointing device, select *Disabled*.  
The choice: Enabled, Disabled.
- **USB Controller** : Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.  
The choice: Enabled, Disabled.
- **Init Display First** : This item allows you active which bus first (PCI Slot or AGP first).  
The choice: PCI Slot, AGP. Default value is AGP.
- **MDA Support** : Enable this function allows system to support Monochrome adapter.  
Default value is Disabled.  
The choice: Enabled, Disabled.
- **Current CPUFAN/SYSFAN Speed** : These fields display the *current* speed of up to two CPU fans, if your computer contains a monitoring system.
- **Vcc/Vcc3/Vcc25/Vcore** : These fields display the *current* voltage of up to four voltage input lines, if your computer contains a monitoring system.

### 3-9 PASSWORD SETTING

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:"**
2. 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>.
3. 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 had 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 IDE HDD AUTO DETECTION

The "IDE HDD AUTO DETECTION" utility is a very useful tool especially when you do not know which kind of hard disk type you are using. You can use this utility to detect the correct disk type and install in the system automatically. Also you can set HARD DISK TYPE to "Auto" in the STANDARD CMOS SETUP to have same result. The BIOS will Auto-detect the hard disk size and model on display during POST.

ROM PCI/ISA BIOS (2A61NJ19)  
STANDARD CMOS SETUP  
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Thu, Mar, 12 1998								
Time (hh:mm:ss) : 13 : 43 : 56								
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	:							
Primary Slave	:							
Secondary Master	:							
Sec	Select Secondary Slave Option (N=Skip):N							
	OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
	1 (Y)	0	0	0	0	0	0	NORMAL
Esc	: Quit							: Select Item
F1	: Help			(Shift)F2: Change Color				Pu/Pd/+/- : Modify

Figure 3-10

**NOTE: HDD Modes**

*The Award BIOS supports 3 HDD modes : NORMAL, LBA & LARGE*

### 3-11 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.

### 3-12 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.

## Chapter 4

### 4-1 PC HEALTH MONITOR Driver Quick Installation

§In Windows 95/ Windows 98

- 
- 
- step1: Run "X:\SiS620\HEALTH\SETUP.EXE" file .  
 step2: Selet "Next" to complete install driver.  
 step3: The program will automatic install driver to system if users have  
 question in system Hardware Monitor Setting, please read "HELP"  
 Section in program.

## 4-2 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

---

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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.

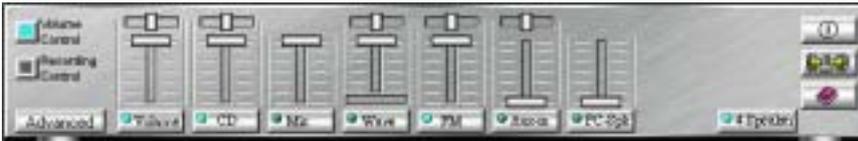
**Current Time field:** displays the current time of files or tracks in minutes and seconds when playback or recording.

*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.

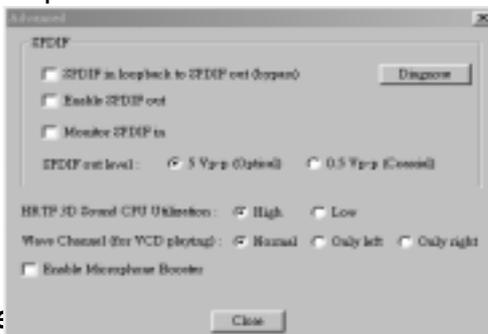
**Recording Control:** Clicking on this button shows and allows you use the input level controls.



**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 the Microphone Booster.

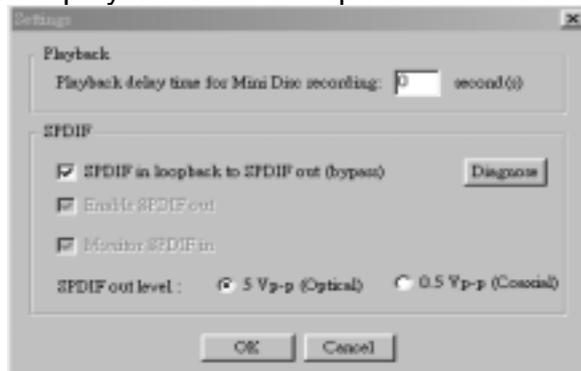


**Mute** button. Clicking on this button mutes the signal. A button with a lit LED is enabled, and when it is not lit, it means it is mute. Several *output* signals can usually be enabled at once.

**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.

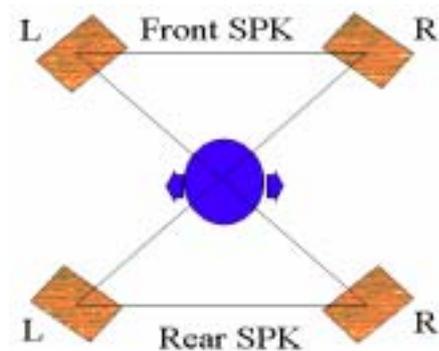
### The 4 Speakers System

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

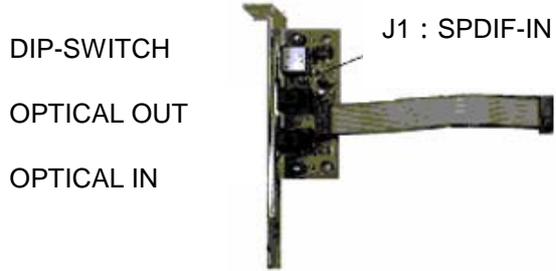
Execute the "Helicopter" demo within the C3D HRTF Positional Audio Demos of this audio adapter. When the helicopter flies behind you, the rear speakers will work.

### 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

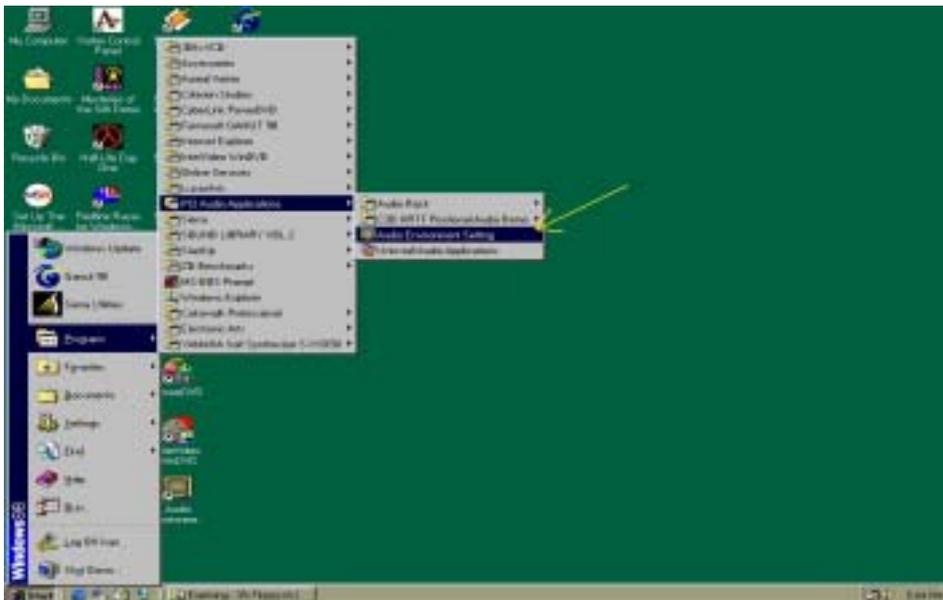


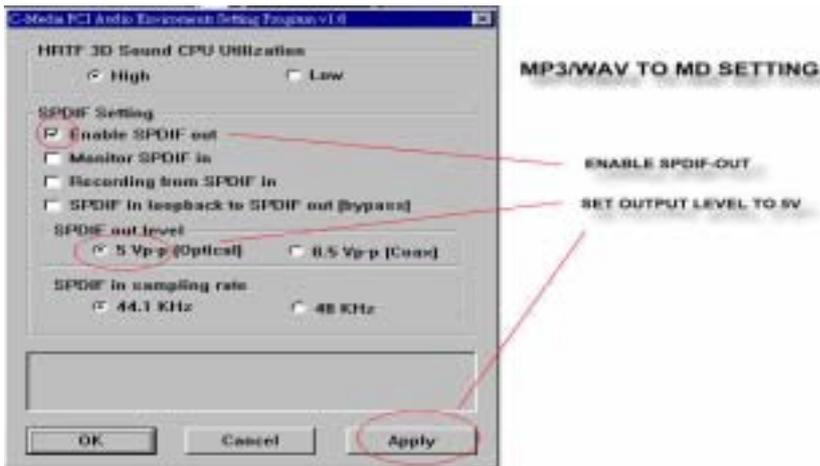
An example of optical kit with MD connection.



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**



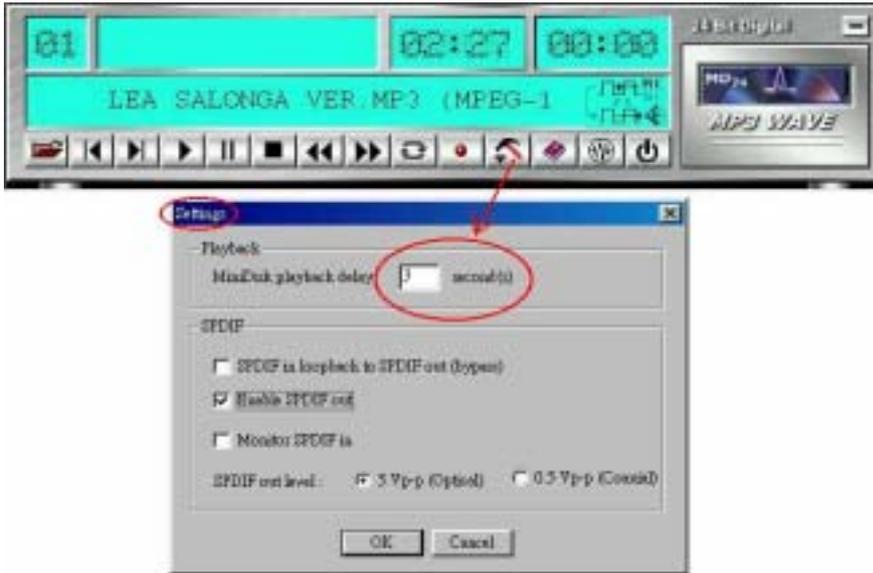


When all the procedures have been completed, there will be an infrared signal coming from the SPDIF/OUT of the optical fiber of the sound card.



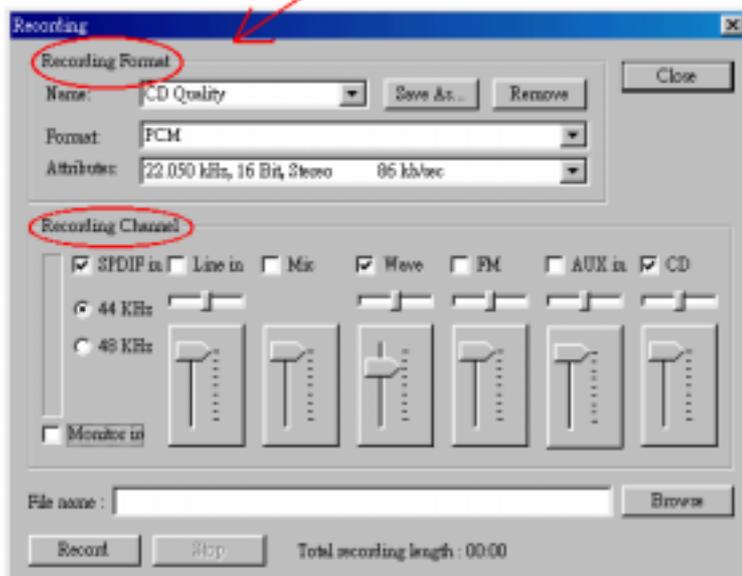
Please note that signal beam may cause severe damage to the eyes. For your safety, please point the output end to a piece of white paper to check if the beam is in function. Please connect the output signal to the MD input, then play the music via the MP3 player.





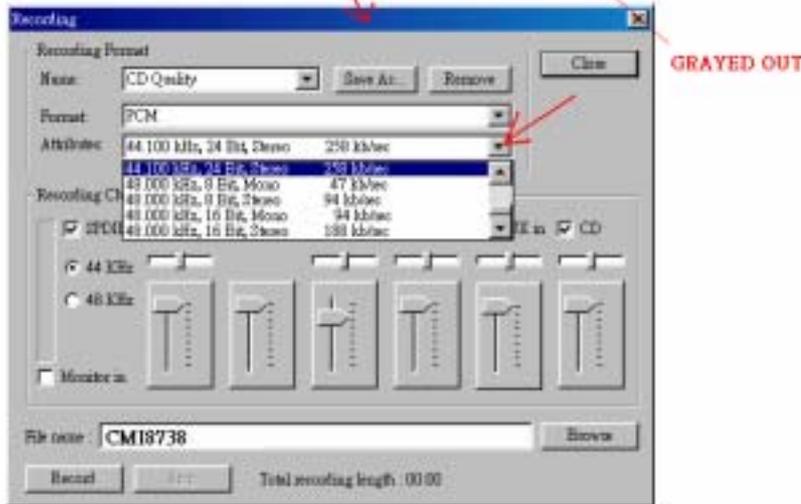
**CHANGE DELAY TIME FOR MD AUTO-SYNC MODE**

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**

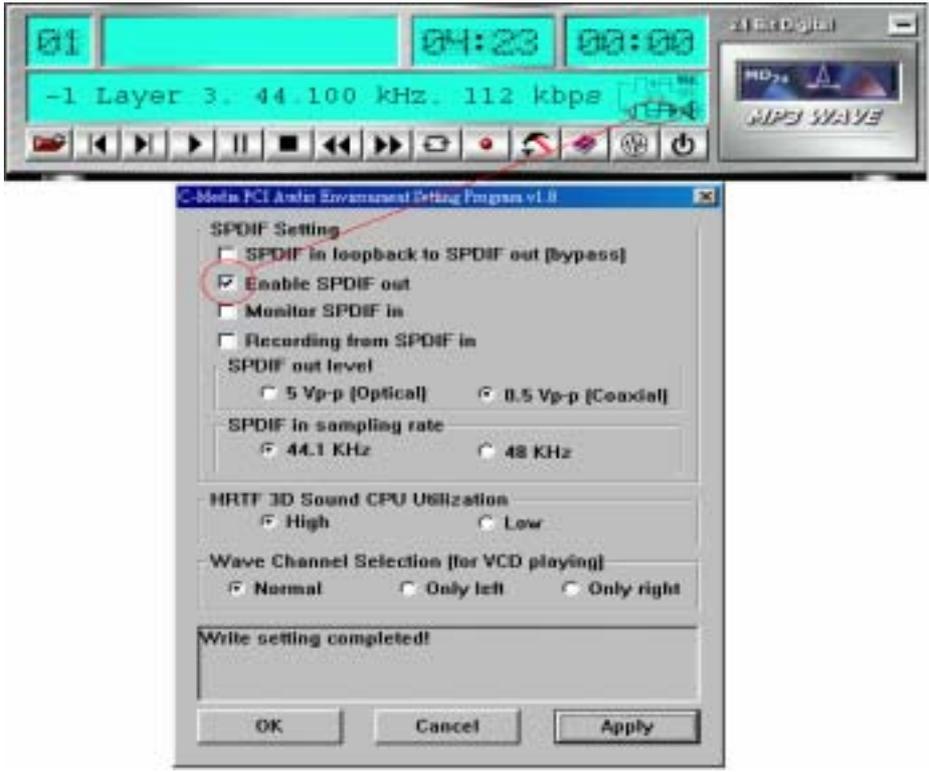
**About Recording 24bit Audio Setting**



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

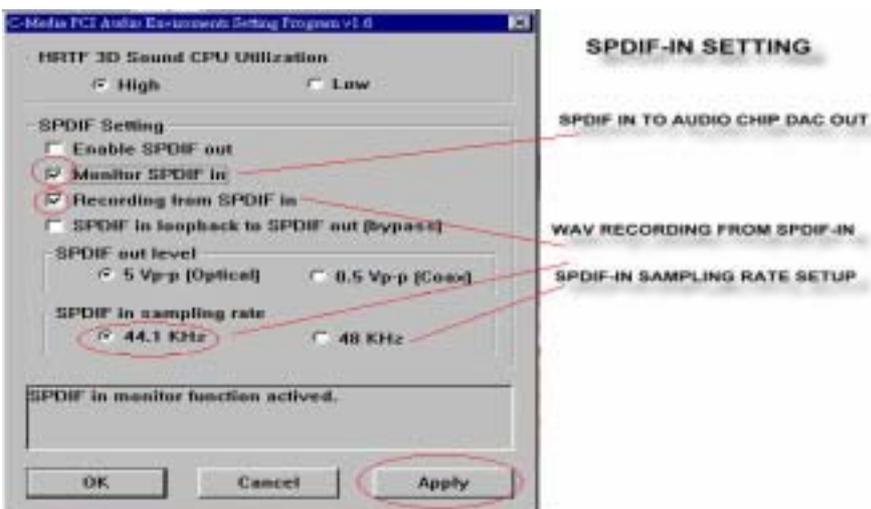
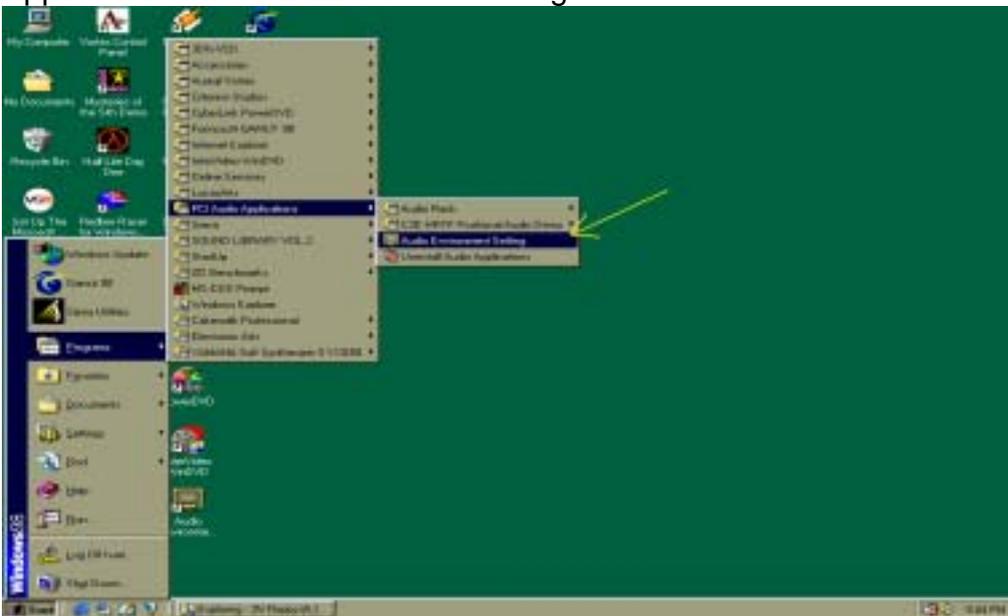
An example of Portable CD Player(Output) to Main Board (Optical Input) Setup





OPTICAL IN/OUT LINK TO MINIDISC DECK

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



Loopback(bypass)mode setup

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## CD ROM(Digital Output) to SPDIF/IN Setup

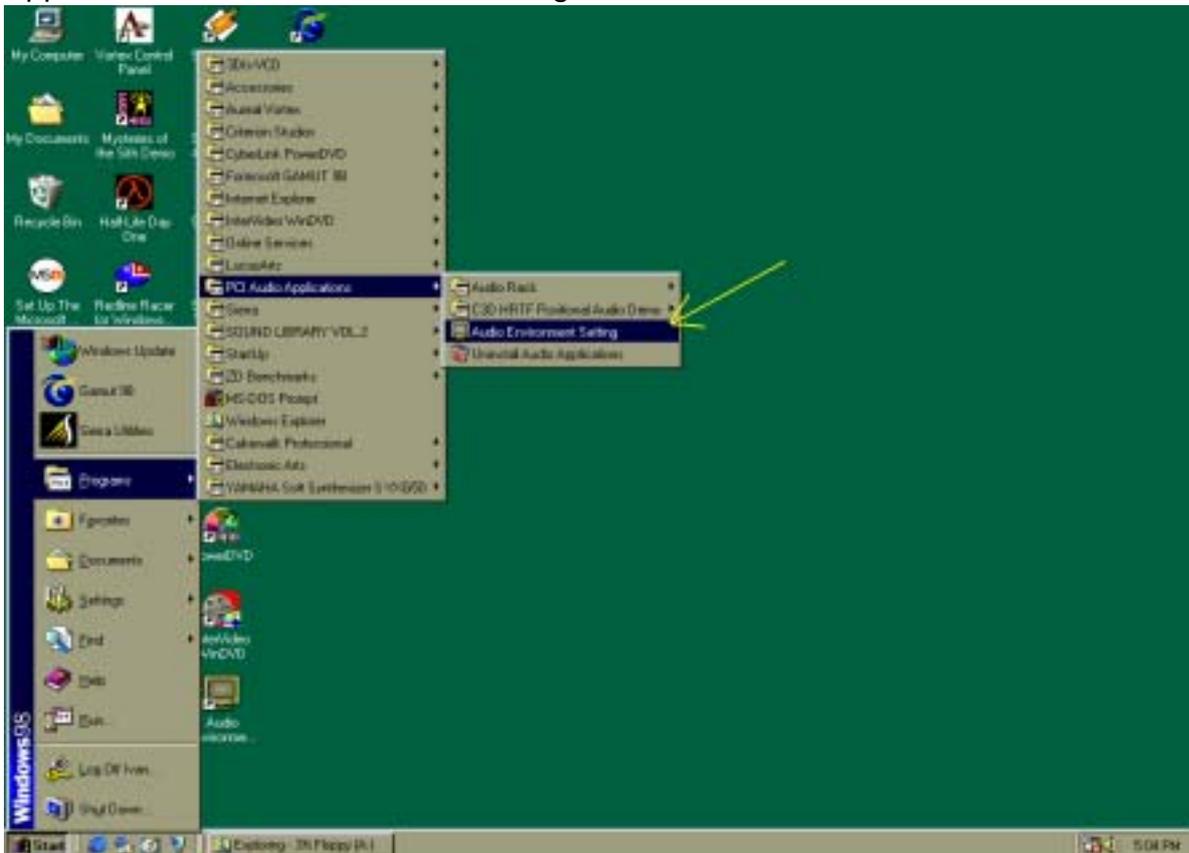


CD-ROM DIGITAL OUT

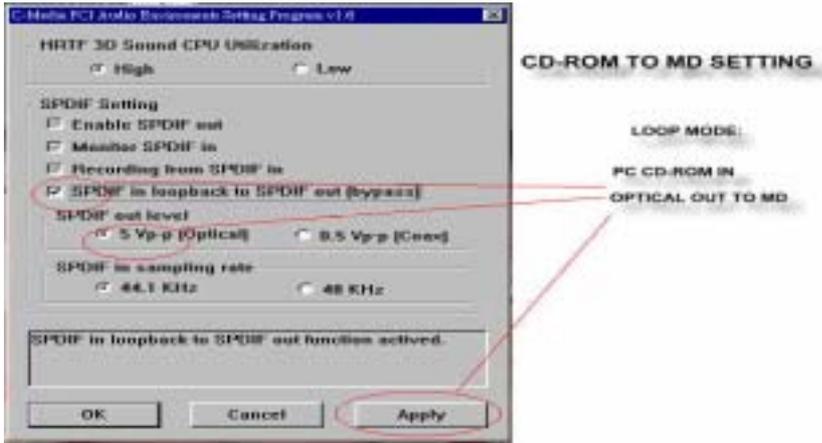
CD-ROM DIGITAL OUT TO SPDIF-IN



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.