

## Chapter 1

### INTRODUCTION

The MS-6301 ATX CA8 mainboard is a high-performance computer mainboard based on Intel® 820 chipset. The MS-6301 is designed for the Intel® Pentium™ II/III processor for high-end business/personal desktop markets.

The Intel® 820 chipset is the first generation chipset for the Intel® Pentium® II/III processor. An integrated centralized memory arbiter allocates memory bandwidth to multiple system agents to optimize system memory utilization. A new chipset component interconnect, the hub interface, is designed into the Intel 820 chipset to provide an efficient communication channel between the memory controller hub and I/O controller hub.

The Intel 820 chipset contains four core components: the Memory Controller Hub (MCH), Memory Translator Hub (MTH), the I/O Controller Hub (ICH) and the Firmware Hub (FWH). The MCH integrates a 100MHz/133MHz CPU FSB, and a fix 100MHz SDRAM controller and high-speed hub interface for communication with the ICH. The ICH integrates an Ultra ATA/66(ICH) controller, USB host controller, LPC interface controller, FWH interface controller, PCI interface controller, AC'97 digital controller and a hub interface for communication with the MCH.

The Intel® 82802 Firmware Hub (FWH) component is part of the Intel® 820 chipset. The FWH is key to enabling future security and manageability infrastructure for the PC platform.

## Chapter 2

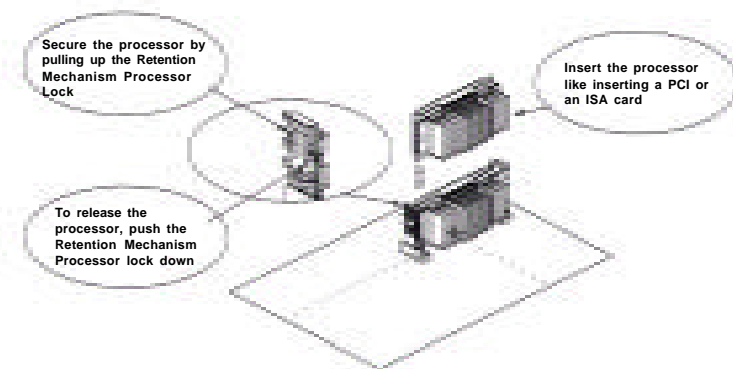
### HARDWARE INSTALLATION

#### 2.1 Central Processing Unit: CPU

##### 2.1-1 Processor Installation Procedure

**Step 1:** Install the Retention Mechanism.

Attach the Retention Mechanism to the Mainboard. Push the Plastic lock to secure the Retention Mechanism into the mainboard.



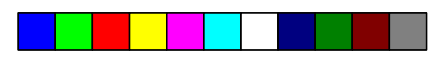
**Step 2:** Install the Processor.

Insert the Processor like inserting a PCI or an ISA card.

**Step 3:** Lock the Processor.

Lock the processor by pulling up the Retention Mechanism processor lock shown above.

**Note:** The Retention Mechanism processor lock can only lock S.E.C.C. 2 and S.E.P.P. processor.



## 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.





## 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 “G ameport 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**

### 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 (Optional)**

This entry shows your PC health status.

**Frequency/Voltage Control**

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, Feb 28,1999	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	Floppy	
Second Boot device	HDD-0	
Third Boot device	LS/Zip	
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	
Report No FDD for Win 95	No	

↑ ↓ → ← 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.

**Disable**(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®.

**Report No FDD For Win 95**

Whether report no FDD for Win 95 or not. The settings are: Yes, No.



### 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 CAS Latency Time	3	Item Help
SDRAM Cycle Time Tras/Trc	6/8	
SDRAM RAS-to-CAS Delay	1	Menu Level >
SDRAM RAS Precharge Time	3	
System BIOS Cacheable	Disabled	
Video BIOS Cacheable	Disabled	
Memory Hole at 15M-16M	Disabled	
CPU Latency Timer	Disabled	
Delayed Transaction	Disabled	
On-Chip Video	Enabled	
Local Memory Frequency	100MHz	
*Onboard Display Cache Setting*		
Initial Display Cache	Enable	
CAS# Latency	3	
Paging Mode Control	Open	
RAS-to-CAS Override	by CAS#LT	
RAS# Timing	Fast	
RAS# Precharge Timing	Fast	
↑ ↓ → ← 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 CAS latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2 and 3.

### SDRAM Cycle Time Tras/Trc

Select the number of SCLKs for an access cycle. The settings are: 5/7 and 6/8.

### SDRAM RAS-to-CAS Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2 and 3.

### SDRAM RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. *Fast* gives faster performance; and *Slow* gives more stable performance. This field applies only when synchronous DRAM is installed in the system. The settings are: 2 and 3.

### 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 BIOS 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.

### Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The settings are: Enabled and Disabled.

### CPU Latency Timer

During Enabled, A deferrable CPU cycle will only be Deferred after it has been in a Snoop Stall for 31 clocks and another ADS# has arrived. During Disabled, A deferrable CPU cycle will be Deferred immediately after the GMCH receives another ADS#.

### Delayed 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 and Disabled.

### On-Chip Video

This option enabled/disabled the on-chip video window size for VGA driver use. The settings are: Enabled, Disabled.

### Local Memory Frequency (For Intel 810E chipset only)

Select the Onboard Display Cache frequency. The settings are: 133MHz or 100MHz.

### Onboard Display Cache Setting (optional)

#### Initial Display Cache

Enable and Disable Onboard Display Cache. The settings are: Enable and Disable.

#### CAS# Latency

The number of clock cycles of CAS# Latency depends on the Onboard Display cache timing. The settings are: 2 and 3.

#### Paging Mode Control

Select the paging mode control. The settings are: Open and Close.

#### RAS-to-CAS Override

This item allows you to insert a timing delay between the CAS and RAS strobe signals, used when Onboard display cache is written to, read from, or refreshed. During by CAS# LT, this will depend on the Onboard Display Cache CAS# Latency setting. During Override (2), RAS-to-CAS time= 2.

#### RAS# Timing

This option controls RAS# active to Precharge, and refresh to RAS# active delay (in local memory clocks).

**Slow** RAS# to precharge ( $t_{RAS}$ ) = 7, refresh to RAS# act ( $t_{RC}$ ) = 10

**Fast** RAS# to precharge ( $t_{RAS}$ ) = 5, refresh to RAS# act ( $t_{RC}$ ) = 8

#### RAS# Precharge Timing

This item controls RAS# precharge (in local memory clocks)

**Slow** RAS# Precharge Time=3

**Fast** RAS# Precharge Time=2

### 3.7 Integrated Peripherals

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

OnChip Primary PCI IDE	Enabled	Item Help
OnChip Secondary PCI IDE	Enabled	
IDE Primary Master PIO	Auto	Menu Level >
IDE Primary Slave PIO	Auto	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
USB Controller	Enabled	
USB Keyboard Support	Disabled	
Init Display First	PCI Slot	
AC97 Audio	Disabled	
AC97 Modem	Enabled	
Onboard Audio Device	Enabled	
IDE HDD Block Mode	Enabled	
Power On Function		
KB Power On Password		
Hot Key Power On		
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		
UART Mode Select	Normal	
RxD, TxD Active	Hi, Lo	
IR Transmission Delay	Enabled	
UR2 Duplex Mode	Half	
USE IR Pins	IR-Rx2Tx2	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
EPP Mode Select	EPP 1.7	
ECP Mode use UDMA	3	
PWRON After PWR-Fail	Off	
Game Port Address	Disabled	
Midi Port Address	Disabled	
Midi Port IRQ	5	
Power Status LED	Blinking	

#### OnChip Primary/Secondary PCI IDE

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 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.

### IDE 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.

### USB Controller

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

### 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.

### Init Display First

This item allows you to decide to activate whether PCI Slot or on-chip VGA first. The settings are: PCI Slot, Onboard.

### AC97 Audio/Modem

This item allows you to decide to enable/disable the 810 chipset family to support AC97 Audio/Modem. The settings are: Enabled, Disabled.

### Onboard Audio Device (For Aureal Vortex 8810 onboard only)

This item allows you to enable/disable the Onboard Aureal audio chipset. 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.

### Power On Function

This function allows you to select the item to power on the system. The settings are : Button Only, Mouse Left, Mouse Right, Password, Hotkey, keyboard 98.

### Onboard FDC 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 Mode Select

This item allows you to determine which InfraRed(IR) function of the onboard I/O chip, this functions uses.

### Onboard Parallel Port

**Disabled**  
**(3BCH/IRQ7)/**  
**(278H/IRQ5)/**  
**(378H/IRQ7)**

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

**SPP/EPP/ECP/**  
**ECP+EPP**

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP." To operate the onboard parallel port in the EPP modes simultaneously, choose "EPP." 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.

#### **PWRON After PWR-FAIL**

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

#### **Game Port Address/Midi Port Address**

This will determine which Address the Game Port/Midi Port will use.

#### **Power Status LED**

This item determines which state the Power LED will use. The settings are Blinking, Dual, and Single. During blinking, the power LED will blink when the system enters the suspend mode. When the mode is in Dual, the power LED will change its color. Choose the single and the power LED will always remain lit.

### 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.

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

ACPI Suspend Type	S1(POS)	Item Help
Power Management	User Define	
Video Off Method	DPMS	
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	
Modem Use IRQ	3	Menu Level >
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-Off by PWR-BTTN	Instant-Off	
Wake-Up by PCI Card	Disabled	
Power On by Ring	Disabled	
Wake-Up on LAN	Disabled	
USB KB Wake-Up from S3	Disabled	
CPU Thermal-Throtting	62.57%	
Resume By Alarm	Disabled	
Date(of Month) Alarm	0	
Date(hh:mm:ss)	0 0 0	
**Reload Global Timer Events**		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ[A-D]#	Disabled	
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

### ACPI Suspend Type

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

#### S1 (POS)

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.

#### S3 (STR)

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.

### Power Management

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

1. Suspend Mode
2. HDD Power Down

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

Min. Power Saving	Minimum power management. Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management —Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined (default)	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

### Video Off Method

This determines the manner in which the monitor is blanked.

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

**Video Off In Suspend**

This determines the manner in which the monitor is blanked.  
The settings are: Yes and No.

**Suspend Type**

Select the Suspend Type. The settings are: PWRON Suspend, Stop Grant.

**Modem Use IRQ**

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

**Suspend Mode**

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off. The settings are: 1/2/4/8/12/20/30/40 Min, 1 Hour, and Disabled.

**HDD Power Down**

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.  
The settings are: 1/2/3/4/5/6/7/8/9/10/11/12/13/14/15Min and Disabled.

**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.

**Wake-Up by PCI Card**

This will enable the system to wake up through PCI Card peripheral.  
The settings are : Enabled and Disabled.

### Power On by Ring

During Disabled, the system will ignore any incoming call from the modem. During Enabled, the system will boot up if there's an incoming call from the modem.

### Wake-Up on LAN

To use this function, you need a LAN add-on card which support power on functions. It should also support the wake-up on LAN jumper (JWOL1).

<b>Enabled</b>	Wake up on LAN supported.
<b>Disabled</b>	Wake up on LAN not supported.

### USB KB Wake-Up From S3

This option is used to Enabled/Disabled USB keyboard wake up with suspend to RAM.

### CPU Thermal-Throttling

Select the CPU THRM-Throttling rate. The settings are: 25.0%, 37.5%, 50.0%, 62.5%, 75.0%, 87.5%.

### Resume by Alarm

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:

<b>Date(of month) Alarm</b>	You can choose which month the system will boot up. Set to 0, to boot every day.
<b>Time(hh:mm:ss) Alarm</b>	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.

### Reload Global Timer Events

Reload Global Timer events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *Enabled*, even when the system is in a power down mode.

**Primary IDE 0**

**Primary IDE 1**

**Secondary IDE 0**

**Secondary IDE 1**

**FDD, COM, LPT Port**

**PCIPIRQ[A-D]#**

### 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.

CMOS Setup Utility - Copyright(C) 1984-1999 Award Software  
PnP/PCI Configuration Setup

Reset Configuration Data	Disabled	Item Help
Resources Controlled By	Auto	
IRQ Resources	Press Enter	
DMA Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	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		

#### 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 “**m**anual” 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.

### 3.10 PC Health Status (optional)

This section shows the Status of you CPU, Fan, Warning for overall system status.

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

CPU Warning Temperature	Disabled	Item Help
Current System Temp	39°C/102°F	
Current CPU Temperature	66°C/150°C	
Current System Fan	0RPM	
Current Power Fan	0RPM	
Current CPU FAN	5532RPM	Menu Level >
Vcore	1.96V	
VTT	1.48V	
3.3V	3.24V	
+5V	4.89V	
+12V	11.79V	
-12V	-12.19V	
-5V	-4.53V	
VBAT(V)	3.10V	
5VSB(V)	5.37V	
Chassis Intrusion Detect	Disabled	
Shutdown Temperature	Disabled	
↑ ↓ → ← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults		

#### CPU Warning Temperature

During Enabled, this will warn the user when the CPU temperature reach a certain temperature.

**Current System Temp/Current CPU Temperature/Current System Fan (optional)/Power Fan (optional)/Cpu Fan/Vcore/VTT/3.3V/+5V/+12V/-12V/-5V/VBAT(V)/5VSB(V)**

This will show the CPU/FAN/System voltage chart and FAN Speed.

**Chassis Intrusion Detect**

Set this option to Enabled, Reset, or Disabled the chassis intrusion detector. During Enabled, any intrusion on the system chassis will be recorded. The next time you turn on the system, it will show a warning message. To be able to clear those warning, choose reset. After clearing the message it will go back to Enabled.

**Shutdown Temperature**

This option is for setting the Shutdown temperature level for the processor. When the processor reach the temperature you set, this will shutdown the system.

### 3.11 Frequency/Voltage Control

This section is for setting CPU Frequency/Voltage Control.

CMOS Setup Utility - Copyright(C) 1984-1999 Award Software  
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Enabled	Item Help
CPU Clock/Spread Spectrum	Default	
CPU Ratio	Auto	
		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.

#### CPU Clock/Spread Spectrum

This item allows you to set the CPU Clock/Spread Spectrum.

#### CPU Ratio

This item allows you to select the CPU ratio.

### 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.



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.





### 2.1-2 CPU Core Speed Derivation Procedure

The mainboard CPU Core/Bus ratio and CPU Bus Frequency can both be set through BIOS setup

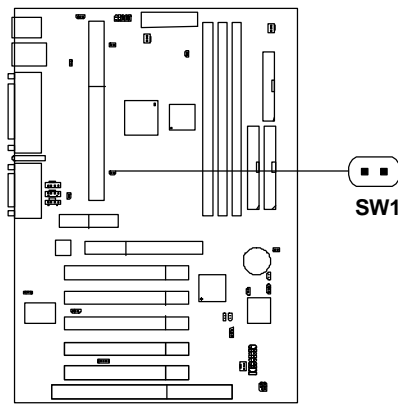
**If** CPU Clock = 100MHz  
Core/Bus ratio = 4  
**then** CPU core speed = Host Clock x Core/Bus ratio  
= 100MHz x 4  
= 400MHz



CPU pin B21 is 66/100MHz FSB selector pin  
CPU pin A14 is 100/133MHz FSB selector pin



### 2.1-3 Overclocking Jumper: SW1

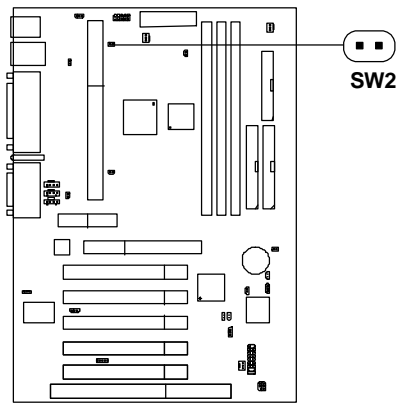
Overclocking is operating a CPU/Processor beyond its specified frequency. SW1 jumper is used for overclocking.





SW1	Function
 Short	Automatically detect CPU Bus Frequency (133Mhz)
 Open	Allows CPU overclocking. Set 100MHz to 133Mhz

**2.1-4 Clocking Jumper for 66MHz (FSB) processor: SW1**

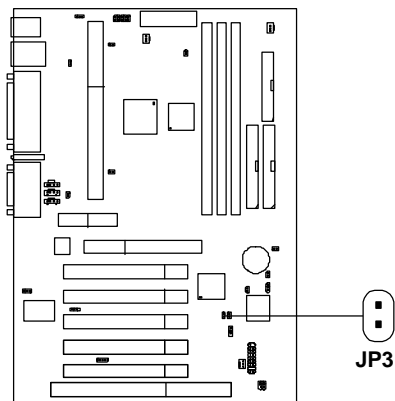
This jumper is used to enable 66MHz (FSB) processor. To be able to use 66MHz(FSB) processor, you need to set this jumper.





SW2	Function
 Short	<b>Default</b> (if 66MHz FSB processor is installed, the system will be unable to boot)
 Open	<b>Allows 66MHz (FSB) processor to run at 100MHz</b>

### 2.1-5 CPU Core/Bus Ratio strap to Safe Mode: JP3

This jumper is used to adjust the CPU core/ratio to safe mode.

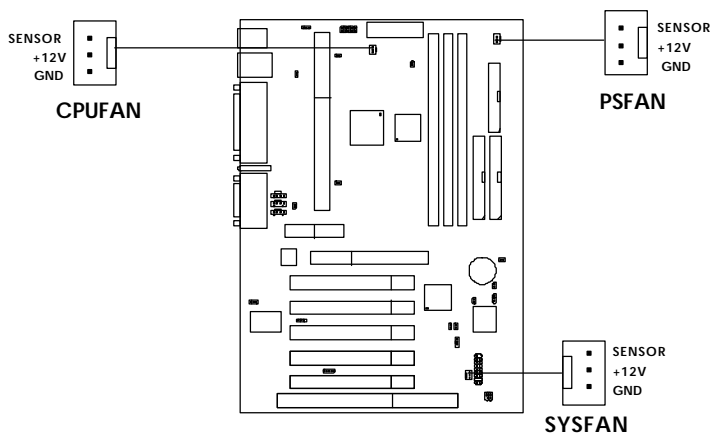


JP3	Function
 Short	Safe Mode (Core/Bus Ratio by 2)
 Open	Core/Bus Ratio in ICH Register (Default)

**Warning:** If CPU Core/Bus ratio is set too high that the system hang. Short pin JP3, then restart the system until boot up, the CPU core/bus ratio will be set to the default setting by 2. Properly shutdown the system, and remove the short on JP3.

### 2.1-6 Fan Power Connector: CPUFAN/PSFAN/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.



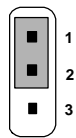
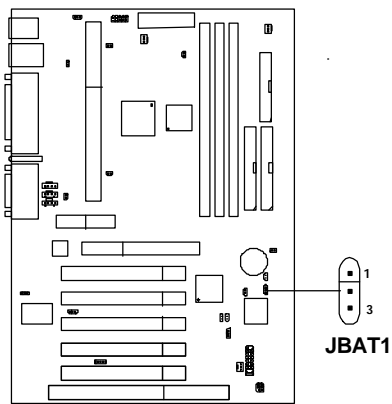
**PSFAN:** Power Supply Fan  
**CPUFAN:** Processor Fan  
**SYSFAN:** System(Chassis) Fan

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.

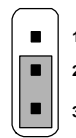
- Note:**
1. Always consult vendor for proper CPU cooling fan.
  2. CPU FAN supports the FAN control. You can install PC Alert utility. This will automatically control the CPU FAN Speed according to the actual CPU temperature.
  3. During Suspend mode, FAN status can be set through BIOS.

## 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

---

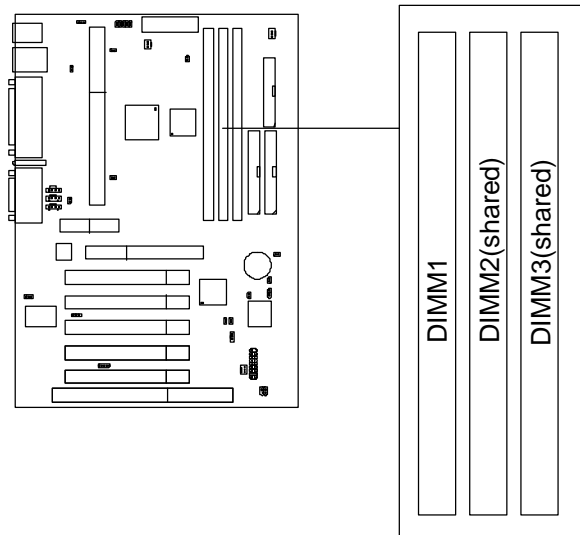
**Note:** You can clear CMOS by shorting 2-3 pin, while the system is off. Then, return to 1-2 pin position. Avoid clearing the CMOS while the system is on, it will damage the mainboard. Always unplug the power cord from the wall socket.

---

## 2.3 Memory Installation

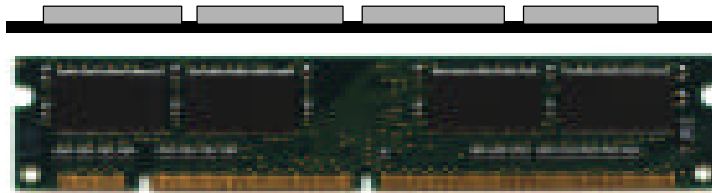
### 2.3-1 Memory Bank Configuration

The mainboard supports a maximum memory size of 512MB or Registered DIMM 1GB(32 device) : It provides three 168-pin DIMMs sockets. DIMM 2 and DIMM 3 sockets are shared.

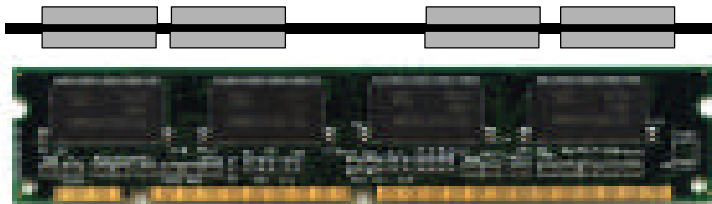


### 2.3-2 Memory Installation Procedures

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

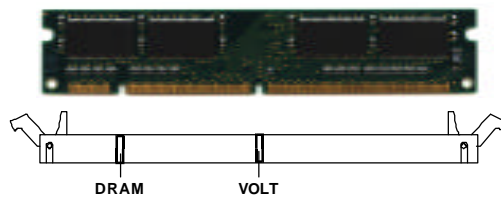


**Single Sided DIMM**



**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. Support only SDRAM DIMM w/o ECC function.
2. To operate properly, at least one DIMM module must be installed.
3. DIMM Slot configuration:

DIMM1	DIMM2	DIMM3
D/S	D/S	-
D/S	-	D/S
D/S	S	S

D: Double Sided Memory  
S: Single Sided Memory

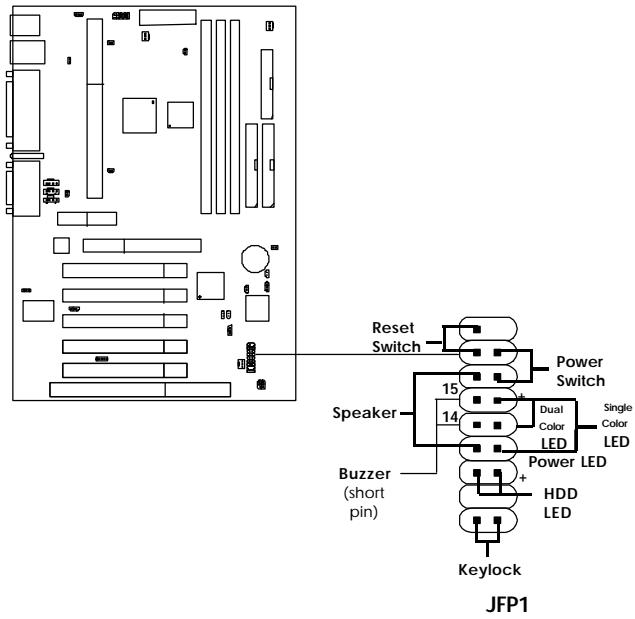
4. The DRAM addressing and the size supported by the mainboard is shown below:

**Table 2.3-1 SDRAM Memory Addressing**

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single Side(S) no. pcs.	Double Side(D) no. pcs.
64MB	8Mx8	ASYM	12	9	64MBx8	128MBx16
64MB	4Mx16	ASYM	12	8	32MBx4	64MBx8
128MB	16Mx8	ASYM	12	10	128MBx8	256MBx16
128MB	32Mx4	ASYM	12	11	256MBx16	512MBx32

### 2.4 Case Connector: JFP1

The Keylock, 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.

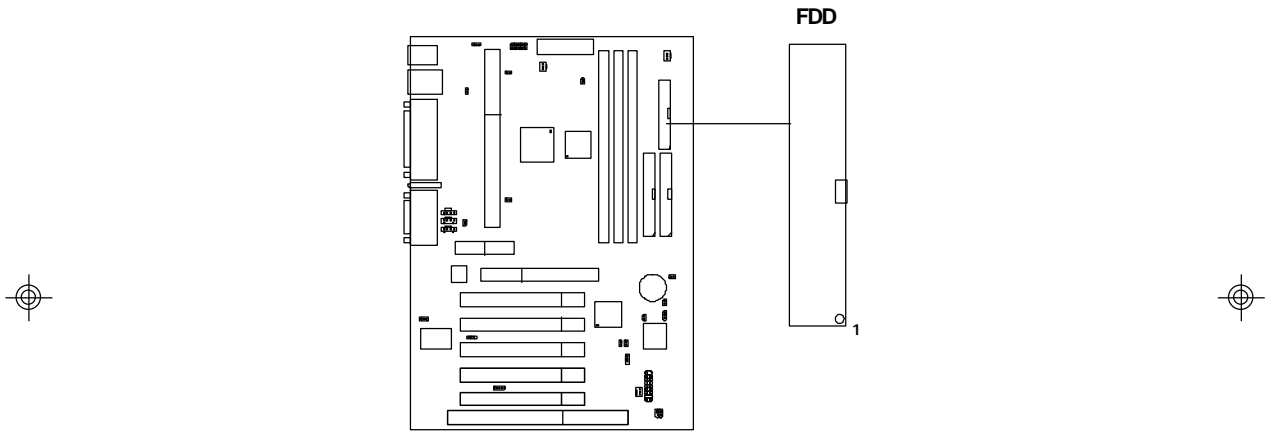
### 2.4-6 Keylock

Keylock allows you to disable the keyboard for security purposes. You can connect the keylock to this pin.



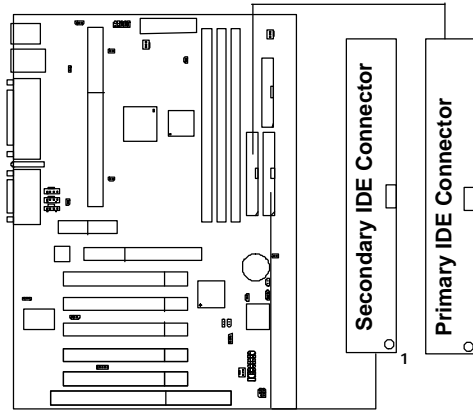
## 2.5 Floppy Disk Connector: FDD

The mainboard also provides a standard floppy disk connector FDD 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(ICH0) Controller that provides PIO mode 0~4, Bus Master, and Ultra DMA/33 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.

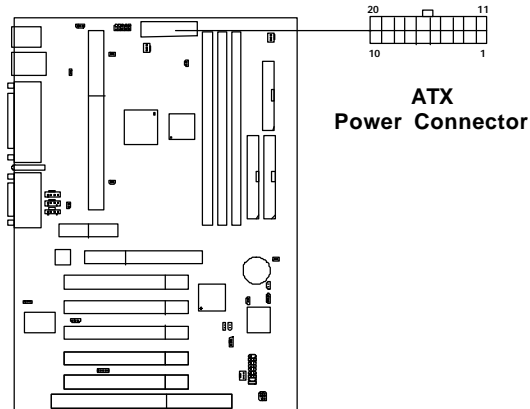
### IDE2(Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.

## 2.7 Power Supply

### 2.7-1 ATX 20-pin Power Connector: JPWR1

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.



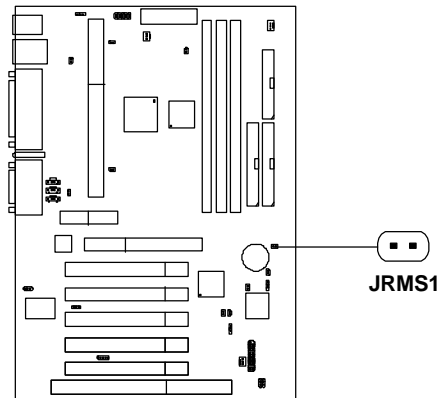
#### PIN DEFINITION

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.

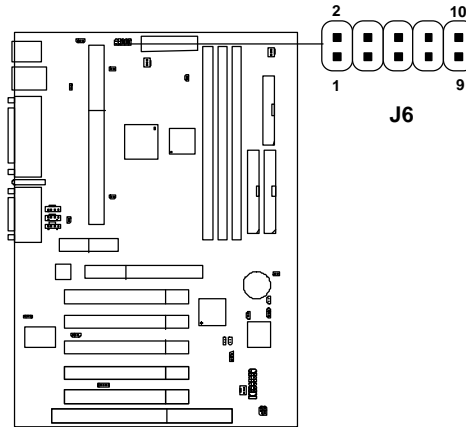
### 2.7-2 Remote Power On/Off Switch: JRMS1

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.



## 2.8 IrDA Infrared Module Connector: J6

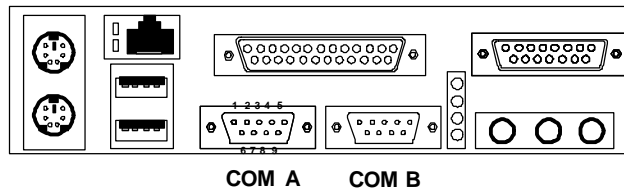
The mainboard provides one 5-pin infrared (J6) connector for IR modules. This connector is for optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function. FIR and Consumer IR are reserved functions.



PIN	SIGNAL
1	VCC
2	NC
3	NC
4	CIIRX
5	IRRX
6	5VSB
7	GND
8	NC
9	IRTX
10	NC

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

The mainboard provides two 9-pin male DIN connector for serial port COM A & COM B. These port are a 16550A high speed communication port 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

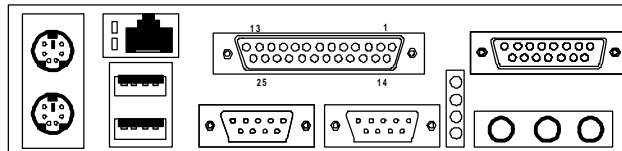
PIN	SIGNAL
1	<b>DCD</b> (Data Carry Detect)
2	<b>SIN</b> (Serial In or Receive Data)
3	<b>SOUT</b> (Serial Out or Transmit Data)
4	<b>DTR</b> (Data Terminal Ready)
5	<b>GND</b>
6	<b>DSR</b> (Data Set Ready)
7	<b>RTS</b> (Request To Send)
8	<b>CTS</b> (Clear To Send)
9	<b>RI</b> (Ring Indicate)

## 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



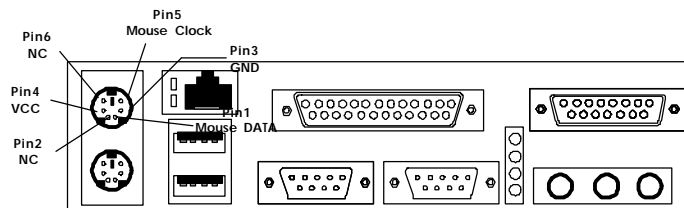
#### PIN DEFINITION

PIN	SIGNAL	PIN	SIGNAL
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: JKBMS1

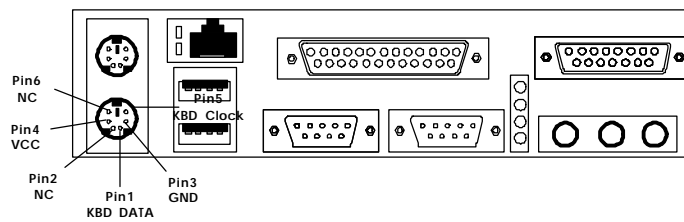
The mainboard provides a standard PS/2<sup>®</sup> mouse mini DIN connector for attaching a PS/2<sup>®</sup> mouse. You can plug a PS/2<sup>®</sup> mouse directly into this connector. The connector location and pin definition are shown below:



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

### 2.12 Keyboard Connector: JKBMS1

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.

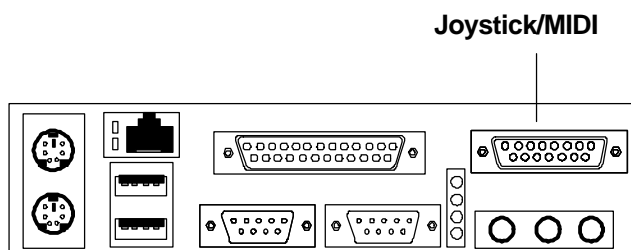


**PS/2 Keyboard (6-pin Female)**



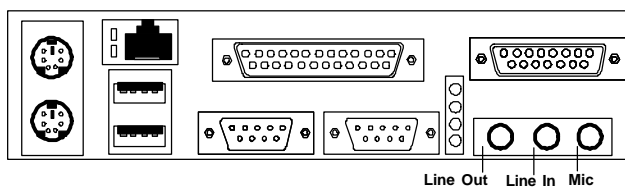
### 2.13 Joystick/Midi Connectors

You can connect joystick or game pad to this connector.



### 2.14 Audio Port Connectors

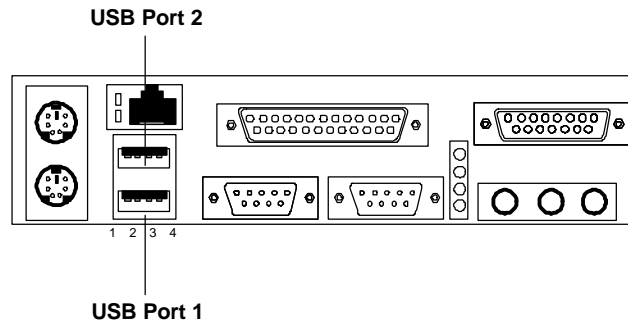
**Line Out** is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape layer, or other audio devices. **Mic** is a connector for the microphones.



### 1/8" Stereo Audio Connectors

## 2.15 USB Connectors

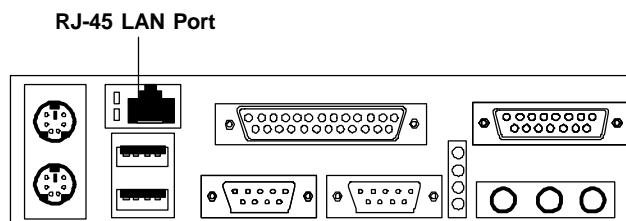
The mainboard provides a **UHCI(Universal Host Controller Interface) Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.



PIN	SIGNAL
1	VCC
2	-Data0
3	GND
4	+Data0

2.16 LAN Connector (reserved)

The mainboard provides a **RJ-45** LAN connector for your Network need.

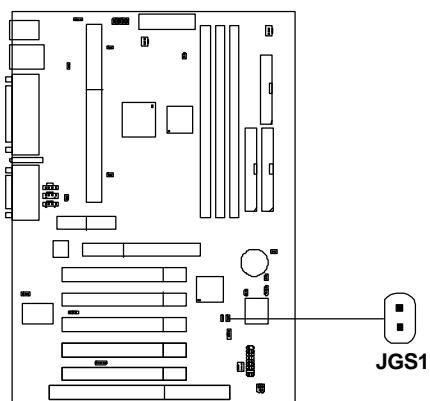


PIN	SIGNAL	DESCRIPTION
9	RDN	Receive Differential Pair
10	RDP	Receive Differential Pair
11	GND	Ground
12	GND	Ground
13	GND	Ground
14	GND	Ground
15	TDN	Transmit Differential Pair
16	TDP	Transmit Differential Pair



### 2.17 Power Saving Switch Connector: JGS1

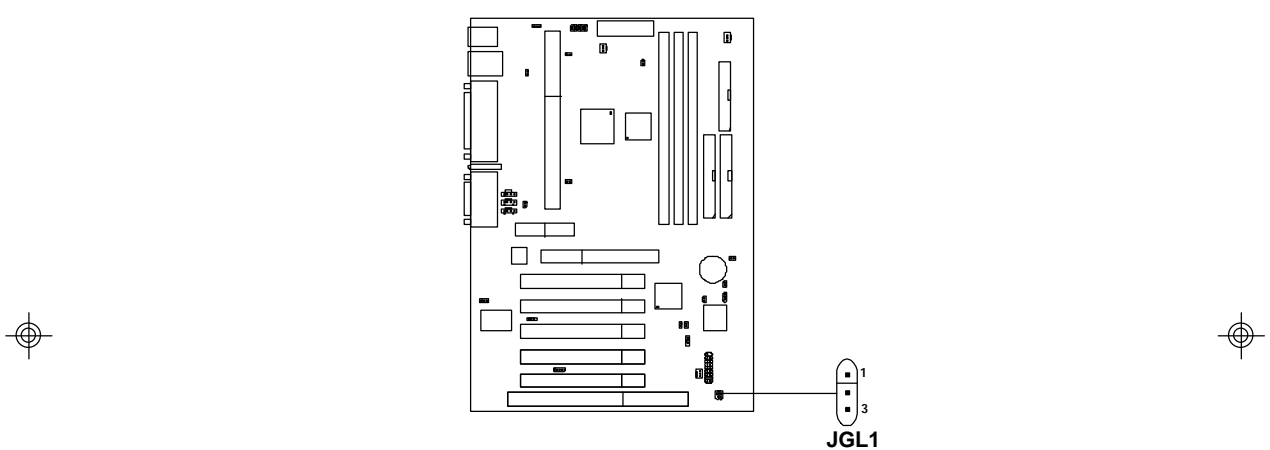
Attach a power saving switch to **JGS1**. When the switch is pressed, the system immediately goes into suspend mode. Press any key and the system wakes up.





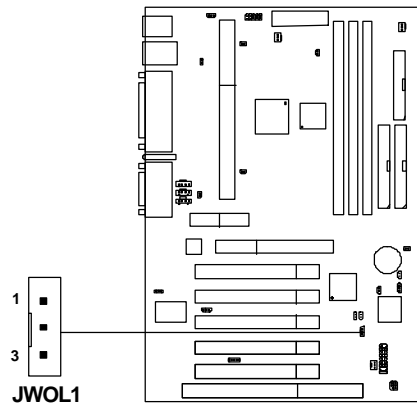
### 2.18 Power Saving LED Connector: JGL1

JGL1 can be connected with a LED. 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.



## 2.19 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.



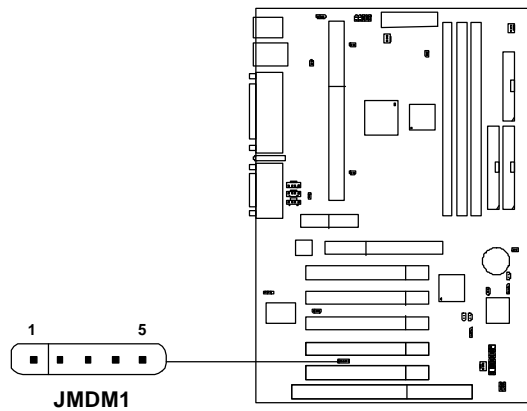
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

**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)

## 2.20 Modem Wake Up Connector: JMDM1

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



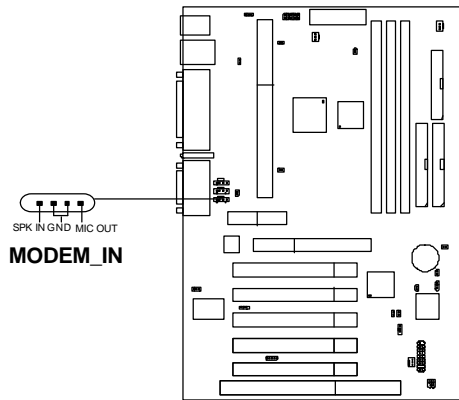
PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

**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)

### 2.21 Modem-In: MODEM\_IN

The connector is for Modem with internal voice connector.

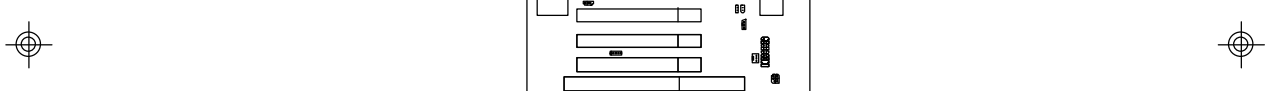
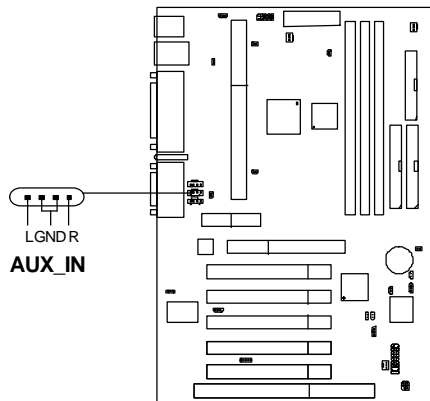


SPK\_IN is connected to the Modem Speaker Out connector.  
MIC\_OUT is connected to the Modem Microphone In connector.



## 2.22 AUX Line In Connector: AUX\_IN

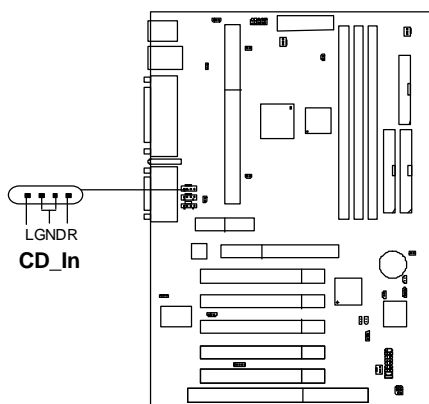
This connector is used for DVD Add on Card with Line In connector.





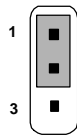
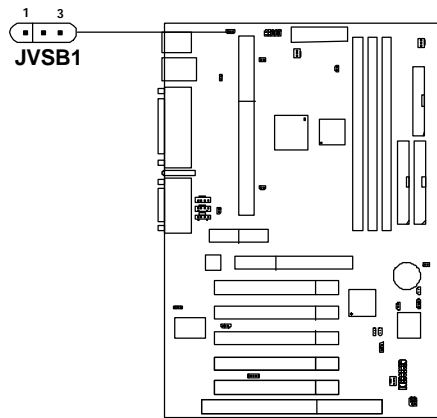
### 2.23 CD-In Connector: CD\_IN

This connector is for CD-ROM audio connector.

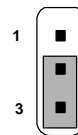


## 2.24 Keyboard Power: JUSB1

The JUSB1 jumper is for setting keyboard power. This function should be set in the BIOS for the keyboard Wake-up function.



5V Standby  
Enable keyboard  
power on function

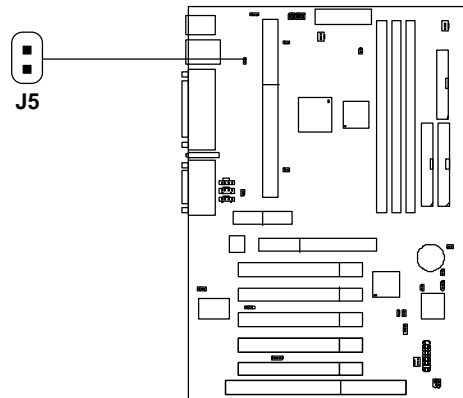


5V (default)  
Disable keyboard  
power on function

**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)

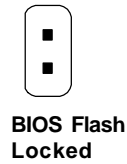
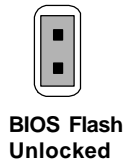
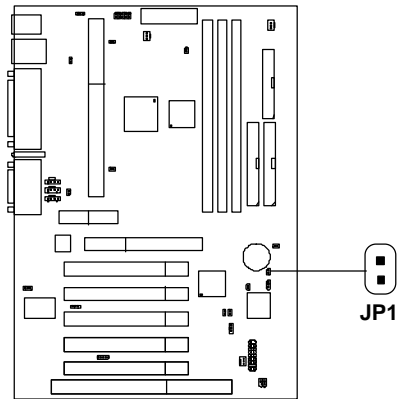
## 2.25 Chassis Intrusion Switch Case: J5

This connector is connected to a 2-pin connector chassis switch. If the Chassis is open, the switch will be open. The system will record this status. To clear the warning, you must enter the BIOS setting and clear the status.



### 2.26 FWH Boot Block Protect: JP1 (reserved)

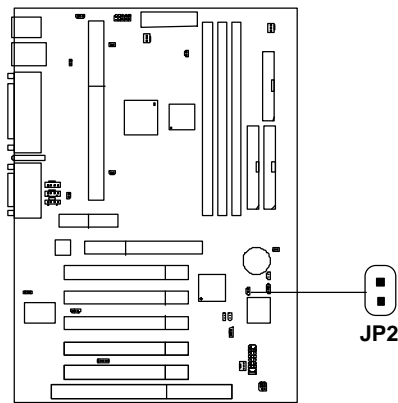
This jumper is used to lock/unlock FWH BIOS Flash. This Jumper should be unlock when flashing/programming the BIOS.



Note: If this jumper does not exist, this motherboard will have self building BIOS function.

### 2.27 System Error Reset Jumper: JP2

This jumper is used to Enabled/Disabled the reboot system.



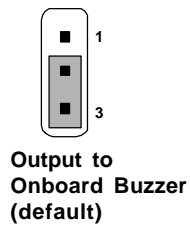
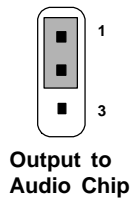
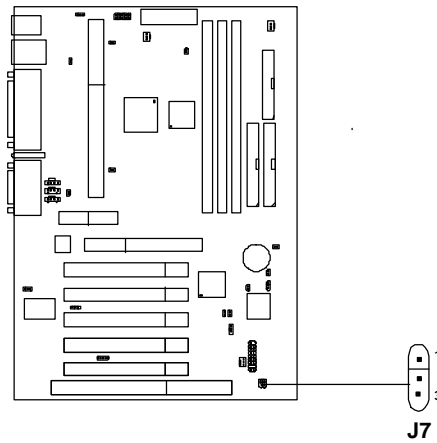
**No Reboot  
(default)**



**Reboot  
(7 sec  
automatic  
restart)**

### 2.28 Speaker Output Select Jumper: J7

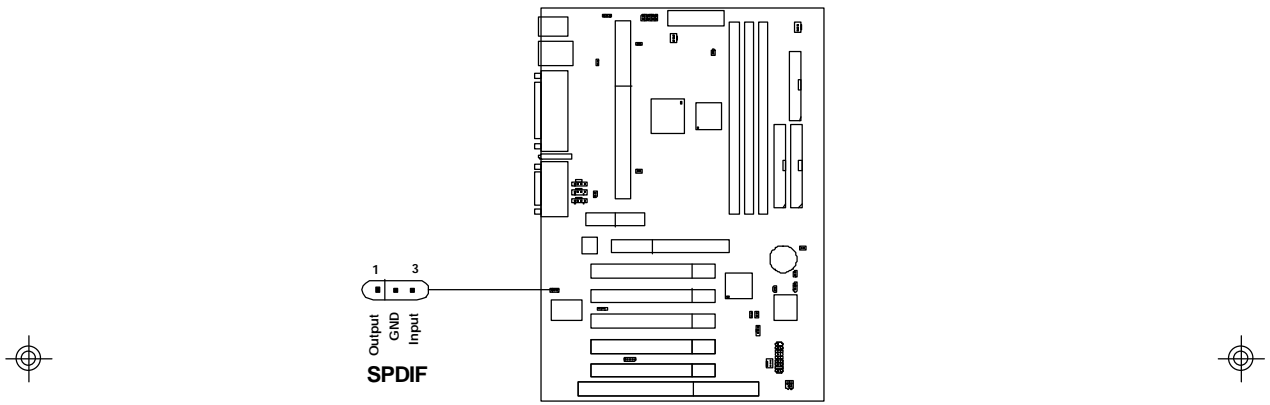
This jumper will enable the case speaker/buzzer to be transferred to the Audio speaker.





## 2.29 SPDIF Connector: SPDIF

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

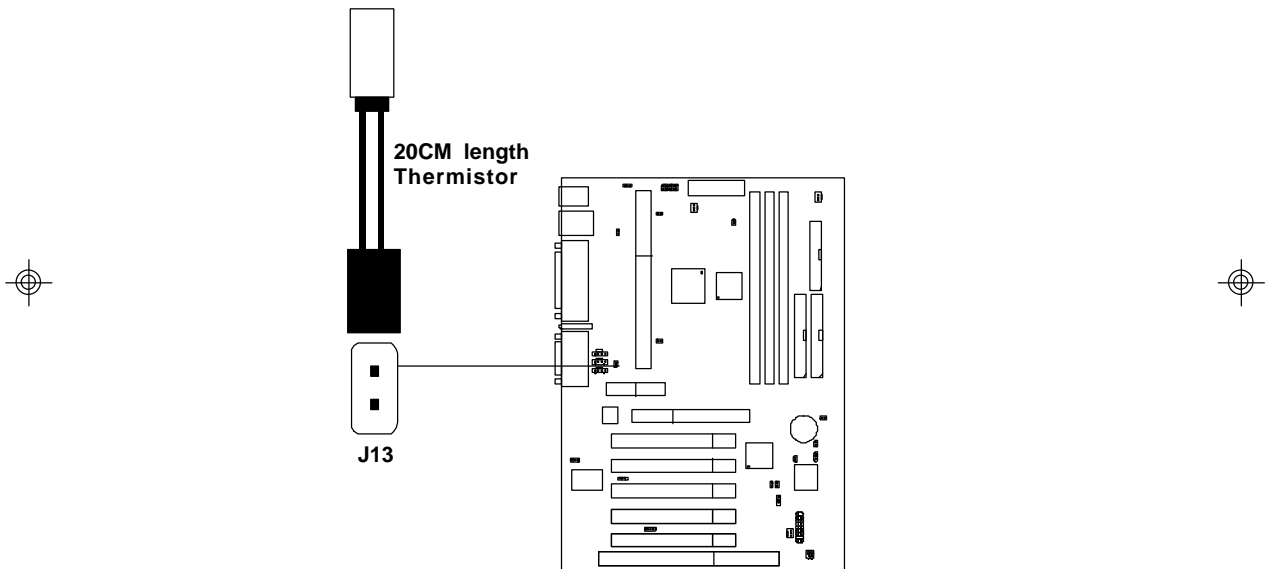


**Note:** This jumper only exist with Hardware Audio onboard.



### 2.30 TOP TECH III: J13

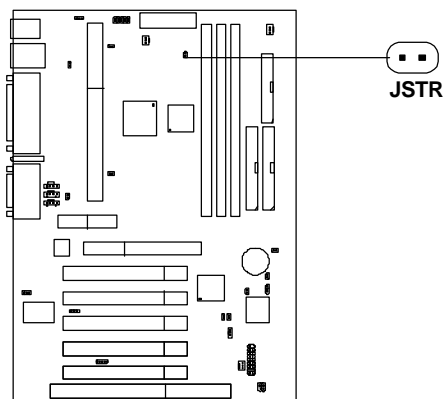
This is used to check the AGP card or BX chipset temperature. The J13 is a 2-pin connector which can be inserted with a 20cm length thermistor. It is located near the chipset heatsink that monitors the chipset temperature. The BIOS setup for "TOP TECH. III" should be set to enabled.







### 2.31 Suspend To RAM: JSTR

This jumper is used to enabled support for STR(suspend to RAM). The power supply should be more than 750mA or up to be able to enabled the STR support.



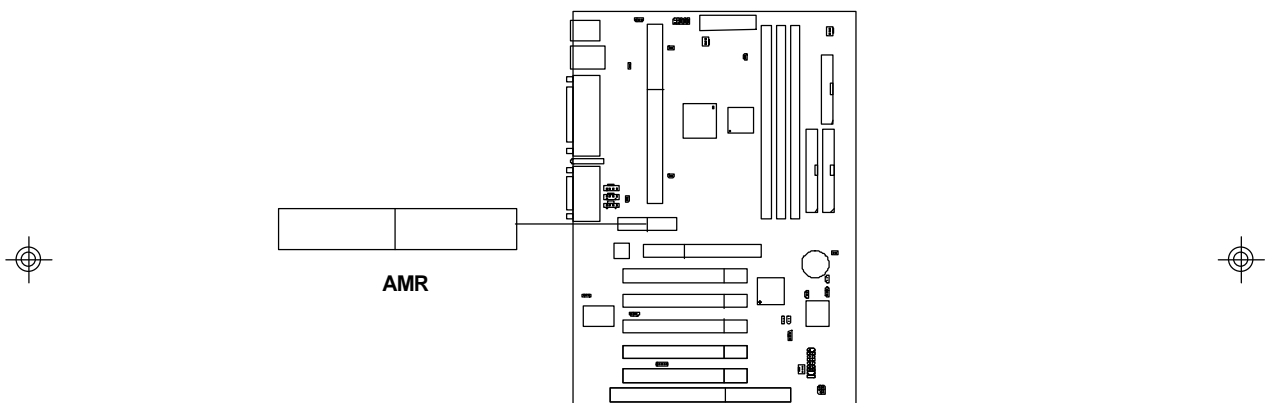
JSTR	Function
 Short	Disabled STR
 Open	Enabled STR

**Note:** VGA card onboard must support ACPI mode, for this function to wrok.



### 2.30 AMR

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.



## 1.1 Mainboard Features

### CPU

- Support Intel®Pentium®II/III & Coppermine 100/133MHz FSB processor.
- Support 350/400/450/500/533/600MHz or higher processor

### Chipset

- Intel®820 Camino chipset. (324 BGA)
  - Optimized for Pentium III processor
  - AGP 4x/2x universal slot
  - Support 100/133MHz FSB
- Intel®ICH chipset. (241 BGA)
  - AC' 97 Controller Integrated
  - 2 full IDE channels, up to ATA66
  - Low pin count interface for SIO
- Intel®MTH chipset. (241 BGA)

### Front Side Bus (FSB)

- 100/133MHz clocks are supported.

### Main Memory

- Supports three 168-pin DIMM sockets.
- Supports a maximum SDRAM memory size of 512MB or 1GB (32Mx4) registered DIMM only.
- Support only SDRAM without ECC Function.

### Slots

- One AMR (Audio Modem Riser)
- One AGP (Accelerated Graphics Port) slot.
  - AGP specification compliant
  - AGP 66/133/266MHz device support
- Five 32-bit Master PCI Bus slots and one 16-bit ISA slot(optional).
- Supports 3.3v/5v PCI bus Interface.
- Onboard Hardware Audio LAN is present PCI1 and PCI5 share.

**On-Board IDE**

- An IDE controller on the ICH chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA/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 port (COMA + 1 COMB)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 2 USB ports
  - 1 IrDA connector for SIR.
  - 1 LAN port

**Audio**

- ICH chip integrated
- Creative CT5880. (Optional)
  - 64 Voice WaveTable Synthesizer
  - Sound Library of over 4000 different sounds
  - Support SPDIF (AC3)
  - Support Microsoft Direct Sound, Direct Sound 3D, Direct Music, and A3DAPL.

**Network (Reserved)**

- Intel 82559 10/100M Ethernet (optional)
  - WFW baseline & NET PC specs compliant
  - Advanced Power Management (ACPI support)
  - ARP & Flexible frame filtering
  - Software drivers are backwards compatible
  - IP checksumming in hardware
  - Alert on LAN II(optional)

**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.
- CPU Voltage setting through BIOS
- FWH Flash BIOS Protect

**Dimension**

- ATX Form Factor: 30.5cm x 21cm

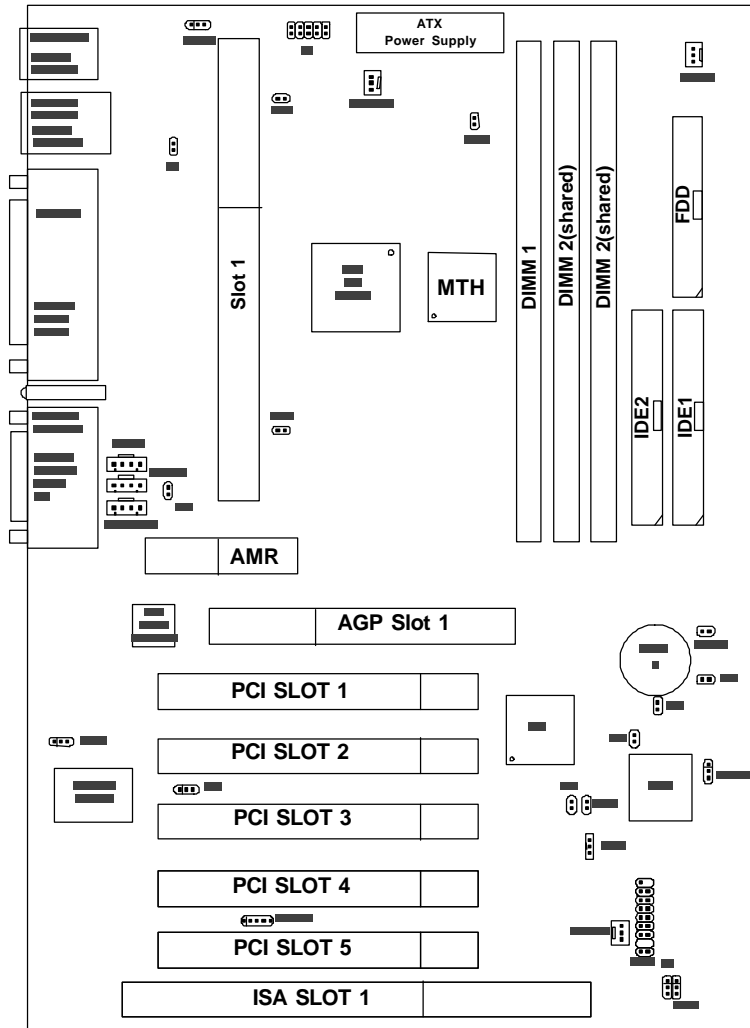
**Mounting**

- 6 mounting holes.

**Other features**

- CPU core/bus ratio & FSB frequencies setting through BIOS.
- CPU Voltage setting through BIOS
- FWH Flash BIOS Protect
- Diagnostic LED system status display
- Reset button protect
- Keyboard/Mouse Power on function
- Support suspend to RAM (STR)

### 1.2 Mainboard Layout



**MS-6301 ATX CA8 Mainboard**