

## **Chapter 1**

### **INTRODUCTION**

The MS-6309 ATX VA5 mainboard is a high-performance computer mainboard based on VIA® VT82C694X chipset. The MS-6309 is designed for the Intel® Celeron™ or Coppermine(FC-PGA) processor for inexpensive business/personal desktop markets.

The Apollo Pro133A (VT82C694X) is a Socket-370 system logic north bridge with the addition of 133 MHz capability for both the CPU and SDRAM interfaces. Apollo Pro133A may be used to implement both desktop and notebook personal computer systems from 66MHz to 133MHz based on Socket-370 (Intel Celeron processors). The primary features of the Apollo Pro133A-North Bridge are: Slot-1 or Socket-370 CPU (Front Side Bus) Interface (66 / 100 / 133MHz), DRAM Memory Interface (66 / 100 / 133MHz), AGP Bus Interface (66MHz), PCI Bus Interface (33MHz), Mobile Power Management.

The VT82C686A PSIPC (PCI Super-I/O Integrated Peripheral Controller) is a high integration, high performance, power-efficient, and high compatibility device that supports Intel and non-Intel based processor to PCI bus bridge functionality to make a complete Microsoft PC99-compliant PCI/ISA system.

## **1.1 Mainboard Features**

### **CPU**

- Socket 370 for Intel® Celeron™ processor.
- Supports 233MHz, 266MHz, 300MHz, 333MHz, 350MHz, 400MHz, 450MHz, 500MHz, 533MHz...667MHz or faster processor.

### **Chipset**

- VIA® 694X chipset. (510 BGA)
  - P-II FSB @ 133MHz
  - AGP 4x and PCI plus Advanced ECC Memory Controller
  - Support PC100/133 SDRAM, VCM, & ESDRAM technology
- VIA® VT82C686A chipset. (352 BGA)
  - Advanced Power Management Features
  - Integrated Super I/O (FDC, LPT, COM 1/2, and IR)
  - DirectSound AC97 Audio
  - Dual bus Master IDE Ultra DMA33/66
  - ACPI

### **Clock Generator**

- 66.6MHz and 133Mhz clocks are supported.

### **Main Memory**

- Support six memory banks using three 168-pin unbuffered DIMM.
- Support a maximum memory size of 1.5GB (32M x 8).
- Support ECC(1-bit Error Code Correct) function.
- Support 3.3v SDRAM DIMM.

### **Slots**

- One AGP(Accelerated Graphics Port) slot.
    - AGP specification compliant
    - AGP 66MHz 3.3v device support
  - One AMR (Audio Modem Riser) slot.
  - Five 32-bit Master PCI Bus slots and one 16-bit ISA bus slots wherein one shared slot can be used as ISA or PCI.
  - Supports 3.3v/5v PCI bus Interface.
-

**On-Board IDE**

- An IDE controller on the VIA® VT82C686A Chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 33/66 operation modes.
- Can connect up to four IDE devices.

**On-Board Peripherals**

- On-Board Peripherals include:
  - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
  - 2 serial ports (COMA + COMB)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 2 USB ports
  - 1 IrDA/HP connector for SIR.

**Audio**

- Chip Integrated
- Creative CT5880 Hardware Audio (optional)
  - If Creative CT5880 Hardware audio is onboard. Then, only 4 PCI slot will be master slot. The remaining 1 slot will be slave slot.

**BIOS**

- The mainboard BIOS provides “Plug & Play” BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface(DMI) function which records your mainboard specifications.

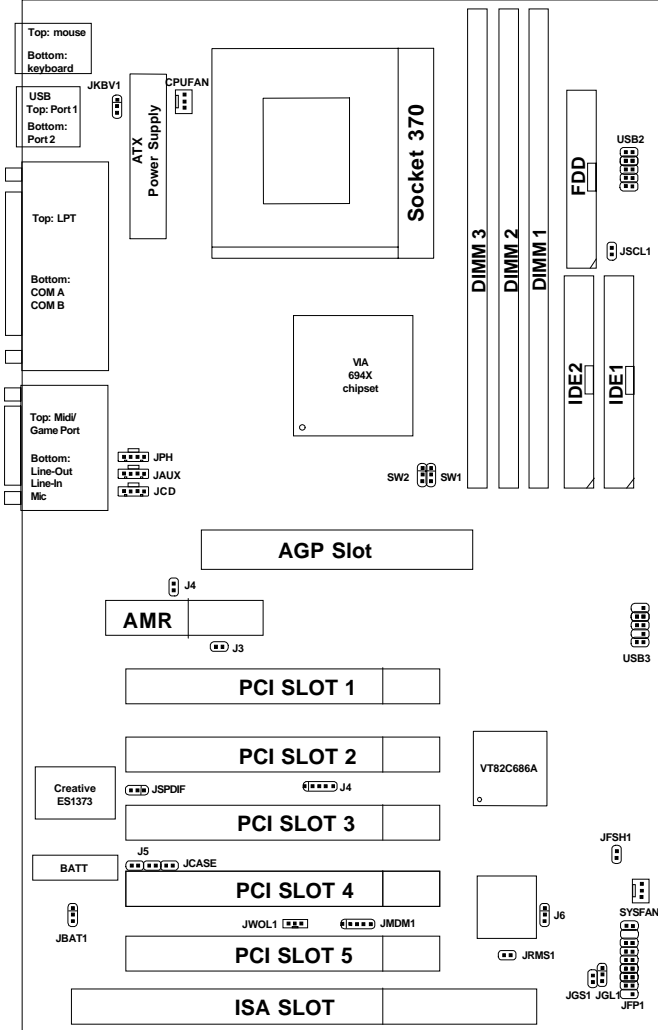
**Dimension**

- ATX Form Factor : 30.5cm(L) x 19.2cm(W) x 4 layers PCB

**Mounting**

- 6 mounting holes.

## 1.2 Mainboard Layout



MS-6309 ATX VA5 Mainboard

## Chapter 2

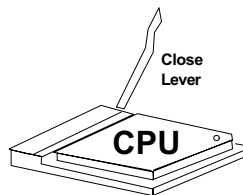
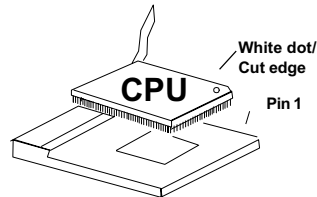
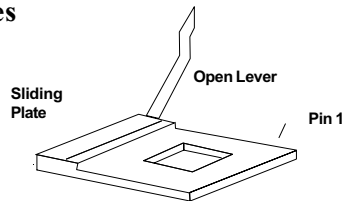
### HARDWARE INSTALLATION

#### 2.1 Central Processing Unit: CPU

The mainboard operates with **Intel® Celeron™/Coppermine processor**. The mainboard uses a CPU socket called Socket 370 for easy CPU installation. The CPU should always have a Heat Sink and a cooling fan attached to prevent overheating.

##### 2.1-1 CPU Installation Procedures

1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.
2. Locate Pin 1 in the socket and look for the white dot or cut edge in the CPU. Match Pin 1 with the white dot/cut edge. Then, insert the CPU. It should insert easily.
3. Press the lever down to complete the installation.



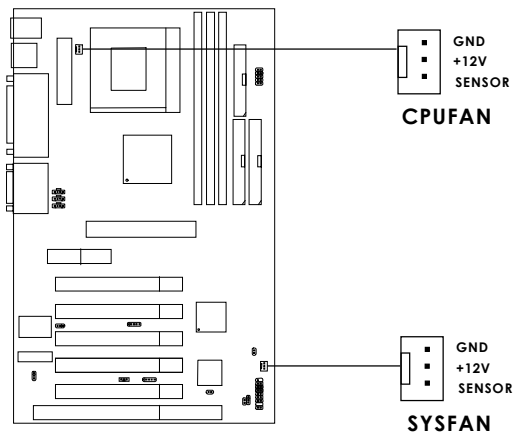
**2.1-2 CPU Core Speed Derivation Procedure**

The BIOS can be used to set the CPU Host Bus Frequency Clock.

$$\begin{array}{ll} \textbf{If} & \text{CPU Clock} = 66\text{MHz} \\ & \text{Core/Bus ratio} = 3.5 \\ \textbf{then} & \text{CPU core speed} = \text{Host Clock} \times \text{Core/Bus ratio} \\ & = 66\text{MHz} \times 3.5 \\ & = 233\text{MHz} \end{array}$$

### 2.1-3 Fan Power Connectors: CPUFAN/SYSFAN

These connectors support system cooling fan with +12V. It supports three pin head connector. When connecting the wire to the connector, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If your mainboard has System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of this function.



**CPUFAN:** Processor Fan

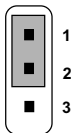
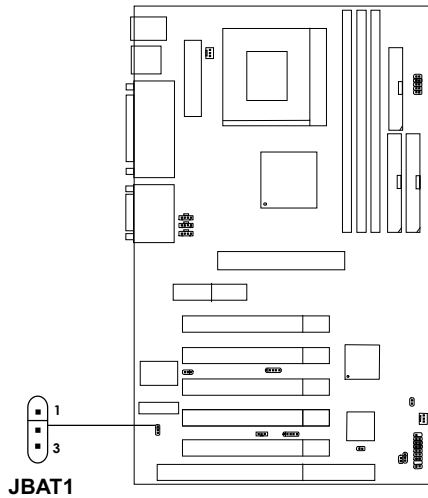
**SYSFAN:** System Fan

For fans with fan speed sensor, every rotation of the fan will send out 2 pulses. System Hardware Monitor will count and report the fan rotation speed.

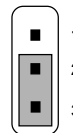
- Note:**
1. Always consult vendor for proper CPU cooling fan.
  2. CPU FAN supports the FAN control. You can install PC Alert utility. This will automatically control the CPU FAN Speed according to the actual CPU temperature.

## 2.2 Clear CMOS Jumper: JBAT1

A battery must be used to retain the mainboard configuration in CMOS RAM. Short 1-2 pins of JBAT1 to store the CMOS data.



**Keep Data**



**Clear Data**

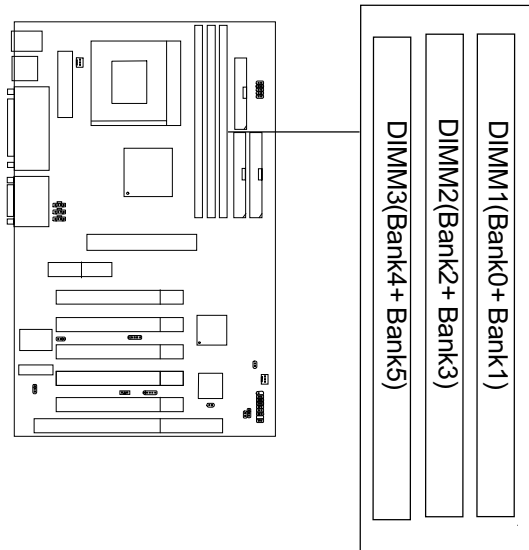
**Note:** You can clear CMOS by shorting 2-3 pin, while the system is off. Then, return to 1-2 pin position. Avoid clearing the CMOS while the system is on, it will damage the mainboard. Always unplug the power cord from the wall socket.



## 2.3 Memory Installation

### 2.3-1 Memory Bank Configuration

The mainboard supports a maximum memory size of 1.5GB (256-bit technology) SDRAM: It provides three 168-pin **unbuffered** DIMMs (Double In-Line Memory Module) sockets. It supports 8 MB to 512 Mbytes DIMM memory module.

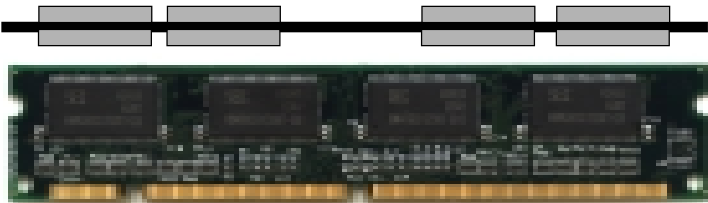


### 2.3-2 Memory Installation Procedures

#### A. How to install a DIMM Module

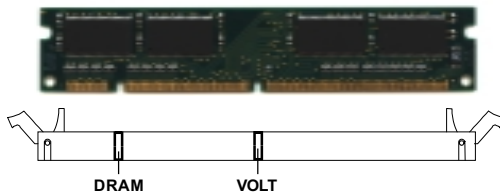


**Single Sided DIMM**



**Double Sided DIMM**

1. The DIMM slot has 2 Notch Keys “VOLT and DRAM”, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in.



3. The plastic clip at the side of the DIMM slot will automatically close.

**2.3-3 Memory Population Rules**

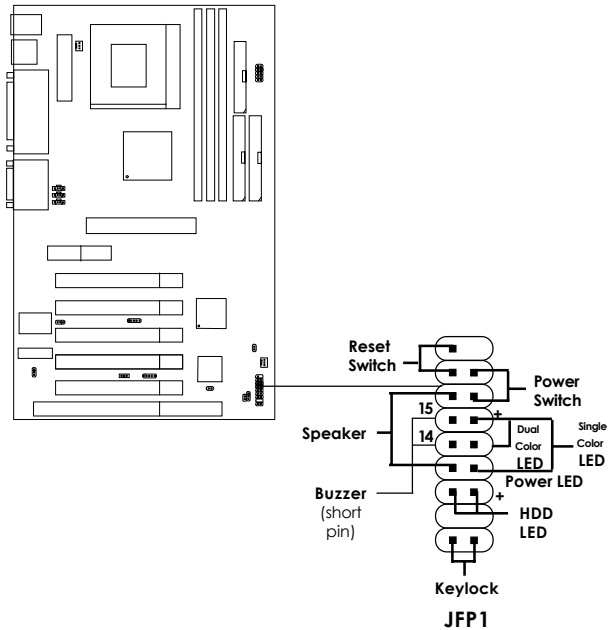
1. Supports only SDRAM DIMM.
2. To operate properly, at least one 168-pin DIMM module must be installed.
3. This mainboard supports Table Free memory, so memory can be installed on DIMM1 or DIMM 2 in any order.
4. Supports 3.3 volt DIMM.
5. The DRAM addressing and the size supported by the mainboard is shown below:

**Table 2.3-1 SDRAM Memory Addressing**

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
16M	1Mx16	ASYM	11	8	8MBx4	16MBx8
	2Mx8	ASYM	11	9	16MBx8	32MBx16
64M	2Mx32	ASYM	11	9	32MBx2	64MBx4
	2Mx32	ASYM	12	8	16MBx2	32MBx4
	4Mx16	ASYM	11	10	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
64M	8Mx8	ASYM	13	9	64MB	128MB
	2Mx32	ASYM	11	8	16MB	32MB
64M	4Mx16	ASYM	12	8	---	---
	8Mx8	ASYM	12	9	---	---

**2.4 Case Connector: JFP1**

The Keylock (reserved), Power Switch, Reset Switch, Power LED, Speaker, and HDD LED are all connected to the JFP1 connector block.



### **2.4-1 Power Switch**

Connect to a 2-pin push button switch. This switch has the same feature with JRMS1.

### **2.4-2 Reset Switch**

Reset switch is used to reboot the system rather than turning the power ON/OFF. Avoid rebooting while the HDD LED is lit. You can connect the Reset switch from the system case to this pin.

### **2.4-3 Power LED**

The Power LED is lit while the system power is on. Connect the Power LED from the system case to this pin. There are two types of LED that you can use: 3-pin single color LED or 2-pin dual color LED(ACPI request).

- a. 3 pin single color LED connect to pin 4, 5, & 6. This LED will lit when the system is on.
- b. 2 pin dual color LED connect to pin 5 & 6.

**GREEN**Color:           Indicate the system is in full on mode.

**ORANGE**Color:        Indicate the system is in suspend mode.

### **2.4-4 Speaker**

Speaker from the system case is connected to this pin.

If on-board Buzzer is available:

Short pin 14-15:       On-board Buzzer Enabled.

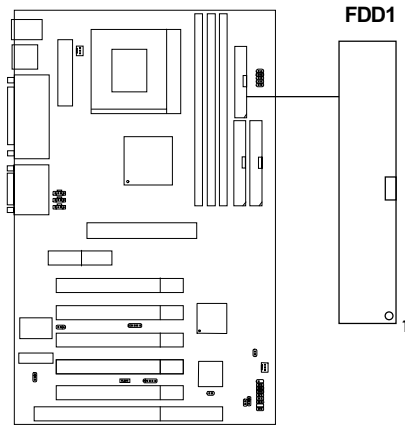
Open pin 14-15:       On-board Buzzer Disabled.

### **2.4-5 HDD LED**

HDD LED shows the activity of a hard disk drive. Avoid turning the power off while the HDD led is lit. You can connect the HDD LED from the system case to this pin.

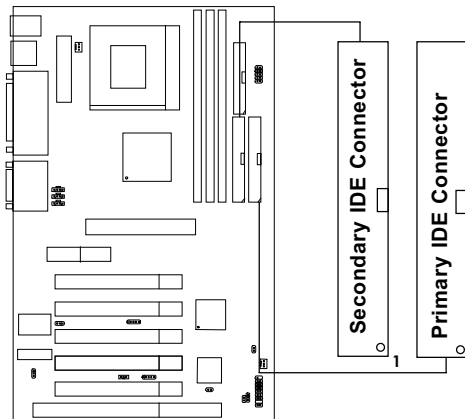
## 2.5 Floppy Disk Connector: FDD1

The mainboard also provides a standard floppy disk connector FDD1 that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.



## 2.6 Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA/66 (ICH)/ Ultra DMA/33 Controller that provides PIO mode 0~4, Bus Master, and Ultra DMA/33/66 function. It has two HDD connectors IDE1 (primary) and IDE2 (secondary). You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices to IDE1 and IDE2. These connectors support the provided IDE hard disk cable.



### IDE1(Primary IDE Connector)

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure second hard drive to Slave mode by setting the jumper accordingly.

### IDE2(Secondary IDE Connector)

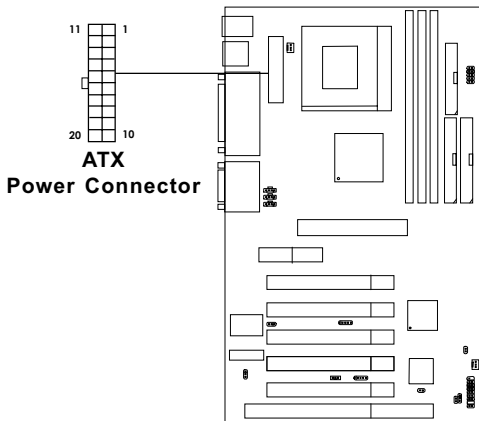
IDE2 can also connect a Master and a Slave drive.

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## 2.7 Power Supply

### 2.7-1 ATX 20-pin Power Connector: JWR1

This connector supports the power button on-board. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power Off are supported by this mainboard. This power connector supports instant power on function which means that system will boot up instantly when the power connector is inserted on the board.



#### PIN DEFINITION

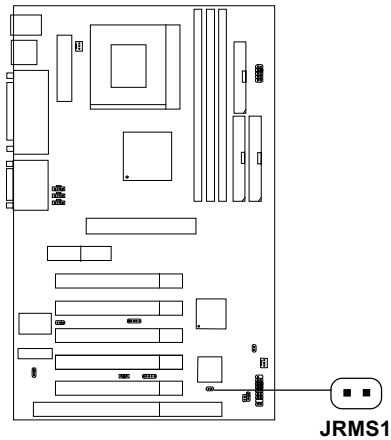
PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

**Warning:** Since the mainboard has the instant power on function, make sure that all components are installed properly before inserting the power connector to ensure that no damage will be done.



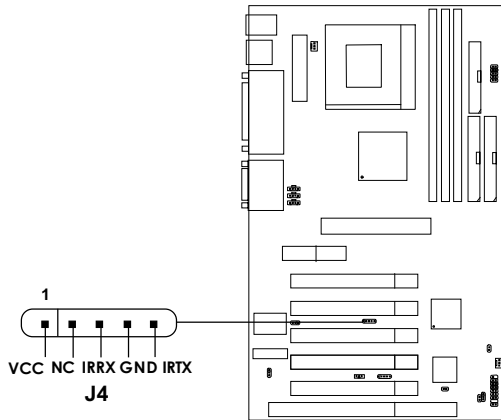
**2.7-2 Remote Power On/Off Switch: JRMS1**

Connect to a 2-pin push button switch. During OFF state, press once and the system turns on. **During ON stage, push once and the system goes to sleep mode: pushing it more than 4 seconds will change its status from ON to OFF.** If you want to change the setup, you could go to the BIOS Power Management Setup. This is only used for ATX type power supply.



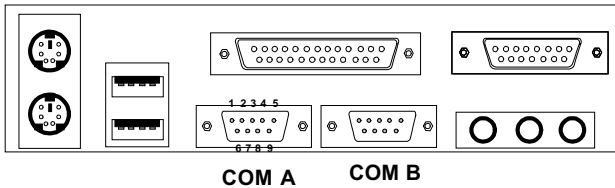
## 2.8 IrDA Infrared Module Connector: J4

The mainboard provides one infrared (J4) connector for IR modules. This connector is for optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.



## 2.9 Serial Port Connectors: COM A and COM B

The mainboard provides two 9-pin male DIN connectors for serial port COM A & COM B. These ports are 16550A high speed communication ports that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into this connector.



**Serial Port (9-pin Male)**

### PIN DEFINITION

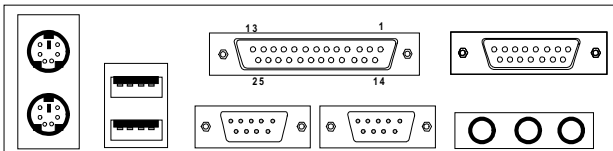
PIN	SIGNAL
1	<b>DCD</b> (Data Carry Detect)
2	<b>SIN</b> (Serial In or Receive Data)
3	<b>SOUT</b> (Serial Out or Transmit Data)
4	<b>DTR</b> (Data Terminal Ready)
5	<b>GND</b>
6	<b>DSR</b> (Data Set Ready)
7	<b>RTS</b> (Request To Send)
8	<b>CTS</b> (Clear To Send)
9	<b>RI</b> (Ring Indicate)

**2.10 Parallel Port Connector: LPT1**

The mainboard provides a 25 pin female centronic connector for LPT. A parallel port is a standard printer port that also supports Enhanced Parallel Port (EPP) and Extended capabilities Parallel Port (ECP). See connector and pin definition below:

**Parallel Port (25-pin Female)**

**LPT 1**

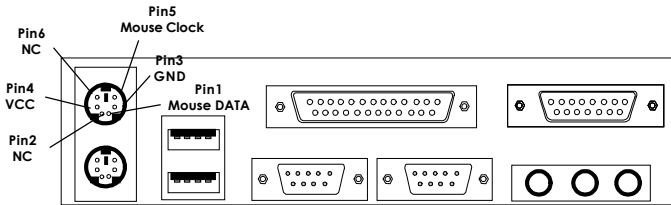


**PIN DEFINITION**

<b>PIN</b>	<b>SIGNAL</b>	<b>PIN</b>	<b>SIGNAL</b>
1	STROBE	14	AUTO FEED#
2	DATA0	15	ERR#
3	DATA1	16	INIT#
4	DATA2	17	SLIN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

## 2.11 Mouse Connector: JKBS1

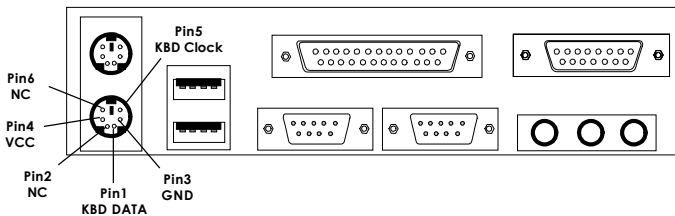
The mainboard provides a standard PS/2<sup>®</sup> mouse mini DIN connector for attaching a PS/2<sup>®</sup> mouse. You can plug a PS/2<sup>®</sup> mouse directly into this connector. The connector location and pin definition are shown below:



**PS/2 Mouse (6-pin Female)**

## 2.12 Keyboard Connector: JKBS1

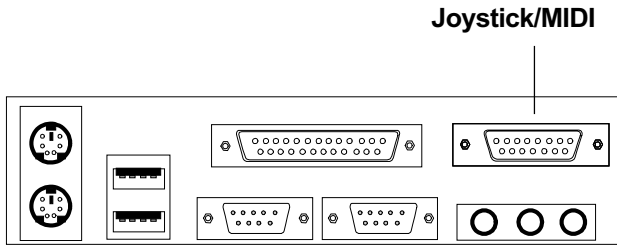
The mainboard provides a standard PS/2<sup>®</sup> keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.



**PS/2 Keyboard (6-pin Female)**

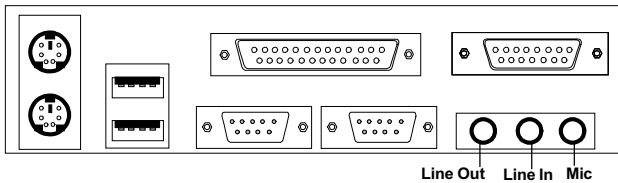
### **2.13 Joystick/Midi Connectors**

You can connect joystick or game pad to this connector.



### **2.14 Audio Port Connectors**

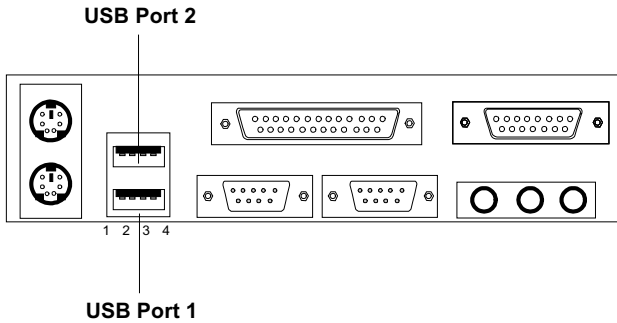
**Line Out** is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape layer, or other audio devices. **Mic** is a connector for the microphones.



### **1/8" Stereo Audio Connectors**

## 2.15 USB Connectors

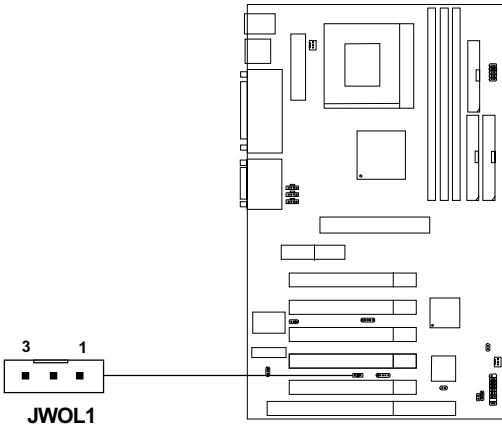
The mainboard provides a **UHCI (Universal Host Controller Interface) Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.



PIN	SIGNAL
1	VCC
2	-Data
3	+Data
4	GND

## 2.16 Wake-Up on LAN Connector: JWOL1

The JWOL1 connector is for use with LAN add-on cards that supports Wake Up on LAN function. To use this function, you need to set the “Wake-Up on LAN” to enable at the BIOS Power Management Setup.



PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

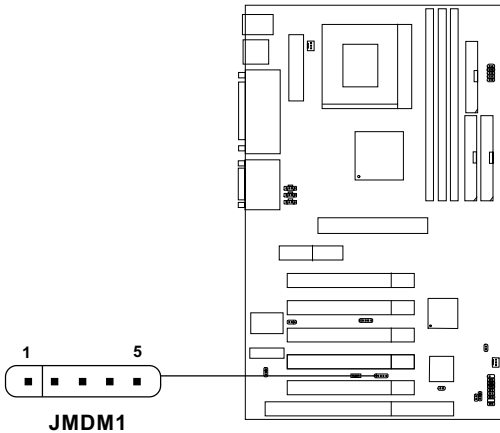
**Note:** LAN wake-up signal is active “high”.

**Note:** To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750ma 5V Stand-by)



## 2.17 Modem Wake Up Connector: JMDM1

The JMDM1 connector is for used with Modem add-on card that supports the Modem Wake Up function.



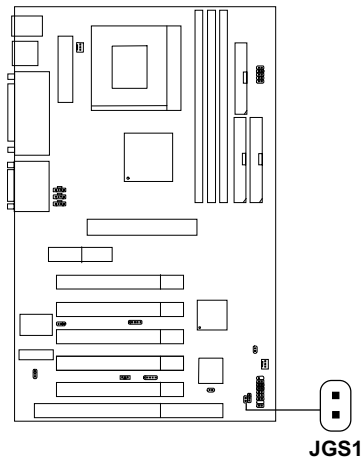
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

**Note:** Modem wake-up signal is active “low”.

**Note:** To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750ma 5V Stand-by)

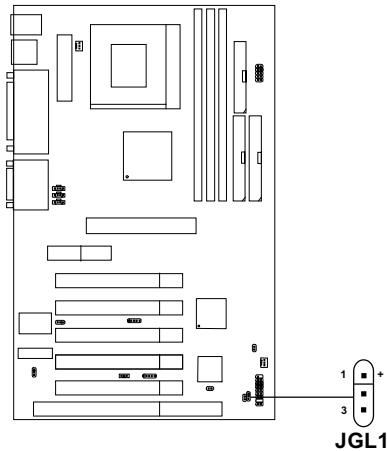
## 2.18 Power Saving Switch Connector: JGS1

Attach a power saving switch to **JGS1**. When the switch is pressed, the system immediately goes into suspend mode. Press any key and the system wakes up.



## 2.19 Power Saving LED Connector: JGL1

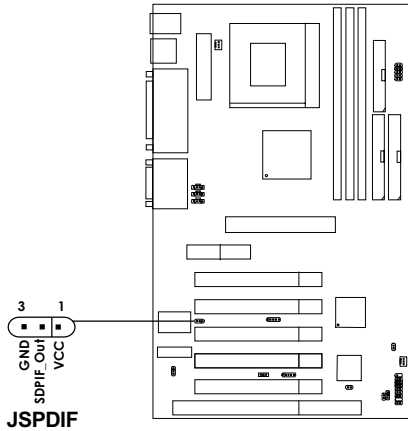
JGL1 can be connected with two-color LED. There are two types of LED that you can use: 3-pin LED or 2-pin LED (ACPI request). When the 2-pin LED is connected to JGL1, the light will turn green, when system is On. During sleep mode, the 2-pin LED will change color from Green to Orange. For 3-pin LED, when LED is connected to JGL1, this will light when the system is On and blinks when it is in suspend/sleep mode.



3-pin LED	2-pin LED
1-2 Single Color 1-3 Blink	1-2 Dual Color

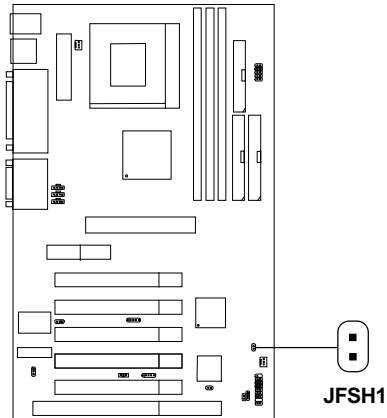
## **2.20 SPDIF Connector: JSPDIF**

This item is for Sony & Philips Digital Interface for AC3 decoder.



## 2.21 BIOS Flash Jumper: JFSH1

This jumper is used to locked/unlocked BIOS Flash. This Jumper should be unlocked when flashing/programming the BIOS.



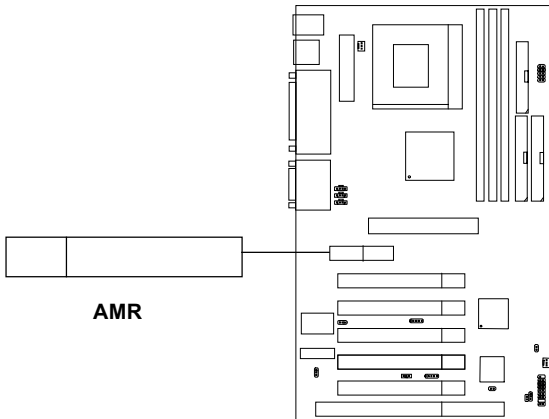
**BIOS Flash  
Locked**



**BIOS Flash  
Unlocked**

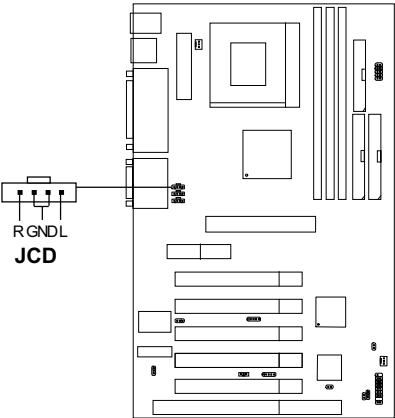
## **2.22 AMR (Audio Modem Riser)**

The Audio/Modem Riser specification is an open industry-standard specification that defines a hardware scalable Original Equipment Manufacturer (OEM) mainboard riser board and interface, which supports both audio and modem.



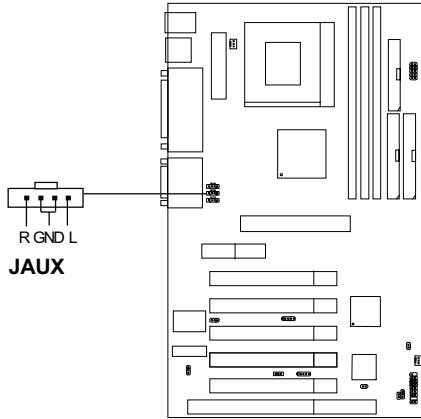
**2.23 CD-In Connector: JCD**

This connector is for CD-ROM audio connector.



## **2.24 AUX Line In Connector: JAUX**

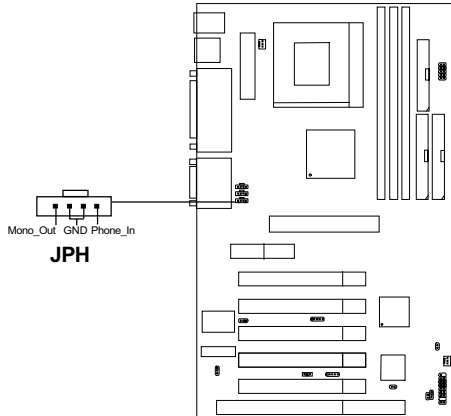
This connector is used for DVD Add on Card with Line In connector.





## 2.25 Modem-In: JPH

The connector is for Modem with internal voice connector.

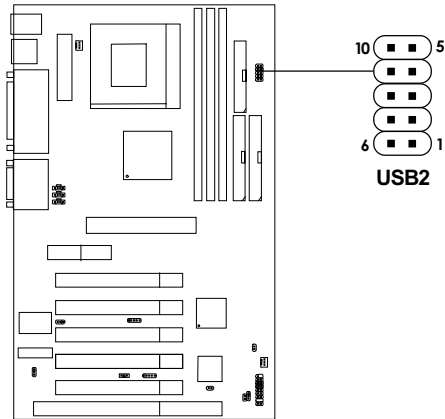


Mono\_Out is connected to the Modem Speaker Out connector.

Phone\_In is connected to the Modem Microphone In connector.

**2.26 USB Front Connector: USB2**

The mainboard provides a **front Universal Serial Bus connector**. This is an optional USB connector for Front Panel.



Pin	Description	Pin	Description
1	VCC	6	GND
2	D1-	7	GND
3	D1+	8	D0+
4	GND	9	D0-
5	GND	10	VCC

## **Chapter 3**

### **AWARD® BIOS SETUP**

Award® BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM (CMOS RAM), so that it retains the Setup information when the power is turned off.

## **3.1 Entering Setup**

Power on the computer and press <Del> immediately to allow you to enter Setup. The other way to enter Setup is to power on the computer. When the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl>, <Alt>, and <Esc> keys.

TO ENTER SETUP BEFORE BOOT, PRESS <CTRL-ALT-ESC>  
OR <DEL> KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC>  
OR <DEL> TO ENTER SETUP

## **3.2 Getting Help**

### **Main Menu**

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

### **Status Page Setup Menu/Option Page Setup Menu**

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <Esc>.



**Advanced Chipset Features**

Use this menu to change the values in the chipset registers and optimize your system's performance.

**Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals.

**Power Management Setup**

Use this menu to specify your settings for power management.

**PnP/PCI Configuration**

This entry appears if your system supports PnP/PCI.

**PC Health Status**

This entry shows your PC health status.

**Frequency/Voltage**

Use this menu to specify your settings for frequency/voltage control.

**Load Fail-Safe Defaults**

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

**Load Optimized Defaults**

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.

**Supervisor/User Password**

Use this menu to set User and Supervisor Passwords.

**Save & Exit Setup**

Save CMOS value changes to CMOS and exit setup.

**Exit Without Saving**

Abandon all CMOS value changes and exit setup.

---

### 3.4 Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

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

Date(mm:dd:yy):	Fri, Jan 7,2000	Item Help
Time(hh:mm:ss):	00:00:00	
IDE Primary Master	Press Enter 2557MB	Menu Level >
IDE Primary Slave	Press Enter None	
IDE Secondary Master	Press Enter None	
IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors	
Based Memory	640K	
Extended Memory	64512K	
Total Memory	65536K	
↑↓ →← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

**Date**

The date format is <day><month> <date> <year>.

<b>Day</b>	Day of the week, from Sun to Sat, determined by BIOS. Read-only.
<b>month</b>	The month from Jan. through Dec.
<b>date</b>	The date from 1 to 31 can be keyed by numeric function keys.
<b>year</b>	The year, depends on the year of the BIOS

**Time**

The time format is <hour> <minute> <second>.

**PrimaryMaster/PrimarySlave****SecondaryMaster/Secondary Slave**

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.



If the controller of HDD interface is SCSI, the selection shall be  
“None”.

If the controller of HDD interface is CD-ROM, the selection shall be  
“None”.

<b>Access Mode</b>	The settings are Auto, Normal, Large,LBA.
<b>Cylinder</b>	number of cylinders
<b>Head</b>	number of heads
<b>Precomp</b>	write precom
<b>Landing Zone</b>	landing zone
<b>Sector</b>	number of sectors

### 3.5 Advanced BIOS Features

CMOS Setup Utility - Copyright(C) 1984-1999 Award Software  
Advanced BIOS Features

Anti-Virus Protection	Disabled	Item Help
CPU Internal Cache	Enabled	
External Cache	Enabled	Menu Level >
CPU L2 Cache ECC Checking	Enabled	
Quick Power On Self Test	Disabled	
First Boot device	CDROM	
Second Boot device	Floppy	
Third Boot device	HDD-0	
Boot other device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up Numlock Status	Off	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select for DRAM > 64MB	Non-OS2	

↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help  
F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

#### Anti-Virus Protection

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

- Disabled(default)      No warning message to appear when anything attempts to access the boot sector or hard disk partition table.
- Enable                      Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

**CPU Internal Cache**

The default value is Enabled.

**Enabled** (default)    Enable cache

**Disabled**            Disable cache

**Note:** The internal cache is built in the processor.

**External Cache**

Choose Enabled or Disabled. This option enables the level 2 cache memory.

**CPU L2 Cache ECC Checking**

Choose Enabled or Disabled. This option enables the level 2 cache memory ECC(error check correction).

**Quick Power On Self Test**

This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled, BIOS will shorten or skip some check items during POST.

**Enabled**              Enable quick POST

**Disabled** (default)    Normal POST

**First/Second/Third/Other Boot Device**

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-2/HDD-3, SCSI, CDROM, LAN, and Disabled.

**Swap Floppy Drive**

Switches the floppy disk drives between being designated as A and B. Default is Disabled.

**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.

**Boot Up NumLock Status**

The default value is On.

**On** (default) Keypad is numeric keys.

**Off** Keypad is arrow keys.

**Gate A20 Option**

**Normal** The A20 signal is controlled by keyboard controller or chipset hardware.

**Fast**(default) The A20 signal is controlled by port 92 or chipset specific method.

**Typematic Rate Setting**

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are: Enabled/Disabled.

**Typematic Rate (Chars/Sec)**

Sets the number of times a second to repeat a key stroke when you hold the key down. The settings are: 6, 8, 10, 12, 15, 20, 24, 30.

**Typematic Delay (Msec)**

Sets the delay time after the key is held down before it begins to repeat the keystroke. The settings are: 250, 500, 750, 1000.

**Security Option**

This category allows you to limit access to the system and Setup, or just to 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(default)**The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

**OS Selection for DRAM > 64MB**

Allows OS2® to be used with > 64 MB of DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2®.

### 3.6 Advanced Chipset Features

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

Choose the “ADVANCED CHIPSET FEATURES” from the Main Menu and the following screen will appear.

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Advanced Chipset Features

SDRAM Cycle Length	3	Item Help
DRAM Clock	Host CLK	
Memory Hole	Disabled	Menu Level >
P2C/C2P Concurrency	Enabled	
Fast R-W Turn Around	Disabled	
System BIOS Cacheable	Disabled	
Video RAM Cacheable	Disabled	
AGP Aperture Size	64M	
AGP 4X Mode	Enabled	
AGP Driving Control	Auto	
AGP Driving Value	DA	
OnChip USB	Enabled	
OnChip USB2	Disabled	
USB Keyboard Support	Disabled	
OnChip Sound	Auto	
OnChip Modem	Auto	
CPU to PCI Write Buffer	Enabled	
PCI Dynamic Bursting	Enabled	
PCI Master 0 WS Write	Enabled	
PCI Delay Transaction	Enabled	
PCI#2 Access #1 Retry	Enabled	
AGP Master 1 WS Write	Enabled	
AGP Master 1 WS Read	Enabled	
Memory Parity/ECC Check	Disabled	
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

**Note:** Change these settings only if you are familiar with the chipset.

### **SDRAM Cycle Length**

This item allows you to select the SDRAM cycle length. The settings are 2 or 3.

### **DRAM Clock**

The chipset support synchronous and asynchronous mode between the host clock and DIMM clock.

<b>Host CLK (default)</b>	DIMM clock equal to host clock
<b>66MHz</b>	DIMM clock equal to 66MHz

### **Memory Hole**

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB.

Enabled	Memory hole supported.
Disabled (default)	Memory hole not supported.

### **P2C/C2P Concurrency**

This item allows you to Enable or Disable the PCI to CPU, CPU to PCI concurrency. The default setting is Enabled.

### **Fast R-W Turn Around**

This item controls the DRAM timing. It allows the user to Enable or Disable the fast read, write turn around. The settings are Enabled or Disabled. The default setting is Disabled.

### **System BIOS Cacheable**

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

**Video RAM Cacheable**

Select Enabled allows caching of the video BIOS , resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

**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.

**AGP-4X Mode**

This item is used to Enabled or Disabled the AGP support for AGP 4x mode.

**AGP Driving Control**

This item allows you to adjust the AGP driving force. Choose Manual to key in a AGP Driving Value in the next selection. This field is recommended to set in Auto for avoiding any error in your system. The default setting is Auto.

**AGP Driving Value**

This item allows you to adjust the AGP driving force.

**Onchip USB**

Set this option to Enable or Disable the onchip USB controller. The default setting is Enabled.

**USB Keyboard Support**

Set this option to Enable or Disable the USB keyboard/mouse support. The default setting is Disabled.

**OnChip Sound**

This item allows you to control the onboard AC 97 audio.



**OnChip Modem**

This item allows you to control the onboard MC 97 Modem.

**CPU to PCI Write Buffer**

When this field is Enabled, writes from the CPU to the PCI bus are buffered, to compensate for the differences between the CPU and the PCI bus. When Disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another cycle. The default setting is Enabled.

**PCI Dynamic Bursting**

This item allows you to Enable or Disable the PCI dynamic bursting function. The settings are Enabled or Disabled.

**PCI Delay Transaction**

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

**PCI#2 Access #1 Retry**

When Disabled, PCI#2 will not be disconnected until access finishes (default). When Enabled, PCI#2 will be disconnected if ms retries are attempted without success. The default setting is Enabled.

**AGP Master 1 WS Write**

When Enabled, this item writes to the AGP (Accelerated Graphics Port) are executed with one wait states. The default setting is Enabled.

**AGP Master 1 WS Read**

When Enabled, this item read to the AGP (Accelerated Graphics Port) are executed with one wait states. The default setting is Enabled.

**Memory Parity/ECC Check**

This item when Enabled detects the memory parity and Error Checking & Correcting. The settings are Enabled or Disabled.

---

### 3.7 Integrated Peripherals

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 Integrated Peripherals

Onchip IDE Channel0	Enabled	Item Help
Onchip IDE Channel1	Enabled	
IDE Prefetch Mode	Enabled	Menu Level >
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
Init Display First	AGP	
Onchip USB	Enabled	
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	
IDE HDD Block Mode	Enabled	
Onboard FDD Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART 2 Mode	Standard	
X IR Function Duplex	Half	
X TX,RX inverting enable	No, Yes	
Onboard Parallel Port	378/IRQ7	
Onboard Parallel Mode	Normal	
ECP Mode Use DMA	3	
Parallel Port EEP Type	EEP 1.9	
Onboard Legacy Audio	Enabled	
Sound Blaster	Disabled	
SB I/O Base Address	22QH	
SB IRQ Select	IRQ 5	
SB DMA Select	DMA1	
MPU-401	Disabled	
MPU-4-1 I/O Address	330-333H	
Game Port (200-207H)	Enabled	
Onchip Modem	Enabled	

↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help  
 F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

#### OnChip IDE Channel0/Onchip IDE Channel1

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately. The settings are: Enabled and Disabled.

**IDE Prefetch Mode**

This item is used to Enabled or Disabled the IDE Read/Write Prefetch buffer. This buffer is used to store data for faster performances.

**Primary/Secondary Master/Slave PIO**

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

**Primary/Secondary Master/Slave UDMA**

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support. The settings are: Auto, Disabled.

**Init Display First**

This item allows you to decide to activate whether PCI Slot or AGP Slot. The settings are: PCI Slot, AGP Slot.

**Onchip USB**

This should be Enabled if your system has a USB 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.

**USB Keyboard Support**

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. The settings are: Enabled, Disabled.

**USB Mouse Support**

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB mouse. The settings are: Enabled, Disabled.

**IDE HDD Block Mode**

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Enabled, Disabled.

**Onboard FDD Controller**

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

**Onboard Serial Port 1/Port 2**

Select an address and corresponding interrupt for the first and second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

**UART 2 Mode**

This item allows you to select which mode for the Onboard Serial Port 2. The settings are: Standard, HPSIR, ASKIR.

**IR Function Duplex**

This item allows you to select the IR half/full duplex function.

**TX, RX inverting enable**

This item allows you to enable the TX, RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting for avoiding any error in your system.

### **Onboard Parallel Port**

There is a built-in parallel port on the on-board Super I/O chipset that provides Standard, ECP, and EPP features. It has the following options:

#### **Disable**

3BCH/IRQ7	Line Printer port 0
278H/IRQ5	Line Printer port 2
378H/IRQ7	Line Printer port 1

### **Onboard Parallel Mode**

SPP : Standard Parallel Port

EPP : Enhanced Parallel Port

ECP : Extended Capability Port

To operate the onboard parallel port as Standard Parallel Port only, choose “SPP.” To operate the onboard parallel port in the ECP and SPP modes simultaneously, choose “ECP/SPP.” By choosing “ECP”, the onboard parallel port will operate in ECP mode only. Choosing “ECP/EPP” will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature. After selecting it, the following message will appear: “ECP Mode Use DMA” At this time the user can choose between DMA channels 3 or 1. The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: “EPP Mode Select.” At this time either EPP 1.7 spec. or EPP 1.9 spec. can be chosen.

### **ECP Mode Use DMA**

Select a DMA channel for the parallel port for use during ECP mode. The settings are 3 or 1. The default setting is 3.

### **Parallel Port EEP Type**

Select EPP port type 1.7 or 1.9.

**Onboard Legacy Audio**

This fields controls the onboard legacy audio.

- Sound Blaster
- SB I/O Base Address
- SB IRQ Select
- SB DMA Select
- MPU-401
- MPU-401 I/O Address
- Game Port (200-207H)

**OnChip Modem**

This item allows you to control the onboard MC 97 modem. The settings are Auto and Disabled.

### 3.8 Power Management Setup

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

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Power Management Setup

IPCA Function	Enabled	Item Help
Power Management	Press Enter	
ACPI Suspend Type	S1(POS)	Menu Level >
PM Control by APM	Yes	
Video Off Option	Suspend->Off	
Video Off Method	V/H SYNC+Blank	
MODEM Use IRQ	3	
Soft-Off by PWRBTN	Instant-Off	
State After Power Failure	Last Status	
LED In Suspend	Dual	
Wake Up Events	Press Enter	
↑↓ →← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

#### IPCA Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI). The Settings are Enabled and Disabled.

## Power Management

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

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

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

<b>Min. Power Saving</b>	Minimum power management. Suspend Mode = 1hr., and HDD Power Down = 15 min.
<b>Max. Power Saving</b>	Maximum power management — Suspend Mode = 1 min., and HDD Power Down = 1 min.
<b>User Defined (default)</b>	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.

## ACPI Suspend Type

This item will set which ACPI suspend type will be used.

<b>S1 (POS)</b>	The S1 sleeping state is low wake-up latency sleeping state. In this state, no system context is lost(CPU or chip set) and hardware maintains all system context.
<b>S3 (STR)</b>	The S3 state is a low wake-up latency sleeping state where all system context is lost except system memory. CPU, cache, and chipset context are lost in this state. Hardware maintains memory context and restores some CPU and L2 configuration context.



**PM Control by APM**

- No** System BIOS will ignore APM when power managing the system.
- Yes** System BIOS will wait for APM's prompt before it enter any PM mode

**Note :**Enable this for O.S. with APM like Windows® 98, Windows® NT, etc.

**Video Off Option**

The settings are N/A, Standby, Doze, or Suspend. This option is for choosing the setting in which the monitor will turn off.

- N/A** Always turn on.
- Doze** During Doze mode, the monitor will be turned off.
- Standby** During Standby mode, the monitor will be turned off.
- Suspend** During Suspend mode, the monitor will be turned off.
- The default setting is Standby.

**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 (default)** Initial display power management signaling.

**Modem Use IRQ**

This determines the IRQ in which the MODEM can use.  
The settings are: 3, 4, 5, 7, 9, 10, 11, NA.

**Soft-Off by PWR-BTTN**

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: Delay 4 Sec, Instant-Off.

**State After Power Failure**

This option will determine how the system will power on after a power failure.

**LED In Suspend**

This item determines which state the Power LED will use. The settings are Blink, Dual color, and Single color.

- Blink**                      Power LED will blink when the system enters the suspend mode.
- Dual Color**                Power LED will change its color when the system enters the suspend mode.
- Single Color**              Power LED will always remain lit.  
(default)

**Wake Up Events**

VGA	Off	Item Help
LPT & COM	LPT/COM	
HDD & FDD	On	Menu Level >
PCI Master	Off	
Power On by PCI Card	Disabled	
Wake Up On LAN/Ring	Disabled	
RTC Alarm Resume	Disabled	
Date (of Month)	0	
Resume Time	0:0:0	
IRQs Activity Monitoring	Press Enter	
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

**VGA**

When Enabled, you can set the VGA to awaken the system.

**LPT & COM**

When On of LPT & COM, any activity from one of the listed system peripheral devices or IRQs wakes up the system

**HDD & FDD**

When On of HDD & FDD, any activity from one of the listed system peripheral devices or IRQs wakes up the system

**PCI Master**

When On of PCI Master, any activity from one of the listed system peripheral devices or IRQs wakes up the system

**Wake Up On LAN/Ring**

To use this function, you need a LAN add-on card or Modem which supports power on functions. During Disabled, the system cannot be boot up through LAN and ignores any incoming call from the modem. During Enabled, the system can be boot up through LAN and modem.

**RTC Alarm Resume**

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

**Date(of month) Alarm**      You can choose which month the system will boot up. Set to 0, to boot every day.

**Time(hh:mm:ss) Alarm**      You can choose what hour, minute and second the system will boot up.

**Note:** If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

### IRQs Activity Monitoring

Primary INTR	On	Item Help	
IRQ3 (COM 2)	Primary		
IRQ4 (COM 1)	Primary	Menu Level >	
IRQ5 (LPT 2)	Primary		
IRQ6 (Floppy Disk)	Primary		
IRQ7 (LPT 1)	Primary		
IRQ8 (RTC Alarm)	Disabled		
IRQ9 (IRQ2 Redir)	Secondary		
IRQ10 (Reserved)	Secondary		
IRQ11 (Reserved)	Secondary		
IRQ12 (PS/2 Mouse)	Primary		
IRQ13 (Coprocessor)	Primary		
IRQ14 (Hard Disk)	Primary		
IRQ15 (Reserved)	Disabled		
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults			

The following is a list of IRQ's, **I**nterrupt **R**e**Q**uests, 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.

When set On, activity will neither prevent the system from going into a power management mode nor awaken it.

- IRQ3 (COM 2)
- IRQ4 (COM 1)
- IRQ5 (LPT 2)
- IRQ6 (Floppy Disk)
- IRQ7 (LPT 1)
- IRQ8 (RTC Alarm)
- IRQ9 (IRQ2 Redir)
- IRQ10 (Reserved)
- IRQ11 (Reserved)
- IRQ12 (PS/2 Mouse)
- IRQ13 (Coprocessor)
- IRQ14 (Hard Disk)
- IRQ15 (Reserved)

### 3.9 PnP/PCI Configuration Setup

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

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PnP/PCI Configuration Setup

PnP OS Installed	No	Item Help
Reset Configuration Data	Disabled	
Resources Controlled By	Auto (ESCD)	Menu Level >
IRQ Resources	Press Enter	
DMA Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ for VGA	Enabled	
Assign IRQ for USB	Enabled	
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

#### PnP OS Installed

When set to YES, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows® 95 or 98. When set to NO, BIOS will initialize all the PnP cards. So, for non-PnP operating system (DOS, Netware®), this option must set to Yes.

**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 settings are: Enabled and Disabled .

**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®95/98. If you set this field to “manual” choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a “➤”). The settings are: Auto(ESCD), Manual.

**IRQ Resources**

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

**DMA Resources**

This sub menu can let you control the DMA resource.

**PCI/VGA Palette Snoop**

Leave this field at *Disabled*. The settings are Enabled, Disabled.

**Assign IRQ for VGA**

Leave this field at *Enabled*. The settings are Enabled, Disabled.

**Assign IRQ for USB**

Leave this field at *Enabled*. The settings are Enabled, Disabled.

### 3.10 PC Health (Optional)

This section helps you to get more information about your system including CPU temperature, FAN speed and voltages. It is recommended that you contact with your motherboard supplier to get proper value about your setting of the CPU temperature.

CMOS Setup Utility - Copyright(C) 1984-1999 Award Software  
PC Health Status

Current CPU Temp.	33°C/91°F	Item Help	
Current System Temp.	23°C/73°F		
Current CPUFan Speed	6124Rpm	Menu Level >	
Current SYSFan Speed	0Rpm		
Vcore	2.03V		
2.5V	2.41V		
3.3V	3.30V		
5V	4.92V		
12V	11.40V		
↑↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults			

#### Current CPU Temp.

This item shows the current CPU temperature.

#### Current System Temp.

This item shows the current system temperature.

#### Current CPUFAN1 Temp.

This item shows the current CPUFAN1 speed.



**Current CPUFAN2 Temp.**

This item shows the current CPUFAN2 speed.

**Vcore**

This item shows the current system voltage.

### 3.11 Frequency/Voltage Control

This section is for setting CPU Frequency/Voltage Control.

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software  
 Frequency/Voltage Control

CPU Vcore Select CPU Vio Select Auto Detect DIMM/PCI Clk Spread Spectrum Modulated CPU Host/PCI Clock	Default 3.3V Enabled Disabled Default	Item Help
		Menu Level >
↑↓ →← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

#### Auto Detect DIMM/PCI CLK

This item allows you to enable/disable auto detect DIMM/PCI Clock.

The settings are: Enabled, Disabled.

#### Spread Spectrum Modulated

This item allows you to set the Spread Spectrum.

#### CPU Host/PCI Clock

This item allows you to select the CPU Host/PCI Clock.

## **3.12 Load Fail-Safe/Optimized Defaults**

### **Load Fail-Safe Defaults**

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

### **Load Optimized Defaults**

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

### 3.13 Set Supervisor/User Password

You can set either supervisor or user password, or both of them. The differences are:

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

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

ENTER PASSWORD:

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

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

PASSWORD DISABLED.

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

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

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

## Chapter 4

### CREATIVE AUDIO DRIVER

#### 1. Creative CT5880

The Creative® CT5880 digital controller provides the next generation of audio performance to the PC market

##### 1.1 Features

- SoundScape WaveTable Synthesizer.
- Full DOS Game Compatibility.
- PCI Bus Master for fast DMA.
- Fully Compliant with PC97 Power Management Specification.

##### 1.2 System Requirements

This section describes system requirements for the Audio Driver installation and Usage.

<b>Computer</b>	Intel® Pentium® II/III or Coppermine processor or higher
<b>Operating system</b>	DOS 5.0 or higher, Windows® 95, Windows® 98, Windows® NT 3.51 or 4.0, or OS/2®
<b>CD-ROM</b>	Double Speed or Higher
<b>Chipset</b>	Creative® CT5880

### 1.3 Audio Driver Setup

Insert the CD-title into your CD-ROM drive. This CD will auto-run. This will display installation for Microsoft DirectX6, Creative Audio PCI Sound Drivers and VIA chipset. Please make sure that you have finished the installation for VIA Chipset Drivers before proceeding to install the Audio Driver. To install the audio driver, click on the button for automatic installation.

#### 1.3-1 Windows® 95/98

If you start Windows® 95/98, this will automatically detect this hardware onboard “PCI Multimedia Audio Device” and “Gameport Joystick”. You need to click “Next”, then “Finish”. Do not click on the “Cancel”. The driver need these ID.

#### **Audio Driver Installation Procedure:**

- Step 1:** Insert the provided CD\_ROM disk into the CD-ROM drive.
- Step 2:** Look for the CD\_ROM drive, double click on the CD\_ROM icon. This will show the setup screen.
- Step 3:** Click on “CREATIVE Audio PCI” sound drivers icon.
- Step 4:** This will copy the audio drivers into the hard drive.
- Step 5:** A message will appear stating you must restart the Windows® 95/98 system, select **yes** to restart.

**Note:** You must install Audio Driver before installing USB support.

### **1.3-2 Windows® NT 4.0**

#### **Audio Driver Installation Procedure:**

- Step 1:** Click **Start** menu and select **Control Panel** from **Settings** group.
- Step 2:** Select **Multimedia** icon.
- Step 3:** Click on the **Devices** tab.
- Step 4:** Click **Add**.
- Step 5:** Double click on **Unlisted or Updated Driver** in the list.
- Step 6:** Insert the **CD-ROM Disk** into the CD-ROM Drive.
- Step 7:** When the Install from Disk dialog box appears, look for your CD-ROM drive: **:\Sound\Creative\AudioPCI\Audio\NT40\English\NT4drv**
- Step 8:** Click **OK**.
- Step 9:** Click **OK**.
- Step 10:** A message will appear stating that the drivers were successfully installed. Click **OK**. You must now restart Windows® NT 4.0.

### **1.4 Detailed User's Manual**

The detailed user's manual can be found on following path of the CD-ROM provided:

**PATH: Sound\Creative\AudioPCI\Docs\Manual.doc**



## Chapter 5

### VIA CHIPSET DRIVER

#### 1. Overview

The MS-6309 is paired with the VIA VT82C686A south bridge. Highly advanced, the south bridge combines an integrated 2D/3D engine with DVD hardware acceleration, AC-97 audio support for SoundBlaster Pro and FM synthesis legacy audio.

##### 1.1 Audio Features

- AC'97 audio support for SoundBlaster Pro
- FM synthesis legacy audio

##### 1.2 System Requirements

This section describes system requirements for the VGA Driver installation and Usage.

<b>Computer</b>	Intel® Celeron™/Coppermine FC-PGA
<b>Monitor</b>	VGA Support, minimum 640x480 resolution
<b>Operating system</b>	DOS 5.0 or higher, Windows® 95/98, Windows® NT 3.51 or 4.0, or OS/2®
<b>CD-ROM</b>	Double Speed or Higher
<b>Chipset</b>	VIA® 694X/VT82C686A chipset

## **2. Driver Setup & Usage Procedures for Windows® 98**

Insert the CD-title into your CD-ROM drive. The CD will auto-run and will display the four icons in the monitor “VIA Chipset Drivers”, “VIA AC97 PCI Sound Drivers” and “Download VIA Drivers”. In order to install the drivers correctly, you must install the “Via Chipset Drivers” first, and then install the “VIA AC97 PCI Sound Drivers”.

### **2.1 VIA Chipset Drivers installation procedure:**

- Step 1:** Insert the provided CD\_ROM disk into the CD-ROM drive.
- Step 2:** Look for the CD\_ROM drive, double click on the CD\_ROM icon. This will show the setup screen.
- Step 3:** Click on “Via Chipset Drivers” icon and the screen will show “VIA Service Pack 4.19”.
- Step 4:** Click “Next” and the screen will show four drivers “VIA Atapi Vendor Support Driver”, “AGP VxD Driver”, “VIA Chipset Function’s Registry” and “IRQ Routing Miniport Driver”. Select all four drivers and click on “Next”.
- Step 5:** The setup program will request you to choose “Install VIA Atapi Vendor Support Driver”. Please select “Install” and click “Next” to continue.
- Step 6:** Click on enabled DMA Mode, Please select “Install” and click “Next” to continue.
- Step 7:** The setup program will request you to choose “Install VIA AGP VxD in turbo mode”, “Install VIA AGP VxD in normal mode” or “Uninstall VIA AGP VxD”. Please select “Install VIA AGP VxD in turbo mode” and click on “Next”.

- Step 8:** The setup program will let you choose between “Install VIA Chipset Functions Registry” or “Uninstall VIA Chipset Functions Registry”. Please select “Install VIA Chipset Functions Registry” and then click “Next”.
- Step 9:** The setup program will let you choose between “Install VIA IRQ Routing Miniport Driver” or “Uninstall VIA IRQ Routing Miniport Driver”. Please select “Install VIA IRQ Routing Miniport Driver”.
- Step 10:** The setup program will request you to choose whether to restart the computer or not. Please select “Yes, I want to restart my computer now” and click Finish. The computer will restart and finish the VIA Chipset Drivers installation.

**2.2 VIA AC97 PCI Sound Drivers installation procedure:**

- Step 1:** Insert the provided CD\_ROM disk into the CD-ROM drive.
- Step 2:** Look for the CD\_ROM drive, double click on the CD\_ROM icon. This will show the setup screen.
- Step 3:** Click on “VIA AC97 PCI Sound Drivers” icon and the screen will show “VIA AC97 PCI Sound Drivers”.
- Step 4:** Click “Next” to proceed and the screen will show “Install”, or “Remove”. Select “Install” and then click on “Next”.
- Step 5:** The setup program will request you to choose whether to restart the computer or not. Please select “Yes, I want to restart my computer now” and click Finish. The computer will restart and finish the AC97 Audio Drivers Installation.

### **3. Windows® NT 4.0**

Install Windows® NT 4.0 Service Pack 3 or the latest version before installing the VIA drivers.

Insert the CD-title in the CD-ROM drive. The CD will auto-run and will display four icons on the screen “VIA Chipset Drivers”, “VIA AC97 PCI Sound Drivers” and “Download VIA Drivers”. In order to install the drivers properly, install the “VIA Chip Drivers” first and then install the “VIA AC97 PCI Sound Drivers”.

#### **3.1 VIA Chipset Drivers Installation Procedure:**

- Step 1:** Insert the provided CD\_ROM disk into the CD-ROM drive.
- Step 2:** Look for the CD\_ROM drive, double click on the CD\_ROM icon. This will show the setup screen.
- Step 3:** Click on “VIA Chipset Drivers” icon and the screen will show “VIA Service Pack 4.19”.
- Step 4:** Click “Next” to proceed and the screen will show “Install”, “Uninstall” or “Enable/Disable Ultra DMA for IDE Driver”. Select “Install” and then click on “Next”.
- Step 5:** Please click on “Yes, I want to restart my computer”.

**3.2 VIA AC97 PCI Sound Drivers Installation Procedure:**

- Step 1:** Insert the provided CD\_ROM disk into the CD-ROM drive.
- Step 2:** Look for the CD\_ROM drive, double click on the CD\_ROM icon. This will show the setup screen.
- Step 3:** Click on “VIA AC97 PCI Sound Drivers” icon and the screen will show the “VIA PCI Audio Drivers” setup screen. Click “Next” to continue
- Step 4:** The setup program will show “Install” or “Remove” in the screen. Select “Install” and click “Next”
- Step 5:** The setup program will show the following on the screen:

Please choose “Add” from the next window  
and add the following device:  
VIA AC97 PCI Audio Device  
VIA MIDI External Port

Then click “OK”.

- Step 6:** Follow the steps shown in **Step 5** to finish the VIA AC97 PCI Audio Drivers Installation.