

# ***531CF***

## ***USER'S MANUAL***

### ***3D AGP VGA / 3D Audio M/B***

### ***FOR Pentium® processor***

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. G03-531CFR6A*

**Release date: SEP 2000**

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

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## APPENDIX-A Magic Install

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# Chapter 1

## 2-3- Preface

Thank you for chosen [531CF](#) mainboard. This mainboard is based on Pentium® processor PC/AT compatible system with ISA bus and PCI local bus. This board has including some special designs, such as share memory 3D AGP VGA on-board, 3D Stereo Sound System audio chip on-board, ACPI/APM power management along with many other powerful features. We think you will enjoy your personal computer because of your right choice.

## 1-2 Overview

- **Support 100MHz Bus Frequency processor.**
- **Support SDRAM clock selectable in 100MHz by jumper setting in order to allow user has wider choice of SDRAM.**
- **Provide PC Health Monitoring to track CPU temperature, CPU/SYSTEM FAN Speed and system voltage.**
- **Built-In High performance 3D AGP VGA:**
  - \* Support share memory 2MB to 8MB selectable in BIOS SETUP.
  - \* 64 bits memory data interface.
  - \* 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.
  - \* Integrated a high performance and high quality 3D engine.
  - \* Support DIC, Direct Draw Driver.
  - \* Support AGP Spec.1.0 compliant, 1x mode(66MHz), 2x mode(133MHz).
- **Built in high quality PCI-Based HRTF 3D Extension Positional 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 Aureal A3D™ interface.
  - \* Digital functions that capable to provide hi-fi stereo, Dolby, 3D surround effects, and playing MP3 music.
- You can add our Fiber Optic upgrade kit (Optional) for super high quality sound transaction, such as playing MD/CD; MD recording; CD-ROM directly recording to MD; (This upgrade kit includes Optical Module, Optical Cable).

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## 1-3 Key Feature

- **Multi-Speed Support** : support 66/75/83/95/100MHz Host Bus Frequency for Intel Pentium® processor with MMX™ technology ,AMD K5/K6™/K6-2/K6-3,Cyrix 6x86 M1/M2,IDT Winchip™/Winchip2™ CPU on a ZIF Socket7.
- **Chipset**: SiS 530/5595 AGPset chip with I/O subsystems and CMI 8738 PCI Audio chip.
- **L2 Cache** : Provide on board 512K/1MB Pipelined Burst SRAM to increase system performance.
- **DRAM Memory Support**: support Two 168-pin DIMMS (3.3V) from a memory size between 8MB to 512MB.
- **ISA and PCI expansion Slots**: Provides one 16-bit ISA slots, three PCI slots.
- **Super Multi-I/O**: Provides two high-Speed UART compatible serial ports and one parallel port with EPP and ECP capabilities. UART2 can also be directed to the Infrared Module for wireless connections. 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 33/66 Mbyte/Sec.
- **ACPI supporting for OS Directed Power Management.**
  - Keyboard Password Power On**: When with JP5 set to Enabled, you can choose "power on" function by using password within BIOS to control your power supply to power –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
  - 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.
  - Software off when uses 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**: This motherboard supports an optional infrared port modul module for wireless interface.
- **USB Port Connector**: This motherboard supports two USB port connectors for USB devices.
- **Micro ATX Form Factor**: Dimensions 19cm x 24.5cm.

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## Chapter 2

### Hardware Installation

#### 2-3- Unpacking

This mainboard package should contain the following:

- The 531CF mainboard
- USER'S MANUAL for mainboard
- Cable set for IDE x1, Floppy x1, COM x1
- CD for Drivers PACK

The mainboard contains sensitive electronic components that can be easily damaged by electrostatic, 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 Micro ATX system board.

It is assumed that the chassis is designed for a Micro 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.



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

### *Jumpers*

Jumper	Name	Description	Page
JP9	CPU Voltage Selection	ON:Short , OFF:Open	<a href="#">p. 6</a>
JP10,JP11	CPU Bus Frequency Selection	ON:Short , OFF:Open	<a href="#">p. 6</a>
JP12	CMOS RAM Clear	2-3 Normal , 1-2 Clear CMOS	<a href="#">p. 8</a>
JP3	Audio chip Enabled/Disabled	2-3 : Enabled, 1-2 : Disabled	<a href="#">p.14</a>
JP5	Keyboard power on function	1-2 : Disabled, 2-3 : Enabled	<a href="#">p.15</a>

### *Connectors*

Connector	Name	Description	Page
PW1	ATX Power Connector	20-Pin Block	<a href="#">p. 9</a>
KBMS1	PS/2 Keyboard/PS/2 Mouse	6-Pin Female	<a href="#">p.10</a>
USB	USB Port Connector	5-Pin Connector	<a href="#">p.13</a>
LPT1	Parallel Port Connector	26-Pin Female	<a href="#">p.10</a>
VGA1	VGA Connector	15-Pin Female	<a href="#">p.10</a>
GAME PORT	Line IN/Line Out/MIC /Game Port Connector	15-pin Connector + 3 phone jack	<a href="#">p.11</a>
COM1	Serial Port COM1	10-Pin Block	<a href="#">p.10</a>
COM2	Serial Port COM2	10-Pin Block	<a href="#">p.10</a>
FDD	Floppy Driver Connector	34-Pin Block	<a href="#">p.11</a>
IDE1	Primary IDE Connector	40-Pin Block	<a href="#">p.11</a>
IDE2	Secondary IDE Connector	40-Pin Block	<a href="#">p.11</a>
HDLED	IDE activity LED	2-Pin Connector	<a href="#">p.12</a>
Case Connections	Front Panel Connector	16-Pin Block	<a href="#">p.12</a>
IR1	Infrared Module Connector	5-Pin Block	<a href="#">p.12</a>
CPUFAN/SYSFAN	FAN Connector	3-Pin Block	<a href="#">p.13</a>
PS-ON	ATX power button/soft power button	2-Pin Connector	<a href="#">p.13</a>
JP6	CD-Audio/Panasonic	4-pin Block	<a href="#">p.14</a>
JP7	CD-Audio/Sony	4-pin Block	<a href="#">p.14</a>
WOL	Wake On LAN	3-pin Block	<a href="#">P.14</a>
JP1	AUX Connector	4-pin Block	<a href="#">p.15</a>
SPKIN	PC Speaker In	2-pin Block	<a href="#">p.14</a>
SPDIFIN	SPDIFIN (Sony/Philips Digital Interface)	3-pin Block	<a href="#">p.15</a>
SPDIFOUT	SPDIFOUT (Sony/Philips Digital Interface)	2-pin Block	<a href="#">p.15</a>
JP2	Opticl Kit Connector	10-pin Block	<a href="#">p.15</a>

### *Expansion Slots*

Socket/Slot	Name	Description
DIMM1,DIMM2	DIMM Module Socket	168-Pins DIMM SDRAM Module Expansion Socket
Zip Socket7	CPU Socket	Socket for Central Processing Unit (CPU)
ISA1	ISA Slot	16-bits ISA Bus Expansion slots
PCI1, PCI2,PCI3	PCI Slot	32-bits PCI Local Bus Expansion slots

## 2-3-1 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

## 2-3-2 Jumper Settings

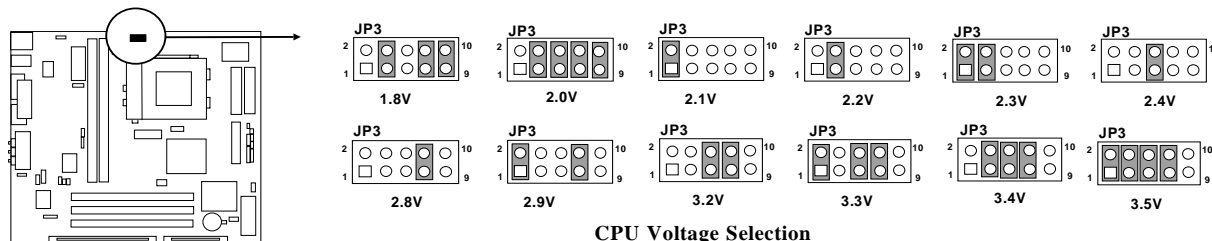
### CPU Voltage Selection: JP9 (2x5pin Block)

This jumper is used for adjusting CPU working voltage, for this main board design it can auto detect the single voltage CPU or dual voltage CPU.

The table of JP9 CPU voltage selection

JP9	1-2	3-4	5-6	7-8	9-10
1.8V	OFF	ON	OFF	ON	ON
2.0V	OFF	ON	ON	ON	ON
2.1V	ON	OFF	OFF	OFF	OFF
2.2V	OFF	ON	OFF	OFF	OFF
2.3V	ON	ON	OFF	OFF	OFF
2.4V	OFF	OFF	ON	OFF	OFF
2.8V	OFF	OFF	OFF	ON	OFF
2.9V	ON	OFF	OFF	ON	OFF
3.2V	OFF	OFF	ON	ON	OFF
3.3V	ON	OFF	ON	ON	OFF
3.4V	OFF	ON	ON	ON	OFF
3.5V	ON	ON	ON	ON	OFF

\* If your CPU Type is not including in above table, please refer to the CPU voltage selection on below to choose the correct working voltage for your CPU.



CPU Voltage Selection

### CPU Type selection:

This mainboard designs JP10 to select the CPU external clock (Host Bus Frequency) and JP11 to select the CPU Bus Frequency ratio, the external clock frequency multiplied by Bus frequency ratio is the CPU frequency as the tables below:

#### • Table for CPU external frequency / SDRAM Clock setting : JP10

FS0	FS1	FS2	SD	CPU Bus Clock	SDRAM Clock	PCI Clock
ON	ON	ON	OFF	66 MHz	66 MHz	33
ON	ON	ON	ON	66 MHz	100 MHz	33
OFF	ON	ON	OFF	75 MHz	75 MHz	30
ON	OFF	ON	OFF	83 MHz	83 MHz	33
OFF	ON	ON	ON	90 MHz	90 MHz	30
OFF	OFF	ON	OFF	95 MHz	95 MHz	31
ON	OFF	ON	ON	95 MHz	63 MHz *	31
ON	ON	OFF	OFF	100 MHz	100 MHz *	33.3



FS0	FS1	FS2	SD	CPU Bus Clock	SDRAM Clock	PCI Clock
OFF	OFF	ON	ON	100 MHz	66 MHz *	33
ON	ON	OFF	ON	100 MHz	75 MHz *	30
OFF	ON	OFF	OFF	112 MHz	112 MHz *	37
OFF	ON	OFF	ON	112 MHz	74 MHz *	37
ON	OFF	OFF	OFF	124 MHz	124 MHz	31
ON	OFF	OFF	ON	124 MHz	82 MHz	31
OFF	OFF	OFF	OFF	133 MHz	133 MHz	33
OFF	OFF	OFF	ON	133 MHz	89 MHz	33

**SDRAM Clock Asynchronous as CPU Bus frequency let user can use slow speed SDRAM when CPU clock over 83MHz.**

• **Table for CPU ratio selector : JP11**

CPU ratio	BF0	BF1	BF2
1.5 X / 3.5 X	OFF	OFF	OFF
2.0 X	ON	OFF	OFF
2.5 X	ON	ON	OFF
3.0 X	OFF	ON	OFF
4.0 X	ON	OFF	ON
4.5 X	ON	ON	ON
5.0 X	OFF	ON	ON
5.5 x	OFF	OFF	ON

**Table for CPU Type selection . S : short O : open**

CPU Type	JP10 (Bus clock)				JP11 (clock ratio)			Bus clock	Clock ratio
	SD	FS2	FS1	FS0	BF0	BF1	BF2		
233MHz Pentium processor with MMX technology AMD K6-233 Cyrix 6X86 MII 300	O	S	S	S	O	O	O	66MHz	3.5X
200MHz Pentium processor with MMX technology AMD K6-200 Cyrix/IBM 6X86 MII 233	O	S	S	S	O	S	O	66MHz	3.0X
AMD K6/266 AMD K6-2/266	O	S	S	S	S	O	S	66MHz	4.0X
AMD K6/300	O	S	S	S	S	S	S	66MHz	4.5X
AMD K6-2/300	O	O	S	S	O	S	O	100MHz	3.0X
AMD K6-2/333	O	S	O	O	O	O	O	95MHz	3.5X
AMD K6-2/350	O	O	S	S	O	O	O	100MHz	3.5X
AMD K6-2/366	O	S	S	S	O	O	S	66MHz	5.5X
AMD K6-2/400	O	O	S	S	O	O	S	100MHz	4.0X
AMD K6-3/400	O	O	S	S	S	O	S	100MHz	4.0X
AMD K6-2/450	O	O	S	S	S	S	S	100MHz	4.5X
AMD K6-3/450	O	O	S	S	S	S	S	100MHz	4.5X
AMD K6-2/475	O	S	O	O	O	S	S	95MHz	5.0X
AMD K6-2/500, K6-3/500	O	O	S	S	O	S	S	100MHz	5.0X
AMD K6-2/550, K6-3/550	O	O	S	S	O	O	S	100MHz	5.5X
Cyrix MII-333	O	S	O	S	O	S	O	83MHz	3.0X
Cyrix MII-333	O	S	S	O	O	O	O	75MHz	3.5X
Cyrix MII-366	O	O	S	S	S	S	O	100MHz	2.5X
Cyrix MII-400	O	S	O	O	O	S	O	95MHz	3.0X
Cyrix MII-433	O	O	S	S	O	S	O	100MHz	3.0X
IDT Winchip-225	O	S	S	O	O	S	O	75MHz	3.0X
IDT Winchip2-300	O	O	S	S	S	S	O	100MHz	2.5X

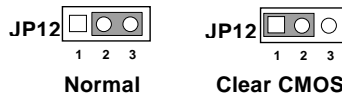
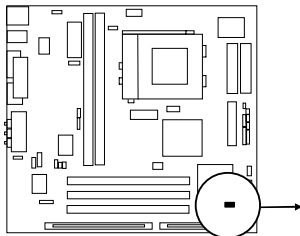
- NOTE:** 1. Before installing the CPU, Please check the CPU Frequency and Clock Ratio from your supplier.  
 2. For Cyrix/IBM 6X86MX series, please double check the CPU's Frequency and Clock Ratio.

**1. CMOS RAM: JP12 (Yellow color selector)**

**WARNING:** Make sure your computer is POWER OFF when you are 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).

<b><u>Selections</u></b>	<b><u>JP12</u></b>
Normal	2-3 (Default)
Clear CMOS	1-2 (momentarily)



CMOS RAM (Normal / Clear CMOS Data)

### 2-3-3 System Memory (DRAM)

This main board supports two 168-pins DIMM modules, the Max Memory Size is 512MB Because of the VGA share memory function, the system must always occupy BANK0 (DIMM1) to booting.

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

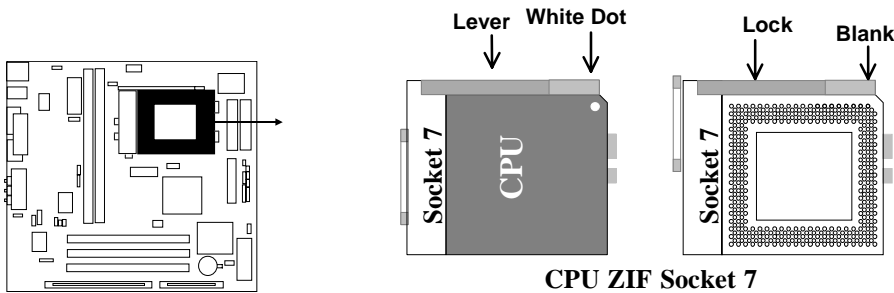
### 2-4 Central Processing Unit (CPU)

The main board provides a 321-pins ZIF Socket 7. The CPU on mother board must have a fan attached to prevent overheating.

**WARNING:** Without a fan, the CPU will be overheated 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 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 must set jumpers JP10,JP11 “CPU Type selector” on [page 6](#) and jumper JP9 “CPU Voltage Selection” on [page 6](#) depending on the CPU that you install.



## 2-5 Expansion Cards

First read your expansion card documentation on any hardware and software settings that may be required to setup your specific card.

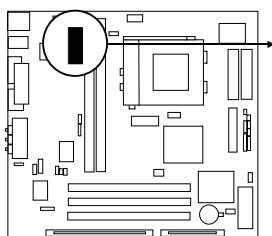
### Installation Procedure:

1. Read the documentation for 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.

## 2-6 External Connectors

### 1. ATX Power Connector (20-pins block): PW1

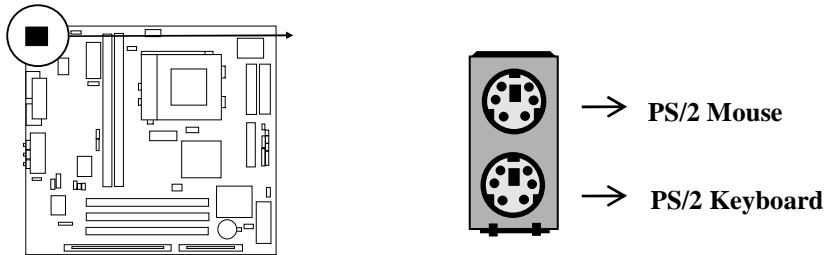
ATX Power Supply connector. This is a new defined 20-pin connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pin Power On jumper pole on the motherboard. When the power switch on the back of the ATX 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.( \* **Please wait atleast 4sec , when turn off and turn on the power .** )



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

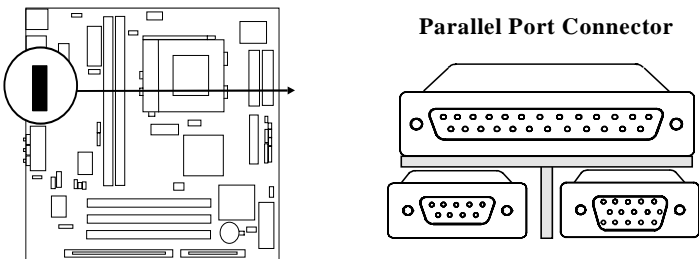
### 2. PS/2 Mouse & PS/2 Keyboard Connector: KBMS1

The PS/2 Keyboard is a 6-pin miniature DIN connector. It is for a standard PS/2 style keyboard. May also be known as a 101 enhanced keyboard. The PS/2 Mouse connector is a similar 6-pin, miniature DIN connector.



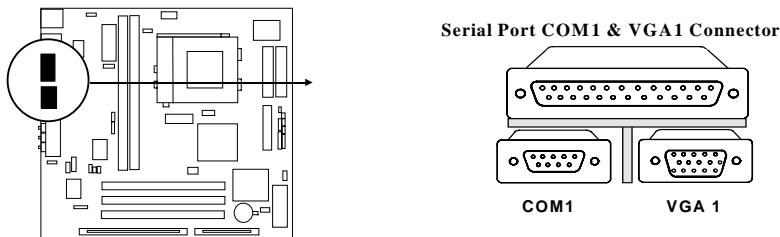
### 3. Parallel Port Connector (25-pin female): LPT1

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.



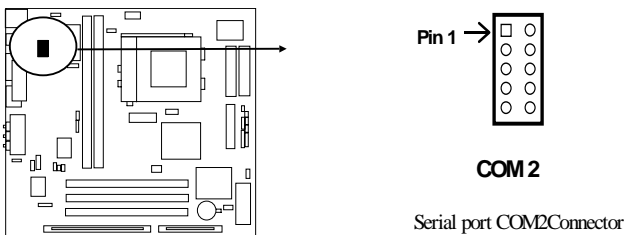
### 4. Serial Port COM1 and VGA Connector: COM1, VGA1

COM1 is the 9-pin D-Subminiature mail connector. VGA1 is the 15-pin D-Subminiature Receptacle 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.



### 5. Serial Port COM2 Connector: COM2

This connector support the provided serial port ribbon cabled with mounting braket, Connect the ribbon cable to this connector and mount the raket to the case on an open slot.



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## 6. Audio and Game Connector : GAME PORT

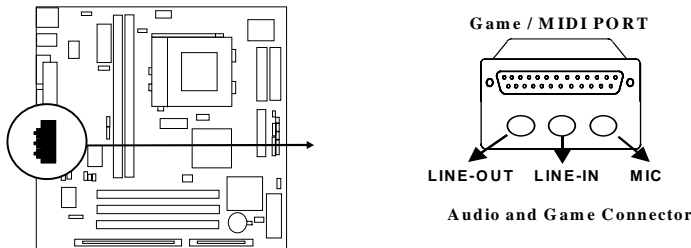
This Connector are 3 phone Jack for LINE-OUT,LINE-IN,MIC and a 15-pin D-Subminiature Receptacle Connector for joystick/MIDI Device.

Line-out : audio output to speaker

Line-in : audio input to sound chip

MIC : Microphone Connector

Game/MIDI : for joystick or MIDI Device



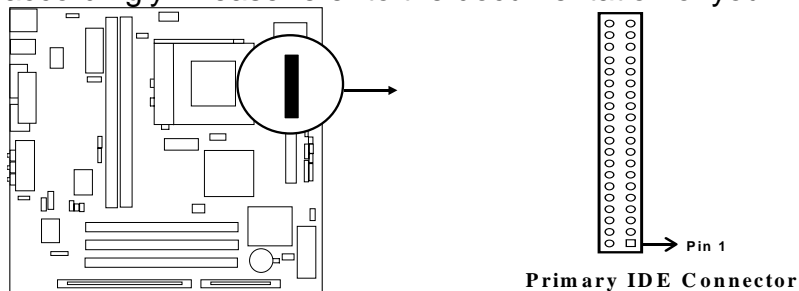
## 7. Floppy drive Connector (34-pins block): FDD

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.



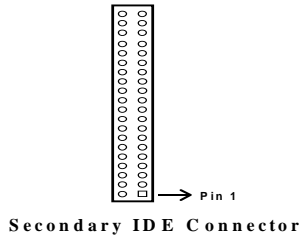
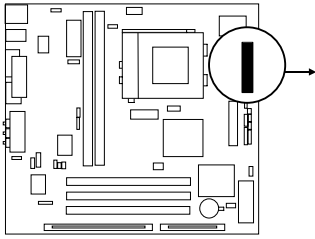
## 8. Primary IDE Connector (40-pins block): IDE1

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.



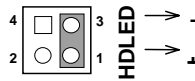
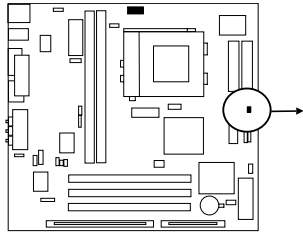
## 9. Secondary IDE Connector (40-pins block): IDE2

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. 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 wish to connect the Power LED from the system case to this lead. See the figure below.

**12. Reset switch lead: RESET**

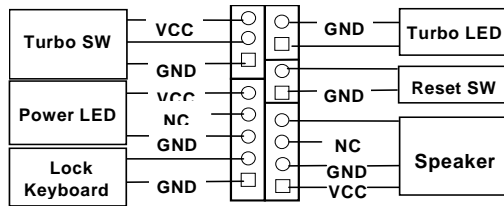
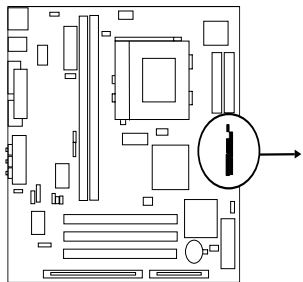
This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply. See the figure below.

**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: SPK**

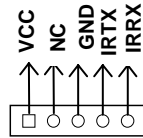
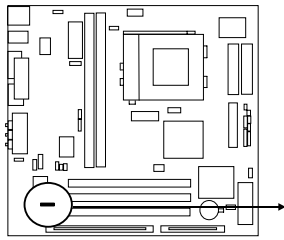
This 4-pins connector connects to the case-mounted speaker. See the figure below.



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 motherboard according to the pin definitions.

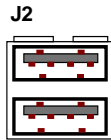
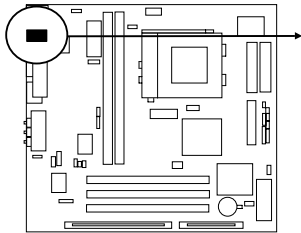


**IR1**

**Infrared Module Connector**

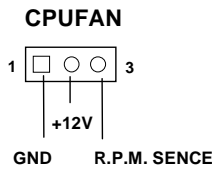
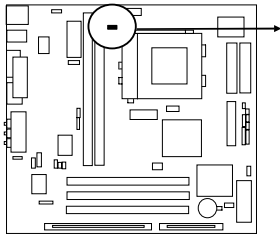
**16. USB Port connector: USB**

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



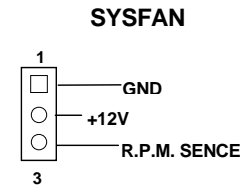
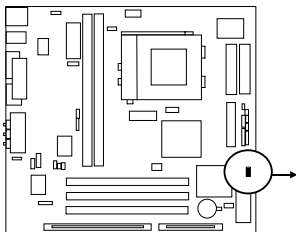
**USB Port Connector**

**17. CPU FAN connector: CPUFAN**



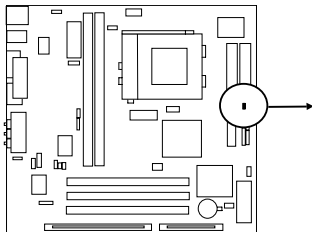
**CPU Fan Connector**

**18. Extra fanning system connectors: SYSFAN**



**SYSTEM Fan Connector**

**19. Power-On button connector: PS-ON (PWR BTN 2&4)**



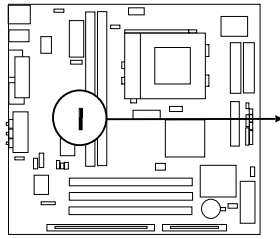
**Power-On button connector**

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## 20. CD Audio in connector : JP6 JP7

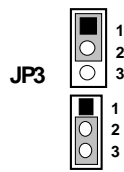
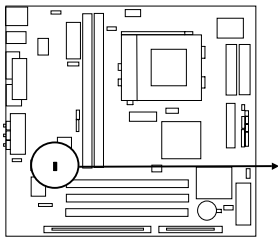
These two connectors are design for two type of CD-ROM output cable.



Panasonic Compatible Sony Compatible

**CD-ROM Audio connector**

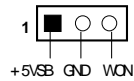
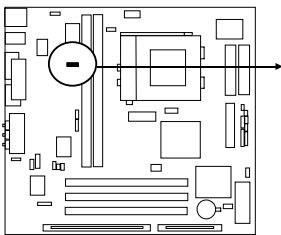
## 21. On board sound chip Enabled / Disabled connector : JP3



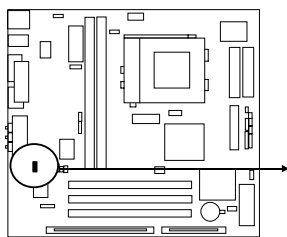
1-2 Closed: Disabled

2-3 Closed: Enabled (Default)

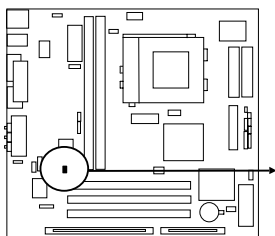
## 22. Wake On Lan connector: WOL



## 23. Auxiiary Input connector: JP1

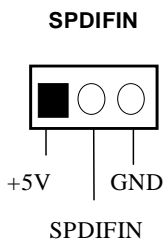
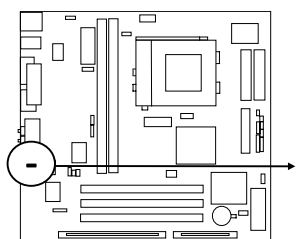


## 24. PC Speaker signal Input connesr: SPKIN

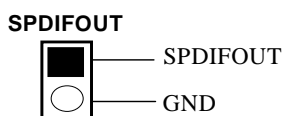
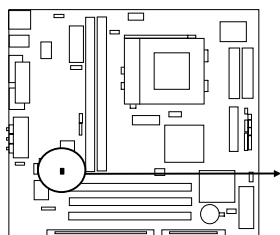


## 25.SPDIFF IN (Sony / Philips Digital Interface ) Connectors : SPDIFIN

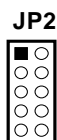
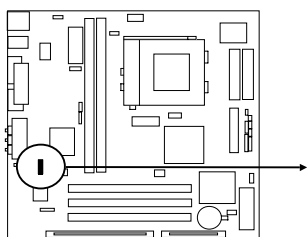




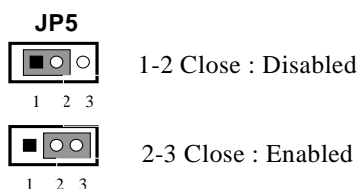
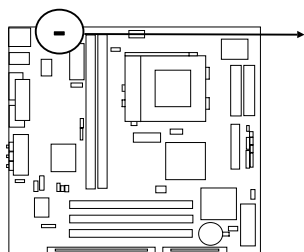
**26. SPDIFOUT (Sony / Philips Digital Interface ) Connectors : SPDIFOUT**



**27. Opticl kit connector :JP2**



**28. Keyboard Power on Selection Connector :JP5**



**Chapter 3**

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## AWARD BIOS SETUP

This motherboard 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 (2A51MJ1A)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
PNP/PCI CONFIGURATION	
LOAD OPTIMAL DEFAULTS	
LOAD STANDARD 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 (2A51MJ1A)  
STANDARD CMOS SETUP  
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Fri, Dec, 18 1998									
Time (hh:mm:ss) : 20 : 19 : 7									
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE	
Primary Master	: Auto	0	0	0	0	0	0	0	NORMAL
Primary Slave	: Auto	0	0	0	0	0	0	0	NORMAL
Secondary Master	: Auto	0	0	0	0	0	0	0	NORMAL
Secondary Slave	: Auto	0	0	0	0	0	0	0	NORMAL
Drive A	: None								
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 (2A51MJ1A)  
 BIOS FEATURES SETUP  
 AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: 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		
Memory Parity Check	: Enabled		
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
OS Select For DRAM > 64MB	: Non-OS2	F1 : Help	Pu/Pd/+/-:Modify
Report No FDD For WIN 95	: No	F5 : Old Values	(Shift)F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

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.*

### 3-3 CHIPSET FEATURES SETUP

This section describes features of the SiS 530 AGP set . 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 (2A51MJ1A)  
 CHIPSET FEATURES SETUP  
 AWARD SOFTWARE , INC

Auto Configuration	: Enabled	System BIOS Cacheable	: Enabled
Refresh Rate Control	: 15.6us	Video BIOS Cacheable	: Enabled
Ref/Act Command Delay	: 6T	Memory Hole at 15M-16M	: Disabled
Refresh Queue Depth	: 12	DRAM Controller 1 T WR	: Enabled
RAS Precharge Time	: 3T	DRAM Controller 1 T RD	: Enabled
RAS to CAS Delay	: 3T	PCI Post Write Buffer	: Enabled
ISA Bus clock Frequency	: PCICLK/4	PCI Delayed Transaction	: Disabled
Starting Point of Paging	: 1T	Auto Detect DIMM/PCI Clk	: Enabled
NA# Enable	: Enabled	Spread Spectrum	: Disabled
L2 Cache Burst RD Cycle	: Delay 1T		
Asyn/Sync Mode CPU/DRAM	: Asynchronous		
SDRAM CAS Latency	: 3T		
SDRAM WR Retire Rate	: X-1-1-1		
DRAM Opt RAS Precharge	: Enabled		
PCI Peer Concurrency	: Enabled		
Read Prefetch Memory	: Enabled		
Assert TRDY After Prefet	: 2 QWs	Esc: Quit	: Select Item
CPU to PCI Burst Mem. WR	: Enabled	F1 : Help	Pu/Pd/+/-:Modify
CPU to PCI Post Write	: Enabled	F5 : Old Values (Shift)	F2 : Color
AGP Aperture Size	: 64MB	F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Figure 3-4

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.

## 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 (2A51MJ1A)  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE, INC.

ACPI function : Enabled Power Management : User Define Video Off Option : Susp Stby-> Off Video Off Method : V/H SYNC+Blank Switch Function : Break/Wake Doze Speed (div by) : 2/8 Stdby Speed(div by) : 1/8 MODEM Use IRQ : 3 Hot Key Function As : Power OFF ** PM Monitor ** HDD Off After : Disable Doze Mode : Disable Standby Mode : Disable Suspend Mode : Disable ** PM Events ** HDD Ports Actovoty : Enabled COM Ports Actovoty : Enabled LPT Ports Actovoty : Enabled	VGA Activity : Enabled IRQ [3-7 , 9-15], NMI : Enabled IRQ 8 Bredk Suspend : Disabled Power Button Over Ride : Instant OFF Ring Power Up Control : Enabled  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
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Figure 3-5

- **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	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards to select video power management values.

- **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.
- **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
- **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 choice: 3, 4, 5, 7, 9, 10, 11, NA.
- **Hot Key Function As** : Select *Enabled* if your system has a hot key for soft power off.  
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.
  - **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.
  - **PM Events** : You may disable activity monitoring of some common I/O events and interrupt requests so they do not wake up the system. The default wake-up event is keyboard activity.
  - **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 ReQuests, 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.
- **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: Instant-Off, Delay 4 Sec.
- **Ring Power Up Control** : When you select *Enabled*, a signal from ring returns the system to Full On state.
- **GPIO5 Power Up Control** : When you select *Enabled*, a signal from General Purpose Input 05 returns the system to Full On state.  
The choice: Enabled, Disabled.
- **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 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.

### 3-4-1 The Description of the Power Management

- **Power Management mode selection:**

**User Define:** This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

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

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

Disable (default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- <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 Advance Power Management (APM) is installed on your system, selecting Yes gives better power savings.

If the Max. Power Saving is not enabled, this will be preset to *No*.

#### MODEM Use IRQ:

This determines the IRQ in which the MODEM can use.

The choices: 3, 4, 5, 7, 9, 10, 11, NA.

#### Video Off Option:

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always On	Monitor will remain on during power saving modes.
Suspend --> Off	Monitor blanked when the systems enters the Suspend mode.
Susp,Stby --> Off	Monitor blanked when the system enters either Suspend or Standby modes.
All Modes --> Off	Monitor blanked when the system enters any power saving mode.

#### 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	Select this option if your monitor supports the Display Power Management Signaling (DPMS)



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	standard of the Video Electronics Standards to select video power management values.
--	--

- **PM Monitors:**

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 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.

- **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.

- **Standby Events:**

When Enabled, an event occurring on each device listed below restarts the global time for Standby mode.

Primary HDD

Floppy Disk

Serial Port

Keyboard

Parallel Port

- **External Switch:**

This wake-up optional is special for M/B manufacturers' design.

- **Power Button:**

This item allows you to select the function of power button.

The choice: Disabled, Green Mode, Power Off.

- **DOCK I/O SMI:**

This item allows you to enable or disable the function of DOCK I/O SMI.

The choice: Enabled, Disabled.

### 3-4-2 Description of the Green Functions

This motherboard supports HDD Power Down, Doze and standby power saving functions when Intel Pentium processor CPU is installed. The detail description of these functions are provided as following:

- **HDD Standby Mode**

When system stop reading or writing HDD, the timer starts to count. The system will cut off the HDD power when timer ran out of time. The system will not resume operation until either a read from or a write to HDD command is executed again.

- **Doze Mode**

The system hardware will drop down CPU clock from normal working speed when Doze mode timeout occurred.

- **Standby Mode**

When the system standby mode timer ran out, it will enter the standby mode and retain CPU at slow working speed. The screen will be blanked out.

- **Suspend Mode**



### 3-6 LOAD OPTIMAL DEFAULTS

The "LOAD OPTIMAL 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 (2A51MJ1A)  
 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 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 3-7

### 3-7 LOAD STANDARD DEFAULTS

The "LOAD STANDARD 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 (2A51MJ1A)  
 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 OPTIMAL DEFAULTS	UP
LOAD STANDARD DEFAULTS	EXIT WITHOUT SAVING
Esc : QUIT : Select Item	
F10 : Save & Exit Setup (Shift) F2 : Change Color	
Time, Date, Hard Disk Type...	

Figure 3-8

## 3-8 INTEGRATED PERIPHERALS SETUP

The “INTEGRATED PERIPHERALS SETUP” mainly deals with I/O function. This function will be necessary only when the system I/O malfunctioned or the system is unable to detects your CD-ROM or hard disk.

ROM PCI/ISA BIOS (2A51MJ1A)  
 INTEGRATED PERIPHERALS  
 AWARD SOFTWARE, INC.

Internal PCI	: Both	Power ON Function	: SPP
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	: PCI slot
IDE Secondary Slave PIO	: Auto	VGA Shared Memory Size	: 2MB
Primary Master UltraDMA	: Auto	VGA Memory Clock(MHz)	: 66
Primary Slave UtraDMA	: Auto	Current CPU Temperature	: 40°C
Secondary Master UtraDMA	: Auto	Current CPUFAN Speed	: 0
Secondary Slave UtraDMA	: Auto	Current SYSFAN Speed	: 0
IDE Burst Mode	: Enabled	12 Volt: 12 V	5 Volt : 5.01V
IDE Data Port Post Write	: Disabled	Vcc3 : 3.01V	Vcore : 2.1V
IDE HDD Block Modeller	: Enabled		
Onboard FDC Controller	: Enabled	Esc: Quit	: Select Item
Onboard Seriel Port 1	: 3F8/IRQ4	F1 : Help	Pu/Pd/+/-:Modify
Onboard Seriel Port 2	: 2F8/IRQ3	F5 : Old Values	(Shift)F2 : Color
IR Address Select	: Disabled	F6 : Load BIOS Defaults	
Onboard Parallel Port	: 378/IRQ7	F7 : Load Setup Defaults	

Figure 3-9

## 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:”**
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 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

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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.

## **Chapter 4**

### **Software Installed**

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## 4-1 On Board VGA Driver Quick Installation

### WINDOWS 95/98/98SE Display Driver Quick Installation

- Step 1. Before Install the driver please view the "readme" file.
- Step 2. Run "X:\SiS530\VGA\WIN9X\SETUP.EXE"  
(if your CD-ROM is X drive)
- Step 3. Follow the setup procedure install your VGA Driver.

### WINDOWS NT4.0 Display Driver Quick Installation

- Step 1. Boot form Windows NT4.0, Double-click "My computer" icon, "Control panel" icon, "Display" icon
- Step 2. When the "Display properties" window appear, choose "setting" tab, select "Display type"
- Step 3. When the "Display type" window appear, Select "Change"
- Step 4. When the "Change Display" window appear, select "Have Disk", Change the directory path from "A:" to " X:\SiS530\VGA\WinNT40 ", select "OK". (if your CD-ROM is D driver)
- Step 5. When the "Display type" window appear again, select "CLOSE".
- Step 6. When the "Display properties" window appear again, select "CLOSE"
- Step 7. Restart Windows NT40
- Step 8. When the "Display properties" window appear, setup your resolution, select "test", select "OK", you will be finished your installation

## 4-2 PC HEALTH MONITOR Driver Quick Installation

### §In Windows 95/ Windows 98/Windows 98 SE

- step1: Run X:\ SiS 530 \ HEALTH \ SETUP.EXE.
- 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.

## 4-3 Sound Driver & Audio Rack Installation:

### 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 / 98 SE 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.

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- **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.

## **Win95/98/98SE Installation**

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

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

*“ X:\CMI8738\Win9X\DRV”*

6. Select “OK” to finish install.
7. Now, system is installing device drivers automatically. After a while, the system will finish the installation includes the following device drivers.  
CMI8738/C3DX PCI Audio Device  
CMI8738/C3DX PCI Audio Joystick Device  
CMI8738/C3DX PCI Audio Legacy Device  
DOS mode MPU-401 Emulator
8. Install Application Software : Click “start” key
9. Select “Run”
10. Key in the drive and path for Windows application installation program, for example,  
in Win95 “X:\CMI8738\Win9X\APP\Win95\SETUP.EXE”

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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.

### **Win95/98/98SE 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**



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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) fieldX:** If you have multiple selections in your playlist, this shows the number of the current selection or CD track.

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

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

**Current Time *fileX*:** 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.
- **CX:** 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.

- **SurrounX:** Turn on or turn off the 3D surround sound effect.
- **SPDIF-in:** Turn on or turn off the SPDIF digital signal input.

**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.

### 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

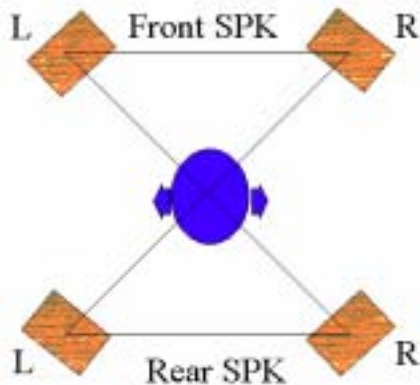
audio effect. The following is the hardware installation and the software setups:

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.

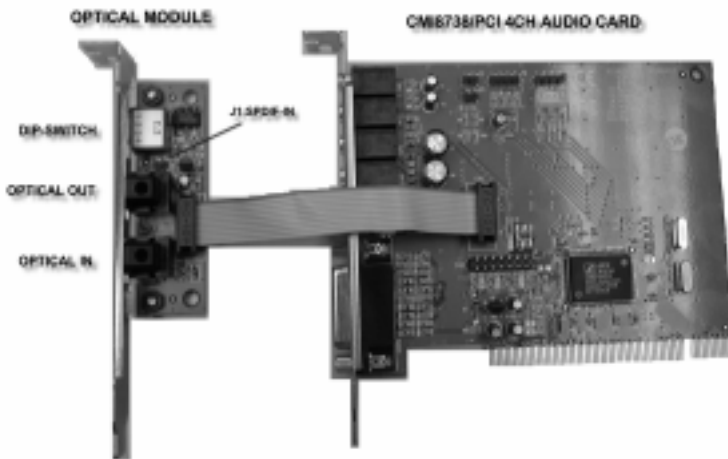
4.The demo

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 531CF SPDIF/OUT (Optional)

The Optical Kid includes :

- Optical Module
- Optical Cable

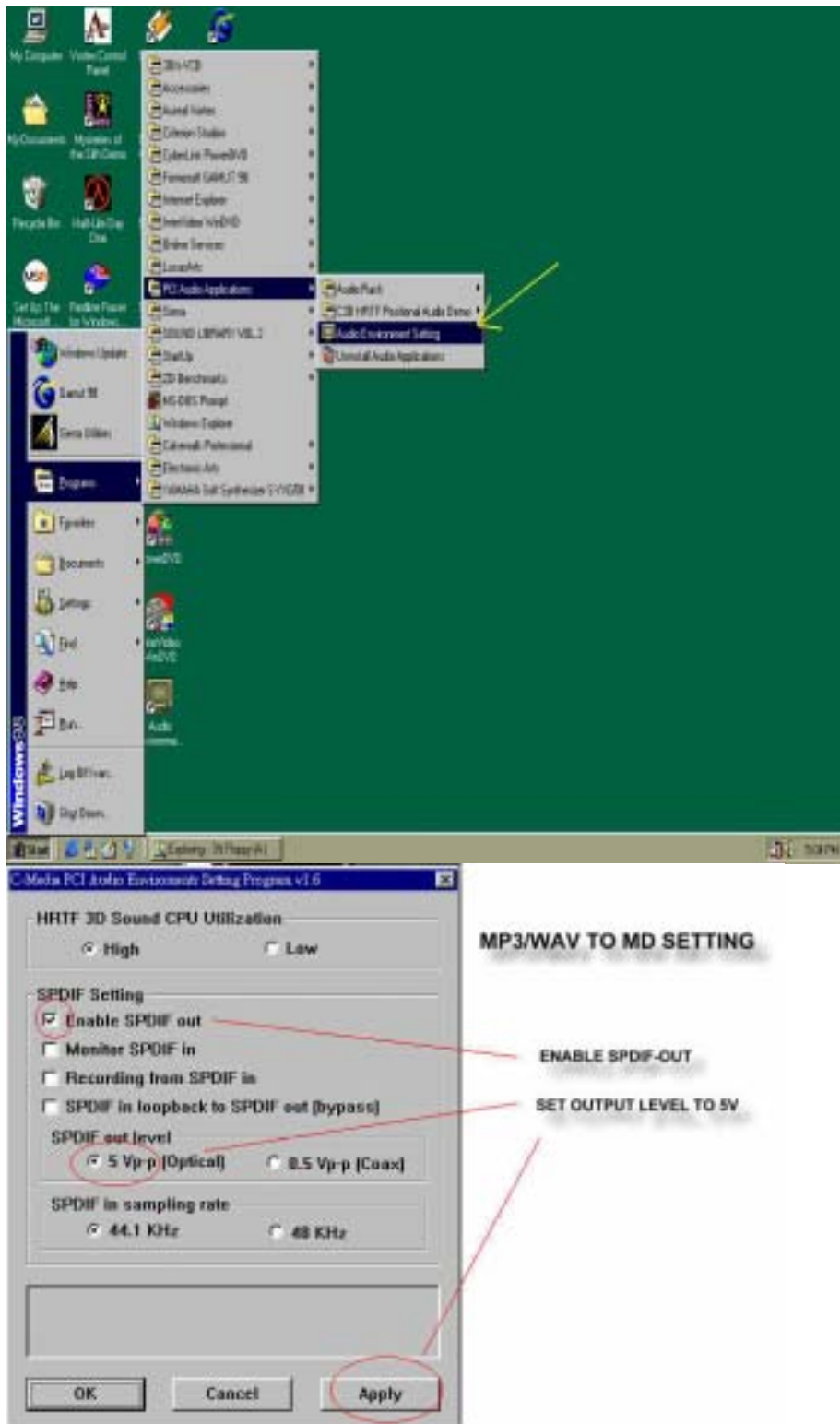


An example of optical kit is used to connect the sound card and the MD.



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:

**MP3 FILE OR WAVE FILE**

MD	No.	File name
O	01	E:\cdrom\MP-WAVE\MP3_S\Love.mp3
X	02	C:\CMIB78_love.wav

**PLAY LIST SETTING**

Annotations:

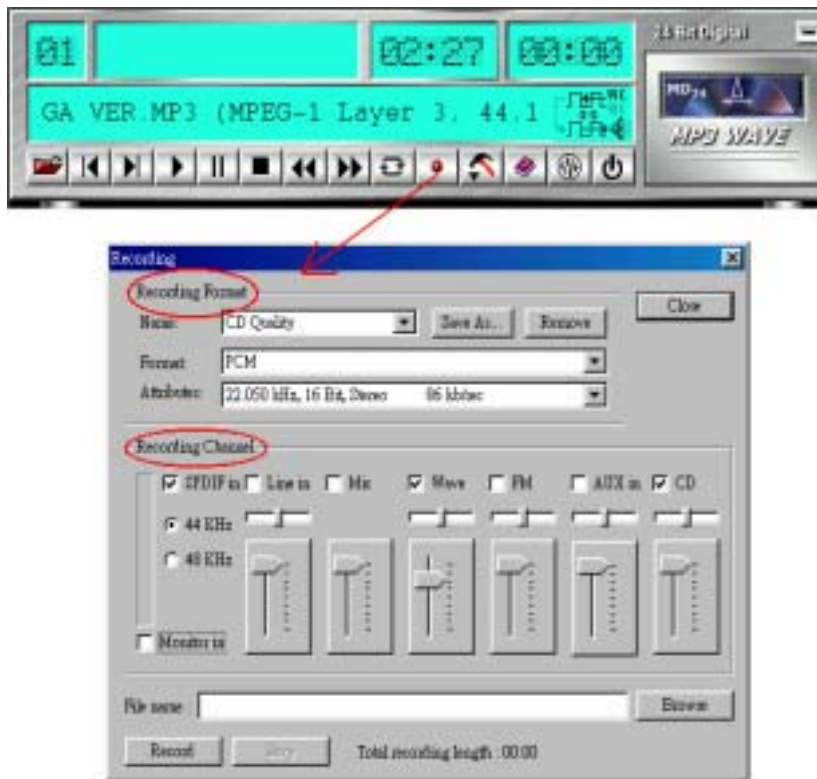
- Play Total time: 4:43
- For MD: 4:23
- O: Can record to MD
- X: Can't record to MD
- MD can record time





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.

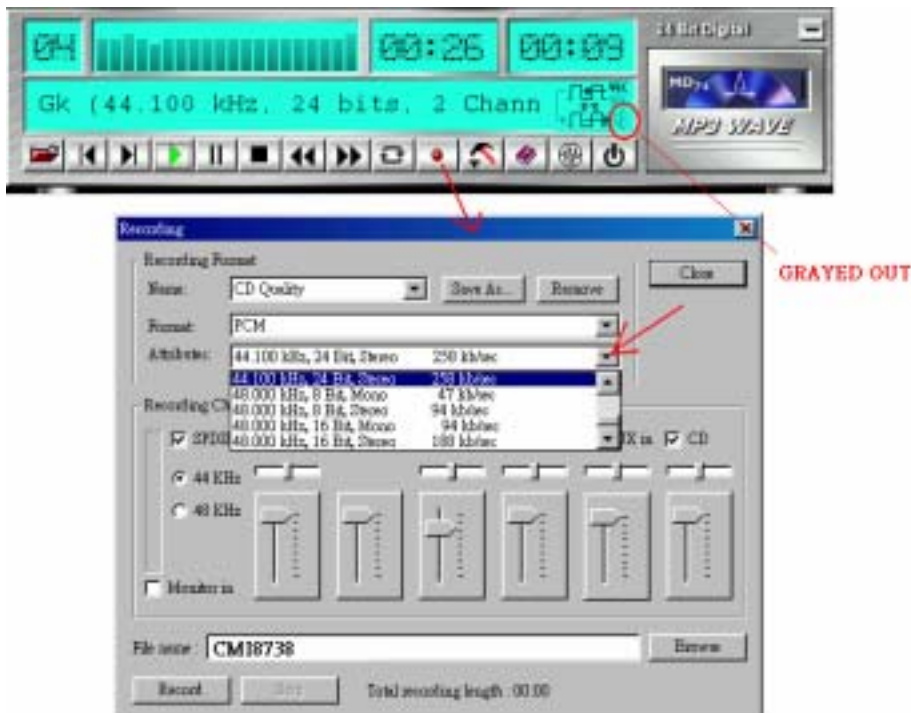


RECORDING FORMAT AND RECORDING CHANNEL SETTING

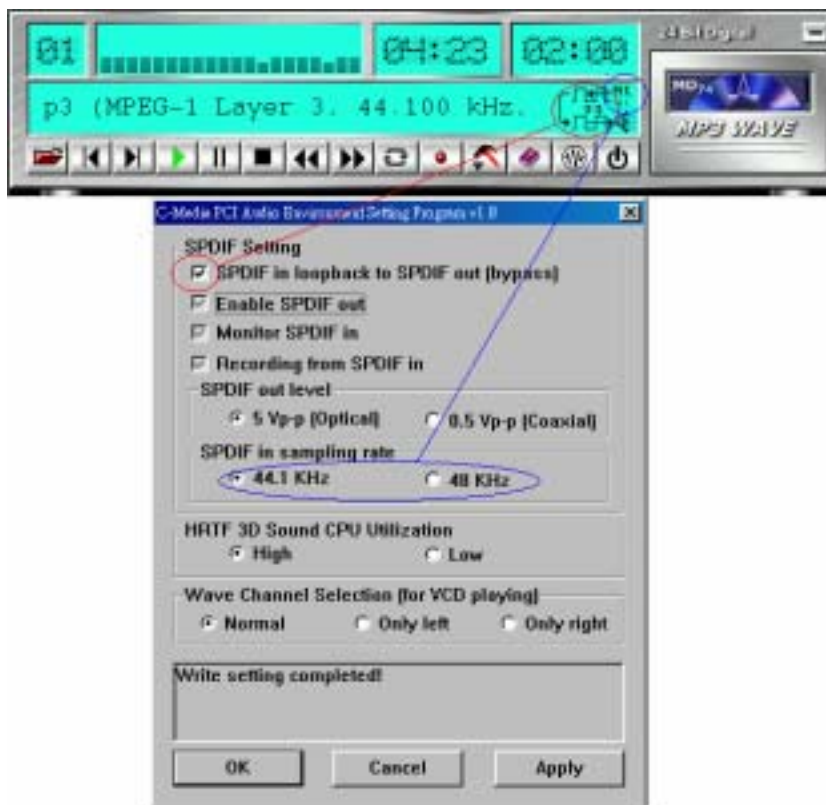
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## About Recording 24bit Audio Setting



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 recrded.





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The un-selected area will be gray out.



The un-selected area will be gray out.



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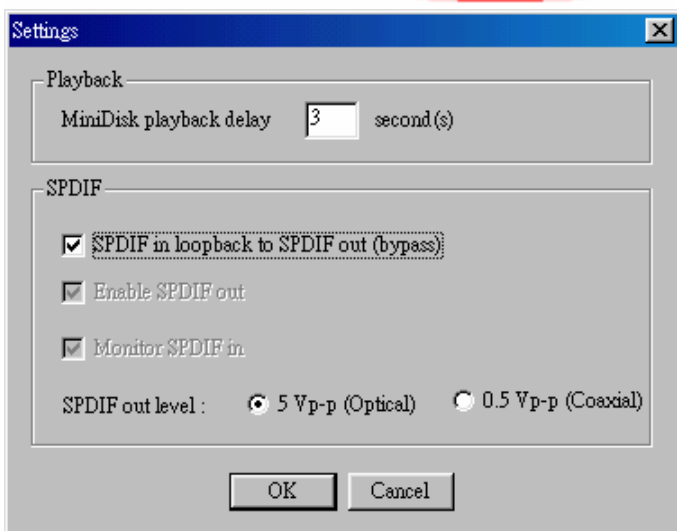
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**The un-selected area will be gray out.**

**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**

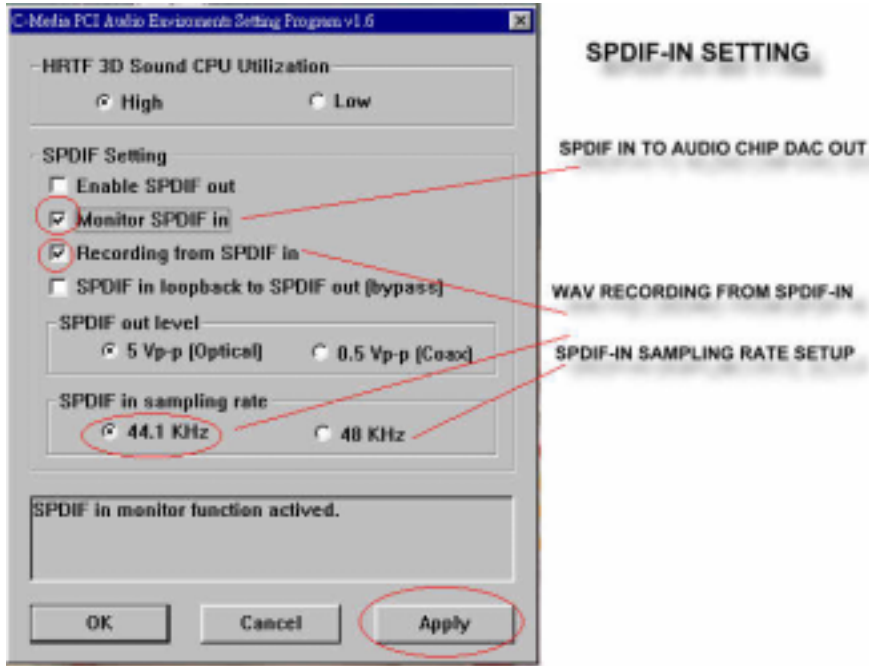


### **531CF SPDIF/IN**

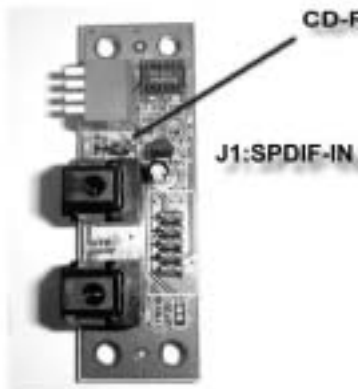
An example of Portable CD Player(Output) to 531CF(Optical Input)Setup







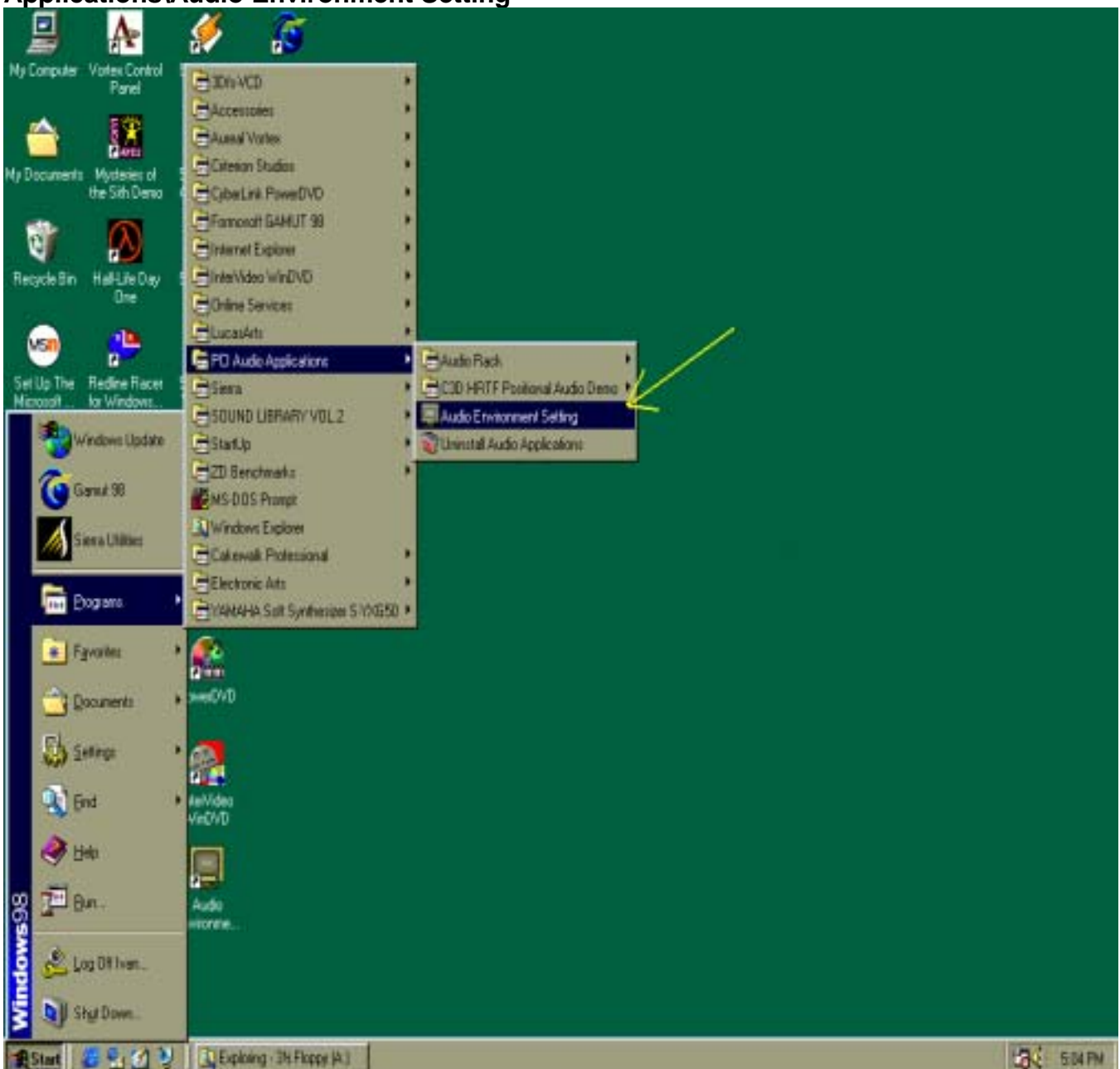
### 3. Loopback(bypass)mode setup CD ROM (Digital Output) to 531CF (SPDIF-IN)Setup



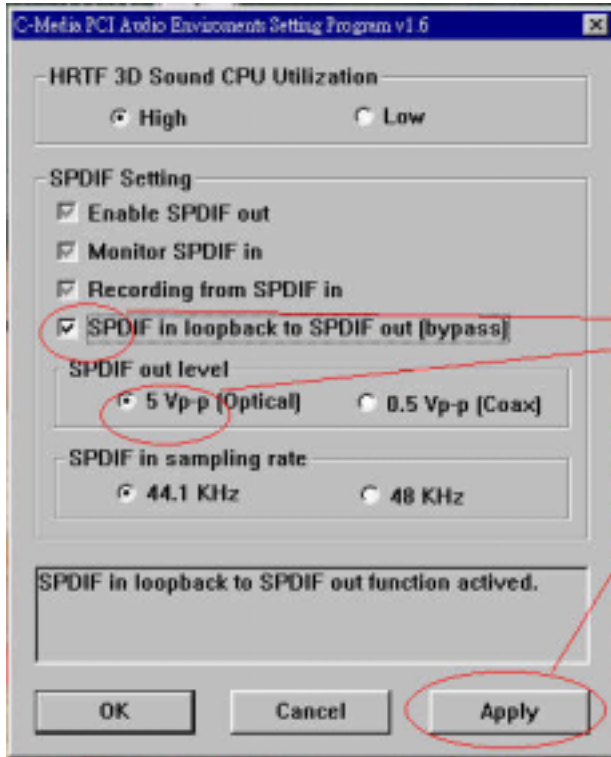
CD-ROM DIGITAL OUT TO SPDIF-IN



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



Please follow these setting procedures.



CD-ROM TO MD SETTING

LOOP MODE:

PC CD-ROM IN

OPTICAL OUT TO MD

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.